PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

Indian Ocean Drive Rest Area Upgrade SLK 246.8

August 2012

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Rev 0				
Rev 1.1				

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SUMMARY

An existing track/informal rest area is being transformed into a dedicated rest area along the Indian Ocean Drive between SLK 246.6 to 246.8, within the Shire of Irwin.

This proposed rest area is the only rest area between the Leeman Townsite and the Brand Highway (57km length of road).

The proposed works require clearing of vegetation of approximately 0.5ha.

The proposed project area was surveyed by GHD in Spring 2010, with the following results being recorded:

- Vegetation Condition: Very Good to Excellent;
- Vegetation Association: Mixed Heath on swales of coastal dunes;
- No priority species or declared rare species of flora were noted in the proposed project area; and
- The vegetation in the area maybe susceptible to dieback and so strict hygiene controls should be implemented.

The material for the project will be sourced from another project from SLK 214 to 220.10

The source of water is a bore located at SLK 247.5 and a permit has been obtained from the Department of Water.

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN
INDIAN OCEAN DRIVE UPGRADE TO REST AREA SLK 246.8

1. BACKGROUND

The Northern section of the Indian Ocean Drive has recently been connected with the Southern section of the Indian Ocean Drive, completing the link between Perth and the coastal towns along this route.

Currently there is an existing track at SLK 246.8 on Indian Ocean Drive and the MRWA Mid West Region plan to upgrade this to create a parking bay.

Currently Indian Ocean Drive from the section Leeman north doesn't have any parking bays. This project will improve safety by providing a safe controlled environment for motorists to stop.

Following Main Roads' corporate Environmental Assessment and Approval process, an initial 'Low Impact Environmental Screening Checklist' was completed for the proposal. The checklist determined the project required further environmental assessment as the project requires clearing outside of the maintenance zone. Therefore the preparation of a project specific Preliminary Environmental Impact Assessment (PEIA) and Environmental Management Plan (EMP) are required.

The preliminary environmental assessment will involve a desktop analysis of environmental aspects and impacts, a site investigation, an assessment of native vegetation clearing, stakeholder consultation and consideration of necessary environmental management. The preliminary assessment will determine whether an Environmental Impact Assessment (EIA) is necessary and if referral to State and/or Commonwealth authorities is required.

2. DESCRIPTION OF THE PROJECT

The works we will be required to undertake will be improving the entrance and exit to meet Main Roads standards and improving the width and levels of the existing track to allow safe movement and parking. The entire bay will be sealed and bins will also be placed in the bay. Sight distance at the northern entrance is below current standards and the batter on the western side needs to be cut back to gain safe sight distance.

Fill will be utilised from the excess on the widening project at SLK 214.72 to SLK 220.10.

2.1 Project Location

The location and boundaries of the study area for the project are shown in Figures 1 to 4.

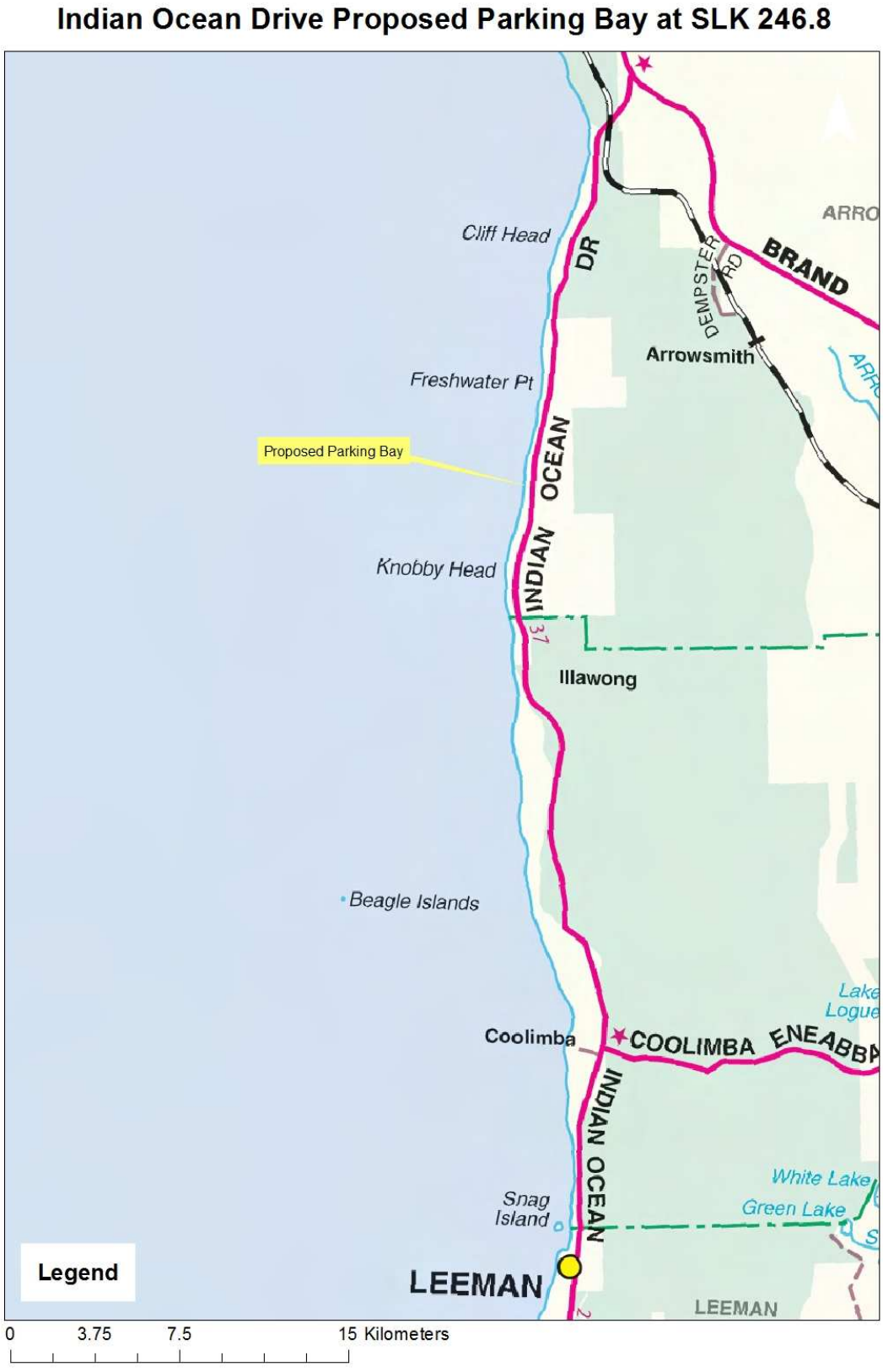


Figure 1 – Project Location

Figure 2 – Project Location

Figure 3 – Project Location

Figure 4: Proposed upgrade to existing parking bay

3. METHODOLOGY

3.1 Preliminary Desktop Study

A preliminary assessment of the project area and the potential constraints of the proposal was undertaken by reviewing a number of government agency managed databases, viewing GIS shapefiles and consulting with relevant stakeholders where necessary.

3.1.1 Threatened Flora, Fauna & Communities, Conservation Reserves and ESAs

Current GIS shapefiles provided to Main Roads by the DEC were examined for known populations of threatened flora, fauna, Threatened Ecological Communities (TECs) or conservation areas located within the vicinity of the works, refer to Appendix B.

A biological survey was also conducted by GHD in Spring 2010.

3.1.2 Heritage

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (http://www.environment.gov.au/heritage/places/wa/index.html), Heritage Council of Western Australia Places Database (http://register.heritage.wa.gov.au/) and the **Shire** of Irwin's local heritage list (previously known as the Municipal Heritage Inventory), refer to Appendix C.

3.1.3 Aboriginal Heritage

A search of the Department of Indigenous Affairs' (DIA's) (http://dia.wa.gov.au/AHIS/) database was undertaken to determine whether the project area contains any sites of Aboriginal Heritage, refer to Appendix D.

3.1.4 Sensitive Water Resources

A search of the Department of Water's (DoW's) database was undertaken (http://www.water.wa.gov.au/idelve/dowdataext/index.jsp) to determine whether the project area contains any sensitive water resources (including Public Drinking Water Source Areas or Water Pollution Control Areas) or was adjacent to any significant lakes, rivers, wetlands or proclaimed areas, refer to Appendix E.

3.1.5 Wetlands

The locations of any wetlands within the project area was determined using the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) mapping tool, the Department of Environment and Conservation (DEC) "Native Vegetation Map Viewer" mapping tool, viewing current GIS shapefiles**.**

3.1.6 Weeds

The GHD conducted a Biological Survey in 2010, the report states:

' Weeds were prevalent on the margins of roads and tracks as well as other previously cleared areas. Weed densities were generally lower within intact vegetation to the east of Indian Ocean Drive and higher within the primary dune systems of the coast. The primary dunes are more readily accessible and typically subjected to higher levels of anthropogenic disturbance. A number of introduced trees have also been planted within this coastal zone. The most widespread species within the survey corridor included

**Avena barbata* (Bearded Oat), **Bromus diandrus* (Brome Grass), **Lolium rigidum* (Wimmera Ryegrass), **Lysimachia arvensis* (Pimpernel) and **Brassica tournefortii* (Mediterranean Turnip)'.

3.1.7 Dieback

The GHD Biological Survey states, "*Phytophthora cinnamomi* ("Dieback") disease is generally restricted to the south west of the State, in areas receiving an average annual rainfall of greater than 400 mm (Dieback Consultative Council, 2001). Indigenous species most affected by *Phytophthora cinnamomi* belong to four families: Proteaceae, Epacridaceae, Papilionaceae, and Myrtaceae. Not all genera within a family or all species within a genus are necessarily susceptible.

Since the vegetation associations identified by Beard (1976) are known to have a large percentage of species from the Proteaceae and Myrtaceae families, and the Eneabba area receives a mean annual rainfall of 498 mm (Bureau of Meteorology, 2010), the location of the project area may be considered to be susceptible to the impact of the *Phytophthora cinnamomi* pathogen.

3.1.8 Contaminated Sites

A search of the DEC's contaminated sites database was undertaken (https://secure.dec.wa.gov.au/idelve/css/) to determine whether the project area contains or is adjacent to any contaminated sites, refer Appendix H.

3.1.9 Acid Sulfate Soils

The CRSIO's acid sulfate soils maps were reviewed on the website http://www.asris.csiro.au/index_ie.htmlto determine the level of risk the project is exposed to, refer to Appendix I.

3.1.10 Air Quality

The need for a local air quality assessment was determined using the criteria outlined in the MRWA Environmental Guideline, Air Quality.

3.2 Commonwealth Referral

The decision whether to refer the project to the Commonwealth DSEWPC was based upon whether the project would impact Commonwealth land, or may have a significant impact upon matters of national significance, which are protected under the EPBC Act. These are; World Heritage properties, National Heritage places, wetlands of international importance (listed under the Ramsar convention), Commonwealth Marine Areas, migratory species protected under international agreements, nuclear actions, nationally threatened species and ecological communities.

The DSEWPC protected matters search tool was used to determine if the project will impact upon any matters of national significance: (http://www.environment.gov.au/erin/ert/epbc/index.html) refer to Appendix G for the results of this search and Section 7 for a discussion on the findings.

