

**Project title:** Garden Island Hammerhead Crane proposed removal

### 1.1 Short description

1.2	<b>Latitude and longitude</b>	Latitude	Longitude
	location point	degrees minutes seconds	degrees minutes seconds
		-33°51'46.0188"	151°13'30.72"

The locality surrounding the site consists of the residential suburbs of Woolloomooloo, Potts Point and Elizabeth Bay. The proposed action would take place to the east of, and in close proximity to the recreational area of Mrs Macquarie's Point.

The size of the Garden Island base is approximately 32 ha in area. The footprint of the HHC covers an approximate area of 16 m x 16 m. This referral relates only to the HHC itself and its footprint.

The Hammerhead Crane is located at the northern end of FBE, at the northern end of Cowper Wharf Road, Garden Island. Access to the crane is via West Endeavour Road (a private internal road).

1.6 **Lot description**

A number of Lots and DPs are located within the boundary of Garden Island. The proposed action would take place at:

Lot 1 of DP 555125

1.7 **Local Government Area and Council contact (if known)**

The proposed action is located adjacent to the City of Sydney Local Government Area (LGA), however, Garden Island is Commonwealth land and is not subject to local government planning approval. The City of Sydney LGA (and other LGA/councils) will be able to comment on this proposal during public comment periods mandated by the *Environment Protection and Biodiversity Conservation Act 1999*.

1.8 **Time frame**

The timeframe of the proposed action is ideally before arrival at Garden Island of the first of Navy's two new Landing Helicopter Dock vessels in December 2013. The HHC is already impacting adversely on berthing of the newly acquired amphibious ship HMAS *Choules* when berthed at the northern end of the Fleet Base.

1.9 **Alternatives to proposed action**

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No

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Yes, you must also complete section 2.2

1.10 **Alternative time frames etc**

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No

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Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).

1.11 **State assessment**

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No

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Yes, you must also complete Section 2.5

1.12 **Component of larger action**

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No

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Yes, you must also complete Section 2.7

1.13 **Related actions/proposals**

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No

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Yes, provide details:

1.14 **Australian Government funding**

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No

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Yes, provide details:

1.15 **Great Barrier Reef Marine Park**

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No

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Yes, you must also complete Section 3.1 (h), 3.2 (e)

## 2 Detailed description of proposed action

### 2.1 Description of proposed action

The primary function of the FBE/Garden Island complex is to provide training and logistic support, maintenance facilities and berths for major RAN ships currently home-ported in Sydney, plus berths for other visiting RAN and foreign warships. As part of its vital operational support role, the FBE/Garden Island complex provides essential docking and ship repair and maintenance facilities capable of supporting all current and future RAN ships. As the largest dry dock in the South West Pacific region, the Captain Cook Dock provides a strategically important national capability for planned and emergency ship (and potentially submarine) repair and maintenance.

FBE is 870 metres long, including use of the northern mooring dolphin, with a 10 degree 'kink' at the 310 metre mark, which provides two berth pockets. Thus the northern Fleet Base 1-3 berth pocket is 560 metres long, and the southern Fleet Base 4-5 pocket is 310 metres. The HHC is located at FBE1N, the northern most berth along FBE (refer to Figure 2).

The HHC was constructed at FBE between 1944-51 to assist with the removal and fitting of battleship gun turrets and is thus a relatively late addition to the much older naval heritage of Garden Island dating back 100 years before construction of the crane. There has been no operational requirement for the HHC since 1996; Defence's maritime heavy lifting requirements at FBE berths are now fulfilled through commercial hire of mobile cranes, which can provide lift capacity in excess of 800 tonnes. The HHC was initially maintained to a standard allowing its full 250 tonne capacity to be utilised. However, prior to its discontinued use in 1996, the lifting capacity had been down-rated to 70 tonnes to reflect its deteriorating condition due to corrosion. The decision was made in 1996 that as the HHC was no longer operationally required, no further investment would be made to maintain it in an operational condition. Subsequently, only necessary preventative maintenance has been performed.

The size, location and condition of the HHC imposes operational restrictions at FBE1N and adjacent berths, adding complexity to maintenance activities and impacting on the berthing of larger vessels. Further, the deteriorating condition of the HHC presents a range of ongoing costs and risks to the work health and safety (WHS) of personnel in its vicinity. In 2007 metal debris fell from the HHC, which resulted in a Comcare investigation and the subsequent issue of both prohibition and improvement notices that restricted access to both the HHC and adjacent wharf areas pending works to stabilise the HHC and make the surrounding area safe. On 17 April 2012 a piece of timber, possibly dislodged from the HHC during strong winds, landed near a Defence contractor standing near the base of the crane. While no injury resulted, this forced a temporary exclusion zone around the HHC and necessitated additional inspections for any loose material that might be at risk of falling from the crane. This safety incident also disrupted contractor work on an adjacent ship.

The 2009 Defence White Paper identifies a number of new naval capabilities entering service including the *Canberra* class Landing Helicopter Dock (LHD) and the *Hobart* class Air Warfare Destroyer (AWD) vessels, both significantly larger than the capabilities they will replace. The LHDs will be introduced from late 2013. These proposed new capabilities will impact on already limited berthing capacity and flexibility at FBE. The location of the HHC further compounds the berthing availability problem at FBE as it will require the LHDs to berth further south of the HHC with resultant impact on berth availability and flexibility for other ships.

In 2009, WorleyParsons was engaged by Defence to provide a technical engineering basis for determining the most appropriate option for addressing the environmental, health, safety and operational issues arising from the HHC and provide a cost benefit analysis of each option (WorleyParsons Nov 2009). Based on a consideration of costs, benefits and residual risks, it was recommended that the HHC be removed with all but selected components recycled. Further studies

were recommended to determine whether this outcome would meet the requirements of all key stakeholders. The referral of this action is expected to identify and engage key stakeholders in accordance with this recommendation.

