

Introduction and Background

The Northern Territory Government (NTG) proposes expanding existing facilities at the East Arm Wharf (EAW) to address increased demands on the wharf to service the oil and gas industry, bulk minerals export, as well as requirements of the Department of Defence (Defence) and other industries (SKM, 2009; AECOM, 2009).

The proposed EAW Expansion (the Project) includes:

- Developing a Marine Supply Base (MSB) adjacent to EAW, primarily to service the existing and developing oil and gas industries in the Timor Sea, Browse Basin and adjacent areas.
- Constructing a barge ramp and hardstand, including berthing for barges and equipment loading and unloading.
- Establishing a rail loop enabling rakes of rail wagons carrying bulk material to be manoeuvred through the port, unloading material through a proposed rail dump facility to the adjacent stockpile areas.
- Extending the EAW quay line, and construction of moorings to accommodate tugs and other smaller vessels.

The project was referred to the Australian Government under the EPBC Act and to the NTG under the Environmental Assessment Act in 2009, and it was determined that the project was a controlled action that will be assessed as an Environmental Impact Statement (EIS) under the bilateral agreement. In order to secure development consent this Draft Environmental Impact Statement (DEIS) was prepared with the objectives of identifying and assessing the environmental and related impacts that could potentially occur as a result of the proposed expansion of the EAW, and developing and describing management strategies that will be employed to manage and mitigate those impacts.

The potential impacts assessed encompass the natural, social and economic environment. The DEIS also includes draft Environmental Management Plans (EMPs), which demonstrate how potential impacts during construction and operation of the proposed facilities will be managed and mitigated.

This DEIS is based on the Department of Natural Resources, Environment, the Arts and Sport (NRETAS) Guidelines for Preparation of a Draft Environmental Impact Statement for the Expansion works at East Arm, Northern Territory Department of Planning and Infrastructure, December 2009 (the Guidelines). Although listed as part of the proposal in the Notice of Intent (NOI) and the Guidelines, the DEIS scope has changed, and no longer includes does not include the Land Development Corporation (LDC) subdivisional works and filling adjacent to the new East Arm Boat Ramp and Muramats Road. These works are no longer considered a priority for the NTG.

The proponent formally advised NRETAS of the alteration to the proposed action, consistent with the requirements of the Northern Territory Environmental Assessment Administrative Procedures, clause 14A (2003) in May 2011.

1.1 Proponent

The proponent of the proposed EAW Expansion Project is the NT Department of Lands and Planning (DLP), which is responsible for developing and providing strategic planning and growth frameworks, strategies and infrastructure plans required to sustainably develop the NT.

DLP is acting on behalf of the:

- Darwin Port Corporation (DPC), a NTG body responsible for the control and management of the land, waterways and facilities within the Port of Darwin; and

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- Department of the Chief Minister (DCM) seeking to collaborate with a single operator or an operator-led consortium with experience in developing and operating a MSB to service the offshore oil and gas exploration and production industries.

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1.2 The Project

The Darwin Port Authority (DPA) was established under the *Darwin Port Authority Act 1983* (DPA Act). The Authority's role is to control, develop and manage all waters and land within the port (including EAW) and to facilitate marine related activities and industries. In 1998 the DPA Act was amended to see the establishment of the DPC and the adoption of a greater commercial focus for the port operations and management (DPC, 2010b).

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1.2.1 Background

The expansion of the Port of Darwin (the Port) was announced by the NTG in the early 1990's as a strategic development for the Territory and approval for the development of a wharf at the East Arm Peninsula was gained via a DEIS and Supplement prepared by Acer Vaughan in 1993 (Acer Vaughan, 1993a; Acer Vaughan, 1993b; SKM, 2009).

The EAW was designed to make provision for the long planned Darwin to Alice Springs railway line, capitalising on the city's strategic location in the Beagle Gulf on the Timor Sea. The Port plays an essential role in the economic development of the Northern Territory (NT) of Australia, establishing Darwin as a significant transport and logistics centre for trade between Australia and the Asia Pacific region (Acer Vaughan, 1993a).

The primary role of the EAW is to facilitate the movement of goods via rail, road and shipping to and from international markets. DPC also facilitates the movement of non-trading vessels including those involved in research fishing and pearling (DPC, 2010a).

EAW currently services vessels handling general cargoes, live cattle and bulk mineral exports, dry bulk imports, containerised / break bulk and specialised heavy lift cargoes, plus offshore rig tender service vessels (AECOM, 2009). It is utilised by oil and gas, mining, agriculture, horticulture and construction industries (DPC, 2010a). In the longer term, the East Arm development is expected to become the nucleus of a thriving maritime business centre, with Darwin an increasingly significant multimodal regional transport hub, well situated to facilitate trade between Australia and its neighbours in south-east Asia (DPC, 2010b).

EAW is located at the end of the Adelaide to Darwin Railway and near the northern end of the Stuart Highway. Initially, the East Arm facility was designed and constructed as a general cargo container and bulk liquids port. However, bulk solids have turned out to be the major driver for expansion. This is emphasised by the addition of a bulk loader and the development of a first stage minerals stockpile area. Forecast berth utilisation rates indicate the need to expand port infrastructure (DPC, 2010a).

With the installation of a ship loader and associated conveyors, more hardstand space is being consumed by the rail extension for mineral concentrate exports to China and India. Construction bulk facilities in general cargo areas reduces hardstand and berth space for the Port's traditional trades including live cattle exports, rig tenders, break bulk, heavy lifts, containerised general cargo as well as vehicle storage areas. Consequently, adequate available land space for the traditional trades is limited (DPC, 2010a).

Defence requires an Amphibious Craft Landing Area, preferably at EAW. It is proposed that this should consist of a boat ramp-type facility for landing craft and a storage area that is accessible on a twenty four hour, seven day a week (24/7) basis. It is proposed that as part of this expansion an equivalent area to that currently available for Defence at Fort Hill Wharf will be found at EAW (DPC, 2010a). This facility will also be utilised by private barge operators to transfer goods to islands and communities in the NT. Demand for an additional barge ramp, including covered, secure storage areas with power supplied, has been identified by DPC.

