GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

EPA REFERRAL FORM PROPONENT

Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.

PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

CHECKLIST

Before you submit this form, please check that you have:

	Yes	No
Completed all the questions in Part A (essential).	✔	
Completed all applicable questions in Part B.	✔	
Included Attachment 1 – location maps.	✔	
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).	✔	
Included Attachment 3 – confidential information (if applicable).	N/A	
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.	✔	

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?		
☐ Yes	✔ No	☐ Not sure
If yes, what level of assessment?		
☐ Assessment on Proponent Information	☐ Public Environmental Review	

PROPONENT DECLARATION (to be completed by the proponent)

I, ANDREW TARPLEY, *(full name)* declare that I am authorised on behalf of ROTTNEST ISLAND AUTHORITY (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature	Name (print)
	ANDREW TARPLEY
Position: General Manager Projects and Contracts	Company: Rottnest Island Authority
Date: 7/12/12	

PART A - PROPONENT AND PROPOSAL INFORMATION

(All fields of Part A must be completed for this document to be treated as a referral)

1 PROPONENT AND PROPOSAL INFORMATION

1.1 Proponent

Name	Rottnest Island Authority (RIA)
Joint Venture parties (if applicable)	N/A
Australian Company Number (if applicable)	
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	PO Box 693 Fremantle WA 6959 Level 1, E-Shed, Victoria Quay, Fremantle WA 6160
Key proponent contact for the proposal: • name • address • phone • email	Andrew Tarpley General Manager Project and Contract Services Level 1, E-Shed, Victoria Quay, Fremantle WA 6160 (08) 9432 9319 andrew.tarpley@rottnestisland.com
Consultant for the proposal (if applicable): name address phone email	GHD Pty Ltd 239 Adelaide Terrace Perth 6004 WA (08) 6222 8056 drew.farrar@ghd.com

1.2 Proposal

Title	Upgrade of Rottnest Island Golf Course
Description	Figure 1 in Attachment 1 provides a Locality Plan for the proposal. The RIA are proposing to upgrade the existing 22 hectare (ha) nine hole public golf course located on Rottnest Island (west of the Thomson Bay settlement). The proposed upgrade includes some reshaping of the existing course, grassing of greens and tees, and the installation of a new reticulation system sufficient to ensure the ongoing quality of the course year-round. This will include reticulating the fairways, however watering via the installed reticulation will only commence once a suitable long term sustainable source is available. The upgrade of the course would require clearing of approximately 0.38 ha of scattered vegetation within the existing golf course. All other proposed ground disturbance would occur on existing disturbed grassed golf course areas. Ultimately, the new irrigation system will be fed from recycled water from the nearby waste water treatment plant (WWTP). In

	the short term it will rely on desalinated water and stored water in the Island's rainwater tanks. The irrigation system will include a weather station and automatic control system for efficient operation. Note: Separate to this proposal, but related to the procurement of the water supply for the irrigation system, the RIA have applied to DEC to amend their existing operating licence under Part V of the *Environmental Protection Act 1986* for the WWTP (Category 54 – Sewage Facility) to allow discharge via irrigation to the Rottnest Island golf course. Treated wastewater from the WWTP is currently used to irrigate the Island's oval. Any upgrades required to the existing WWTP and/or desalination plant in order to supply water for irrigation to the golf course would be subject to separate approvals (e.g. Works Approvals under Part V of the *Environmental Protection Act 1986*) and are not included within the scope of this proposal. However it is envisaged that an upgraded WWTP would have the following operating parameters[1]: • maximum Total Nitrogen (TN) load of 70kgN/ha.pa, • treated water TN concentrations of less than 3.4mgN/L • microbiological limits on the reclaimed water which facilitate unrestricted primary contact i.e. highest possible reclaimed water quality.
Extent (area) of proposed ground disturbance.	The proposal will require clearing of approximately 0.38 ha of vegetation. The total footprint of the area subject to ground disturbance is up to 22 ha, however with the exception of the 0.38 ha of vegetation to be cleared, all ground disturbance would occur in existing disturbed areas within the golf course.
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	Construction of the Stage 1 upgrade is scheduled to commence in February/March 2013. Completion of Stage 1 construction activities and commencement of Stage 1 operations is expected to occur in July 2013. Stage 2 is a gradual fairway enhancement programme, the pace of which will depend on the availability of water for reticulation. As previously mentioned the water supply is currently planned to be sourced through upgrades to the existing WWTP and/or desalination plant. It is anticipated that these upgrades could be complete by September 2013, and Stage 2 might therefore be complete by September 2014. However, the timing of Stage 2 is indicative only and subject to change.