## **2.2 Alternatives to taking the proposed action**

WorleyParsons (2009) determination report advised the range of options available to Defence for addressing the environmental, health, safety and operational issues arising from the HHC. A summary of these options is presented as follows:

### **Option 1 — Mothball in-situ**

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This option reflects a minimum base case where no significant action is taken other than to address the mandatory tasks of making the HHC stable and safe for the medium to long term in its current location. This differs from the existing situation whereby underslung scaffolding is in place to safeguard personnel in the vicinity from falling components, and the HHC itself continues to deteriorate. The high ongoing hire costs of scaffolding and continuing maintenance and repair works, necessitated by progressively deteriorating structural and non-structural components, are not considered to be a safe, effective and viable long-term solution.

The scope of works to decommission the HHC and conserve in-situ ("mothball") would include:

- removal of bird faeces and asbestos by qualified contractors (if asbestos is considered to be in adequate condition and the risk of fibres escaping is low, then the retention of asbestos in-situ could be considered as a safe option)
- remove counterweight to achieve a balanced condition
- remove components likely to deteriorate
- scaffold the existing structure for paint removal and conduct detailed inspections of the structure
- repair corrosion that reduces the structural integrity
- apply a long-term coating system
- install defences to prevent birds roosting in known trouble areas
- install a new electrical system to provide clearance lighting and maintenance power
- provide code compliant personnel access system (stair tower or lift) to the crane and extremities (including addressing the heritage impacts of these works)
- install access control features as necessary
- implement an ongoing inspection and maintenance program.

This option is not preferred by Defence because it does not address the current operational constraints resulting from the existing location of the HHC, and it does not represent a viable long-term solution in terms of safety, effectiveness or cost-efficiency.

The appearance of the HHC would essentially remain unchanged from present and the HHC as a feature in the Sydney skyline would be retained, albeit degraded by the continued presence of the safety scaffolding presently erected under the crane.

### **Option 2 — Mothball, relocate clear of wharf**

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This option relocates the footings of the HHC away from the wharf edge providing approximately 17 m clearance from the edge of the wharf. Relocation of the HHC would allow for full usage of the wharf past the HHC, including the setup of mobile cranes and ship access ramps. The deployment of existing and future ships would essentially be unconstrained by the presence of the HHC, though at considerable Commonwealth expense with no improvement in safety.

This option proposes to move the HHC east so that the western tower legs are moved to the existing eastern leg footings. This would be done by cutting the legs at deck level and re-welding to new

baseplates. Initial studies suggest that relocation by this method is feasible, however, a full feasibility study addressing self weight, lateral loads during relocation and conceptual engineering of the relocation equipment, would be required.

The scope of works to mothball the HHC would be consistent with Option 1. The task of repainting and mothballing the HHC could be scheduled after the relocation, minimising the time until the wharf becomes available for operational use. As with Option 1, the appearance of the HHC essentially remains unchanged from present and the HHC is retained as a feature in the Sydney skyline.

While this option would reduce impediments posed by the HHC, this option is not preferred due to the cost and engineering risk, and because it does not represent a viable long-term solution in terms of safety or ongoing cost.

### **Option 3 — Mothball in-situ, widen FBE 1—3**

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The HHC would be mothballed as described in option 1 and the wharf widened to increase the clearance between the wharf edge and the HHC. Under this option, the wharf would be widened and extended into the harbour at the northern end at FBE1N then taper towards the south to meet the existing wharf position at FBE 3.

The proposed widening of the wharf would provide a minimum clearance of 16.4 m between the wharf edge and the footings of the HHC. This would allow sufficient space for vehicle access, mobile cranes and ship access ramps. In addition, the extended wharf section could be designed to withstand higher loading capacities than currently available.

As with the previous options, the appearance of the HHC essentially remains unchanged from present and the HHC is retained as a feature in the Sydney skyline.

While this option would reduce impediments posed by the HHC, this option is not preferred by Defence as it does not represent a viable long term solution in terms of safety. This option also carries potentially extensive delays resulting from the necessary environmental and planning approvals and determination and development of maritime seabed lease arrangements, construction duration and activities such as significant periods of closure and additional dredging that may be required. This option would come at considerable Commonwealth expense. Development of berthing and shore connection facilities on the existing wharf space is planned to occur in the next year, to ensure these are ready for LHD and AWD ships entering service from late 2013 and beyond.

### **Option 4 — Mothball in-situ, extend Oil and East Dock Wharves**

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The HHC would be mothballed as described in Option 1. The Oil Wharf would be extended to the southwest and the East Dock Wharf extended northwest to a point where the two extensions intersect. Both extended wharves would be capable of berthing the LHDs and would provide greater flexibility in berthing arrangements, however this is offset by the removal of the Cruiser Wharf (and potential dock access issues when an LHD is berthed at the East Dock Wharf). This option would also come at considerable Commonwealth expense.

The existing wharves would require an upgrade to meet the loading capacity of the extended wharf sections. Further detailed inspections are necessary to consider the feasibility of strengthening and extending the existing wharves.

This option is not preferred by Defence due to the exposed nature of the proposed berth resulting in more challenging berthing arrangements, significant capital investment requirements and the adverse impacts to the current maintenance activities that are currently performed at the Oil Wharf

(being the main Garden Island wharf for long-term and more significant maintenance activities). Further, implications may arise from the determination and development of environmental approval requirements and determination and development of maritime seabed lease agreements.

As with the previous options, the appearance of the HHC essentially remains unchanged from present and the HHC is retained as a feature in the Sydney skyline.

While this option would provide alternative berthing as a means to avoid the impediments posed by the HHC in its current location, this option is not preferred due to the capital cost, the implications associated with environmental approval requirements and maritime seabed lease agreements, and because it does not represent a viable long-term solution in terms of safety or ongoing cost.

### **Option 5 — Mothball in-situ, build new wharf on east of Garden Island**

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The HHC would be mothballed as described in Option 1 and a new open pile finger wharf would be constructed at the north-eastern end of Garden Island. The new wharf would be orientated parallel to the existing Gun Wharf and connected to the shoreline north of the existing boat compound. The main wharf would need to be at least 300 m long and 20 m wide to enable vehicle and mobile crane access, and would be connected to Garden Island by a 146 m long and 12 m wide access wharf. The new wharf would be constructed parallel to the existing shoreline approximately 200 m offshore. Preliminary investigations suggest that wharf construction is feasible, however, this would require further assessment of the hydrology, engineering and environmental considerations.