3.3 State Referral

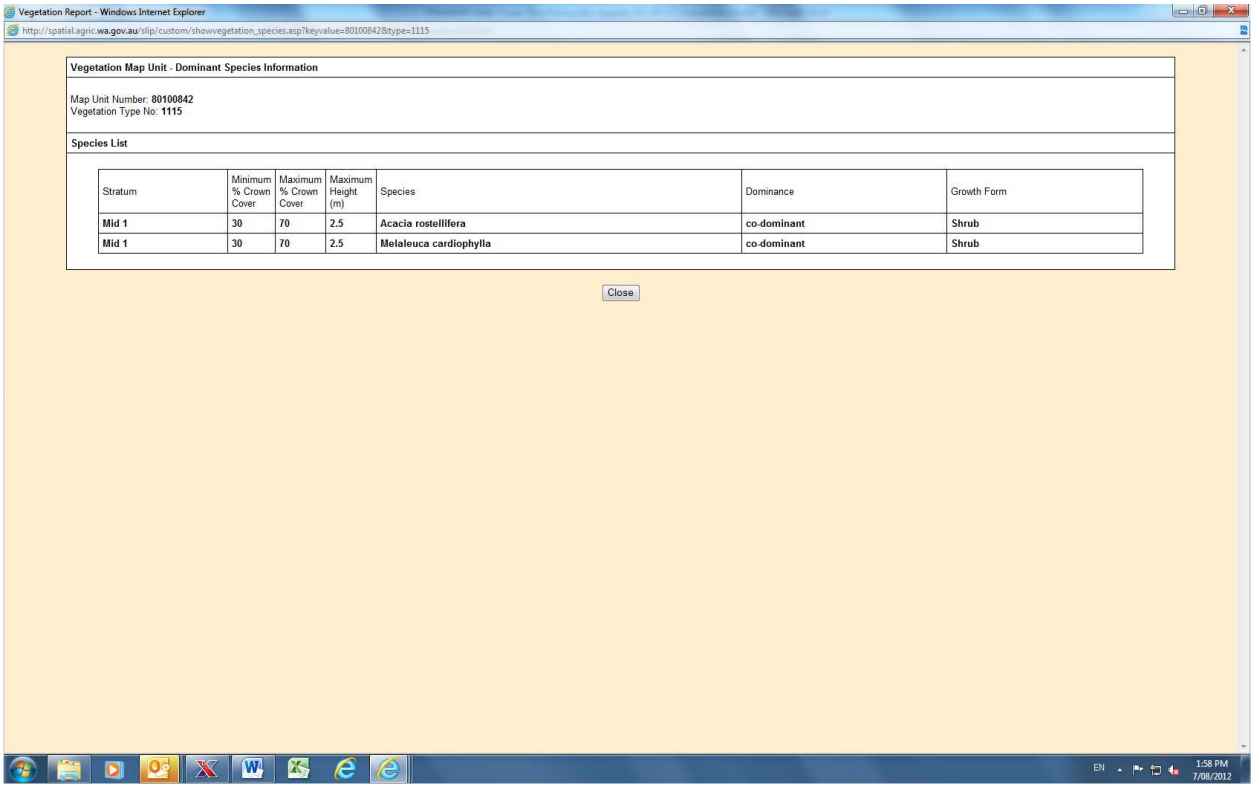
The decision whether to refer the project to the State's EPA was based on whether the project would impact on environmental factors significantly enough to require referral under section 38 of the *Environmental Protection Act 1986.*

4. EXISTING ENVIRONMENT

4.1 Description

The proposed project area was once the original alignment of the Indian Ocean Drive (previously called Coast Road).

The area North was burnt in 2009, and the area to the east is agricultural land.



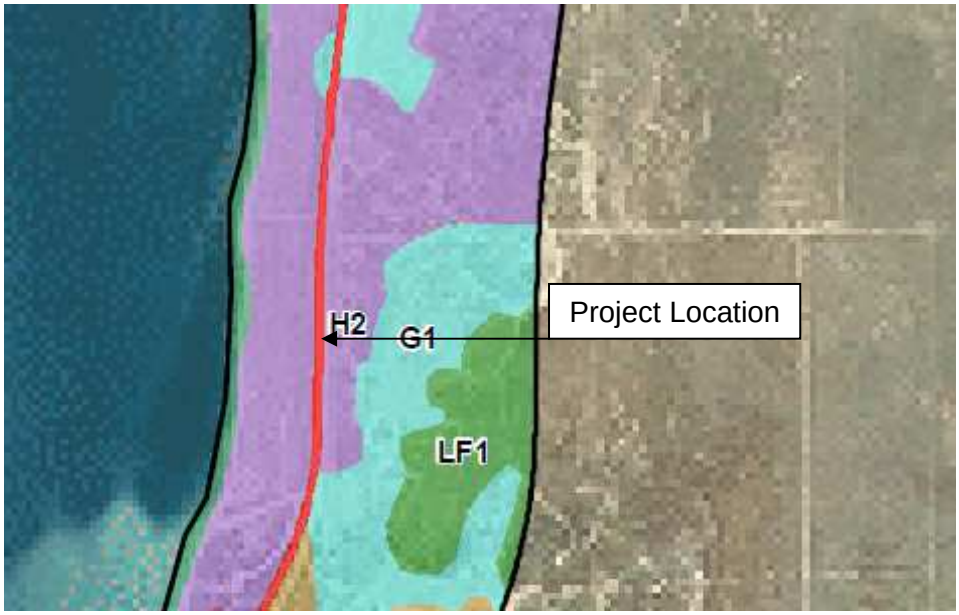
Source: http://spatial.agric.wa.gov.au/slip/custom/showvegetation_species.asp?keyvalue=80100842&type=1115 (07/08/2012)

4.2 Site Investigation

A site visit was carried out by GHD on Spring 2010 to examine the general features of the area. The broad vegetation types in the vicinity of the project area were identified. Other issues that were considered included topography, the impacts on creek lines, property access and if further studies are required for noise and vibration impacts (dilapidation). Site photos are included in Appendix J.

The proposed project has been mapped as being H2, Mixed Heath on swales of coastal dunes, with a burnt area to the North.

No priority species were noted within this area.



Source: GHD Biological Survey (April 2010) Indian Ocean Drive.

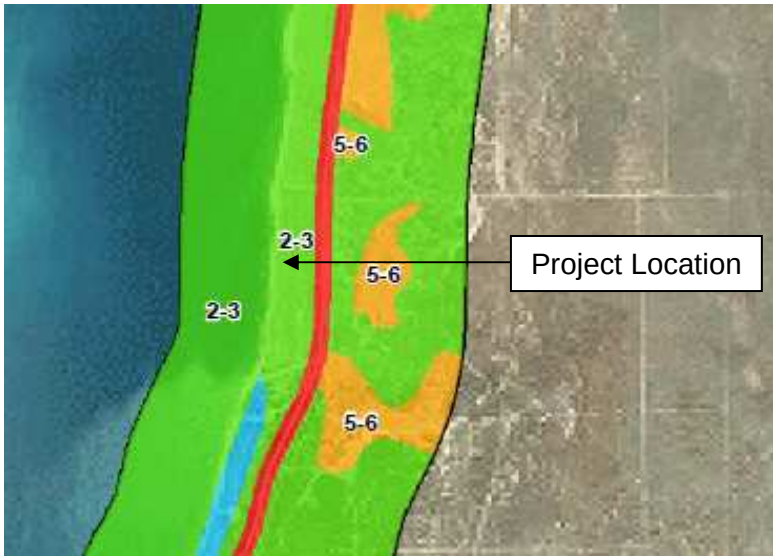
Code	Vegetation Description
LF1	Low Mallee forest of *Eucalyptus zopherophloia* (Priority 4) and *E. obtusiflora* subsp. *obtusiflora*.
LW1	Low woodland of *Eucalyptus erthrocorys* over mixed *Melaleuca* spp. and *Acacia xanthina* on low ridge.
S1	Scrub of *Melaleuca* spp. and and *Acacia rostellifera* on tall secondary dunes.
CS1	Closed scrub of *Acacia rostellifera* and mixed *Melaleuca* spp. with occasional stands of *Eucalyptus zopherophloia* (Priority 4) on dune slopes and swales.
H1	Mixed low heath on coastal dunes
H2	Mixed heath on swales of coastal dunes
CS2	Closed Melaleuca scrub on dark grey sands.
CS3	Closed *Melaleuca* scrub with Mallee on limestone ridge
TS1	Tall Melaleuca shrubland on flats
H3	Mixed low heath on shallow soils over limestone
H4	Low *Frankenia* heath on saline flat
H5	Samphire heath on lake bed
LW1	Low woodland of *Melaleuca lanceolata* and *Casuarina obesa* on lake fringe
S2	Mixed shrubland on unconsolidated drift sands
CS4	Closed scrub of *Melaleuca huegelii* over mixed shrubs on grey consolidated sands
H 6	Heath on primary dunes
G1	Grassland (Paddock)
HD	Highly Disturbed
BURNT	Burnt <3 years

Source: GHD Biological Survey (April 2010) Indian Ocean Drive.

H2 **Mixed heath on swales of coastal dunes**

Heath of *Melaleuca systena, Acacia lasiocarpa* var *lasiocarpa, Hemiandra linearis* and *Opercularia spermacocea* with scattered *Melaleuca cardiophylla* and *Acacia rostellifera* on swales of coastal dunes.

Source: GHD Biological Survey (April 2010) Indian Ocean Drive.



From GHD Biological Survey Report 2010 – Area has been rated as Excellent to Very Good.

5. CLEARING OF NATIVE VEGETATION

Native vegetation describes all indigenous aquatic and terrestrial vegetation (living or dead). The term does not include vegetation that was intentionally sown, planted or propagated unless it was required under a statutory condition.

Apart from activities that are exempt under the clearing regulation (Section 5 – Prescribed Clearing), typically all Main Roads clearing will be undertaken using a permit.

Clearing of native vegetation will be undertaken using CPS818.

Details of Vegetation Associations to be Cleared

In order to assess the significance of the vegetation proposed to be cleared for Indian Ocean Drive Parking Bay SLK 246.8 the vegetation type, condition and percent of pre-European Extent remaining has been identified. Table 1 describes the location and condition of vegetation associations within the project area and at road building material extraction sites while Table 2 provides further information regarding each vegetation association's representativeness.

Table 1: Vegetation Description, Condition and Percent Remaining

No.	Description	Start & End SLK	Side of Road (L- left, R - right, RBM -road building materials)	Condition (Keighery 1994)*	Pre-European Extent Remaining (%) **	Area (ha)
432	Shrublands; Acacia rostellifera & Melaleuca cardiophylla thicket	246.8	L	Good to degraded	89.02	
					Total Area (ha)	

Table 2: Vegetation Percent Remaining

Pre-European Extent Remaining: Vegetation Association No. 432		
Regional Context	**Location**	**Pre-European Extent Remaining (%)**
State-wide	N/A	89.02
Bioregional (IBRA Region)	Geraldton Sandplains	90.55
Bioregional (IBRA Sub-Region)	Leseur Sandplains	90.55
LGA	Shire of Irwin	81.33

5.1 Assessment Against Clearing Principles

In assessing whether the project is likely to have a significant impact on the environment, the project was assessed against the ten clearing principles (EP Act 1986 Schedule 5).

The project is not likely to be at variance with the 10 clearing principles.

