

**TERMS OF REFERENCE FOR THE PREPARATION OF AN
ENVIRONMENTAL IMPACT STATEMENT**

BAYVIEW – THE BOULEVARDE

DOVER INVESTMENTS Pty Ltd

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1 Introduction

1.1 Background

Dover Investments Pty Ltd (the Proponent) is proposing to develop *Bayview – The Boulevard* (the Project), as an extension to the existing Bayview Haven Canal Estate, located five kilometres from the Darwin Central Business District. The Project is bounded by Tiger Brennan Drive to the north, Sadgroves Creek to the east (directly opposite Charles Darwin National Park) and south, and to the existing Bayview Haven Canal Estate and Frances Bay to the west.

The Project would be aligned around a single north-south aligned, central boulevard approximately 1 km long, consisting of:

- western side of the boulevard with multiple dwelling townhouse developments, two storeys high, ranging in size from two to five units per site
- eastern side of the boulevard with medium density apartments ranging from two to four storeys high in the centre, and high-density apartments ranging from six to eight storeys high positioned at the northern and southern ends.

The Project is proposed to:

- establish up to 1100 dwellings housing a population of approximately 2500 residents
- extend the existing Bayview area perimeter walkways and sea wall around the new development area
- conserve O’Ferrals Rock as a cultural and heritage park and link with open space corridors around the eastern and southern boundaries of the development
- link to Tiger Brennan Drive via a new access road
- potentially include jetties, a restaurant, and a mangrove experience boardwalk in the southern mangrove area
- use principles of energy efficiency in the design, including the use of street layout and associated lot orientation that supports passive climate control.

The proposed development footprint of approximately 25 hectares (ha), consisting of 20 ha of mangrove forest, zoned for future development; and 5 ha from undeveloped areas of the Bayview Haven Canal Estate, including 0.7 ha of coastal monsoon vine forest within the site of O’Ferrals Rock.

1.2 Project history

On 13 September 2013, the Proponent referred the Project (then referred to as The Groves – Bayview) to the Northern Territory Environment Protection Authority (NT EPA) for consideration under the NT *Environmental Assessment Act* (EA Act). The Proponent presented the Project as two separate Notices of Intent (NOI) – for the Residential Development and for the Access Roads (to the Residential Development). The NT EPA considered that the two NOIs represented division of a single proposal that was more appropriately assessed as a consolidated Project.

On 15 November 2013 the NT EPA decided that the Project, combining the two NOIs, required assessment at the level of an Environmental Impact Statement (EIS). Issues contributing to the decision included:

- The Project is located within the NT Department of Health guideline 1.6 km buffer distance from areas of extensive tidal mangroves, as areas of intensive natural breeding of pest biting midges. Development within the recommended buffer zone risks exposure of future residents to regular nuisance from biting midges.

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- Mangrove vegetation and monsoon vine forest are classed as sensitive and significant vegetation types, due to their high biodiversity values and conservation significance¹. Destruction of significant areas of mangrove habitat presents potential risks to ecosystem health and productivity.
- The Project's location adjacent to Charles Darwin National Park and Sadgroves Creek increases the importance of the development containing its environmental impacts during construction and occupation, protecting the integrity of adjacent mangrove areas and not reducing environmental values of the National Park, such as through contaminated run-off, sedimentation, litter, noise, loss of creek water quality, weed incursion into natural areas and other edge-effects.
- The proposed footprint presents a high risk of disturbance of Potential Acid Sulfate Soils, and associated ecological impacts if the disturbance is not appropriately managed.
- Construction of the Project and post-construction human activities have the potential to damage or degrade areas or items which have historic and/or cultural heritage values.
- Potential exists for threats to safety, use-conflicts, inefficiencies and congestion to occur in relation to construction traffic, vehicular and pedestrian ingress and egress, access by emergency services and public transport, and at points where local roads connect with existing networks.
- Workforce during construction of the Project, and increased numbers of residents in the Project area, have the potential to change local social demographics, culture and economies.

On 20 April 2015 the Proponent referred the Project to the Australian Government - Department of the Environment (DotE) for consideration under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). On 29 May 2015, DotE decided that the proposed action was a controlled action and, as such, required assessment and an approval decision under the EPBC Act. The controlling provisions included the likely significant impact on listed threatened species and communities, and listed migratory species. The Project is being assessed under the assessment bilateral agreement between the Australian and Northern Territory Governments. Matters that must be addressed under the EPBC Regulations 2000 are shown in Appendix A.

An amended NOI was referred to the NT EPA on 29 May 2015. The updated NOI reflects the EPBC Act referral and includes the following changes to the Project:

- removal of the construction of the Tiger Brennan Drive intersection and access road from the NOI as these aspects are to be undertaken by the Department of Transport
- increase of the development footprint from approximately 19 ha to approximately 25 ha (including construction buffer)
- increase in the mangrove forest to be cleared from 13.8 ha to approximately 20 ha
- addition of alternative construction methodology
- increase in the development/construction stages from six to seven.

On 15 June 2015 the NT EPA decided that the environmental significance of the Project had not changed and the previous EIS decision was still applicable.

¹ DNRETAS (2010). *Land Clearing Guidelines*.
http://www.lrm.nt.gov.au/_data/assets/pdf_file/0018/5526/NT-Land-Clearing-Guidelines-2010_040310_Updated-April-2013.pdf

2 Regulatory context

The EIS should provide information on requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply to the Project, including but not limited to:

- description of any approvals required by State, Territory or Commonwealth agencies or authorities, including any conditions that apply to the Project
- summary of current agreements between the Proponent and the NT Government, and/or the Australian Government, and/or other stakeholders, including Traditional Owners and/or land managers
- description of the regulatory monitoring, enforcement and review procedures that apply, or are proposed to apply, to the Project.

The Proponent should include details of the approvals, certificates, permits, etc. identified, including any conditions imposed. Consideration should be given, but not limited to, the following legislation:

- *Environment Protection and Biodiversity Conservation Act 1999*
- *Planning Act*
- *Heritage Act*
- *Northern Territory Aboriginal Sacred Sites Act*
- *Public and Environmental Health Act* and Regulations
- *Territory Parks and Wildlife Conservation Act*
- *Waste Management and Pollution Control Act*
- *Water Act*
- *Fisheries Act*

3 Description of the proposed development

3.1 General information

The EIS should provide a brief background and context to the Project, including:

- the title of the Project
- the full name, contact details and postal address of the Proponent
- an explanation of the objectives, benefits and justification for the Project
- the Project's location in the region and its proximity to landmark features, sites of cultural/social significance, regional community centres, and sensitive environments such as major waterways, significant groundwater resources, significant natural features, conservation reserves and any areas on the National Reserve System
- history of the development of the Bayview Haven Canal Estate, and the current Bayview – The Boulevard Project, to date
- summary description of the previous environmental impact assessment of the Bayview Haven development, including findings of the Assessment Report, commitments made by the Proponent and Project and environmental outcomes
- details of the Proponent's environmental record, including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Proponent

- identification of areas proposed for future expansion, or any other potential future activities being planned
- National and Northern Territory standards, codes of practice and guidelines which may be relevant to the Project.