No significant maintenance work could be undertaken at this new wharf; however ships could be reprovisioned while at this berth. Therefore, FBE1 would still be required by the LHDs for deep level maintenance and as such, the existing restrictions imposed by the HHC on LHD maintenance would remain.

Preliminary discussions held by Defence and the Manager of Consents and Approvals for NSW Maritime determined that planning consent for the construction and operation of this option is feasible, provided it was essential for RAN operations in the long term and was the preferred option selected from a range of alternatives.

As with the previous options, the appearance of the HHC essentially remains unchanged from present and the HHC is retained as a feature in the Sydney skyline.

This option is not preferred by Defence due to the capital cost, the exposed nature of the wharf compared to the more sheltered western side of Garden Island, the potential underutilisation of the wharf in the long term, which may not be justifiable in terms of the capital cost and significant resource requirements, the potential difficulty of obtaining planning and environmental approval (and determination and development of maritime seabed lease arrangements), and potential adverse community reaction to the proposal in view of the impact of the new wharf structure and its use by large vessels on visual amenity on the eastern side of Garden Island. This option also does not represent a viable long-term solution in terms of safety or ongoing cost.

### **Option 6 — Remove, recycle all but selected components**

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This option proposes that the HHC be removed down to deck level, clearing the obstruction from FBE1N. Removed items/material identified as having heritage value would be restored and displayed at an appropriate site or sites, with the remaining material to be sold for recycling or otherwise disposed of in an environmentally responsible manner.

The scope of works for removal would involve:

- securing the footprint beneath the HHC and establishing an appropriate buffer zone with appropriate fencing
- removal of bird faeces and asbestos by qualified contractors
- perform removal tasks using mobile cranes to strip the components of the HHC
- remove items to be preserved and display where necessary
- progressively remove the hammerhead and tower using a series of lifts and mobile cranes
- further cutting on the ground would be required for removal and recycling
- removing the tower to just below the level of the wharf and re-establish the wharf deck surface

Under this option a number of heritage mitigation measures could be implemented. These could include an interpretation plan, an archival recording (detailed history, oral history, annotated photographic record, technical drawings and specifications) and salvaging significant components of the HHC structure for interpretation purposes etc., prior to commencement of the removal works.

This option is preferred by Defence as it permanently remedies present constraints on the operational use of FBE1N, and eliminates the ongoing maintenance and safety problems of the HHC, while restoring and preserving selected components for display at a suitable location. The removal of the HHC and recycling and restoration of selected components is therefore the preferred option proposed by this referral.

### **Option 7 — Remove and re-erect at alternative site off Defence land**

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The HHC would be relocated to an alternate site and mothballed as described in Option 1 and relocated to an alternative site. The HHC would be removed as described in Option 6 and reconstructed in a suitable location (to be determined following feasibility investigations and community consultation).

This option is not preferred by Defence due to the engineering feasibility issues and significant cost, ongoing maintenance requirements, safety concerns and the potential constraints and cost in determining a more suitable location, as well as transferring legal and financial responsibility for its ongoing upkeep from Defence to another authority.

#### **2.3 Alternative locations, time frames or activities that form part of the referred action**

N/A

#### **2.4 Context, planning framework and state/local government requirements**

The 2009 Defence White Paper identifies a number of new capability proposals, which will result in Navy operating larger and more capable systems, including the LHD and AWD vessels, with the first LHD arriving in late 2013. These capabilities will impact on the available berthing capacity at FBE. The Government's more recent decision to acquire and home-port the Landing Ship Dock HMAS *Choules* in Sydney in late 2011 has brought forward and exacerbated the demand for large ship berth space at FBE.

Defence is committed to compliance with Commonwealth environmental policies and legislative requirements. Further to this, Defence is committed to a 'good neighbour' policy, whereby its activities comply with relevant State and local environmental policy and legislation, where appropriate.

#### ***Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005***

The Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (the Sydney Harbour SREP) describes matters for consideration regarding the buffer zone surrounding the Sydney Opera

House. Garden Island and the HHC are located within the Sydney Opera House buffer zone as defined in clause 58A of the Sydney Harbour SREP. The objectives of the Harbour SREP in relation to the Sydney Opera House are to establish a buffer zone and recognise that views and vistas between the Sydney Opera House and other public places preserve and contribute to its world heritage value. Under clause 58C of the Harbour SREP, work that involves only the demolition of a building is not subject to the Division of the Harbour REP that regulates works in the Sydney Opera House buffer zone.

The key NSW legislation that may be relevant to the removal of the HHC includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act)
- *Heritage Act 1977*
- *National Parks & Wildlife Act 1974* (NPW Act)
- *Threatened Species Conservation Act 1995* (TSC Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)
- *Contaminated Land Management Act 1997* (CLM Act)
- *Waste Avoidance and Resource Recovery Act 2001* (WARR Act)
- *State Environmental Planning Policy 55* (SEPP 55)
- *Sydney Harbour Regional Environmental Plan (Sydney Harbour Catchment) 2005* (Sydney Harbour SREP)
- *Sydney Local Environmental Plan 2005*.

## **2.5 Environmental impact assessments under Commonwealth, state or territory legislation**

The proposed action would be undertaken on Commonwealth-owned land. As such, it is anticipated that the proposed action will be considered under the *Environment Protection and Biodiversity Conservation Act 1999*.

## **2.6 Public consultation (including with Indigenous stakeholders)**

Periodic informal consultation has been previously undertaken regarding the removal of the HHC. This past consultation has included surveys and discussions with key community stakeholders, and government agencies (at all levels) including Defence personnel.

Subsequently, a number of discussions have been undertaken between Defence and other government agencies regarding the removal of the HHC and the intent to submit this referral. The NSW Government was briefed on the proposed removal of the HHC during formal annual Defence-State/Territory Consultative Forum discussions during 2010 and 2011 and supported this proposal.