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	
ASSESSMENT	Desktop assessment of available information and field survey results from GHD Biological Survey 2010
METHODOLOGY & REFERENCES	□ Total Vascular Plant Taxa – A total of 215 flora taxa from 60 families were recorded from the project area, representing a moderate level of diversity, with 25 weed species. □ Vascular Plant Taxa Diversity – Diversity in the Project area is considered to be comparable to that found in similar habitats in the local area. Fauna Species □ Total Fauna Taxa – The reconnaissance fauna survey recorded 35 bird species, six mammal species, six reptile species and one amphibian species. Ecosystem Diversity □ Number of Ecological Communities (Plant, Fauna) – Seventeen vegetation types and five fauna habitats were recorded from the project area. These communities are also present in the local area in similar or better condition. □ Habitat Diversity – Habitats (macro- and microhabitats) found in the project area are also present in the local area in similar or better condition. □ Variety of Soil Types/Geological Formations – Soil types or geological formations in the project area are also present in the local and regional area No priority species located within the proposed project area.
Proposal is not likely at variance to this Principle.	

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	
ASSESSMENT	GHD Biological Survey 2010
METHODOLOGY & REFERENCES	Significant Fauna □ Threatened Fauna – The desktop assessment indicated that threatened fauna may potentially utilise the project area. Habitat for threatened fauna was recorded within the project area; however, no threatened fauna were recorded during the survey. Habitat is considered to be common in the local and regional area. □ Priority Fauna – The desktop assessment indicated that priority fauna may potentially utilise the project area for foraging. No DEC listed priority Fauna were recorded from the project area. □ Other Significant Fauna – The desktop assessment indicated that significant fauna may occur in the project area. Five EPBC Act Marine and/or Migratory Listed species were recorded from the project area. These species are considered common in Western Australia and are not under threat. Habitat □ Significant Habitat / Habitats of Significance – No habitat deemed to be significant occurs in the project area. Habitat in the project area also occurs in the local area in similar or better condition. Beekeepers Nature Reserve lies immediately to the east of much of the project corridor and comprises 69,000 ha of protected habitat. □ Habitat Extent and Retention – Habitats recorded in the project area are also found in the local area in similar or better condition. The proposed Project will not significantly diminish the extent of these habitats. □ Ecological Corridors – The habitat in the project area occurs in a region with relatively undisturbed ecological corridors. Existing corridors are not considered to be significantly modified by the proposed project.
Proposal is not likely at variance to this Principle.	

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	
ASSESSMENT	GHD Biological Survey 2010
METHODOLOGY & REFERENCES	Rare Flora Presence – No Declared Rare Flora (DRF) taxon were indicated to occur within the vicinity of the of the Project area as a result of database searches. No Declared Rare Flora taxa were recorded in the Project area during the field survey. Habitat – No habitat considered to be required for the continued existence of DRF is considered to be present in the Project area.
Proposal is not likely at variance to this Principle.	

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.	
ASSESSMENT	GHD Biological Survey 2010
METHODOLOGY & REFERENCES	Extent and Status – Apart from Vegetation Associations 125 and 129 (which are both considered to be Depleted), the remaining Vegetation Associations in the project area are all considered to be of Least Concern in terms of their regional extents (Shepherd, 2005) (Table 1). Much of the remaining extents of Vegetation Associations 125 and 129 are currently held in IUCN Class I-IV Reserves, with 87.5% and 77.7% held respectively. – Although Vegetation Associations 125 and 129 are both considered to be Depleted, the extent of clearing required for this project is not considered likely to alter the threat level of either vegetation type within the Geraldton Sandplains IBRA Region. – Vegetation types recorded in the project area are considered to broadly map the Vegetation Associations indicated by Beard for the area. Communities – No Threatened or Priority Ecological Communities were recorded from the Project area.
Proposal is not likely at variance to this Principle.	

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	
ASSESSMENT	GHD Biological Survey
METHODOLOGY & REFERENCES	Apart from Vegetation Associations 125 and 129 (which are both considered to be Depleted), the remaining Vegetation Associations in the project area are all considered to be of Least Concern in terms of their regional extents (Shepherd, 2005) (Table 1). Much of the remaining extents of Vegetation Associations 125 and 129 are currently held in IUCN Class I-IV Reserves, with 87.5% and 77.7% held respectively. – Although Vegetation Associations 125 and 129 are both considered to be Depleted, the extent of clearing required for this project is not considered likely to alter the threat level of either vegetation type within the Geraldton Sandplains IBRA Region. – Vegetation types recorded in the project area are considered to be broadly comparable to the Vegetation Associations indicated by Beard. Regionally Significant Areas – Vegetation within the project area is not considered to contain communities required to maintain ecosystem services (e.g. hydrological processes).
Proposal is not likely at variance to this Principle.	

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	
ASSESSMENT	GHD Biological Survey
METHODOLOGY & REFERENCES	Vegetation – Vegetation Associations H2, H3 and H4 occur in association with low-lying saline wetlands. These wetlands are part of a much larger wetland system that extends to the east and south beyond the northern project corridor boundary. – No permanent watercourses occur within the project area. Groundwater Dependent Ecosystems – Vegetation Associations H3 and H4 are likely to be dependent on subsurface water flows, surface runoff and direct rainfall infiltration.
Proposal is<not likely at variance to this Principle.	

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	
ASSESSMENT	GHD Biological Survey
METHODOLOGY & REFERENCES	Land Degradation Land Capability – The Project proposes to clear vegetation for road construction and upgrade activities. Degradation will occur at the site during construction and earth moving activities; however, this is not expected to alter the land capability of the surrounding area. Soil Erosion – The Project proposes to clear vegetation for road construction and upgrade activities. Erosion from wind is considered to be high, with a considerable portion of vegetation in the project area occurring on sand dunes. Degradation will occur at the site during construction and earth moving activities as part of the proposed Project. This has the potential to increase the erosion of soil within the project area. – The clearing of native vegetation is not expected to alter the quality or quantity of water run-off in or adjacent to the project area. Waterlogging and changes to nutrient levels are not expected to be altered by the clearing of vegetation in the project area. Soil Acidity – The clearing of vegetation is not considered to alter soil acidity in or adjacent to the project area. Salinity – The clearing of vegetation is not considered to significantly alter the hydrological balance and cause a change in the salinity either on- or off-site.
Proposal is not likely at variance to this Principle.	

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.	
ASSESSMENT	GHD Biological Survey
METHODOLOGY & REFERENCES	Conservation Areas Protected Areas – The project area overlaps the western extent of the Beekeepers Nature Reserve; however, it is understood that clearing will be confined to the road reserve. – The Leseur National Park is located 1.5km from the southern extent of the Project area. This conservation area will not be impacted by the proposed project. Fragmentation – The project area occurs in an area where the vegetation is relatively unfragmented. Ecological Linkages – The project area occurs in a region where ecological linkages remain mostly intact. Existing ecological
Proposal is not likely at variance to this Principle.	

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	
ASSESSMENT	GHD Biological Survey
METHODOLOGY & REFERENCES	Catchment Areas – The project area does not occur within a proclaimed Public Drinking Water Supply Catchment. Groundwater – The clearing of vegetation is not considered to cause an alteration to the quality of groundwater in or adjacent to the project area. – Vegetation Associations H3 and H4 are likely to be partially dependent on subsurface water flows. Surface Water – The clearing of vegetation is not considered to cause
Proposal is not likely at variance to this Principle.	

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.	
ASSESSMENT	GHD Biological Survey
METHODOLOGY & REFERENCES	Flooding – The clearing of vegetation in the project area is not considered to alter the frequency or intensity of flood events. Runoff coefficients in the project area are not likely to be significantly altered by the clearing of native vegetation.
Proposal is not likely at variance to this Principle.	

5.2 Summary of Management Actions

Main Roads attempts to avoid clearing vegetation if possible, where clearing cannot be avoided then this clearing is kept to a minimum. The following actions are proposed to manage and minimise vegetation clearing for the Indian Ocean Drive Parking Bay SLK 246.8

- Select design/locations that minimise adverse impacts on the biological environment,
- Site office and materials storage areas will be located on previously disturbed/ designated area,
- Construction works to be undertaken in summer to reduce the potential for soil erosion impacting adjoining vegetation during heavy rains,
- Control/spray weeds species within the project area prior to construction to limit the amount of propagative material that may be spread during disturbance,
- Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either mulched or respread.

The following table summarizes what further assessment and management is required in accordance with MRWA State-wide vegetation Clearing Permit (CPS 818).

Table 3: Summary of Additional Management Actions

Impact of Clearing	Yes/No or NA	Further Action Required
1. Does the assessment indicate that the clearing may be at variance or is at variance with one or more of the principles for clearing?		No further action required.
2. Does the assessment indicate that the clearing is at variance with one or more of the principles for clearing?		No further action required.
3. Does the assessment indicate that the clearing is at variance with clearing principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding?		No further action required.
4. Will the project involve clearing for purposes considered temporary in nature under Condition 13 of CPS818?		No further action required.

6. ASSESSMENT OF ASPECTS AND IMPACTS

Table 4: Aspects and Impacts – Indian Ocean Drive Parking Bay

Aspect	Evaluation of Potential Impacts
Vegetation – clearing	**0.5 ha** of native vegetation is proposed to be cleared, the vegetation is described as **432** ***Shrublands; Acacia rostellifera & Melaleuca cardiophylla thicket*** this Vegetation Association has **89.02%** remaining. The native vegetation proposed to be cleared **is** well represented regionally as it possesses **more** than 30% of its pre-European extent. According to Keighery, (1994) the condition of the native vegetation to be cleared is described as **Degraded to Good**. Of the **0.5** of native vegetation proposed to be cleared **0** is temporary clearing.
Vegetation – TECs/DRF	None present in the proposed works areas. No significant vegetation types or threatened flora have been recorded within the road reserve. Consultation with DEC confirms that the proposal is not going to have a significant impact upon any DRF or TECs. No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).
Vegetation – weeds	GHD Biological Survey Noted the following: Weeds were present throughout much of the project area, particularly towards the coast. The most widespread species recorded included *Avena barbata (Bearded Oat), *Bromus diandrus (Brome Grass), *Lolium rigidum (Wimmera Ryegrass),*Lysimachia arvensis var. caerulea (Pimpernel) and *Brassica tournefortii (Mediterranean Turnip). These are common weed species that occur throughout the proposed works areas. These species are likely to be widespread within the reserve and general area.
Vegetation – dieback	Advice from the GHD Biological survey indicates that the project area may be considered to be susceptible to the impact of the *Phytophthora cinnamomi* pathogen.
Fauna	No significant fauna issues associated with any of the proposed upgrade works. With the generally degraded and exposed nature of the works areas, no significant impacts would be expected on native fauna generally as a result of the proposed works. No Matters of National Environmental Significance as protected under the EPBC Act (1999) will be impacted (see Table 5).
Heritage (non-indigenous)	A search of the Australian Heritage Places Inventory, Heritage Council of Western Australia and the **Shire of Irwin** Municipal Heritage Inventory on-line databases has indicated that there **are no** known site(**s**) of heritage significance within the vicinity of the project area. No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).