The proposed MSB will be able to services over 400 vessel calls per annum. These vessels support activities such as oil and gas exploration in Northern Australian waters from the Arafura Basin in the east, to the Browse Basin in the west. The MSB will support the operation of drilling platforms and operational platforms including those in the Bayu Undan field, which supplies the liquefied natural gas (LNG) production facility at Wickham Point (DPC, 2010a).

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It is noted that the transfer of commercial port activities to EAW from the Darwin City Wharf located in the Darwin Central Business District (CBD) has allowed for the Darwin City Waterfront redevelopment. The Darwin City Waterfront redevelopment provides for significant public open space, community facilities, plus commercial, residential and tourism development, the centrepiece of which is the Convention and Exhibition Centre (DPC, 2010c).

Although the city wharves remain as working facilities for visiting international cruise and naval vessels, as well as alternative berths for some commercial shipping, the transfer of other commercial activities has greatly reduced traffic associated with transportation of cargo and materials, including live (cattle) exports, through the Darwin CBD (DPC, 2010c).

1.2.2 Objective of the Proposed Action

To facilitate trade growth and local and regional economic development, EAW Masterplans were developed for managing land and sea-based activities at EAW (Acer Vaughan, 1995; GHD, 2009). The most recent EAW Masterplan was developed by GHD Pty Ltd in 2009. The focus of this plan is to accommodate projected growth and provide for the staged expansion of the existing facilities and infrastructure.

The opening of the Adelaide to Darwin railway in 2004 increased the demands on the EAW for export of bulk minerals. Increased storage area requirements have led to the decrease in available space for traditional cargoes. In addition, further berth space is required for the increased throughput as trade increases (SKM, 2009).

Given these demands on infrastructure, as well as further requirements of industry and Defence, the objective of the proposed action is for staged expansion of the existing EAW infrastructure.

EAW and the surrounding infrastructure is designated the 'East Arm Port Development Zone' (Zone DV in the *East Arm Control Plan 1998, NT Planning Act 2008*). This zoning allows for development of gas, road, rail or port based industries, and provides land for major industrial development (AECOM, 2009).

The proposed expansion of the existing facilities at EAW is consistent with the existing industrialised character of the Port of Darwin (SKM, 2009); the original DEIS and Supplement for the Expansion of the Port of Darwin (Acer Vaughan, 1993a; Acer Vaughan 1993b); and the EAW Masterplans (Acer Vaughan 1995; GHD, 2009).

1.2.3 Location of the Proposed Action

The Port of Darwin is located at latitude 12° 28'S, longitude 130° 50'E, on the southern shore of the Beagle Gulf in the Timor Sea. A line between Charles Point and Lee Point defines the seaward boundary of the port (DPC, 2010c). EAW is situated on the East Arm Peninsula, within Darwin Harbour. The Peninsula has been developed to form the EAW and associated wharf related industries, in accordance with the Environmental Impact Statement (EIS) for the EAW Expansion prepared by Acer Vaughn in 1993 (AECOM, 2009).

The EAW extends into the Darwin Harbour and is bounded by Bleasers Creek to the north and Hudson Creek to the east. Two small islands lie directly south and east of the project area; South Shell Island and Catalina Island (AECOM, 2009).

The location of EAW within the NT and in relation to the city of Darwin is illustrated in Figure 1-1.

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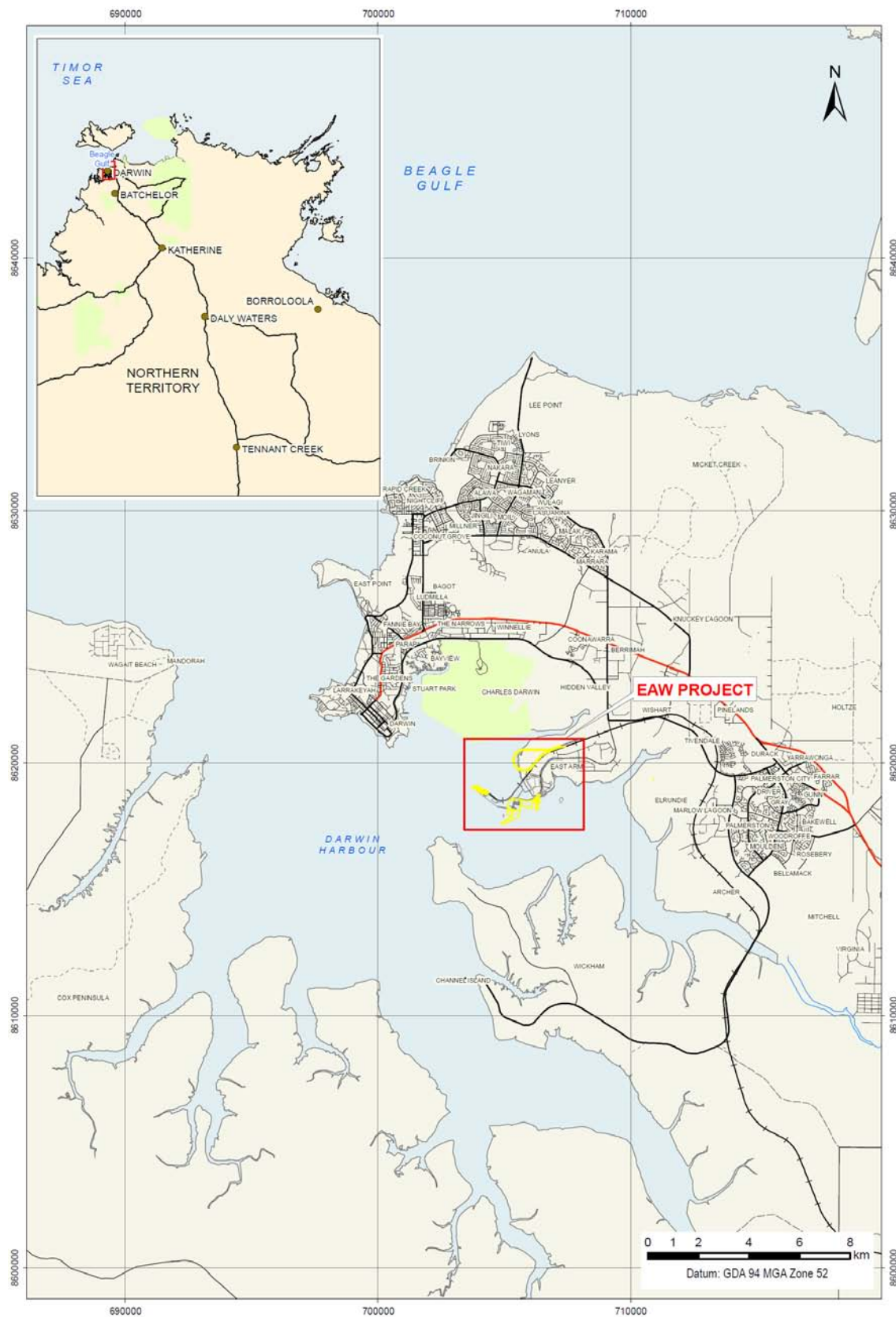