Defence is aware that a recent, coordinated and appropriately targeted public consultation program has not been conducted to gauge public interest in the removal of the HHC. An appropriate public consultation program will form part of any environmental impact assessment guidelines issued by the Minister for this project.

## **2.7 A staged development or component of a larger project**

The proposed action is not part of a staged development or a component of a larger project. Notwithstanding this, Defence routinely undertakes development and maintenance projects on various parts of Garden Island. All of these projects are subject to internal Defence approvals.



## 3 Description of environment & likely impacts

### 3.1 Matters of national environmental significance

A search using the EPBC protected matters search tool was undertaken on 13 December 2011 (included at Attachment A) to determine the potential presence of matters of national environmental significance and other matters protected by the EPBC Act. The search was centred on the location of the HHC at FBE and includes a 1 km buffer zone surrounding the HHC. The EPBC protected matters report is included in Attachment A.

A summary of the report is provided in Table 1 below:

**Table 1 EPBC protected matters search tool report summary**

<b>Matters of National Environment Significance</b>	
World heritage Properties	1
National Heritage Properties	1
Wetlands of International Significance	None
Great Barrier Reef Marine Park	None
Commonwealth Marine Areas	None
Threatened Ecological Communities	None
Threatened Species	42
Migratory Species	37

A review of the significance of the results provided in Table 1 is included below.

### **3.1 (a) World Heritage Properties**

#### **Description**

The Sydney Opera House is a Declared Property on the World Heritage List (WHL Item # 105914). The WHL listing includes a buffer zone that covers places offering critical views to and from the Sydney Opera House that contribute to its heritage values. The proposed action would be undertaken within the Sydney Opera House buffer zone. The planning principles and provisions within the buffer zone are provided for under the Sydney Harbour SREP as discussed above in section 2.4.

There are 11 Australian Convict Sites that are listed as World Heritage Properties and are located in the general vicinity of the proposed action. Hyde Park Barracks (located approximately 1.4 km south-west) and Cockatoo Island (located approximately 5.2 km north-west) are World Heritage listed items.

#### **Nature and extent of likely impact**

Under the Sydney Harbour SREP, matters to be taken into account regarding development in the Sydney Opera House Buffer Zone include the requirement to preserve views and vistas between the Sydney Opera House and other public places within that zone, and the requirement for development to avoid any reduction of the visual prominence of the Sydney Opera House when viewed from other public places within that zone.

While the removal of the HHC does not constitute additional development that would significantly impact upon the views and vistas in the buffer zone, the HHC features as a prominent structure within the buffer zone and as such, its proposed removal would be a change to the visual setting of the Sydney Opera House. The removal is not considered to cause a significant adverse impact on the World Heritage values of the place, nor diminish its visual prominence.

Given the distance between the HHC, the listed Australian Convict Sites, Hyde Park Barracks and Cockatoo Island, the proposed action would not have a significant direct or indirect impact on these World Heritage listed items.

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### **3.1 (b) National Heritage Places**

#### **Description**

Colonial Sydney, Macquarie Street, Sydney is a nominated place on the National Heritage List. Being a nominated place means that the Minister for Sustainability, Environment, Water, Population and Community's delegate has received a nomination on the approved form and carried out an initial assessment on data adequacy. The nomination either will be or has been referred to the Council for assessment.

Colonial Sydney Heritage Place is approximately 118 ha of land located within close proximity to the proposed action. The area comprises of a large portion of the Sydney CBD, including areas to the west and south-west of the proposed action. The HHC is located within 1 km of Colonial Sydney at its closest point; however, the proposed action would not take place within this area.

#### **Nature and extent of likely impact**

No listed National Heritage items have been identified at Garden Island. Given the distance between the HHC and the listed Colonial Sydney area, the proposed action would not have a significant direct or indirect impact on any items of National Heritage significance.

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### **3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)**

#### **Description**

Towra Point Nature Reserve, located at the mouth of the Georges River, is the nearest declared wetland of international importance. Towra Point Nature Reserve is located approximately 18 km to the south of the HHC.

#### **Nature and extent of likely impact**

Given the distance between the HHC and the Towra Point Nature Reserve wetland, the proposed action would not have a direct impact on any Ramsar wetland. The HHC and the wetland are located within different sub-catchments of the greater Sydney Metropolitan Catchment. As such, no indirect impacts will result from the proposed action. It is highly unlikely that the removal of the HHC would significantly impact any migratory or mobile species to an extent that an indirect impact to the wetland could occur.

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### **3.1 (d) Listed threatened species and ecological communities**

#### **Description**

A search of the EPBC Protected Matters Search Tool identified 42 threatened species or species habitat within the locality of the proposed action (see Attachment A). No threatened ecological communities have been identified in the EPBC search.

Previous studies prepared for Defence (Parsons Brinckerhoff 2008), have found that the vegetation on Garden Island has been landscaped, consisting of lawns, residential gardens, formal plantings, native grass with scattered trees / shrubs, and parkland. Fauna present on site would mostly be common birds (e.g. sparrows, starlings, magpies, wrens and cockatoos) and possibly small skinks, rodents and feral cats. Birds may nest in the parklands although nearby noise and urban activity is expected to keep nesting to a minimum.

Landscaped garden areas within Garden Island may provide foraging habitat for the Grey-headed Flying-fox (listed under the EPBC and TSC Acts). Seahorses, sea dragons and pipefish (which are protected under the EPBC Act) are expected to occur around Garden Island along foreshore areas, including FBE and, in particular, around man-made structures such as pylons, wharves or anchors.

#### **Nature and extent of likely impact**

The HHC is situated on reclaimed land at FBE1N. As such, the removal of the HHC is not likely to have a significant impact on any listed threatened species, species habitat or ecological communities within the locality of the proposed action.

The proposed action does not involve the loss or degradation of any potential habitat for flora and fauna species protected under the EPBC Act.