3.2 Description of the proposal

Describe the proposed residential development as a whole, including:

- key components and associated infrastructure
- general objectives and design concepts adopted
- residential accommodation capacity
- generic description and layout of proposed residential dwelling types
- how climate change and extreme weather events are addressed in Project designs
- how the proposed development adheres to relevant NT planning strategies, policies and plans
- justification for the Project, in terms of the need for the proposed type and number of dwellings.

Describe and discuss how principles of ecologically sustainable development are incorporated into the Project design management, such as:

- climatically appropriate design
- water and energy efficiency
- resource-use reduction, waste reuse, recycling
- use of biodegradable or recyclable materials for products that will end up in waste streams
- use of natural building materials.

Describe required upgrades and new ancillary infrastructure to service the Project, including supply of electricity, water, sewerage, stormwater, road access, parking (visitor and resident) and public transport.

Delineate the Project footprint using detailed maps and diagrams. Include:

- location and layout of the proposed finalised development
- all areas to be cleared, disturbed, or temporarily utilised (such as laydown areas) during construction of the Project
- map of current and proposed planning zones within the Project footprint.

Spatial data should additionally be provided to the NT EPA as importable GIS shape files (compatible with ArcMap) with relevant features and areas marked as polygons, lines and points, and any relevant geospatially referenced underlays also included.

Provide a schedule of works for the Project, including any ancillary and/or future works.

3.3 Construction phase

Describe methods of all options of construction that are under consideration, including:

- plant and machinery required
- construction materials required – major types, quantities, qualities, sources

- limitations of construction methods, in the context of:
 - unstable, unconsolidated marine sediments, such as the potential for ‘mud waves’ and long term subsidence
 - an acidic, anaerobic, hyper-saline environment. Discuss long-term resilience of building materials in the proposed environment
 - the intertidal zone, periodic inundation by tidal waters.

Describe management of construction traffic, including:

- operating times and scheduling
- vehicle/vessel types, numbers and frequency
- the estimated volumes, tonnage, composition, origin, destination and proposed routes of traffic generated by the proposal
- hazardous or dangerous material that may be transported
- traffic flow management, including site access and signage.

Describe water management for the construction phase of the Project, including consideration of:

- water requirements – uses, quantities, quality and sources, such as for dust suppression, construction requirements, drinking water, ablutions and sewage treatment and landscaping
- stormwater, drainage, erosion and sediment control
- water re-use.

Describe proposed rehabilitation of any temporarily disturbed areas. Including discussion of:

- soil profile reconstruction
- final landform and drainage morphology
- revegetation techniques and species.

Describe waste management for the construction phase of the Project.

3.4 Post-construction phase

For the post-construction phase of the Project, describe proposed:

- land and infrastructure tenure/ownership arrangements and responsibility for maintenance of Project components
- services to be provided by the Proponent to future residents of the Project
- provision for ongoing maintenance of communal/public facilities and transport infrastructure
- capacity for off-street parking of vehicles for individual dwelling types, and in total for the Project
- number of parking spaces within the Project area for temporary visitor vehicles
- provision of safe play areas for children, dedicated recreation facilities, communal outdoor play and eating areas, and child-safe access pathways to these from dwellings
- provision for disabled-access to facilities, buildings and services

- security provisions and infrastructure, and access to/for emergency services within the Project area.

3.5 Alternatives

The EIS should describe any feasible alternatives to the Project. The choice of the preferred option(s) should be clearly explained, including how it complies with the principles and objectives of ecologically sustainable development. Alternatives should include:

- not proceeding with the Project
- site selection, including alternative layouts and alternative locations that improve Project outcomes, such as reducing destruction of mangrove areas
- options to optimise ecological sustainability for the Project, such as alternatives to reduce/offset the Project's environmental footprint and reduce ongoing need for high rates of energy and water consumption
- consideration of alternative environmental management measures for key risks/impacts.

Discussion should include:

- adverse and beneficial effects of alternatives at national, territory, regional and local levels
- the comparison of short and long term advantages and disadvantages of the alternatives
- a comparative description of the impacts of alternatives on the matters of National Environmental Significance (NES) protected by controlling provisions of Part 3 of the EPBC Act for the action.

4 Existing environment

The EIS should outline the environmental context of the Project.

The EIS is required to describe baseline (i.e. current) environmental conditions, at least to the spatial extent of the potential direct and indirect environmental impact footprint from the Project in a worst case scenario. Detailed investigations of baseline conditions allows for better understanding of potential impacts of the Project into the future.

This section should identify and reference any relevant studies undertaken in the area that will assist in better describing the existing environment.

4.1 Climate

The EIS should describe climate and atmospheric characteristics relevant to the Project, e.g. seasonal temperatures, humidity, wind speed and direction, evaporation, rainfall and extreme events such as tropical cyclones, floods and droughts.

4.2 Topography, geology and soils

The EIS should describe and map geology, topography, soils and significant landscape features of the Project area and surrounding areas, including:

- major geological units/strata
- major soil units and characteristics (including depth and stability)
- details of any limiting properties of soil and substrate types and land units in the Project footprint including consideration of potential acid generation and unconsolidated sediments

- sites of potential storm surge, erosion, runoff, groundwater seepage, and other disturbances.

4.3 Biting insects

With regard to biting insects, the EIS should:

- describe the health impacts potentially resulting from exposure to biting midges and local mosquito species
- undertake biting insect surveys of the Project area, in conjunction with the Medical Entomology Branch (MEB) of the Department of Health
- undertake surveys of residents of Bayview Haven, and inland surrounding suburbs for comparison, to determine existing levels of impact experienced by residents, including:
 - do residents consider biting midges a problem?
 - were buyers/renters aware of the presence of biting midges before purchasing/renting?
 - what do residents do to avoid biting midges?
 - have there been any health impacts as a result of biting insects?
 - to what extent do residents avoid using outdoor spaces (i.e., backyards, parks, walking/cycling tracks) because of biting midges?

4.4 Water

The EIS should describe water resource conditions and baseline monitoring that has been undertaken, including discussion and data relating to:

- site and regional surface water catchments, waterways and regional groundwater resources
- local and regional aquifer properties
- connectivity between groundwater and surface water
- results from baseline water quality and hydrological monitoring programs, where available and relevant, including details of any infrastructure for the monitoring of water resources
- tidal zones, ranges and flushing regimes
- hydrodynamic modelling outputs for the estuarine system where available
- water quality, flows and existing water users potentially impacted by the Project
- site and, if relevant, regional hydrogeology to enable the prediction of potential impacts of the Project on water resources and their features adjacent to development, including pollution pathways
- environmental values and water quality objectives for Darwin Harbour.

Consideration should be made of areas/waters within and around all Project elements, upstream and downstream, and drainage lines to be crossed by any infrastructure utilised for the Project (e.g. service roads). Detailed characterisation should occur of waterway(s) proposed to be impacted, directly or indirectly, by the Project, including waterway functions.