Figure 1-1 Location of East Arm Wharf within the NT, in relation to the City of Darwin

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1.3 Environmental Assessment Process

The Environmental Impact Assessment (EIA) process, as adopted through Commonwealth and NT legislation, is an integral part of sustainable environmental development and management.

The NT environmental assessment process is administered under the *Environmental Assessment Act 1982* and the *Environmental Assessment Amendment Act 1994* (together referred to here as the EA Act) and their Administrative Procedures. The Act and Procedures establish the framework for the assessment of potential or anticipated environmental impacts of development. The object of the Act is to ensure that matters affecting the environment to a significant extent are fully examined and taken into account in decisions by the NTG (NRETAS, 2011).

An overview of the NT EIA process as applied for this project is shown in Figure 1-2.

1.3.1 Initial Notification (Notice of Intent and EPBC Referral)

The NOI outlining the proposed expansion of the EAW was submitted to the NT Minister of Natural Resources, the Environment and Heritage (the Minister) in July 2009. Similarly, a Referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted to the Commonwealth's Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) on 11 January 2010, advising the department of the proposed activity.

The information contained within the NOI and Referral, together with consultation with relevant agencies, assisted in the preparation of EIS Guidelines which outline the matters to be addressed during the environmental assessment process.

1.3.2 Level of Assessment Set for the EAW Expansion Project

There are two levels of formal assessment defined under the NT assessment process; a Public Environmental Report used to assess environmental impacts that are considered significant but limited in extent. The EIS process used to assess environmental impacts that are considered significant, either in terms of site specific issues, off-site issues and conservation values, or based on the nature of the proposal.

In December 2009 the Minister responded to the NOI with the determination that the action warrants formal assessment under the EA Act at the level of an EIS. The following reasons were given (NRETAS, 2009):

- Visual amenity and public interest
- The project area is over 500 ha with large-scale land reclamation required
- 220 ha of mangrove forest would be cleared with consequent ecological impacts and greenhouse gas emissions
- The project is in the immediate vicinity of the mangrove forests of Charles Darwin National Park, the implications of which are unclear
- Changes to the hydrodynamics in the East Arm area could have flow-on effects to adjacent tidal creeks
- Catalina Island, which is of significance to the Larrakia people, may be impacted by increased sedimentation
- Acid sulphate soils (ASS) likely to be present within the area effected by the proposal

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- Submerged heritage (known Catalina wrecks and the wreck of the Kelat) has the potential to be impacted
- Threatened, marine and migratory species listed under the EPBC Act may be impacted
- Significant dredging is required with associated water quality and ecological impacts.