Although detailed ecological studies have not been undertaken on the HHC or adjacent wharf, it is highly unlikely that any threatened species populations are supported in such a highly disturbed and largely industrial area. An exception may be footings of the crane which are connected to the sea floor and could possibly support the marine species identified above. Surveys to ascertain presence of these threatened species may be required in the event that removal of the HHC footings is necessary (not presently planned or anticipated).

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### **3.1 (e) Listed migratory species**

#### **Description**

A search of the EPBC Protected Matters Search Tool identified 37 migratory species or species habitat with the locality of the proposed action (see Attachment A).

**Nature and extent of likely impact**

It is highly unlikely that removal of the HHC would result in a significant impact on any migratory species or species habitat.

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**3.1 (f) Commonwealth marine area**

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

**Description**

There are no Commonwealth marine areas in the vicinity of the proposed action.

**Nature and extent of likely impact**

There are no likely impacts on any Commonwealth marine areas.

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**3.1 (g) Commonwealth land**

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

**Description**

The proposed action would occur on Commonwealth land.

**Nature and extent of likely impact**

There are no actions proposed that would take place outside of Commonwealth Land.

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**3.1 (h) The Great Barrier Reef Marine Park****Description**

The proposed action is not within the Great Barrier Reef Marine Park.

**Nature and extent of likely impact**

There will be no direct or indirect impacts to the Great Barrier Reef Marine Park.

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**3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park**

3.2 (a)	Is the proposed action a nuclear action?	✓	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?		No
		✓	Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

The Commonwealth Department of Defence is the proponent of the proposed action. It is highly unlikely that removal of the HHC would have a significant impact on the natural and physical resources and ecosystems surrounding the HHC. The HHC is a feature of the Sydney skyline and is located within the buffer zone of the Sydney Opera House identified in the Sydney Harbour SREP. The removal of the HHC would alter the visual skyline of Sydney Harbour, however in the context of the wider Sydney Harbour, the impact of removing the HHC would be relatively minor.

The proposed action would have a significant impact on the heritage values of the HHC (refer to section 3.3(h)).

3.2 (c)	<b>Is the proposed action to be taken in a Commonwealth marine area?</b>	✓	No
			Yes (provide details below)

**If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))**

3.2 (d)	<b>Is the proposed action to be taken on Commonwealth land?</b>		No
		✓	Yes (provide details below)

**If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))**

An Initial Environmental Review (IER) has been undertaken by Parsons Brinckerhoff (2011) to identify any potential impacts that may arise from the removal of the HHC. The potential impacts that have been identified as part of this initial assessment are summarised below and proposed mitigation measures are included in section 4.

**Heritage** – The Hammerhead Crane is situated within the Commonwealth Heritage listed Garden Island Precinct and contributes to the Commonwealth Heritage Values of Garden Island. Removal of the HHC could have a negative impact on the historic Commonwealth heritage value of the Garden Island Captain Cook precinct, as it would involve the removal of an item considered to be important for the understanding and demonstration of the historical development of the precinct. However, the heritage values of Garden Island are primarily associated with the continual naval presence and Defence operations at Garden Island (which will not be impacted by this proposal).

**Visual Amenity** – Removal activities would result in temporary impacts to surrounding land users. The removal of the HHC would affect the Sydney skyline.

**Surface Water** – Potential localised contamination of the water in Sydney Harbour could occur from dust and particulates that may result from removal of the HHC. Removal of the HHC would eliminate a potential long term source of water contamination.

**Air quality** – The removal of the HHC has the potential to temporarily increase dust emissions and particulate matter during removal works due to combustion engines. These impacts would be short-term and localised in nature.

**Acoustics** – A temporary increase in noise, with the potential to cause impacts to the amenity of surrounding land users may result during removal. Mitigation measures would be adopted to manage noise impacts.

**Traffic and Access** – The removal of the HHC would potentially increase traffic congestion in the area and impact access and parking availability on and around the site for the duration of the works. The level of any impact is expected to be marginal when considered in the light of high local traffic volumes. The removal of the HHC will result in a long-term improvement in vehicle and pedestrian access to FBE1N.

Ecology – Potential disturbance to the terrestrial fauna habitat of birds may result during removal of the HHC. No long-term impacts to the ecology in the area are expected as a result of the removal of the HHC.

Contamination – Potential uncovering of contaminated soils is unlikely provided that removal of the HHC does not involve disturbing the concrete slab.

Waste and hazardous materials – Hazardous materials such as asbestos and heavy metal paints could possibly be released into surrounding air and surface waters during removal. The removal of HHC will result in large quantities of steel and other building materials requiring waste classification prior to disposal.

Work Health and Safety (WHS) – Falling objects from the deteriorating HHC present a significant and an increasing WHS issue for RAN staff and contractors. Existing short-term mitigation measures (underslung scaffold and avoidance of area) will become unsuitable as the HHC deteriorates further. Removal of the HHC will eliminate the significant and increasing safety risk.

Socio-economic – The presence of the HHC at Garden Island comes at a continuing cost to Defence and the RAN and in turn the Australian government. The HHC requires a significant amount of ongoing maintenance work to meet WHS standards (even though the equipment is not used or required). This maintenance is extremely costly and has to be undertaken on a regular basis. Some groups in the community may be concerned that removing HHC would adversely affect the Sydney Harbour skyline, whilst others view the removal of the HHC as a positive improvement in amenity.

3.2 (e)	Is the proposed action to be taken in the Great Barrier Reef Marine Park?	✓	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

### 3.3 Other important features of the environment

#### 3.3 (a) Flora and fauna

Species of flora and fauna protected under the NSW *Threatened Species Conservation Act 1995* (TSC Act) may occur within marine environment in the general vicinity of the proposed action.

Confirmation of the likely presence and potential impact upon these species would only be subject to further ecological assessment if a change to the planned removal works required removal of pylon or footing components from within the marine environment.

Landscaped garden areas within Garden Island may provide foraging habitat for the Grey-headed Flying-fox (listed under the EPBC and TSC Acts), however the species is considered unlikely to be present due to the nature of onsite operations.