4.5 Biodiversity

Describe fauna, flora and vegetation communities of the Project area and local region. Surveys should be in accordance with the Northern Territory² and Australian Government^{3 4} *guidelines*. Describe survey/program timing, locations and methodology, to demonstrate appropriate and statistically sufficient survey designs.

Where indicated, describe and map:

- any areas that have previously been subject to clearing activities or disturbance
- any significant or sensitive vegetation types
- habitat within and adjacent to the Project area suitable for species of conservation significance potentially present, including consideration of habitat suitable for breeding, foraging, aggregation or roosting
- the regional context for habitat types found within the project area
- the presence or likely presence (on the Project area or adjacent areas that may be impacted) of species listed under the *Territory Parks and Wildlife Conservation Act* (TPWC Act) and the EPBC Act, and other species of conservation significance
- any riparian or aquatic ecosystems or groundwater dependent ecosystems
- the presence, or likely occurrence, of introduced and invasive species (both flora and fauna) within and adjacent to the Project area, and regionally, including weed species declared under the NT *Weeds Management Act*.

4.6 Historic and cultural heritage

The EIS should outline the cultural and heritage significance of any sites or objects located on the Project areas or that could be impacted by Project components. The EIS should include the results of searches on the NT Government database and identify any sites or places protected or nominated for protection under the following legislation:

- *Aboriginal and Torres Strait Island Heritage Protection Act 1984*
- *Aboriginal Land Rights (Northern Territory) Act 1976*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Native Title Act 1993*
- *Northern Territory Aboriginal Sacred Sites Act*
- *Northern Territory Heritage Act*.

Baseline information should be provided regarding historic or cultural heritage in the region, including:

- a description and location of Indigenous and non-Indigenous sites, places or objects of historic or cultural heritage significance (e.g. traditional land-use)
- survey(s) used to identify sites, places or objects of historic or cultural heritage significance (e.g. archaeology)

² NT EPA (2013a) *Guidelines for Assessment of Impacts on Terrestrial Biodiversity* http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0003/349941/guideline_assessment_terrestrial_biodiversity.pdf.

³ DotE (2011) *Survey Guidelines for Nationally Threatened Species* <http://www.environment.gov.au/epbc/policy-statements>.

⁴ DotE (2009) *Draft Background Paper to EPBC Act Policy Statement 3.21 – Significant Impact Guidelines for 36 Migratory Shorebird Species* <http://www.environment.gov.au/resource/draft-significant-impact-guidelines-36-migratory-shorebird-species-migratory-species-epbc>.

- areas nominated for listing or listed on Commonwealth and Northern Territory registers of Indigenous cultural heritage
- provision of evidence of an Aboriginal Areas Protection Authority (AAPA) Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act*.

The EIS should provide a summary outlining the survey effort and level of confidence that all items of heritage or cultural significance at risk have been identified. The EIS should provide information on the current status of any approvals, permits or clearances in relation to the protection of heritage items or places.

The EIS should outline, if relevant, consultations with Indigenous stakeholders and Traditional Owners for all areas potentially affected by the Project. Determination and details should be provided of any current Traditional Owner utilisation of Project areas, and spiritual/cultural significance of potentially affected areas.

4.7 Socio-economic

Existing social aspects to be discussed must include:

- key stakeholders
- community structures and vitality (e.g. demography, health, education and social well-being; access to services, amenities, housing, schools)
- the number and capacity of existing human services to support the construction work force, including:
 - availability of required skills from the local workforce
 - workforce characteristics.
- social amenity.

Economic aspects to be covered include:

- the proposed Project contribution to the Northern Territory economy
- opportunities available based on the activity generated by the Project (construction and occupancy)
- estimated capital expenditure for the whole Project
- estimated workforce and contractor numbers and availability by occupational classification
- overall employment training proposed during commencement, construction and occupancy
- planned Indigenous employment, training and other Project participation
- availability of goods and services
- community and economic value of new ancillary infrastructure with wider public benefit, such as roads, bike paths, jetties, and public recreation areas
- other contributions to local communities, including traditional owners.

5 Risk assessment

5.1 Risk assessment approach

The EIS should be undertaken with specific emphasis on the identification, analysis and mitigation of potential impacts through a whole-of-project risk assessment. Through this process, the EIS will:

- identify and discuss the full range of risks presented by the Project, including those of special concern to the community
- identify relevant potential direct and indirect impacts
- quantify and rank risks so that the reasons for proposed management responses are clear
- identify levels of uncertainty about estimates of risk and the effectiveness of risk controls in mitigating risk
- explicitly identify those members of the community expected to accept residual risks and their consequences, providing better understanding of equity issues
- demonstrate that the project represents best practicable technology.

Statements about levels of uncertainty should accompany all aspects of the risk assessment. Steps taken to reduce uncertainty or precautions taken to compensate for uncertainty should be identified and their effect/s demonstrated.

Information provided should permit the reader to understand the likelihood of the risk, its potential severity, and any uncertainty about the effectiveness of controls. Levels of uncertainty that preclude robust quantification of risk should be clearly acknowledged.

Risk rankings assigned should be fully justified. Where a risk score associated with the likelihood or consequence of an impact is reduced as a result of proposed mitigation measures, clear justification should be provided for the reduction in score. The adequacy and feasibility of mitigation measures must be demonstrable.

Sufficient quantitative analysis should be provided to indicate whether risks are likely to be acceptable or tolerable. A comparison can be made with similar developments in Australia and internationally. Assumptions used in the analyses should be explained. Relevant standards, codes and best practice methodologies that minimise risks should be discussed.

The risk assessment should be based on international best practice. Processes for risk management are formalised in Standards Australia / Standards New Zealand (e.g. AS/NZS ISO 31000:2009; HB 436:2004; HB 158:2010; HB 203:2012).

A number of key Project risks have been identified through a preliminary assessment of the Project. Each of the identified risks described in this Chapter (5) should be addressed by the Proponent in the risk assessment and management process.

Additionally, it is expected that further risks will be identified through the comprehensive risk assessment process required for the EIS. These should also be addressed and appropriate management initiatives developed.

Environmental objectives, or overarching goals identifying environmental values to be protected, have been identified for each key risk.

The NT EPA has prepared a series of Environmental Assessment Guidelines to assist in the preparation of EIS documents. Environmental Assessment Guidelines are developed and updated periodically, and, where relevant, should be referenced and referred to when addressing the information requirements in an appropriate section of the EIS.

The EIS should include an Environmental Management Plan (EMP) for construction and occupancy of the Project that details relevant mitigation and management measures. The EMP should be prepared in accordance with the NT EPA's Guideline for the preparation of an Environmental Management Plan⁵.

5.2 Proximity to biting insects

Environmental objective

Avoid and/or mitigate impacts upon future residents of the Project from exposure to high numbers of biting insects.

Assessment of risk

Assess the risks to the health of construction workers and future residents, and the amenity of the completed development, from biting insects as a result of the Project.