Table 4: Aspects and Impacts – Indian Ocean Drive Parking Bay

Aspect	Evaluation of Potential Impacts
Aboriginal heritage	A search of the DIA's database/Heritage survey identified 1 'Other Heritage Place'. A Desktop Aboriginal Heritage Survey was conducted by Rory O'Connor who stated: Site Number 185297 is listed as "Stored Data" and is there for not covered by the provisions of the Aboriginal Heritage Act 1972. These proposed works are occurring within a previously disturbed area. The No further investigations are required for all aspects of the project.
Wetlands	Arc GIS Datasets and Department of Water Datasets show that no wetlands will be impacted as part of the works. No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).
Surface water/drainage	A search of the DoW's has confirmed that the proposed works will not disturb or interrupt any natural drainage and surface run-off patterns. Two F drains are going to be built as part of the proposed works.
Groundwater	Permits will be **obtained/applied for** to install bores and abstract groundwater.
Reserves / Conservation areas	There are no conservation areas or reserves adjacent to the project area.
Air quality	Not relevant to the proposed works. Local air quality assessment is not required for the project since: • the predicted traffic flow is less than 15,000 vehicles per day in rural areas; and • residential and other sensitive receptors are not within 200 meters of the road centre.
Dust	Likely to be a minor issue during earthworks. No major sensitive receivers adjacent to the proposed works, but excessive dust could impact vegetation. This is likely to be easily managed by standard construction dust management techniques.
Noise and vibration	No major sensitive local receivers. Construction works is not expected to significantly contribute to noise levels at the nearest sensitive receivers, provided works are limited to normal working hours. The requirements of the Shire of Irwin must be met in respect of noise management and construction working hours.
Visual amenity	The proposed works will result in minor and short-term visual impacts during construction.
Public safety and risk	Provided traffic management and signage to Main Roads standards is employed, none of the proposed works present any significant hazards to public safety. The proposed works will serve to enhance public safety by improving local road and pedestrian conditions.
Hazardous substances	Not relevant to the proposed works, the project requires no hazardous substances to be used.

Table 4: Aspects and Impacts – Indian Ocean Drive Parking Bay

Aspect	Evaluation of Potential Impacts
Contamination	The works are within the road reserve and no known previous land use activities on or adjacent to the project area have had the potential to create contamination, e.g. petrol station. A search of the DEC's contaminated sites database indicates there are no identified contaminated sites within the project area.
Salinity	There were no visual signs of salinity observed in the project area. Given the nature and scale of the project the impact is considered not relevant.
Acid Sulfate Soils	The CSRIO database indicates that the area is classified as low risk, as there is no dewatering or excavation below the water table planned no further investigations are required.
Statutory Land Use Planning	As the proposed works are entirely within the existing road reserve no planning scheme amendments are required.

Table 5: Commonwealth Aspects and Impacts – Indian Ocean Drive Rest Area at SLK 246.8

Aspect	Evaluation of Potential Impacts
World Heritage properties	The project will not impact any World Heritage properties i.e. Shark Bay
National Heritage places	A search of the Australian Heritage Places Inventory Database located **no** site(**s**) within the vicinity of the project.
Wetlands of international importance (Ramsar)	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located **no** Ramsar Wetland(**s**) within the vicinity of the project.
Nationally threatened species or ecological communities	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located **no** threatened ecological communities, **16** threatened species and **40** listed marine species within the vicinity of the project. The project activities are unlikely to have a significant impact on **these** species and the marine species are listed as "over fly" with the vegetation present unlikely to be habitat for **these** species.
Migratory species protected under international agreements	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located **23** migratory species within the vicinity of the project. The project activities are unlikely to have a significant impact on **these** species as the vegetation present is unlikely to be habitat for **these** species.
Commonwealth marine areas	The project will not impact any Commonwealth marine area or marine protected area i.e. Ningaloo Marine Park
Commonwealth lands	The project is not located on and will not impact any Commonwealth lands.
Nuclear Actions	Not relevant to the proposed works.

7. DECISION TO REFER

7.1 Referral to the Department of Sustainability, Environment, Water, Population and Communities

The preliminary impact assessment determined the project does not, will not, or is not likely to have a significant impact on Matters of National Environmental Significance or impact Commonwealth land as outlined in Table 5 of the report. For this reason the project does not require referral to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

7.2 Referral to the Environmental Protection Authority

Due to the small scale of the project, the low significance of its impacts to the surrounding environment and that it is unlikely the project will generate significant public interest, the project does not require referral to the WA Environmental Protection Authority.

8. STAKEHOLDER CONSULTATION

Table 6: Project Consultation

Name	Agency	Date	Comments

9. OTHER APPROVALS/PERMITS/LICENCES

No further approvals, permits or licences are required for the Indian Ocean Drive Parking Bay SLK 246.8

10. REFERENCES

Beeston, G.R., Hopkins, A.J.M. and Shepherd, D.P. (2002). Land-use and vegetation in Western Australia. Department of Agriculture, Western Australia, Resource Management Technical Report 250.

Keighery, B. J. 1994. *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Appendix A

Low Impact Environmental Screening Checklist

Form No. 6707/001/01

Checklist - Low Impact Screening Checklist

The Low Impact Screening Checklist is part of the environmental assessment and approval process, refer to in Figure 2 in the Main Roads environmental guideline Environment Assessment and Approvals. It should be noted that the checklist does not address Aboriginal heritage issues. Please refer to Main Roads guideline *Aboriginal Heritage* for the heritage assessment process.

All projects are to be screened to identify those that are Low Impact.

Projects that have "No" to **all** items are classed as Low Impact and should be implemented using standard contract clauses in the Tender Document Process.
Projects that have "Yes" to **any** item will require further environmental assessment and will be implemented using an Environmental Management Plan.
Tick "Yes" or "No" for every item.

Project Name Construction of Parking Bay on Indian Ocean Drive at 246.7 SLK

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.	X	
2	Works require clearing of native vegetation outside the maintenance zone.	X	
3	Works require clearing of native vegetation that is older than 10 years old within the maintenance zone.	X	
4	Works to occur outside normal working hours.		X
5	Passes over, adjoins or drains directly into a wetland or sensitive watercourse.		X
6	Local natural drainage regime / hydrology will be changed.		X
7	Dewatering, or a new water bore required.		X
8	Known potential source of hazardous materials within or adjoining project area. e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill)		X
9	Buildings will require demolition.		X

Completed By:

Signature KJ Thorpe *Date* 19 November 2012

Name Kyran Thorpe *Title* A/Delivery Manager

To be reviewed by a Main Roads Environment Officer

Signature [signature] *Date* 19/11/2012

Name Anna Sutherland *Title* Environment officer.

Comments: Item 1 – Creation of new parking bay

Parking Bay @ 247.5 to be rehabilitated.
PEIA required.