Given the highly modified and general industrial nature of Garden Island and the location of the HHC on the wharf at FBE1N, it is not considered likely that any significant impact to other flora and fauna species would result as a direct or indirect result of the proposed action.

#### 3.3 (b) Hydrology, including water flows

Garden Island is situated on the southern bank of Sydney Harbour (refer to section 2.1). Removal of the HHC would not have an adverse impact on the water quality or hydrology of Sydney Harbour.

Removal of the HHC would eliminate a potential long term source of water contamination. Water flows in the vicinity of the proposal are mainly attributed to stormwater flows. The proposed action would not impede on natural or stormwater flows within the general area of the proposal site.

### **3.3 (c) Soil and Vegetation characteristics**

The HHC footings are situated on reclaimed land at FBE1N. The footings on the HHC extend approximately 30 m below ground level. The deep sub-surface footings would not be disturbed as part of the proposed action.

The site is predominantly paved. Vegetation within the general vicinity consists largely of landscaped gardens. The HHC is located on the wharf berth at FBE1N and there is no vegetation within the footprint or immediate vicinity of the HHC footings. The erosion potential from Garden Island is considered low.

### **3.3 (d) Outstanding natural features**

The HHC is located adjacent to Sydney Harbour. It is not likely that any significant impact to Sydney Harbour would result from the proposal (refer to section 3.3(b)).

### **3.3 (e) Remnant native vegetation**

No remnant native vegetation is present within the proposal site.

### **3.3 (f) Gradient (or depth range if action is to be taken in a marine area)**

The proposed action would not take place in a marine area.

### **3.3 (g) Current state of the environment**

The current state of the environment at Garden Island is highly modified as a result of reclaimed land and established wharfing facilities. Vegetation at Garden Island is sparse with minimal vegetation in the immediate vicinity of the HHC.

### **3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values**

The Garden Island Precinct is a listed place on the Commonwealth Heritage List and registered on the Register of the National Estate. The Garden Island Precinct comprises approximately 7 ha of Garden Island and associated wharves. Also listed on the Commonwealth Heritage List as an indicative place is the Captain Cook Dock Precinct. This facility, planned from 1938 in direct expectation of the war in the Pacific, was a strategic facility designed to maintain and repair capital ships and allowed a major fleet to be based in Sydney Harbour. The construction of the dockyard and crane reflected British Imperial military planning and represented a subtle change in the Government's hitherto declared 'Singapore Strategy' for national defence. The construction of the dockyard was a major wartime project and the HHC was the final major component of that development (GML, 2005).

The HHC itself is listed as an indicative place on the Register of the National Estate. The Register is a non-statutory list that records the HHC as a prominent landmark in the city of Sydney and an historic reminder of the facilities necessary to regularly service naval forces half a century ago.

The HHC has heritage values as a specialist item of equipment. Its size and design made it a rare item in the Australian context, yet it was representative of major dockyard cranes across the world, especially those designed by Sir William Arrol and Sons. The HHC used the same plans as a crane built at the Singapore Naval Base and is of similar design to the crane built at Whyalla shipyard. The HHC is a prominent landmark of Sydney Harbour.

### **3.3 (i) Indigenous heritage values**

No Aboriginal sites or places have been declared within the proposal site (refer Attachment B).

### **3.3 (j) Other important or unique values of the environment**

Various islands and foreshore areas that make up the Sydney Harbour National Park are located within close proximity to the proposal site including Clark Island, Fort Dennison and Bradleys Head. The closest area of national park is the island of Fort Dennison, located approximately 800 m from FBE1N.

The recreational area of Mrs Macquaries Point is located in close proximity to the west of the HHC.

Wetlands protected under the Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 are in close proximity to the HHC. Wetland areas nearby are located on the north and east foreshores of Mrs Macquaries Point and Elizabeth Bay. No protected wetlands are listed at Garden Island.

No direct or indirect impacts are expected to result from the proposed action.

### **3.3 (k) Tenure of the action area (eg freehold, leasehold)**

The proposal site is situated on Commonwealth-owned land.

### **3.3 (l) Existing land/marine uses of area**

Garden Island is Navy's primary operational base on the east coast of Australia and the location of the Navy Fleet Headquarters. Naval waters surround Garden Island to the immediate north, east and west.

### **3.3 (m) Any proposed land/marine uses of area**

No additional land uses are proposed as part of this Referral.



## 4 Measures to avoid or reduce impacts

Mitigation measures to reduce the environmental impacts associated with the removal of the HHC will be examined in detail as the environmental impact assessment process for this project progresses. The general principles of environmental management to be followed during conduct of the proposed action will include:

1. avoidance of impacts where possible
2. environmental management planning
3. compliance monitoring
4. mitigation measures
5. development of, and compliance with, a statement of commitments for the proposal.

Further environmental studies and a construction environmental management plan (CEMP) would be prepared for the removal of the HHC. The studies and the CEMP will provide a centralised mechanism through which all potential environmental impacts relevant to the proposed action are documented and managed. These documents would outline a management framework of procedures and controls for documenting and managing environmental impacts during construction and detail how environmental mitigation measures are incorporated to demonstrate compliance with any conditions of approval for the project, as well as any other relevant approvals, licences and permits.

Preliminary heritage studies have been undertaken by the heritage consultancy GML and mitigation measures to reduce the impact on heritage values are proposed as follows:

- Archival recording – a detailed history of the HHC would include a technical description, construction drawings, oral history and annotated photographic recording. Copies of the archival recording should be retained by Defence and made publicly available through the National Archives of Australia.
- Salvage - Provision should be made for the salvage of components and sections of the crane for future display and interpretation.
- Farewell event – widespread notification of the removal decision would engage and involve stakeholders and the community. A plan would be established to provide opportunities for viewing of the HHC prior to the commencement of removal works.
- Interpretation – an interpretation plan should be prepared to interpret the heritage values of the HHC and respond to the history and heritage values of the HHC.