The risk assessment must take into account the following:

- biting insect survey findings for the Project
- application of the NT Department of Health guideline⁶ 1.6 km buffer distance from areas of extensive tidal mangroves with respect to the Project
- the efficacy of management actions implemented to address biting insect risks as a result of the Bayview Haven environmental assessment process in 1991.

Mitigation

Describe and discuss proposed management actions to address risks associated with construction workers' and future residents' exposure to biting insects.

Proposed management measures should be included as part of an EMP for the Project, which should:

- include measures to control midge/mosquito breeding in temporary areas such as wheel ruts, shallow depressions, ponding in temporary drains and silt traps, and any residual ponding that may occur in bunded tidal areas
- indicate the design of permanent stormwater drains and their end points
- include measures to reduce biting midge problems. For example:
 - minimisation of biting midge breeding sites within the development
 - provision of biting midge barrier treatment zones
 - building design measures (e.g., window screen types, screening outdoor living areas, etc) to reduce the impact of midges on residents
 - other measures to reduce the impact of midges on residents.

Monitoring

Present a monitoring program for biting insects at the Project site, in consultation with the Department of Health Medical Entomology Branch, to:

⁵ NT EPA (2015) *Guideline for the preparation of an Environmental Management Plan*
http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0010/357562/guideline_prep_emp.pdf

⁶ DoH (2011) *Guidelines for Preventing Mosquito Breeding Associated with Construction Practice near Tidal Areas in the NT*
http://www.health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/32/37.pdf&siteID=1&str_title=Construction%20practice%20near%20tidal%20areas%20-%20guidelines%20to%20prevent%20mosquito%20breeding.pdf

- determine the effectiveness of the mitigation measures
- determine the impacts of biting insects on public health
- support adaptive management of risks identified above
- detect changes as a result of the Project.

5.3 Biodiversity

Environmental objectives

Maintain the conservation status, diversity, geographic distribution and productivity of flora and fauna at species and ecosystem levels through the avoidance or management of adverse impacts (on the Project area and on adjacent areas that may be impacted).

Avoid/minimise the loss of areas of mangroves or monsoon vine forest, habitats of conservation significance and habitats with high biodiversity values (on the Project area and on adjacent areas that may be impacted).

Prevent the spread of weeds onto the Project area, off the Project area and within the Project area.

Assessment of risk

When assessing the risk of impact to biodiversity, the EIS should refer to relevant research and statutory plans such as: action plans, approved conservation advice, recovery plans and threat abatement plans. Current searches of the NT flora and fauna atlases⁷ should be undertaken to determine likely species in and around the project area. The EIS should include the following:

- A detailed assessment of the presence and potential impacts (both direct and indirect) upon native fauna including consideration, where relevant, of vegetation clearance, habitat fragmentation, altered hydrology, water quality impacts, acid sulphate soils, erosion and sedimentation impacting on waterways, soil compaction, inappropriate/ineffective rehabilitation, groundwater contamination, impacts on surface and groundwater systems, waste material, risks associated with transport and traffic during construction and occupancy, weed and pest invasion, human disturbance, predation by domestic pets, dust and noise impacts. Species assessed should include, but not be limited to:
 - Eastern curlew (*Numenius madagascariensis*)
 - Curlew sandpiper (*Calidris ferruginea*)
 - Common Sandpiper (*Actitis hypoleucos*)
 - Grey-tailed Tattler (*Tringa brevipes*)
 - Whimbrel (*Numenius phaeopus*)
 - Terek Sandpiper (*Xenus cinereus*)
 - Lesser Sandpiper (*Charadrius mongolus*)
 - Water mouse (*Xeromys myoides*)
 - Black-footed tree-rat (*Mesembriomys gouldii*)
 - Floodplain monitor (*Varanus panoptes*)
 - Greater sand plover (*Charadrius leschenaultii*)
 - Bar-tailed godwit (*Limosa lapponica*)
 - Green turtle (*Chelonia mydas*)

⁷ DLRM (2015) <http://www.lrm.nt.gov.au/plants-and-animals/information-and-publications>

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- Leatherback turtle (*Dermochelys coriacea*)
- Hawksbill turtle (*Eretmochelys imbricata*)
- Olive Ridley turtle (*Lepidochelys olivacea*)
- Flatback turtle (*Natator depressus*)
- Dwarf sawfish (*Pristis clavata*)
- Green sawfish (*Pristis zijsron*)
- Indo-Pacific Humpback dolphin (*Sousa sahalensis*)
- Australian Snubfin dolphin (*Orcaella heinsohni*)
- Bottlenose dolphin (*Tursiops aduncus*)
- discuss the potential for clearing of vegetation to:
 - reduce health and productivity of Darwin Harbour
 - conflict with the ecological or public-held values of Darwin Harbour and Charles Darwin National Park
 - cause sedimentation of the lower reaches of Sadgroves Creek
 - reduce the geographic distribution or biodiversity of mangroves regionally
 - lead to litter accumulation in adjacent mangroves, including Charles Darwin National Park
 - impact on water-based values or recreational activities in Sadgroves Creek or Darwin Harbour
 - remove mangrove-barrier protection of terrestrial areas to storm surge, wave action and erosive forces.
- Identify and discuss the potential for the Project to introduce or increase the spread of weed species declared under the *Weeds Management Act* onto or throughout the site. Information on the records of weeds should be sourced from the Weeds Branch of the Department of Land Resource Management.
- Identify and assess risks to local aquatic and intertidal ecosystems from Project activities.

Mitigation

The EIS should contain a management plan with clear and concise methods to mitigate relevant impacts of the action to biodiversity. All safeguards and mitigation measures should be consistent with best practice advice from relevant experts, Northern Territory and Australian Government advisory agencies and focus on:

- potentially significant impacts to biodiversity as a whole
- rare or threatened species, sensitive vegetation and habitats of conservation significance at risk of being adversely impacted
- weeds management
- any statutory or policy basis for the mitigation measures.

Monitoring

The management plan should include details of a monitoring program for identified threatened species present in the local area, to monitor the effectiveness of the mitigation measures proposed for all stages of the development. The monitoring program should identify the methodology for monitoring the impacts to biodiversity and identify clear thresholds and

contingency measures that will be implemented in the event that the mitigation measures appear ineffective.

For monitoring the impacts of the Project on vegetation communities, monitoring should, as a minimum, enable detection of changes in local:

- mangrove health and biodiversity
- ecological edge effects, particularly in Charles Darwin National Park.

5.4 Risks to water

Environmental objective

Ensure that water quality in Sadgroves Creek and Darwin Harbour is protected both now and in the future from Project impacts, such that aquatic ecological health and environmental values of these water bodies, and the health, welfare and amenity of people are maintained.

Changes to the hydrodynamics of Sadgroves Creek as a result of the Project do not significantly alter coastal processes in adjacent areas of the harbour, particularly Charles Darwin National Park foreshore.