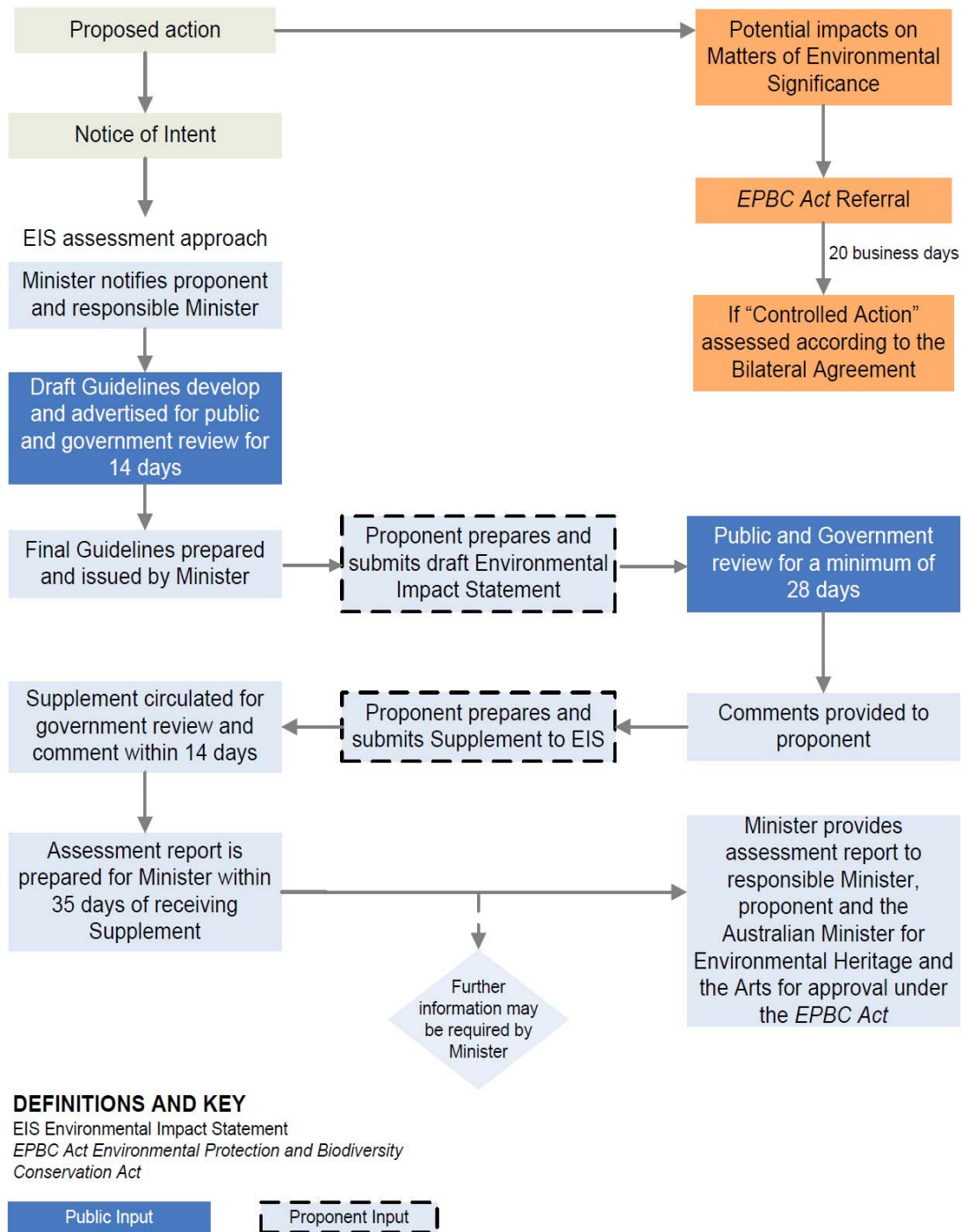


Figure 1-2 NT Environmental Impact Assessment Process for this Proposal

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DSEWPC advised on 8 February 2010 that the project is a controlled action, having the potential to impact on the following Matters of National Environmental Significance (MNES) that are protected under Part 3 of the EPBC Act:

- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (section 20 and 20A).

The NTG has a bilateral agreement with the Commonwealth, which accredits the EA Act for conducting environmental assessments on the Commonwealth's behalf. The response from DSEWPC advised that this project will be assessed under the bilateral agreement.

1.3.3 Public Review of the Guidelines

Draft Guidelines covering issues to be addressed in the EIS were released for public comment on 14 November 2009, for a 14 day public comment period. On 11 December 2009, Final EIS Guidelines were issued taking into account comments received from the community and Government agencies. The Final EIS Guidelines are contained in **Appendix A**.

1.3.4 Preparation of the Draft EIS

Work began on the preparation of this DEIS in September 2010. This DEIS contains data gathered by DLP during the NOI process; subsequent data gathered during supporting studies and stakeholder consultation; and environmental assessment and determination of management measures to fulfil the requirements of the EIS Guidelines issued by the Minister.

1.3.5 Submission of Draft EIS and Public Review

This DEIS has been released for review to enable the public and government agencies to comment on the project. Notification of the display centres, submission procedures, and purchasing details have been advertised in local newspapers.

The public and government agencies have a minimum review period of 28 days from the date of submission of the DEIS to submit comment to NRETAS or via the website to be established by Elton Consulting Group Pty Ltd (Elton Consulting), to elicit comments from interested parties on the project.

1.3.6 Preparation of the Final EIS

Any comments received by the close of the public review period will be addressed in an EIS Supplement which will be prepared by DLP and submitted to NRETAS. The Draft EIS together with the Supplement (the 'Final EIS') will be reviewed by NRETAS.

1.3.7 Government Assessment and Final Approval

Once assessment is completed to the satisfaction of the Minister, NRETAS will prepare an Environmental Assessment Report and Recommendations on the project's acceptability for the Minister's consideration. It is noted that NRETAS will liaise with DSEWPC through the approval process to ensure that both agencies are satisfied that all matters are being satisfactorily addressed throughout the process, in terms of the EA Act.

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Following this, the Minister will make a recommendation to the Minister for Lands and Planning regarding the project's environmental acceptability and its compliance with the requirements of the EA Act.

Approval (if granted) would be given by the Minister for Lands and Planning under the *East Arm Control Plan 1998, Northern Territory Planning Act 2008*.

1.4 Other Approvals

Other approvals and licensing requirements relevant to this project include, but may not be limited to, the following (AECOM, 2009):

- Ministerial consent for any development covered by the East Arm Control Plan from the Minister for Lands and Planning
- DPA consent for any coastal development below high tide in Darwin Harbour
- Marine Branch, DCP consent for any coastal development above low tide in NT Coastal Waters
- NRETAS and EPA consent for any dredging operations
- Aboriginal Areas Protection Authority (AAPA) Authority Certificate for Sacred Site clearance
- Approval to disturb heritage items and archaeological artefacts, as located, through the Heritage Conservation Division of NRETAS.

It is noted that a Development Permit under the *NT Planning Act 2008* may also be required for activities proposed to take place in the areas that are subject to this DEIS, dependent on the nature of the proposed activity.

1.5 Relevant Legislation, Other Obligations and Policies

1.5.1 Legislation

The Commonwealth and NTG have jurisdiction over environmental and other legislation relating to the location, construction and operation of infrastructure proposed under the expansion of EAW.

The list of legislation below provides a summary overview of the legislation (other than the EA Act) that may be relevant to the proposed EAW Expansion Project and activities undertaken as part of the project. It is noted that preparation of this DEIS for the EAW Expansion Project is being undertaken in accordance with the requirements of the EA Act, and its implications for the development are discussed in Section 1.3.