In general, the archival recording of the HHC and determination of salvageable components would be completed before the HHC is deconstructed. The Interpretation Plan should be commenced before the removal works, but can be implemented after.

A summary of the proposed mitigation measures identified in the Initial Environmental Report (Parsons Brinckerhoff 2011) has been included below in Table 2.

**Table 2 Proposed mitigation measures for the removal of the HHC**

Environmental aspect	Mitigation measure
Heritage (refer to above for further information)	<p>An Interpretation Plan for the HHC should be prepared prior to removal works to assist interpretation of the heritage values of the HHC following removal. The plan should reflect the history and heritage values of the HHC both on its own and as a part of Garden Island.</p> <p>An archival recording should be prepared prior to the deconstruction of the HHC.</p> <p>During the planning process a farewell event should be planned to mark the removal of HHC.</p>
Visual Amenity	A visual impact assessment, including 'before and after' photomontages from key vantage points in key public and private locations would be prepared to allow for a clear understanding of the changes to the visual environment subsequent to the removal of the HHC.
Surface Water	Further environmental studies will give consideration to measures to minimise surface water run-off in areas adjacent to the HHC and any proposed stockpiles.
Air Quality	Prior to the removal of HHC, further investigation should be undertaken into the existing air quality environment and monitoring should be undertaken to ensure that potential airborne contaminants such as asbestos fibres, flaking lead based paint and bird faeces are appropriately identified and controlled during the removal of the HHC. Any appropriate mitigation measures should be included in further environmental studies and in the CEMP.
Acoustic	<p>The CEMP would include an Acoustic Management Plan detailing measures that would be undertaken to reduce noise impacts on the surrounding area, such as:</p> <ul style="list-style-type: none"> <li>■ Undertaking works during prescribed construction hours.</li> <li>■ Notification of residents (if required) prior to any considerable noise events.</li> <li>■ Implementation of buffers or localised enclosures to surround equipment</li> </ul>
Traffic and Access	Further impact assessment studies would investigate the number of vehicles (both heavy and light) and the proposed haulage routes required for removal of the HHC. A Traffic Management Plan would be included in the CEMP with measures to minimise disruption on the internal and local road network.
Ecology	A site inspection of the HHC and surrounds, by qualified ecologists, would be considered prior to the commencement of removal works. This inspection would aim to confirm the findings of previous desktop studies which suggest that the HHC and its immediate surrounds provide minimal habitat value. If required the preparation of targeted Flora and Fauna Assessments for the HHC could then be undertaken based on the findings of the site inspection. Such an assessment could include aquatic species (if removing the HHC requires removal of the crane's footings on the seabed) and the possibility of migratory or threatened bird species inhabiting parts of the HHC.
Contaminated land	It is likely that the existing concrete slab will remain in-situ during removal of the HHC. Should the slab need to be removed appropriate investigations to determine and remediate any contamination would need to be conducted.
Waste and hazardous materials management	A hazardous materials survey and waste management plan would be undertaken as part of further environmental studies to identify and provide measures to suitably handle and dispose and recycle of hazardous and non-hazardous materials contained within the HHC.

## 5 Conclusion on the likelihood of significant impacts

### 5.1 Do you THINK your proposed action is a controlled action?

- |                                     |                           |
|-------------------------------------|---------------------------|
| <input type="checkbox"/>            | No, complete section 5.2  |
| <input checked="" type="checkbox"/> | Yes, complete section 5.3 |

### 5.2 Proposed action IS NOT a controlled action.

It is expected that the proposed action would be a controlled action.

### 5.3 Proposed action IS a controlled action

#### Matters likely to be impacted

<input type="checkbox"/>	World Heritage values (sections 12 and 15A)
<input type="checkbox"/>	National Heritage places (sections 15B and 15C)
<input type="checkbox"/>	Wetlands of international importance (sections 16 and 17B)
<input type="checkbox"/>	Listed threatened species and communities (sections 18 and 18A)
<input type="checkbox"/>	Listed migratory species (sections 20 and 20A)
<input type="checkbox"/>	Protection of the environment from nuclear actions (sections 21 and 22A)
<input type="checkbox"/>	Commonwealth marine environment (sections 23 and 24A)
<input type="checkbox"/>	Great Barrier Reef Marine Park (sections 24B and 24C)
<input type="checkbox"/>	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
<input checked="" type="checkbox"/>	Protection of the environment from Commonwealth actions (section 28)
<input type="checkbox"/>	Commonwealth Heritage places overseas (sections 27B and 27C)

The proposed removal of the Hammerhead Crane would remove a structure within the buffer zone of and result in a change to the visual setting of the World Heritage Listed Sydney Opera House. When considered in accordance with the significant impact criteria for 'World Heritage Properties with Cultural heritage Values' (Department of Environment, Water, Heritage and the Arts Significant Impact Guidelines 1.1, 2009), the removal of the HHC is not considered to cause a significant impact on the World Heritage values of the place, nor diminish its visual prominence. Importantly, the removal of the HHC will not obscure the Sydney Opera House or disrupt the sight lines between the Opera House and other prominent features within the World heritage buffer zone; in fact, it will open up and improve sight lines to and from the Opera House.

As the referred action is being undertaken by a Commonwealth agency (Defence), section 26 (3) (f) of the EPBC Act excludes Commonwealth land as a controlling provision. However, section 28 of the EPBC Act provides for the protection of the environment from significant impacts caused by the actions of Commonwealth agencies. The proposed action would be undertaken by a Commonwealth agency. Under section 28 of the *Environment Protection and Biodiversity Conservation Act 1999*, Commonwealth agencies including Defence must not take any action that has, will have or is likely to have a significant impact on the environment. As the definition of the environment at section 528 of that Act includes the heritage value of places, the environment is considered a matter that is likely to be significantly impacted by this action.