Assessment of risk

- Assess risks presented by the Project to water quality in Sadgroves Creek and Frances Bay, including risks resulting from:
 - increased erosion of sediment as a result of Project activities
 - increased and/or degraded stormwater runoff
 - exposed acid sulphate soils during construction
 - altered hydrology of the area
 - vegetation clearing.
- Identify and assess risks to other sensitive receptors and to ecological, public/social and economic values identified in Section 4 from changes in water quality potentially caused by Project activities.
- Assess risks associated with:
 - potential spills or discharges of contaminants or hydrocarbons from the Project
 - any potential for the Project to contaminate underlying groundwater aquifers.
- Identify and assess potential effects of Project activities, including the construction of the seawall, on local currents, wave reflection and seabed erosion/sedimentation.

Mitigation

For identified risks, describe proposed management measures to avoid, mitigate, and/or offset those risks. Include adaptive management measures and trigger thresholds as appropriate.

Monitoring

Present a monitoring program to determine the effectiveness of the mitigation measures, and support adaptive management of risks identified above, include:

- consideration of construction and occupancy phases of the Project
- thresholds and contingency measures should Project activities impact above expected levels in Sadgroves Creek and Frances Bay.

5.5 Acid sulfate soils

Environmental objective

Any proposed or potential disturbance of potential acid sulfate soils (PASS) should be appropriately accounted for prior to commencement of works, then managed and monitored to prevent acidic drainage to the environment and impacts on sensitive receptors.

Assessment of risk

Assess the risks associated with:

- exposure of potentially acid sulfate soils to oxygen during construction
- potential for further exposure of potentially acid sulfate soils to oxygen over the life of the project.

Mitigation

For identified risks, describe proposed management measures to avoid and/or mitigate those risks. Include adaptive management measures and trigger thresholds as appropriate. An Acid Sulfate Soil Management Plan (ASSMP) should be developed by a suitably qualified and experienced professional in accordance with the Queensland⁸ or Western Australia⁹ Acid Sulfate Soil Management Plan Guidelines.

Monitoring

Describe proposed monitoring to measure ongoing changes, effectiveness of described management actions, and/or to trigger adaptive management measures when necessary.

Monitoring Plans should, as a minimum be included to enable clear detection of changes in pH levels:

- in encountered groundwater and surface water runoff
- from disturbed soils (field peroxide tests and laboratory CRS or SPOCAS analysis)
- to assess the effectiveness of the treatment of any excavated acid sulfate soils (field peroxide tests and laboratory CRS or SPOCAS analysis).

5.6 Erosion and sediment control

Environmental objective

Develop erosion and sediment controls (i.e., disturbance minimisation, runoff diversion, runoff collection, sediment capture, etc.) in accordance with the *International Erosion Control Association Best Practice Erosion and Sediment Control Guidelines*¹⁰ to ensure best practice management occurs.

Ensure minimal sedimentation and turbidity increases as a result of Project activities.

⁸ QASSIT (2004) *Queensland Acid Sulfate Soil Technical Manual*
http://envirodevelopment.com.au/dbase_upl/soil_mgmt_guidelines_v3_8.pdf

⁹ WA DER (2015) WA Department of Environmental Regulation - *Treatment and Management of Soils and Water in Acid Sulfate Soil Landscapes* <http://www.der.wa.gov.au/your-environment/acid-sulfate-soils/69-ass-guidelines>

¹⁰ IECA (2008) *Best Practice Erosion and Sediment Control Guidelines*
<http://www.austieca.com.au>

Assessment of risk

Provide an assessment of the risk to Sadgroves Creek and regionally as a result of Project activities. In particular identify and assess risks associated with erosion and sedimentation

- directly from construction activities
- indirectly from exposed soils as a result of vegetation clearing.

Mitigation

The EIS should include an erosion and sediment control plan (ESCP) with proposed management measures to avoid and/or mitigate identified risks. Include adaptive management measures and trigger thresholds as appropriate. The ESCP is to be developed by a suitably qualified and experienced professional in erosion and sediment control planning in accordance with the IECA Best Practice Erosion and Sediment Control Guidelines 2008 and subsequently implemented.

Monitoring

The ESCP should include a monitoring plan that details:

- a site inspection schedule to identify failures in the adopted erosion and sediment control measures
- a water monitoring program to determine the effectiveness of adopted erosion and sediment control measures.

5.7 Traffic

Environmental objective

Limit the overall impacts of traffic from the development on people and the environment.

Assessment of risk

The EIS should include a detailed traffic assessment that includes details of the existing and predicted changes to the volume of traffic on local and regional roads potentially affected by the Project. The assessment should discuss the predicted peak periods and the capacity of existing roads to meet the predicted changes to traffic volumes in the locality with consideration of cumulative impacts from other proposed developments that the Proponent should reasonably be aware of.

Assess safety risks for the workforce and general public associated with:

- an increase in the volume of traffic during construction and occupancy phases of the Project
- an increase in the heavy vehicles moving around the site during construction
- a possible reduction in the access of emergency vehicles to the immediate vicinity during construction.

Assess risks to:

- existing road networks (i.e. Tiger Brennan Drive) both during construction and occupancy
- vehicular and pedestrian ingress and egress to Bayview and surrounds (including via Stoddart Drive) both during construction and occupancy.

Mitigation

Describe proposed safeguards, management and monitoring strategies that will be implemented to minimise potential transport impacts during stages of construction and occupancy including, but not limited to:

- traffic management
- measures to reduce car dependency, including links to public transport and cycle/pedestrian networks
- measures to reduce any road traffic noise impacts
- consultation with the local community affected by transport impacts.

The EIS should include a management plan that outlines detailed avoidance and management measures to mitigate the risks of increased road traffic to existing road users. The management plan should identify clear thresholds for accidents, near misses and delays that trigger review of the plan and be prepared consistent with the Department of Transport's Policies available at: <http://www.transport.nt.gov.au/ntroads/nt-roads-policies>.

Include adaptive management measures and thresholds as appropriate and estimate residual risk levels after application of proposed management measures.

Monitoring

The EIS should present a monitoring program to determine if construction of the Project is impacting:

- vehicular and pedestrian access to Bayview and surrounds
- travel times, in particular for vehicles travelling along Tiger Brennan Drive to and from the Darwin CBD
- emergency vehicle access and response times.

5.8 Risks to historic and cultural heritage

Environmental objective

To define and mitigate the potential impacts of the Project on places that have historic and/or cultural heritage values.

Manage the O'Ferrals Rock site, and a known Aboriginal shell midden on its southern edge, to ensure that the site's conservation values, including adjoining coastal monsoon vine forest, will be protected.

Assessment of risk

The identification of any impacts to Indigenous cultural heritage is to take place in consultation with relevant Indigenous groups, the Aboriginal Areas Protection Authority (AAPA) and the Heritage Branch of the Department of Lands, Planning and the Environment (DLPE). Provide:

- An assessment of the Project's potential direct and indirect effects on sacred sites, heritage places, and any potential impacts on Indigenous culture generally or traditional use of the area.
- Demonstrate required consultation on potential impacts to sacred sites through the application and granting of an AAPA Authority Certificate.