Aboriginal Land Act 1979 (NT) provides access to areas which are on, border or are adjacent to Aboriginal Land, whether it is on land or sea.

Northern Territory Aboriginal Sacred Sites Act 1989 (NT) provides for a practical balance of the recognised need to preserve and enhance Aboriginal cultural tradition by establishing a procedure for the protection and registration of sacred sites. This includes providing for conditional entry onto sacred sites; establishing procedures for the avoidance of sacred sites in the development and use of land; and establishing an Authority for the purposes of the Act and a procedure for the review of decisions of the Authority by the Minister.

Heritage Conservation Act 1991 (NT) relates to the natural and cultural heritage of the NT and provides for the conservation and protection of places and objects of historic, social or scientific value. It provides a system for the identification, assessment, recording, conservation and protection of

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places and objects of prehistoric, protohistoric, historic, social, aesthetic or scientific value, including geological structures, fossils, archaeological sites, ruins, buildings, gardens, landscapes, coastlines and plant and animal communities or ecosystems of the Territory.

Australian Heritage Council Act 2003 (Cwlth) establishes the Australian Heritage Council, a statutory body replacing the Australian Heritage Commission as the Australian Government's principal adviser on heritage matters. The Australian Heritage Council is administered by the Heritage Division of the Department of Environment and Heritage and seeks to:

- assess whether a place meets the National Heritage criteria or the Commonwealth Heritage criteria
- advise the Minister on conserving and protecting places included, or being considered for inclusion, in the National Heritage List or Commonwealth Heritage List
- invite public comment on whether a place meets any of the National Heritage criteria or Commonwealth Heritage criteria and whether a place should be included in the National Heritage List or Commonwealth Heritage List
- promote the identification, assessment, conservation and monitoring of heritage, and
- keep the Register of the National Estate.

The Council also makes assessments under the EPBC Act, and performs any other functions conferred on the Council by the EPBC Act.

Aboriginal Land Rights (NT) Act 1976 (Cwlth) provides for the preservation and protection from injury or desecration of areas and objects in Australia and in Australian waters, being areas and objects that are of particular significance to Aboriginals in accordance with Aboriginal tradition.

Assessment of Site Contamination NEPM 1999 (Cwlth) - the purpose of this National Environmental Protection Measure (NEPM) is to establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community which includes regulators, site assessors, contaminated land auditors, land owners, developers and industry.

The NEPM contains two schedules:

- **Schedule A** identifies the recommended process for the Assessment of Site Contamination
- **Schedule B** of the NEPM identifies 10 general guidelines for the Assessment of Site.

Biological Control Act 2011 (NT) makes provision for the biological control of pests in the NT and related purposes. For the purposes of this Act, an organism of a particular kind is considered controllable by biological means if, and only if, the organism can be controlled by the release of a live organism of another kind.

Bushfires Act 1980 (NT) provides for the establishment of the NT Fire and Rescue Service, the operational and emergency response activities of the Service, the protection of life, property and the environmental against fires and other emergencies and for related purposes. The Act states:

- fires must not be started in a declared Fire Protection Zone without a current permit, and
- fires must not be started on a declared fire ban day, or in a fire ban area contrary to the fire ban.

Control of Roads Act 2008 (NT) provides for the administration and control of roads, including the maintenance of roads and construction of roads.

Dangerous Goods (Road and Rail Transport) Act 2008 (NT) makes provision for safety in the transport of dangerous goods by road as part of the system of nationally consistent road transport

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laws and to make provision for safety in the transport of dangerous goods by rail. Common guidelines are in place so that dangerous goods can be transported between states and territories. This eliminates confusion of knowing what procedures should be followed in the event of accident or spill.

Darwin Port Authority Act 1983 (NT) established the DPA whose role was to control, develop and manage all waters and land within the port and to facilitate marine related activities and industries.

Darwin Port Corporation Act 2009 (NT) provides for the establishment of the DPC, formerly known as the DPA, for the control and management of the Port of Darwin, and for related purposes.

Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) - this Commonwealth legislation provides a national framework for environment protection through a focus on protecting MNES and on the conservation of Australia's biodiversity. The Act:

- provides protection of MNES
- promotes ecologically sustainable development through the conservation and ecologically sustainable use of natural resources
- promotes the conservation of biodiversity and protection and conservation of heritage
- promotes a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples
- assists in the co-operative implementation of Australia's international environmental responsibilities, and
- recognises the role of indigenous people and promotes the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

Environmental Offences and Penalties Act 2010 (NT) establishes a penalty structure for environmental offences based around 4 offence levels. Penalties for infringement notices are also defined. These penalties are picked in a variety of environmental statutes such as the *Waste Management and Pollution Control Act*, the *Water Act* and the *Mining Management Act*, which create the actual offence provisions. The effect is to create a common penalty structure among different legislation.

Energy Pipeline Act 2009 (NT) makes provision for the construction, operation, maintenance and cessation of use or abandonment of pipelines for the conveyance of energy-producing hydro-carbons, and for related purposes.

Fire and Emergency Act 2004 (NT) provides for the establishment of the NT Fire and Rescue Service, the operational and emergency response activities of the Service, the protection of life, property and the environment against fires and other emergencies and for related purposes.

Fisheries Act 1988 (NT) allows for the flexible management of aquatic resources in the NT and stewardship of aquatic resources which promote fairness, equity and access to aquatic reserves. It outlines licensing provisions for a range of activities including taking aquatic life for research purposes.

Hazardous Waste (Regulation of Exports and Imports) Act 1989 (Cwlth) regulates the export, import and transit of hazardous waste ensuring exported, imported or transited hazardous waste is managed in an environmentally sound manner so humans and the environment, both within and outside Australia, are protected from the harmful effects of the waste.

Heritage Conservation Act 2008 (NT) provides a mechanism to conserve heritage in the NT and the agency responsible for the administration of this Act is the Heritage Conservation Services, Department of Natural Resources, Environment and the Arts. The Act provides for the creation of a

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Heritage Advisory Council (HAC). The HAC assesses and recommends places to the Minister for the Environment for inclusion on the NT Heritage Register.