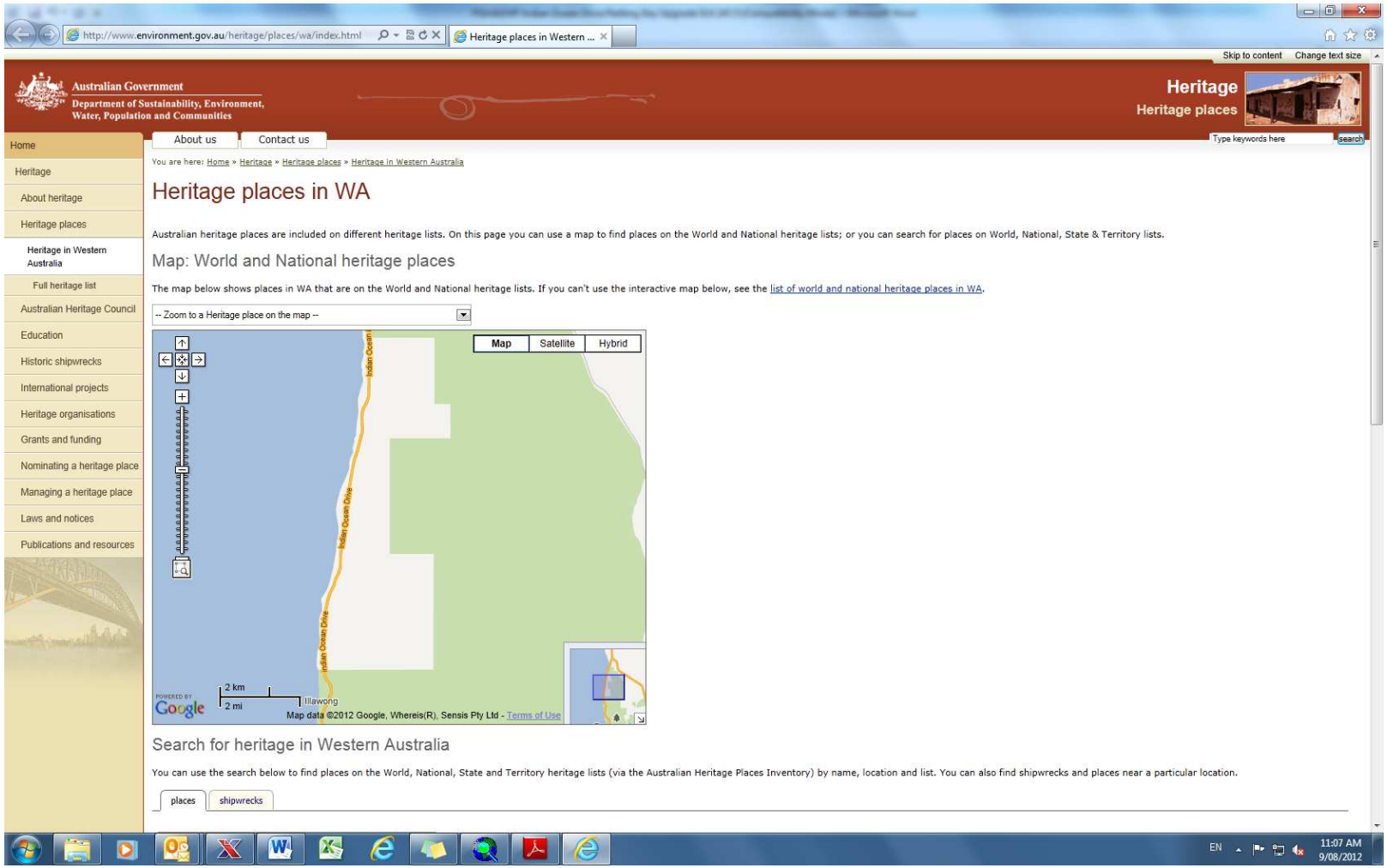
Appendix B

DEC Threatened Flora and Fauna Database Searches

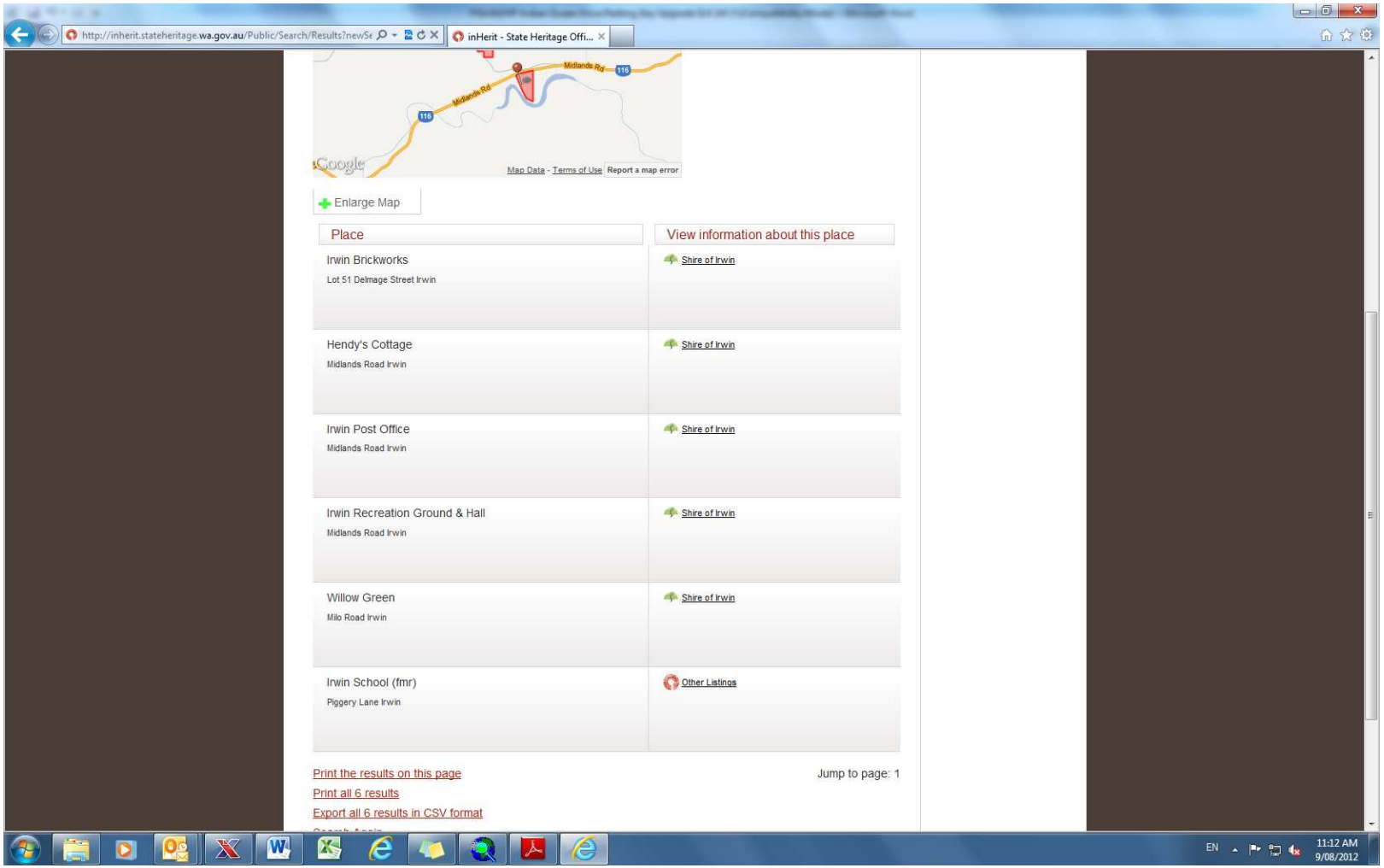
Indian Ocean Drive Proposed Parking Bay at SLK 246.8

Appendix C

Australian Heritage Places Inventory, Heritage Council of Western Australia and the Municipal Heritage Inventory Database Searches



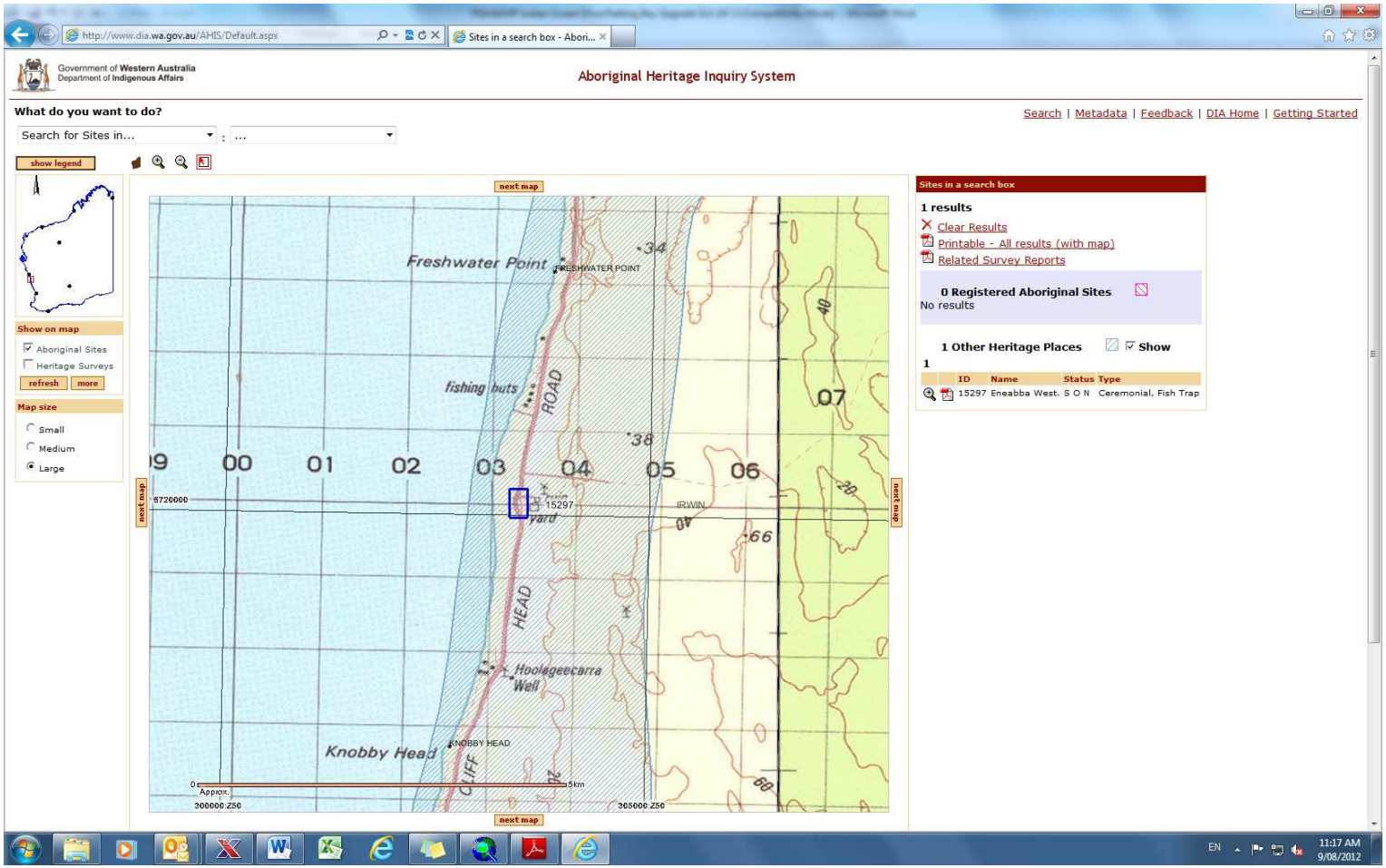
Source: http://www.environment.gov.au/heritage/places/wa/index.html (09/08/2012)



Source: **http://inherit.stateheritage.wa.gov.au/Public/Search/Results?newSearch=True&placeNameContains=&streetNameContains=&suburbOrTownContains=irwin** (09/08/2012)

Appendix D

Department of Indigenous Affairs Database Search



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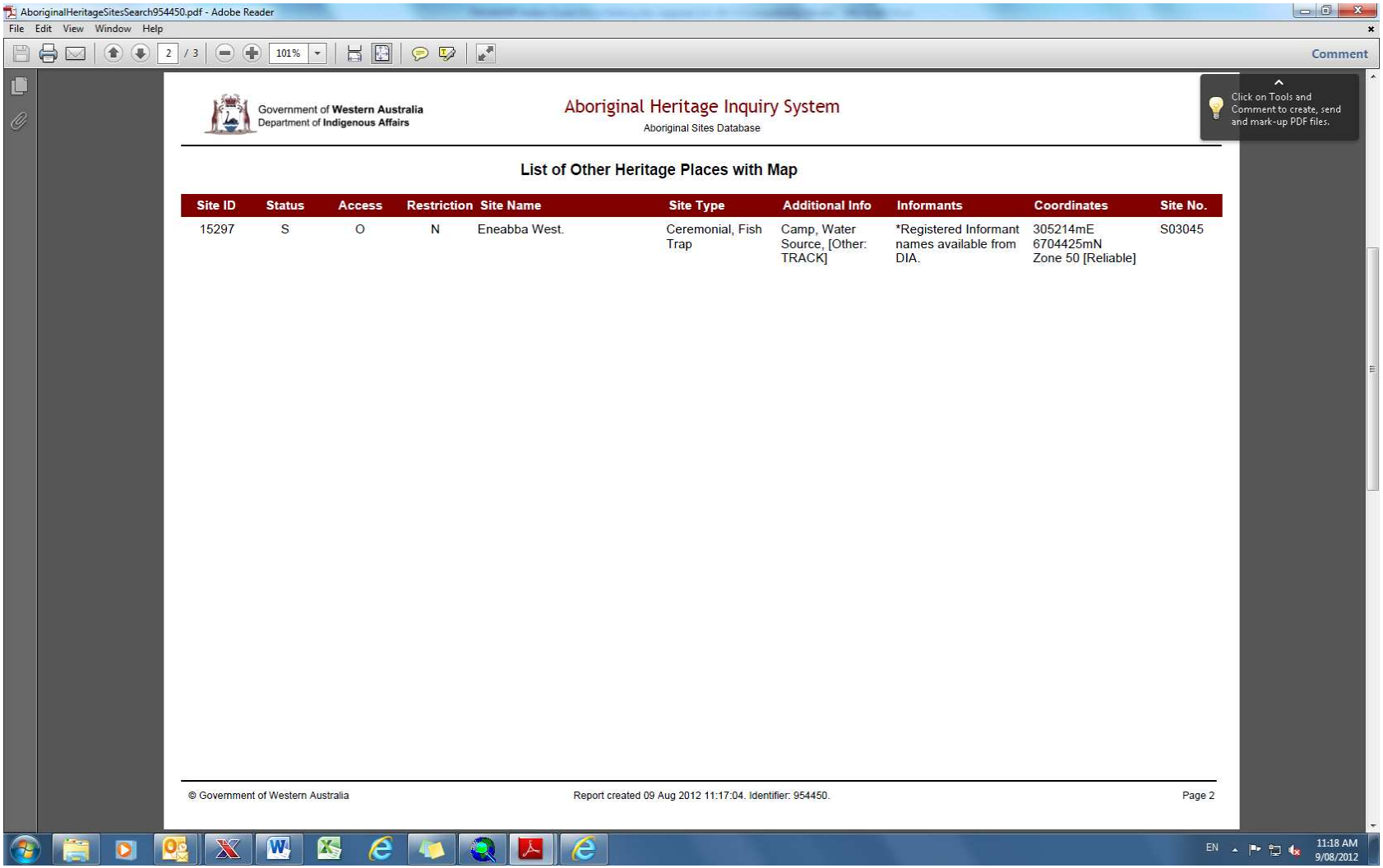
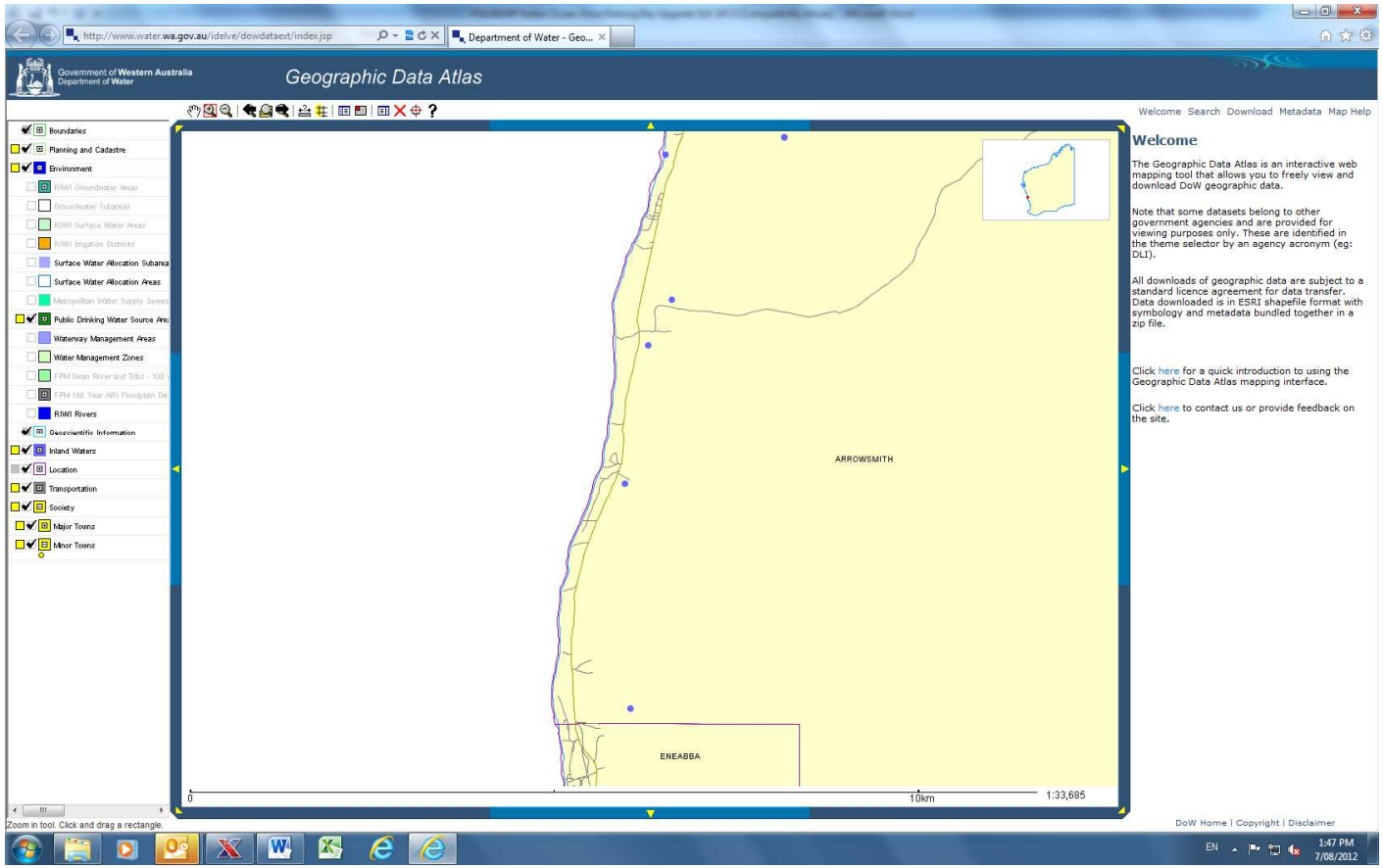