Mitigation

The EIS should outline the prevention and mitigation of risks to sites or items of historic and cultural heritage in a Cultural Heritage Management Plan. The plan should include, where relevant:

- procedures to avoid significant areas and sites
- protection of key sites during construction

- ongoing protection measures
- procedures for the discovery of surface or sub-surface materials during the course of the Project
- measures to enable the Proponent to meet its duty of care to protect the cultural and heritage values of any places or items of significance.

When preparing the archaeological report and the Cultural Heritage Management Plan it is strongly recommended that the Proponent give consideration to, and refer to the Australia ICOMOS Burra Charter 2013 and practice notes¹¹ to ensure that the investigations and mitigation measures proposed meet best practice standards for the management of cultural heritage in Australia.

5.9 Socio-economic risks

Reference should be made to information requirements contained within the NT EPA publication: *Guidelines for the Preparation of an Economic and Social Impact Assessment*¹².

Objectives

To analyse, monitor and manage the intended and unintended social consequences, both positive and negative, of the Project and any social change processes.

Assessment of risk

An Economic and Social Impact Assessment (ESIA) should be conducted which gives consideration to the potential benefits and costs of the Project. The ESIA should include consideration of the following:

- an estimate of the net benefits of the Project to the local economy, including expected reduction in revenue should the proposal not proceed. In particular, the value associated with expenditure during the construction phase and the annual expenditure on regional goods and services as it relates to the residential development and associated infrastructure
- any financial impacts to residents, for example from increase costs associated with living in a storm surge area
- impacts to the local community as a result of an oversupply of medium and high density housing in, or close proximity to, the Darwin CBD, including justification of the need for this type of development
- parking areas, and other facilities required to create a sense of community
- impacts to the local community during and after construction of the Project, including residents of Bayview Haven and users of the local area for commercial (ecotourism cruises) and recreational (fishing, crabbing, etc) purposes
- an analysis of the capacity of local infrastructure and services including schools, emergency services, medical services, transport facilities and services, businesses, food and grocery shops, restaurants, petrol stations; recreational areas, parking spaces and roads to cater for the expected changes to the local residential population, in terms of demographic patterns and numbers.

¹¹ Burra Charter and Guideline.

<http://australia.icomos.org/publications/charters/>

¹² NTEPA (2013b) Guidelines for the Preparation of an Economic and Social Impact Assessment.

http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0007/349936/guideline_assessment_economic_social_impact.pdf

Mitigation and monitoring

A Social Impact Management Plan (SIMP) should be prepared to address identified risks associated with the ESIA. At a minimum, the SIMP should include:

- stakeholder engagement strategies that have occurred and will continue throughout the life of the Project
- prioritisation of potential economic and social impacts predicted in the ESIA
- mitigation and management strategies for the identified risks including a register of agreed activities and commitments
- a mechanism for monitoring any identified potential socio-economic and cultural impacts. The mechanism should also have opportunities for review
- mechanisms to resolve new and emerging issues as they transpire and amend the SIMP
- outcome and threshold criteria that will give early warning that management and mitigation measures are unsuccessful.

5.10 Ecologically Sustainable Development

When considering the matters to be addressed in the EIS, the NT EPA is required under the NT EPA Act to:

- (a) promote ecologically sustainable development (ESD)
- (b) protect the environment, having regard to the need to enable ESD.

Accordingly, the assessment of the Project, its potential impacts (positive and negative) and the management measures used to enhance positive and reduce negative impacts will be taken in the context of ESD principles, consistent with the *National Strategy for Ecologically Sustainable Development*¹³. Therefore, it is essential that the Proponent demonstrate how it complies with and contributes to the principles and objectives of ESD in the relevant section(s) of the EIS.

Design principles and management practices to reduce resource use (energy, water, materials) and reduce waste generation (reduce, re-use, recycle) should be incorporated into the Project design through construction and occupancy phases where appropriate.

5.11 Other issues

Other environmental impacts should be identified and management strategies proposed, including, but not limited to:

5.11.1 Noise and vibration

The potential sensitivity of receptors to noise and vibration and mitigation measures should be discussed in a relevant section of the EIS. A Noise Management Plan should outline methods for communicating with, and reducing the impact on, residents and communities who may be affected by the project.

5.11.2 Air quality

The EIS should identify risks to air quality and potential nuisance and health impacts to potential sensitive receptors. In particular, the EIS should discuss the risks from dust, odours and particulate matter and the proposed mitigation measures for those risks.

¹³ DEWR (1992) *National Strategy for Ecologically Sustainable Development*. Ecologically Sustainable Development Steering Committee. Department of the Environment and Water Resources, Canberra, Australia. Available at: <http://www.environment.gov.au/resource/national-strategy-ecologically-sustainable-development>

The sources and projected quantities of greenhouse gases emitted by the Project should be described, including from land clearing.

5.11.3 Waste management

Disposal of waste should be conducted in such a way as to avoid potential public health nuisances and environmental pollution. The EIS should discuss the management and disposal of waste for construction and occupancy phases, including:

- predicted waste streams, both industrial and domestic, including solid wastes at the Project site
- any hazardous wastes requiring management during the Project
- methods for the storage, handling, containment and emergency management of chemicals and other hazardous substances (including fuel)
- waste management strategies for storage, transport and disposal of waste taking into account the waste hierarchy.

Discuss litter management for mangrove areas and Sadgroves Creek, including prevention of inputs, passive capture and removal of litter.

Any discharge of wastewater from the Project area into waterways may require licensing under the NT *Water Act*. Guidance and application forms can be found at: www.ntepa.nt.gov.au.

5.11.4 Public health premises and food premises

NT Department of Health will require detailed plans submitted via a building certifier, prior to construction, for accommodation facilities and where shops are proposed for the Project site.

Further information can be obtained from the NT Department of Health website regarding requirements for food business registration¹⁴ and public health premises registration¹⁵.

5.11.5 Police, Fire and Emergency Services

NT Police, Fire and Emergency Services (NTPFES) require that a fire break of not less than four metres wide be in place along the development boundary for property protection and fire appliance access. To enable fire appliance connection to street water mains, hydrant location and coverage needs to be in line with Power and Water Corporation recommendations.

The proposed dwellings, and any commercial premises, will require assessment by the NT Fire and Rescue Service for a Fire Safety Report. NTPFES should also be consulted in relation to adequate crime prevention measures (i.e. street lights and CCTV) as well as adequate traffic arrangements.

5.12 Cumulative impacts

Cumulative impacts can arise from compounding activities of a single operation or multiple operations, as well as the aggregation and interaction of impacts with other past, current and future activities that may not be related to the proposed development.

An assessment of cumulative environmental impacts should be undertaken that considers the potential impact of the Project in the context of previous, existing and reasonably foreseeable future developments, to ensure that any potential environmental impacts are not considered in isolation. The extent of cumulative impacts to be considered depends on the nature of the environmental issue and on ecosystem resilience. The EIA document should address potential

¹⁴ DoH (2015) Food business registration
http://www.health.nt.gov.au/Environmental_Health/Food_Safety/index.aspx

¹⁵ DoH (2015) Public health premises registration
http://www.health.nt.gov.au/Environmental_Health/Public_Health_Premises/index.aspx

cumulative impact of the action on ecosystem resilience and, in this context, the cumulative effects of climate change impacts on the environment must also be considered.