Litter Act 2009 (NT) makes provision for the management of litter in a public place or vacant Crown land. It also requires regulates the removal of a dead animal from a public place or vacant Crown land that is used by vehicular or pedestrian traffic.

Local Government Act (NT) provides for, and regulates, local government. Section 27 of the act provides for councils and the Local Government Association of the Northern Territory (LGANT) to form separate entities known as local government subsidiaries to carry out functions related to local government on behalf of the constituent councils.

Marine Act 2007 (NT) regulates shipping within the NT and provide for the application of the uniform shipping laws code and for related matters. All commercial vessels operating within NT waters are required to comply with survey and safety manning requirements under the NT Marine Act and Regulations. Vessels are required to hold a valid Certificate of Survey (NT *Marine Act, 2007* Section 79). Certificates of Survey issued by other Marine Authorities may be accepted for operations within NT Waters; however the following are required before reciprocal recognition can be given:

- Provision of a valid Certificate of Survey
- Completion of an Application for Survey
- Payment of a fee.

Marine Pollution Act 2004 (NT) aims to protect the Territory's marine and coastal environment by minimising intentional and negligent discharges of ship-sourced pollutants into coastal waters. It makes provision for dealing with pollution by oil, noxious liquid substances in bulk, harmful substances in packaged form and pollution by garbage.

Notifiable Diseases Act 1999 (NT) requires medical practitioners to report a suspected or confirmed case of a notifiable disease for clients under their care. This enables early case detection and follow-up, minimising the risk of transmission to others. Notification on suspicion is particularly important in some instances, e.g. highly infectious diseases such as measles, or conditions that are difficult to diagnose or may have a delay in confirmation of diagnosis such as Tuberculosis or Leprosy.

Pastoral Land Act 2011 (NT) makes provision for the conversion and granting of title to pastoral land and the administration, management and conservation of pastoral land, and for related purposes.

Plant Diseases Control Act 2000 (NT) aims to control the introduction and spread of plant pests and diseases in Australia. Conditions for enter and management of pests and diseases are outlined under this act.

Poisonous and Dangerous Drugs Act 2010 (NT) regulates the sale, supply, storage, possession and use of poisons and dangerous drugs, and for related purposes.

Public Health (General Sanitation, Mosquito Prevention, Rat Exclusion and Prevention) Regulations 1988 (NT) provide for the prevention of mosquito breeding through the appropriate management of identified areas. Measures are to be taken to reduce the areas that are considered potential breeding grounds for mosquitoes. Open containers and areas that can hold water suitable for mosquito breeding are to be covered up, filled in or removed.

Public Health Act 1952 (NT) related to public health and is directed at preventing pollution of water-courses and water supplies in the NT.

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Rail Safety Act 2011 (NT) makes provision for rail safety and other matters that form part of a system of nationally consistent rail safety laws.

Soil Conservation and Land Utilisation Act 1985 and **Soil Conservation and Land Utilisation Act 2001 (NT)** make provisions for the prevention of soil erosion and for the conservation and reclamation of soil. It makes provisions for restricted construction activities, that may result in land clearing, driving vehicles and causing water or other fluid to be drained or to flow over an area, which may cause further damage to the land that is not environmentally stable, such as areas suffering soil erosion or areas that have the potential to erode.

Territory Parks and Wildlife Conservation Act 2001 (NT) makes provision for the establishment of Territory Parks and other Parks and Reserves and the study, protection, conservation and sustainable utilisation of wildlife. It sets aside areas of the Territory as parks and conservation areas that may not be developed.

This Act is designed to prevent contamination of the surrounding environment. The environment includes soil, air, and water. The Act imposes a general duty on personnel who conduct an activity, or perform an action, that causes or is likely to cause pollution resulting in environmental harm, or that generates or is likely to generate waste. NEPMs may be incorporated into Environmental Protection Objectives under this Act.

Waste Management and Pollution Control Act 2009 (NT) aims to Protect and where practicable restore and enhance the quality of the NT environment; encourage ecologically sustainable development; and facilitate the implementation of NEPMs established by the National Environment Protection Council (NEPC).

Water Act 2008 (NT) provides for the investigation, use, control, protection, management and administration of water resources in the NT. The Act prohibits the release of 'restricted substances' into watercourses (but not substances that have not yet been prescribed). Water quality standards are declared by notice in the Gazette.

Water Supply and Sewage Services Act 2002 (NT) regulates the provision of sewage and water services in the NT. The NT Power and Water Authority must be contacted before any trade waste or noxious waste is disposed to sewer. Noxious waste might include garbage, offal, dead animals, fruit or vegetable matter, solids, ashes, silt, sand or gravel, explosive or flammable substances, minerals, salt or acid, or any other substances which are likely to be injurious to the sewerage system.

Waste Management and Pollution Control Act 2003 (NT) - the objectives of this Act are:

- 1) to protect, and where practicable to restore and enhance the quality of, the Territory environment by –
 - a) preventing pollution;
 - b) reducing the likelihood of pollution occurring;
 - c) effectively responding to pollution;
 - d) avoiding and reducing the generation of waste;
 - e) increasing the re-use and re-cycling of waste; and
 - f) effectively managing waste disposal;
- 2) to facilitate encouragement of ecologically sustainable development; and
- 3) the implementation of national environment protection measures made (NEPM) under the *National Environment Protection Council (Northern Territory) Act*.

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This Act is designed to prevent contamination of the surrounding environment. The environment includes soil, air, and water. The Act imposes a general duty on personnel who conduct an activity, or perform an action, that causes or is likely to cause pollution resulting in environmental harm, or that generates or is likely to generate waste. NEPMs may be incorporated into Environmental Protection Objectives under this Act.