Source: Source: http://www.dia.wa.gov.au/AHIS/Default.aspx (09/08/2012)

Appendix E

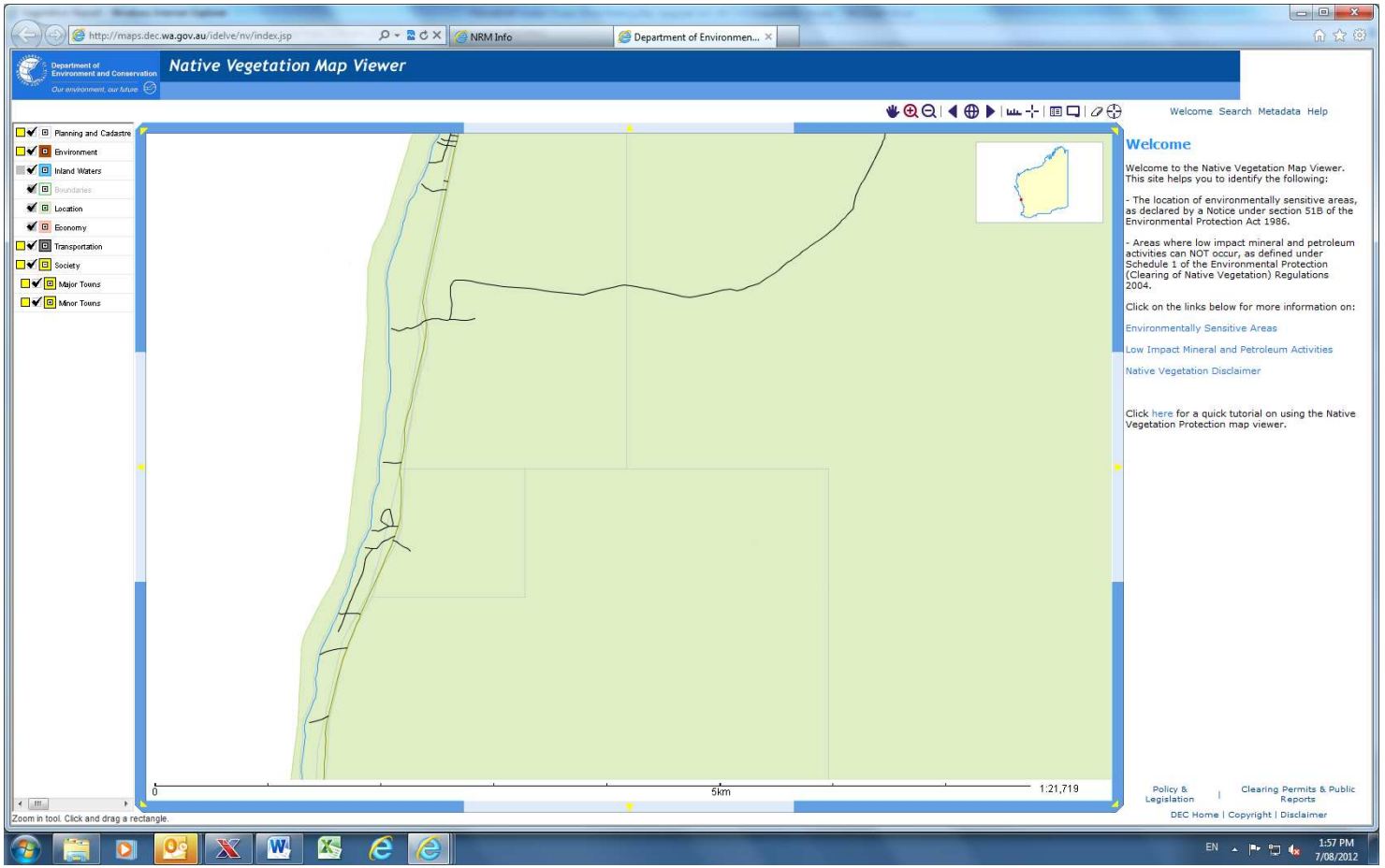
DoW Geographic Data Atlas Database Search



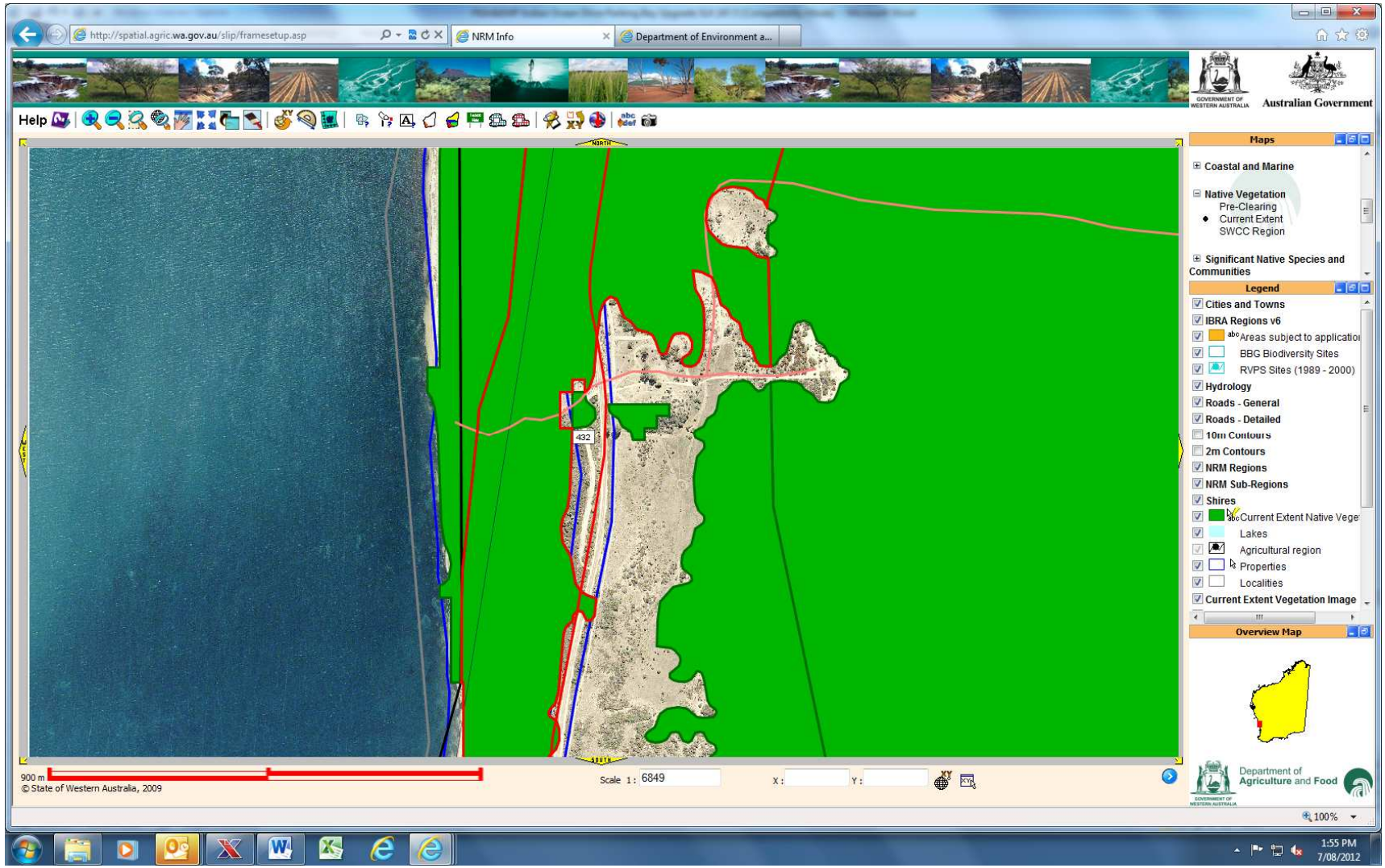
Source: http://www.water.wa.gov.au/idelve/dowdataext/index.jsp (07/08/2012)