## 6 Environmental record of the responsible party

	Yes	No
<p><b>6.1 Does the party taking the action have a satisfactory record of responsible environmental management?</b></p> <p><b>Provide details</b></p> <p>Defence has a strong commitment to environmental management across its operations to minimise the impacts of its activities. Defence has a national Environmental Management System (EMS) which is the overarching structure for all policy, legislation and impact mitigation for significant heritage and environmental values. It is the responsibility of all Defence personnel to abide by Environmental Management Plans (EMPs) and procedures detailed in the EMS, and environmental personnel implement the actions and policies resulting from Environmental Management Plans including interpretation, maintenance requirements and monitoring.</p>	✓	
<p><b>6.2 Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</b></p> <p><b>If yes, provide details</b></p>		✓
<p><b>6.3 If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</b></p> <p><b>If yes, provide details of environmental policy and planning framework</b></p>		N/A
<p><b>6.4 Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?</b></p> <p><b>Provide name of proposal and EPBC reference number (if known)</b></p> <p>Defence has undertaken a number of EPBC Referrals at various establishments throughout Australia, including the completion of numerous detailed impact assessments.</p>	✓	

## **7 Information sources and attachments**

(For the information provided above)

### **7.1 References**

Department of Infrastructure, Planning and Natural Resources (2005) Sydney Regional Environmental Plan, Sydney Harbour Catchment.

<http://www.planning.nsw.gov.au/PlansforAction/CatchmentsandWaterways/SharingSydneyHarbour/SydneyHarbourCatchmentREP/tabid/222/Default.aspx>

Department of Defence (2009) Force 2030 – Defending Australian in the Asia Pacific Century, Defence White Paper 2009.

<http://www.defence.gov.au/whitepaper/>

Godden Mackay Logan (November 2005) Hammerhead Crane—Heritage Assessment

Godden Mackay Logan (November 2005) Hammerhead Crane—Heritage Impact Statement

Godden Mackay Logan (August 2008) Garden Island Naval Base—Heritage Management Plan

Parsons Brinckerhoff (January 2012) Hammerhead Crane Initial Environmental Review.

WorleyParsons (November 2009) Hammerhead Crane – Garden Island, Determination Report.

### **7.2 Reliability and date of information**

An EPBC protected matters search tool report was undertaken on 13 December 2011 – this is included as Attachment A. Information in section 3.3 has been taken from this report.

The Initial Environmental Review was undertaken by Parsons Brinckerhoff in December 2011 based on a desktop review of relevant databases and existing information provided by Defence and existing studies completed by Parsons Brinckerhoff for Garden Island.

## 7.3 Attachments


		✓ attached	Title of attachment(s)
<b>You must attach</b>	figures, maps or aerial photographs showing the project locality (section 1)	✓	Figure 1 – Location of the proposed action Figure 2 – Proposal site
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Attachment A – EPBC PMS report Attachment B – AHIMS search result
<b>If relevant, attach</b>	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)		
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)	✓	Attachment C – Hammerhead Crane Initial Environmental Review
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

## 8 Contacts, signatures and declarations

**Project title:** Garden Island Hammerhead Crane proposed removal


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### 8.1 Person proposing to take action

Name Kathryn Shields  
Title Director, Estate and Facilities Services NNSW  
Organisation Department of Defence  
ACN / ABN (if applicable) 68706814312  
Postal address Defence Plaza, Sydney  
Level 19, 270 Pitt St  
Sydney NSW 2000  
Telephone 02 9393 2705  
Email [kathryn.shields@defence.gov.au](mailto:kathryn.shields@defence.gov.au)  
Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading. I agree to be the proponent for this action.  
Signature  Date 30 APR 12

---

### 8.2 Person preparing the referral information (if different from 8.1)

Name Lloyd Woodford  
Title Director Environment Protection and Assessments  
Organisation Department of Defence  
ACN / ABN (if applicable) 68706814312  
Postal address PO Box 7925  
26 Brindabella Circuit  
Canberra Airport ACT 2609  
Telephone (02) 6266 8659  
Email [lloyd.woodford@defence.gov.au](mailto:lloyd.woodford@defence.gov.au)  
Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading.  
Signature  Date 15 May 2012

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Dear Ms Shields

I refer to your referral received under section 68 of the *Environmental Protection and Biodiversity Conservation Act 1999* by the department on 15 June 2012 relating to the proposed action of Garden Island Hammerhead Crane Proposed Removal, NSW.

The department notes that you have submitted your referral using an old application form. The application form was recently updated following the 2012-13 Budget.

On 8 May 2012, as part of the 2012-13 Budget, the Australian Government agreed to the introduction of cost recovery for environmental impact assessments. Final cost recovery arrangements including the proposed fees will be subject to appropriate legislation being passed and are proposed to be introduced from 1 December 2012.

Fees proposed are likely to apply to all environmental impact assessments **referred** after 8 May 2012 and that require assessment, decision on approval or that may be subject to post approval management plans **after** 1 December 2012.

Proponents would only have to pay for fees that relate to work undertaken by the department after 1 December 2012.

Prior to the introduction of cost recovery, the department will notify you of any fees and charges that may apply to your proposed action.

I would ask that you sign the declaration at the end of this page, acknowledging that you may be subject to fees for environmental impact assessment from 1 December 2012.

Further details on cost recovery for environmental impact assessments, including a schedule of proposed fees is available in the department's Cost Recovery Impact Statement available on the Department's website at: <http://www.environment.gov.au/epbc/publications/consultation-draft-cost-recovery.html>

Name	Ms Kathryn Shields
Title	Director, Estate and Facilities Services NNSW
Organisation	Department of Defence
ACN / ABN (if applicable)	69 706 814 312
Postal address	Defence Plaza Sydney Level 19, 270 Pitt St Sydney NSW 2000
Telephone	02 9393 2705
Email	<a href="mailto:Kathryn.shields@defence.gov.au">Kathryn.shields@defence.gov.au</a>
Declaration	I acknowledge that I may be liable for fees related to my proposed action following the introduction of cost recovery under the EPBC Act.

Signature

*K Shields*  
15 JUNE 2012



For all enquiries, please email [epbc.costrecovery@environment.gov.au](mailto:epbc.costrecovery@environment.gov.au)

Yours Sincerely

Con Voutas

Director

Business Entry Point

15 June 2012