Weeds Management Act 2001 (NT) aims to prevent the spread of weeds throughout the Territory, ensuring the management of weeds is an integral component of land management in accordance with the NT Weeds Management Strategy 1996 – 2005, or any other strategy adopted to control weeds in the Territory. It is designed to ensure there is community consultation in the creation of weed management plans and that the community takes responsibility in weed management when implementing the plans.

1.5.2 Other Obligations

Policies and Guidelines relevant to this project as adapted from the NOI (AECOM, 2009) include, but may not be limited to, those outlined in Table 1-1.

Table 1-1 Policies and Guidelines of relevant to the EAW Expansion Project

Policies and Guidelines	Relevance
A Strategy for the Conservation of Marine Biodiversity in the NT of Australia, Parks and Wildlife Commission of the NT (PWCNT), 2000	Outlines strategies for the conservation of marine biodiversity.
Ambient Air Quality NEPM 1997 and Air Toxins NEPM)2004, 1996	Provides air quality goals for maximum permissible levels of pollutants in ambient air.
Australia and New Zealand Environment Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) Guidelines for Fresh and Marine Water Quality (2000) National Water Quality Management Strategy (1994), Department of Environment, Water, Heritage and the Arts (DEWHA) (now DSEWPC) The Framework for Marine and Estuarine Water Quality Protection – Version 1 (2002), DEWHA (now DSEWPC)	Guides the setting water quality objectives to sustain environmental values. Provides specific water quality objectives for environmental values and the context in they should be applied.

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Policies and Guidelines	Relevance
ANZECC and ARMCANZ Guidelines for Fresh and Marine Water Quality (2000) Commonwealth of Australia (2009). <i>National Assessment Guidelines for Dredging</i> . Canberra, 2009.	Guides the assessment of quality of sediments in marine waters. Sets levels of substances in sediments below which toxic effects on organisms are not expected, and levels at which bioaccumulation tests are required and bioaccumulation may be of concern even where toxicity has not been identified. The dredging guidelines set out the framework for the environmental impact assessment and permitting of the ocean disposal of dredged material, including assessing potential impacts on the marine environment and other users
Darwin Harbour Water Quality Protection Plan (in prep) Towards the Development of a Water Quality Protection Plan for the Darwin Harbour Region – Phase One Report, NRETAS - Aquatic Health Unit (2009)	Plan to identify and address key water quality risks to values of Darwin Harbour and its catchments. Follows the Commonwealth <i>Framework for Marine and Estuarine Water Quality Protection</i> . Phase One Report describes activities undertaken thus far in developing a Water Quality Protection Plan for the Darwin Harbour Region.
A Review of Environmental Monitoring of the Darwin Harbour Region and Recommendations for Integrated Monitoring, 2005, Darwin Harbour Advisory Committee (DHAC)	Facilitate the development of integrated environmental monitoring program for Darwin Harbour Region (in accordance with the Darwin Harbour Regional Plan of Management – now replaced by the Framework below).
AS 1289 Method for testing soils for engineering purposes series	Comprises over 60 methods for: soil sampling and preparation; soil moisture content tests; soil classification tests; soil chemical tests; soil strength and consolidation tests; and soil reactivity tests.
AS 2436-1981 Guide to Noise Control on Construction, maintenance and demolition sites	Guidance on noise control in respect of engineering construction, maintenance and demolition works, including guidance in investigation and identification of noise sources, measurement of sound, and its assessment, with a view to the planning of measures for noise control.
AS 3798 Guidelines on earthworks for commercial and residential developments	Guidance on the specification, execution, and control testing of earthworks and associated site preparation work s of commercial and residential developments. It does not in itself constitute a specification for earthworks. It also gives guidance on the interpretation and application of the relevant test methods specified in the AS 1289 series of Standards.
Australian Ballast Water Guidelines for Shipping, Australian Quarantine and Inspection Service (AQIS)	Sets ballast water standards.
Constructed Wetlands in the NT – Guidelines to Prevent Mosquito Breeding, Department of Health and Families (DHF), undated.	Guidelines for the siting and design of constructed wetlands to reduce potential for mosquito breeding. Wetlands include urban stormwater.
Erosion and Sediment Control Guidelines; built environment, service corridors, transport corridors, rehabilitated old infrastructure, (undated), NRETAS.	Guidelines to inform activities that may impact on surface stability and sediment movement. Provides advice on developing Erosion and Sediment Control Plans.

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Policies and Guidelines	Relevance
Guidelines for Preventing Mosquito Breeding Associated with Construction Practice Near Tidal Areas in the NT, DHF, 2005	Checklist for planners, engineers or any supervisory officers, responsible for the planning, impact assessment or implementation of any construction activity near tidal areas, in order to prevent the creation of mosquito breeding sites.
Darwin Harbour Strategy, DHAC (2010)	A comprehensive guide for the responsible stewardship and sustainable development of the Darwin Harbour region. It sets out goals, principles and guidelines for all users and stakeholders of Darwin Harbour and its catchment to imbed in their planning for any action which could have an impact on the region. A key objective is to achieve a balance between environmental, social and economic values.
Darwin Harbour Regional Management Strategic Framework 2009 – 2013 (draft), DHAC	Policy framework and guidelines for management of environment, social, cultural and economic values and uses of the Darwin Harbour. Sets goals and guidelines for the Harbour waters.
Darwin Harbour Water Quality Protection Plan (in prep)	Plan to identify and address key water quality risks to values of Darwin Harbour and its catchments. <i>Follows the Commonwealth Framework for Marine and Estuarine Water Quality Protection.</i>
DPC Environmental Management System (EMS), Environment Policy and Occupational Health and Safety Policy	Basis on which DPC manages and operates the whole of the Port of Darwin with due regard to safety and the environment.
DPC Cyclone Procedures 2008-2009	Actions undertaken during cyclone warning and threat.
Mangrove Management in the Northern Territory, Department of Infrastructure, Planning and Environment, 2002	Direction for the research and management of mangrove ecosystems.
Environmental Guidelines for Reclamation in Coastal Areas, NT Environment Protection Authority (EPA), 2006	Developed by the NT EPA to provide practical environmental advice to developers planning to undertake reclamation work in coastal regions of the NT. They apply to activities such as foreshore filling, in coastal areas and along rivers, marina and port developments, and development occurring on coastal floodplains. Includes management of ASS and removal of mangroves.
Stormwater: Draft Management Strategy for the Darwin Harbour Catchment, EPA, 2006	Overarching guidelines for the management of stormwater in Darwin Harbour Catchment. Key steps for the development of Stormwater Management Plans.
Land Clearing Guidelines, NT Planning Scheme, 2006	Technical advice for planning and conduct of land clearing.
NEPM Diesel Vehicle Emissions NEPM 29 June 2001.	Aims to manage vehicle emissions by facilitating: Specific emission standards for new vehicles. Provision for appropriate clean fuel. Specific emission standards for vehicles and the improvement of emissions performance of vehicles. Overall reduction in vehicle use.