Appendix F

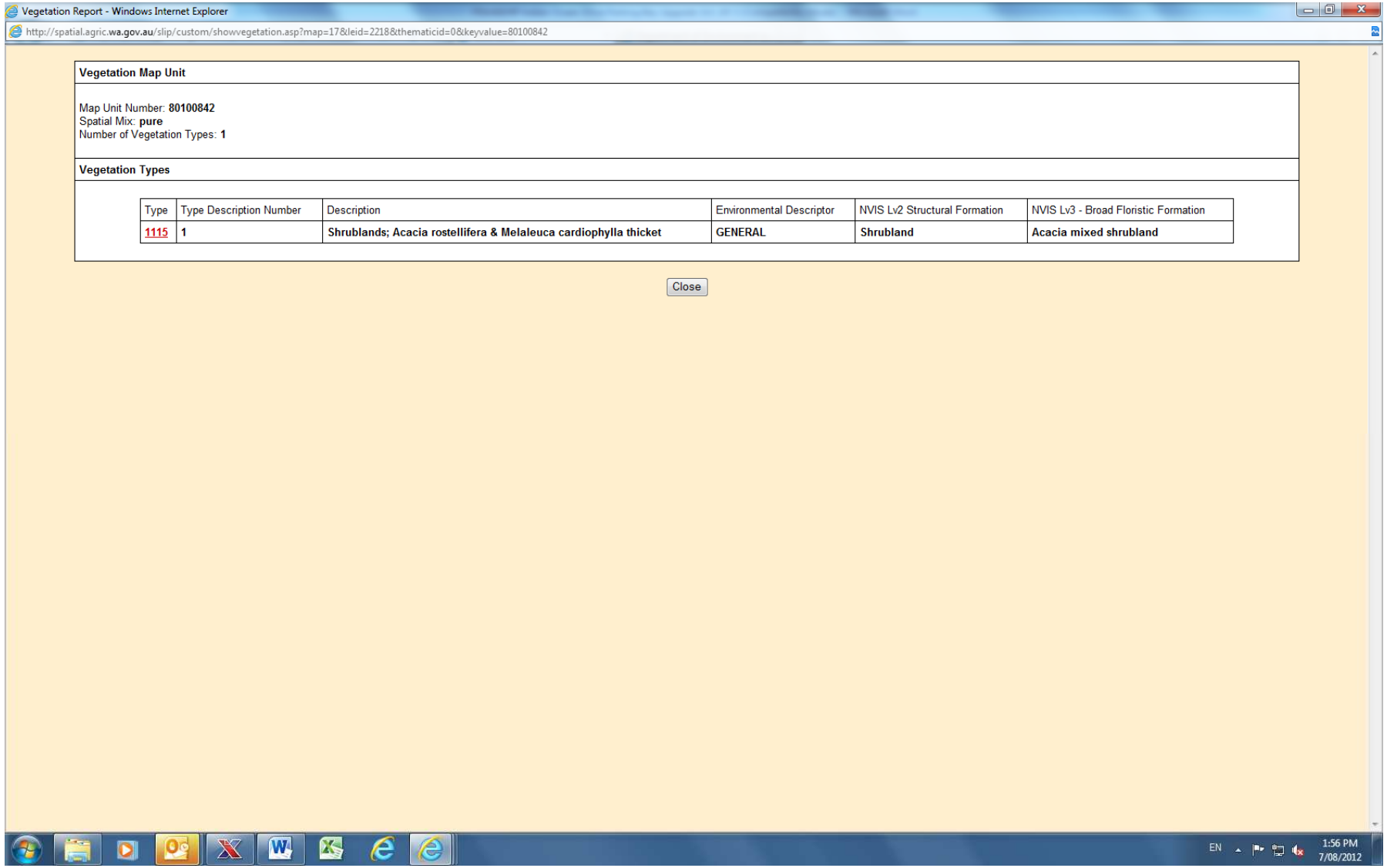
DEC Native Vegetation Map Viewer Database Search



Source: http://maps.dec.wa.gov.au/idelve/nv/index.jsp (07/08/2012)



Source: http://spatial.agric.wa.gov.au/slip/framesetup.asp (08/08/2012)



Source: http://spatial.agric.wa.gov.au/slip/framesetup.asp (08/08/2012)

Appendix G

DSEWPC Database Search

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

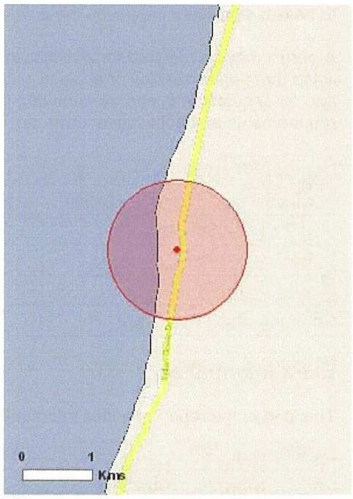
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Report created: 09/08/12 11:36:51



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
Threatened Species:	16
Migratory Species:	23

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	40
Whales and Other Cetaceans:	11
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

Place on the RNE:	1
State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	9
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Threatened Species		[Resource Information]
Name	Status	Type of Presence
BIRDS		
Calyptorhynchus latirostris		
Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Macronectes giganteus		
Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli		
Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta		
Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
MAMMALS		
Eubalaena australis		
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Neophoca cinerea		
Australian Sea-lion [22]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
PLANTS		
Centrolepis caespitosa		
[6393]	Endangered	Species or species habitat may occur within area
Isopogon uncinatus		
Hook-leaf Isopogon [20871]	Endangered	Species or species habitat may occur within area
REPTILES		
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
SHARKS		
Carcharias taurus (west coast population)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat may occur within area
Carcharodon carcharias		
Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area

Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Sterna caspia Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
Migratory Marine Species		
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Carcharodon carcharias Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species

Name	Threatened	Type of Presence
		habitat likely to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Larus pacificus Pacific Gull [811]		Foraging, feeding or related behaviour known to occur within area
Macronectes giganteus Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area
Sterna caspia Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or

Name	Threatened	Type of Presence
		related behaviour likely to occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
Fish		
Acentronura australe Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
Hippocampus subelongatus West Australian Seahorse [66722]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area
Mitotichthys meraculus Western Crested Pipefish [66259]		Species or species habitat may occur within area
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Phycodurus eques Leafy Seadragon [66267]		Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
Pugnaso curtirostris Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish [66276]		Species or species habitat may occur within area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black		Species or species

Name	Threatened	Type of Presence
Pipefish [66277]		habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
Mammals		
Arctocephalus forsteri New Zealand Fur-seal [20]		Species or species habitat may occur within area
Neophoca cinerea Australian Sea-lion [22]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Reptiles		
Aipysurus pooleorum Shark Bay Seasnake [66061]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and other Cetaceans		[Resource Information]
Name	Status	Type of Presence
Mammals		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area
Delphinus delphis Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area

Name	Status	Type of Presence
Lagenorhynchus obscurus		
Dusky Dolphin [43]		Species or species habitat may occur within area
Megaptera novaeangliae		
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Orcinus orca		
Killer Whale, Orca [46]		Species or species habitat may occur within area
Stenella attenuata		
Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus		
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str.		
Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

Places on the RNE [Resource Information]

Note that not all Indigenous sites may be listed.

Name	State	Status
Natural		
Moore River to Murchison River Area	WA	Indicative Place

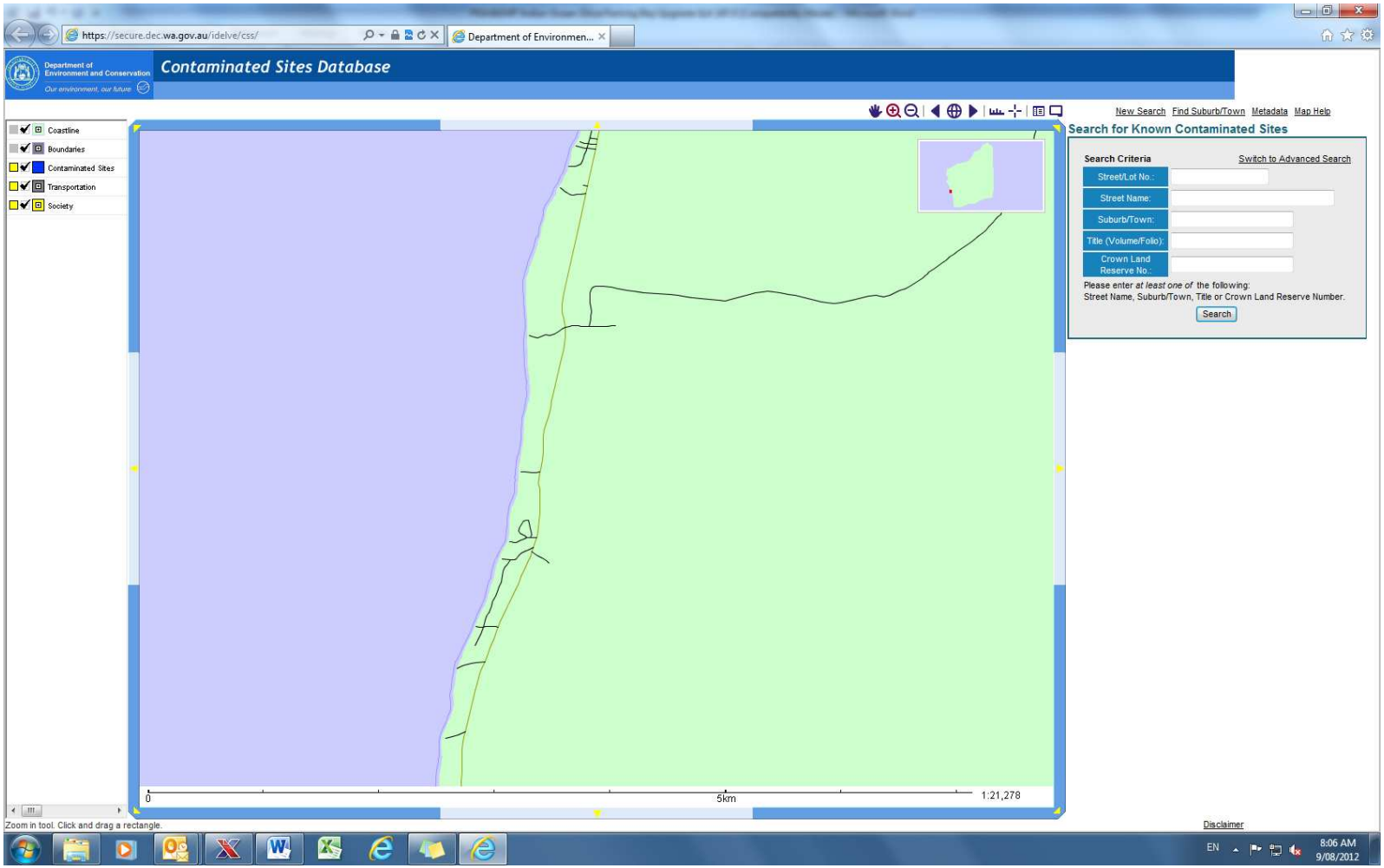
Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit,