The risk assessment should consider and discuss cumulative assessment, where relevant, and account for impacts on an appropriate scale.

Impacts on the general environment, ecosystems and matters of NES could be permanent. If the impacts are not permanent, describe how long recovery from any impacts is anticipated to take, and identify how soon restoration of habitat could be achieved to reinstate ecosystem function.

6 Environmental offsets

The Australian Government *Environmental Offsets Policy*¹⁶ requires residual (after avoidance and mitigation measures have been implemented) significant impacts to be offset, with a focus on direct offsets. The *Offsets Assessment Guide*, which accompanies this policy, has been developed to give effect to the policy's requirements, utilising a balance sheet approach to quantify impacts and offsets. It applies where the impacted protected matter is a threatened species or ecological community.

The EIS should provide information on:

- any identified impacts or detriments that cannot be avoided or mitigated at reasonable costs and whether these impacts could be considered as 'significant' under the EPBC Act
- risks of failure of management actions (such as rehabilitation, weed control, etc.) and uncertainties of management efficacy should be identified
- proposed offsets for residual significant impacts to listed threatened species or and an explanation as to how these proposed offsets are consistent with the requirements of the *Environmental Offsets Policy* and *Offsets Assessment Guide*, where relevant.

7 General advice on EIS

7.1 General content

The EIS should be a stand-alone document. It should contain sufficient information to avoid the need to search out previous or additional, unattached reports.

The EIS should enable interested stakeholders and the NT EPA to understand the environmental consequences of the proposed development. Information provided in the EIS should be objective, clear, succinct, and easily understood by the general reader. Maps (using an appropriate scale, resolution and clarity), plans, diagrams and other descriptive detail should be included. Technical jargon should be avoided wherever possible. Cross-referencing should be used to avoid unnecessary duplication of text.

The level of analysis and detail in the EIS should reflect the level of significance of the expected and potential impacts on the environment, as determined through adequate technical studies. Any and all unknown variables or assumptions made in the assessment must be clearly stated and discussed. The extent to which a limitation, if any, of available information may influence the conclusions of the environmental assessment should also be discussed.

¹⁶ DotE (2012) *Environmental Offsets Policy*
<http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>

Information materials summarising and highlighting risks of the Project should be provided in a culturally appropriate format and language, accompanied by graphics and illustrations that assist with interpretation, where relevant.

7.2 Format and style

The EIS should be produced on A4 size paper capable of being photocopied, with any maps, diagrams or plans on A4 or A3 size paper, and in colour, if possible.

The EIS should comprise of three elements:

- Executive summary

The executive summary must include a brief outline of the Project and each chapter of the EIS, allowing the reader to obtain a clear understanding of the proposed Project, its environmental implications and management objectives. It must be written as a stand-alone document, able to be reproduced on request by interested parties who may not wish to read the EIS as a whole.

- Main text of the document

The main text of the EIS should include a list of abbreviations, a glossary to define technical terms, acronyms and abbreviations, and colloquialisms. The document should consist of a series of chapters detailing the level of significance and management of the expected and potential impacts on the environment from the Project.

- Appendices

The appendices must include detailed technical information, studies or investigations necessary to support the main text that can be made publicly available, including:

- a table listing how these Terms of Reference have been addressed in the EIS, cross-referenced to chapters, page numbers and/or appendices
- the names of, work done by and the qualifications and experience of the persons involved in preparing the EIS
- a table listing the commitments made by the Proponent
- detailed technical information, studies and/or investigations necessary to support the main text.

7.3 Referencing and information sources

All sources must be appropriately referenced using the Harvard Standard. The reference list should include the address of any internet pages used as data sources. All referenced supporting documentation and data, or documents cited in the EIS, must be available upon request. For information given in the EIS, the EIS must state:

- the source of the information
- how recent the information is
- how the reliability of the information was tested
- what uncertainty (if any) are in the information.

All known and unknown variables or assumptions made in the EIS must be clearly stated and discussed. Confidence levels must be specific, as well as the sources from which they were obtained. The extent to which a limitation, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

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Reliability of the data and an explanation of the sampling criteria and approach should be provided where data are used to support statements, studies and claims in the EIS. Sufficient discussion should accompany the data to demonstrate that the data and results of quality control and quality assurance testing are suitable and fit for purpose.

Spatial data should be provided to the NT EPA as importable Geographic Information System shape files, with relevant features and areas geospatially referenced and marked as polygons, lines and points. Topography/contours should be detailed at appropriate intervals with respect to Australian Height Datum (AHD).

The EIS must include information on any consultation about the Project, including:

- any consultation that has already taken place
- a list of persons and agencies consulted during the EIS
- if there has been consultation about the Project, any documented response to, or result of, the consultation
- proposed consultation about relevant impacts of the Project
- identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

The EIS has an important role in informing the public about this Project. It is essential that the Proponent demonstrate how any public concerns were identified and will influence the design and delivery of the Project. Public involvement and the role of government organisations should be clearly identified. The outcomes of any surveys, public meetings and liaison with interested groups should be discussed including any changes made to the Project because of consultation. Details of any ongoing liaison should also be discussed.

If it is necessary to make use of material that is considered to be of a confidential nature, the Proponent should consult with the NT EPA on the preferred presentation of that material, before submitting it to the NT EPA for consideration. Information of a confidential nature should not be disclosed in the draft EIS if disclosure of the information might:

- prejudice inter-governmental relations between an Australian body politic and a body politic overseas or between two (2) or more bodies politic in Australia or in the Territory
- be an interference with a person's privacy
- disclose information about an Aboriginal sacred site or Aboriginal tradition
- disclose information obtained by a public sector organisation from a business, commercial or financial undertaking that is:
 - a trade secret
 - other information of a business, commercial or financial nature and the disclosure is likely to expose the undertaking unreasonably to disadvantage.

It is an offence under the *Northern Territory Environment Protection Authority Act* to give information to the NT EPA that the person knows is misleading or contains misleading information.

7.4 Administration

The Proponent should lodge three bound hard copies and electronic (Adobe PDF and Microsoft Word format) versions of the EIS with the NT EPA. The electronic copies should be provided both as a single file of the entire document and separate files of the document components.

The Proponent should consider the file size, number of files, format and style of the document appropriate for publication on the NT EPA website. The capacity of the website to store data and display the material may have some bearing on how the document is constructed.

At a minimum, the Proponent is to advertise when the EIS will be available for review and comment in the *NT News*.

The NT EPA requires the complete draft EIS document and a draft of the advertisement at least one week prior to advertising the draft EIS, to arrange web upload of the document, and review and comment on advertising text.