Source: AECOM, 2009

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1.6 Structure of this Draft Environmental Impact Statement

The structure of this DEIS is described below.

Executive Summary

The Executive Summary provides a succinct outline of the project and each chapter, including:

- Environmental and social implications of the project
- Feedback from stakeholder consultations
- Outcomes of the environmental assessment process, and proposed management strategies.

It has been developed as a stand-alone document for those not wishing to read the entire EIS.

Introduction

The General Information chapter provides information about the proponent and the project location, the objective of the project, background to the development, existing infrastructure, the assessment process, supporting studies, stakeholder consultations, relevant legislation and other obligations, and an outline of the contents of the DEIS.

Project Description

The Project Description chapter provides a detailed description of each component of the project including supporting infrastructure, machinery and equipment requirements, traffic and access issues, site plans and construction methods. It provides information on materials to be taken to site and waste or bi-products to be produced as part of the proposal including hazardous material management. It also describes the health and safety, environmental management and maintenance programs, and employment opportunities that will arise from construction and operation, as well as the decommissioning plans and alternatives considered and/or rejected in the project planning phase.

Description of Existing Environment and Discussion of Environmental Effects

The Description of the Existing Environment and Discussion Environmental Effects is the main part of the DEIS document, and comprises a number of chapters. Each chapter provides in-depth descriptions of baseline or existing conditions, assessment of the potential impacts from the proposed expansion, and associated management strategies and commitments made by DLP to address these impacts.

The aspects described and assessed in the various chapters include landform, land use, meteorological and oceanic processes, marine and terrestrial water quality, marine and terrestrial ecology, marine and terrestrial noise, air quality, visual amenity, cultural heritage, socio-economic impacts, infrastructure, traffic and transport, biting insects, waste and hazardous material, greenhouse gases, and fire management.

Stakeholder Consultation

A description of the stakeholder consultation process during the development of the DEIS and exhibition.

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Risk Assessment

The Hazard and Risk Assessment chapter:

- Outlines the risks that may occur in relation to humans, environment and facilities from the construction, operation and maintenance of the proposed expansion
- Describes how early identification of these risks has enabled DLP to optimise project design.

It describes the risk assessment methodology adopted by DLP, which is based on the RISQUE Method (Bowden et al., 2001). The RISQUE method is a widely used, well regarded approach to risk management that uses a multi-disciplinary 'expert panel' to assess the probabilities and consequences associated with potential risk events.

Based on 'triple bottom line' concepts, the RISQUE method enables financial, environmental and social risk issues to be combined in the assessment in a transparent and quantitative way. It provides context, identifies potential impacts and risk events, assess their likelihoods and consequences, analyses these impacts and risks, and generates a series of useful, relevant outputs. These outputs have been used to rank risks and to develop strategies to further reduce and communicate the risk of the Project to the public, regulators and other key stakeholders. For example, the results of the risk assessment form the basis of the proposed EMPs.

The RISQUE method complies with AS/NZS 4360 (the Australian Risk Management Standard).

Environmental Management Systems and Plans

This chapter describes the DPC's EMS, which is currently under development and scheduled to be completed at the end of 2011. This EMS and its supporting EMPs will provide the framework by which the DPC manages its legislative and other obligations in relation to significant environmental impacts.

Draft EMPs are presented in summary form for each of the significant environmental risks or impacts identified in relation to the proposed expansion. These Draft EMPs include design considerations, proposed or existing procedures and practices to minimise impacts, performance indicators, monitoring and reporting requirements and corrective action requirements.

These Draft EMPs will be further developed over time to include requirements identified during the EIS process, and reflect the results of on-going monitoring programs. Ultimately the Draft EMPs in this DEIS will be integrated into the DPC's EMS and existing EMPs.

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References

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- AECOM, 2009, *Notice of Intent for the Proposed Expansion Works at East Arm*, prepared for the Northern Territory Department of Planning and Infrastructure.
- Bowden et al., 2001, *TRIPLE BOTTOM LINE RISK MANAGEMENT: Enhancing Profit, Environmental Performance, and Community Benefits*, John Wiley & Sons.
- GHD, 2009, *East Arm Wharf Facilities Masterplan 2030 Land Use Report*, report prepared for DPC
- NRETAS, 2009, *Guidelines for Preparation of a Draft Environmental Impact Statement - East Arm Wharf Expansion - December 2009*, accessed on 9 February 2011, at (http://www.nt.gov.au/nreta/environment/assessment/register/eastarm/pdf/eis_guidelines_expansion_works_at_east_arm.pdf)
- NRETAS, 2011, *Northern Territory Environmental Impact Assessment Process*, accessed 8 February 2011, at <http://www.nt.gov.au/nreta/environment/assessment/eiaguide/pdf/eiaflowchart.pdf>)
- SKM, 2009, *East Arm Wharf Expansion – Gap Analysis*, prepared for DPI.