Name	Status	Type of Presence
Mammals		
Capra hircus		
Goat [2]		Species or species habitat likely to occur within area
Felis catus		
Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa		
Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides		
Bridal Creeper, Bridal Veil Creeper, Smilax,		Species or species

Appendix H

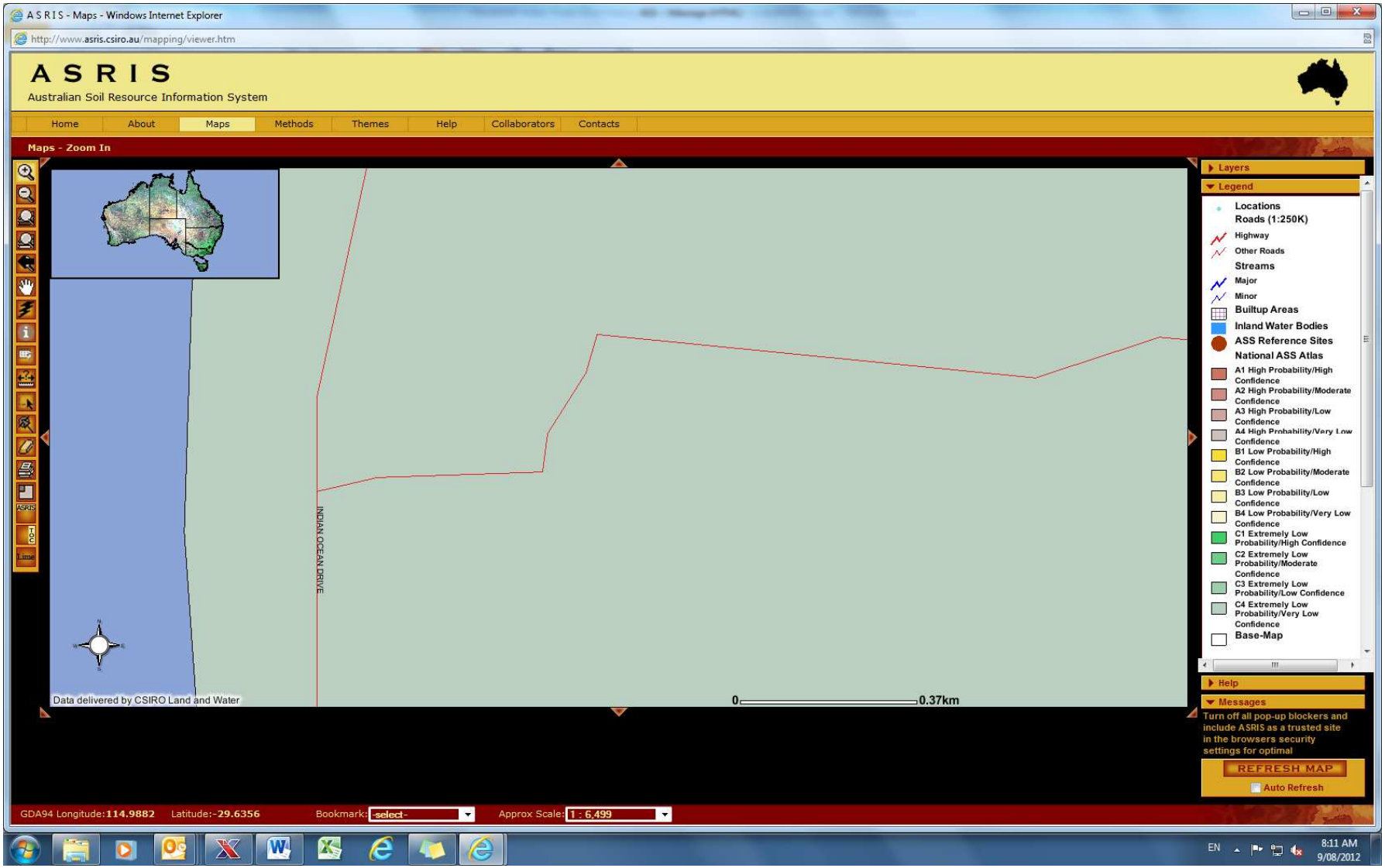
DEC Contaminated Sites Database Search



Source: https://secure.dec.wa.gov.au/idelve/css/ (09/08/2012)

Appendix I

Acid Sulfate Soils Mapping



Source: http://www.asris.csiro.au/index_ie.html (09/08/11)

Appendix J

Site Photos

Photo 1: Looking North Taken 19/01/2010 at SLK 246.6

Photo 2: Looking North Taken 19/01/2010 at SLK 246.6

Photo 3: Looking North Taken 19/01/2010 at SLK 246.

Photo 4: Looking North Taken 19/01/2010 at SLK 246.8

Photo 5: Looking North West from current informal parking bay

Photo 6: Looking south from current informal parking bay

Photo 7: Looking south from current informal parking bay

Photo 8: Looking southwest from current informal parking bay

Appendix K

Environmental Management Plan

ENVIRONMENTAL MANAGEMENT PLAN

INDIAN OCEAN DRIVE REST AREA UPGRADE SLK 246.8

Introduction

This Environmental Management Plan (EMP) has been developed for the project area following the completion of the Preliminary Environmental Impact Assessment (PEIA) report. The aim of this EMP is to minimise the environmental impacts associated with the proposed works as well as to identify areas of responsibilities required for the implementation of management strategies.

This EMP addresses specific issues that were identified during the PEIA. The project management measures identified within this EMP are in addition to the standard environmental management contract specifications used for Category 2 projects. Main Roads' standard environmental contract specifications (Specifications 203, 204, 301, 302 and 304) are to be adhered to where appropriate.

The areas that require special management will be addressed in terms of:

- the timing of the various management actions;
- the topic (e.g. vegetation);
- the objectives for each area;
- the actions that are necessary to minimise the impact;
- the responsible party for implementing the action; and
- whether the action arose from external advice or is a Main Roads requirement.

Communication Plan

Environmental issues specific to the project will be communicated as follows:

Method	Frequency	Participants	Reference	Record
Project Site				
Induction	Prior to Work	All personnel and subcontractors	EMP and Contractor Environmental Policy	Induction Meeting
Toolbox Meetings	Weekly	Project Personnel	Contractor Safety Plan	Minutes of Meeting
Contract Meetings	XXX	Main Roads' Project Manager and Contractor Project Manager	EMP	Minutes of Meeting

External Communication and Complaints
A complaints register shall be maintained by the contractor. All complaints received shall be forwarded to the Main Roads' Project Manager for action. Serious complaints shall be investigated within 24 hours of the complaint being received.

Monitoring

After project completion and project handover, the Asset manager should develop a monitoring program to monitor for those aspects that have been identified as requiring monitoring.

Contingency Measures

Due to the scale and nature of the project, no contingency measures are identified as the inherent environmental risks are small.

Auditing

Due to the scale and nature of the project, there is no requirement for auditing the implementation of the EMP as the environmental risks are small.

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	**Topic**	**Objective**	**Action**	**Responsible Party**	**Advice**
All phases of Construction	Vegetation Clearing - Record-keeping	All projects should maintain the required records relating to clearing native vegetation under the purpose permit.	Clearing: • a copy of the PEIA & EMP (Minor projects) for small projects; • a map showing the location where the clearing occurred, recorded in an ESRI Shapefile *;* • the size of the area cleared (in hectares); and • the dates on which the clearing was done.	Project Manager	DEC
Pre - Construction	Visual Amenity	Ensure that road blends into environment.	Develop design documentation to meet project requirements as identified in the visual impact assessment.	Project Manager	Main Roads
Pre-Construction	Vegetation Clearing	Ensure that the overall objectives of the alignment and construction works are compatible with maintaining and, where possible, enhancing the biological integrity of the surrounding environment and minimising vegetation loss and degradation; and Ensure the retention of as many habitat trees, shrubs and vegetated corridors for fauna as possible, particularly where associated with riparian zones.	Selection of designs/locations that minimise adverse impacts on the biological environment.	Project Manager	Main Roads
			Construction works to be undertaken in summer to reduce the potential for soil erosion and drainage line siltation due to vegetation removal and heavy rains.	Project Manager	Main Roads
			Control/spray weeds species within the project area prior to construction to limit the amount of propagative material that may be spread during disturbance.	Contractor	Main Roads
			Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either mulched or respread according to the TDP/Revegetation Plan.	Contractor	Main Roads
Pre-Construction	Surface Drainage	Maintain the hydrological regime that exists prior to the construction of the proposal.	Stormwater drainage shall be treated and disposed of in accordance with DEC requirements.	Project Manager	DEC
Construction	Noise, Vibration and Dust	Ensure that the construction of the proposal does not become a nuisance to the public.	Access to private property and appropriate traffic management measures should be planned and implemented prior to the construction of works.	Contractor	Main Roads
			Pedestrian public access should be should be planned and implemented prior to the construction of works.	Contractor	Main Roads
			Any complaints regarding dust will be attended to as soon as possible.	Contractor/Project Manager	Main Roads
			Where it is found that trucks leaving the site are carrying excessive material onto sealed surfaces, these areas will be swept to reduce dust generation and maintain traffic safety.	Contractor	Main Roads
			Watering, the use of hydromulch or other forms of mulching to protect loose surfaces shall be used as mitigation measures.	Contractor	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	**Topic**	**Objective**	**Action**	**Responsible Party**	**Advice**
Construction	Pollution and Litter	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment.	The designated servicing area will be bunded to contain any spills or leaks and shall not be located in an area adjacent to any drainage areas or watercourses or will drain into a temporary sump.	Contractor	Main Roads
			Temporary storage of bitumen, asphalt, concrete or aggregate should only occur at designated depots or controlled hardstands. Precoating of aggregate will only occur in approved areas.	Contractor	Main Roads
			Emergency cleanup procedures shall be implemented in the case of any spillage. These will include control of spilled material and removal of contaminated soil to an approved site. The contractor shall ensure appropriate equipment is available at all times and shall notify the Superintendent's Representative of a spill.	Contractor	Main Roads
			All waste oil will be collected for recycling and any empty fuel/oil containers, used filters and waste hydraulic parts to be collected and stored in an allocated area then removed to an approved site.	Contractor	Main Roads
			The project areas, including hardstand areas, will be kept in a tidy manner at all times.	Contractor	Main Roads
Construction	Fire	Ensure that the fire risk associated with the construction of the proposal is minimised.	No fires shall be lit within the project area.	Contractor	Main Roads
			Machinery will be fitted with approved spark arresting mufflers.	Contractor	Main Roads
			A water tanker/fire fighter unit will be on site at all times.	Contractor	Main Roads
Construction	Fauna	Avoid unnecessary impacts to fauna and damage to fauna habitat.	Fauna are not to be fed or intentionally harmed.	Contractor	Main Roads
			No pets or firearms permitted on site.	Contractor	Main Roads
			The WILDCARE Helpline is to be contacted, 9474 9055, in the event of sick, injured or orphaned native wildlife on the site.	Contractor	Main Roads
Construction	Site Management	Ensure that the site is managed to ensure that construction of the proposal will have minimal impact upon the surrounding environment.	Site office and materials storage areas will be located on previously disturbed/ designated area.	Contractor	Main Roads
Construction	Rehabilitation	Rehabilitate the project area to meet project commitments.	Implement the contract specifications for rehabilitation of the site.	Contractor	Main Roads
			All waste materials from the development are to be completely removed from the site upon completion of the project. Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent.	Contractor	Main Roads