7.5 Public exhibition

The EIS should be made available for public exhibition at:

- NT EPA, Suite 201, The Avenue, 12 Salonika Street, Parap NT 0820
- Development Consent Authority / Department of Lands, Planning and the Environment, Ground Floor, Arnhemica House, 16 Parap Road, Parap
- Northern Territory Library, Parliament House, Darwin
- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin

The public exhibition period for the draft EIS will be six (6) weeks. The exhibition period should not occur in late December or January in any year to ensure optimal opportunity for public and Government viewing of the EIS document. Additional time will be added to the EIS exhibition period if the EIS exhibition overlaps any Christmas - January periods.

8 References

- Burra Charter (2013) *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*. Australia ICOMOS Incorporated International Council on Monuments and Sites. Accessed 19 May 2015, at: <http://australia.icomos.org/publications/charters/>
- DEWR (1992) National Strategy for Ecologically Sustainable Development. Ecologically Sustainable Development Steering Committee Department of the Environment and Water Resources, Canberra, Australia. Available at: <http://www.environment.gov.au/resource/national-strategy-ecologically-sustainable-development>
- DLRM (2015) Flora and Fauna Atlases. Department of Land Resource Management, Plants and Animals – Information and Publications. Accessed 28 July 2015 at: <http://www.lrm.nt.gov.au/plants-and-animals/information-and-publications>
- DNRETAS (2010) *Land Clearing Guidelines*. The Northern Territory Planning Scheme. Department of Natural Resources, Environment, The Arts and Sport, Darwin. Northern Territory. First published 2002. Updated 2006, 2010. Natural Resources Division. Palmerston, NT. ISBN 978-1-921519-47-5. Accessed 11 Jan 2014, at: http://www.lrm.nt.gov.au/_data/assets/pdf_file/0018/5526/NT-Land-Clearing-Guidelines-2010_040310_Updated-April-2013.pdf
- DoH (2011) *Guidelines for Preventing Mosquito Breeding Associated with Construction Practice near Tidal Areas in the NT*. Medical Entomology, Centre for Disease Control, Northern Territory Department of Health. First published June 1988, updated February 2011. Accessed 7 Feb 2014 at: [http://www.health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/32/37.pdf&siteID=1&str_title=Construction practice near tidal areas - guidelines to prevent mosquito breeding.pdf](http://www.health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/32/37.pdf&siteID=1&str_title=Construction%20practice%20near%20tidal%20areas%20-%20guidelines%20to%20prevent%20mosquito%20breeding.pdf)
- DoH (2015) Food business registration and renewal. Accessed 28 July 2015 at: http://www.health.nt.gov.au/Environmental_Health/Food_Safety/index.aspx
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- DotE (2009) *Draft Background Paper to EPBC Policy Statement 3.21 – Significant Impact Guidelines for 36 Migratory Shorebird Species*. Accessed 8 July 2015 at: <http://www.environment.gov.au/resource/draft-significant-impact-guidelines-36-migratory-shorebird-species-migratory-species-epbc>
- DotE (2011) *Survey Guidelines for Nationally Threatened Species*. Department of the Environment. Accessed 3 June 2015 at: <http://www.environment.gov.au/epbc/policy-statements>

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- DotE (2012) *Environmental Offsets Policy*. Department of the Environment. Accessed 10 April 2014 at: <http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>
- IECA (2008, 2012) *Best Practice Erosion and Sediment Control*. International Erosion Control Association, Books 1,2 and 3. November 2008, and 2012 (Books 4, 5 & 6). <http://www.austieca.com.au>
- NTEPA (2013a) *Guidelines for Assessment of Impacts on Terrestrial Biodiversity*. Northern Territory Environment Protection Authority. November 2013. Version 2.0. Accessed 21 Jan 2014, at: http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0003/349941/guideline_assessment_terrestrial_biodiversity.pdf
- NTEPA (2013b) *Guidelines for the Preparation of an Economic and Social Impact Assessment*. Northern Territory Environment Protection Authority. November 2013. Version 2.0. Accessed 21 Jan 2014, at: http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0007/349936/guideline_assessment_economic_social_impact.pdf
- NTEPA (2015) *Guidelines for the Preparation of an Environmental Management Plan*. Northern Territory Environment Protection Authority. May 2015. Version 1.0. Accessed 21 Jun 2015, at: http://www.ntepa.nt.gov.au/_data/assets/pdf_file/0010/357562/guideline_prep_emp.pdf
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Appendix A

MATTERS THAT MUST BE ADDRESSED IN A PER AND EIS (SCHEDULE 4 OF THE EPBC REGULATIONS 2000)

1 General information

1.01 The background of the action including:

- (a) the title of the action;
- (b) the full name and postal address of the designated Proponent;
- (c) a clear outline of the objective of the action;
- (d) the location of the action;
- (e) the background to the development of the action;
- (f) how the action relates to any other actions (of which the Proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;
- (g) the current status of the action; and
- (h) the consequences of not proceeding with the action.

2 Description

2.01 A description of the action, including:

- (a) all the components of the action;
- (b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts;
- (c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts;
- (d) relevant impacts of the action;
- (e) proposed safeguards and mitigation measures to deal with relevant impacts of the action;
- (f) any other requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the proposed action;
- (g) to the extent reasonably practicable, any feasible alternatives to the action, including:
 - (i) if relevant, the alternative of taking no action;
 - (ii) a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action; and
 - (iii) sufficient detail to make clear why any alternative is preferred to another;
- (h) any consultation about the action, including:
 - (i) any consultation that has already taken place;
 - (ii) proposed consultation about relevant impacts of the action; and
 - (iii) if there has been consultation about the proposed action – any documented response to, or result of, the consultation; and

- (i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

3 Relevant impacts

3.01 Information given under paragraph 2.01(d) must include

- (a) a description of the relevant impacts of the action;
- (b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts;
- (c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;
- (d) analysis of the significance of the relevant impacts; and
- (e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

4 Proposed safeguards and mitigation measures

4.01 Information given under paragraph 2.01(e) must include:

- (a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures;
- (b) any statutory or policy basis for the mitigation measures;
- (c) the cost of the mitigation measures;
- (d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing;
- (e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program; and
- (f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including mitigation measures proposed to be taken by State governments, local governments or the Proponent.

5 Other Approvals and Conditions

5.01 Information given under paragraph 2.01(f) must include:

- (a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:
 - (i) what environmental assessment of the proposed action has been, or is being carried out under the scheme, plan or policy; and
 - (ii) how the scheme provides for the prevention, minimisation and management of any relevant impacts;
- (b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action;
- (c) a statement identifying any additional approval that is required; and

- (d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

6 Environmental record of person proposing to take the action

6.01 Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

- (a) the person proposing to take the action; and
- (b) for an action for which a person has applied for a permit, the person making the application.

6.02 If the person proposing to take the action is a corporation — details of the corporation's environmental policy and planning framework.

7 Information sources

7.01 For information given the PER must state:

- (a) the source of the information; and
- (b) how recent the information is; and
- (c) how the reliability of the information was tested; and
- (d) what uncertainties (if any) are in the information.