[1] Communication between Proponent and Wayne Bagg, Water Corporation.

Details of any staging of the proposal.	The upgrade of the course will be achieved through a two stage process. **Stage 1** The initial Stage 1 works would include: • Removal of approximately 0.38 ha of vegetation including scattered trees; • Cut and fill for golf course shaping; • Grading and rough shaping; • Installation of irrigation pipework; • Excavation and subgrade fine shaping of the green cavity and surrounds; • Application of greensmix (sand and soil amendments) and fertilisers to the greens; • Installation of sprinkler heads; and • Application of turf to the greens and tees. Following construction of Stage 1 upgrades, in July 2013 the golf course would be reopened and remain operational. Stage 2 will be managed within operating constraints using limited closure of fairways where repairs and improvements are underway. It is not intended to remove and replace significant areas of the existing ground cover. During Stage 1 operations, it is intended that greens would be irrigated with stored rainwater and desalinated water from the existing desalination plant, which is treated to drinking water quality standard. No irrigation with treated wastewater from the WWTP or irrigation of fairways is proposed during Stage 1 operations. Any use of recycled wastewater for irrigation of the golf course would be subject to approval from the DEC (amendment to the existing Part V licence for the WWTP) and Department of Health (approval of a Recycled Water Quality Management Plan). **Stage 2** Stage 2 will involve the gradual regrassing of the fairways through localised turf replacement, improved mowing and aeration regimes, and regular watering using either recycled water from the WWTP or treated water from the island's desalination plant (or a combination of both). The intent is that, once a regular source of water is available, the fairways will naturally regenerate through better husbandry, and that only limited areas would need significant intervention. By staging this over 2 years and also taking advantage of winter rains it is expected that the programme can be contained within the normal operating cycle of the course.
Is the proposal a strategic proposal?	No

Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the referred proposal was identified: • title of the strategic assessment; and • Ministerial Statement number.	No
Please indicate whether, and in what way, the proposal is related to other proposals in the region.	N/A
Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?	Rottnest Island is a Class A Reserve governed by the *Rottnest Island Authority Act 1987* which establishes the Rottnest Island Authority as a statutory body to control and manage the Island, reporting to the Minister for Tourism. The Act gives the RIA the power to control and manage the Island for the following purposes: • to provide and operate recreational and holiday facilities on the Island; • to protect the flora and fauna of the Island; and • to maintain and protect the natural environment and the man-made resources of the Island and, to the extent that the Authority's resources allow, repair its natural environment.
What is the current land use on the property, and the extent (area in hectares) of the property?	The land is currently used for recreational purposes as a golf course. The existing course occupies an area of approximately 22 ha.

1.3 Location

Name of the Shire in which the proposal is located.	City of Cockburn
For urban areas: • street address; • lot number;	The proposal site is the existing Rottnest Island Golf Course, which is accessed from Koora Nortji Wangkiny

• suburb; and • nearest road intersection.	Court. The site is located approximately 200 metres west of the Thomson Bay settlement on Rottnest Island.
For remote localities: • nearest town; and • distance and direction from that town to the proposal site.	N/A
Electronic copy of spatial data - GIS or CAD, geo-referenced and conforming to the following parameters: • GIS: polygons representing all activities and named; • CAD: simple closed polygons representing all activities and named; • datum: GDA94; • projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA); • format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD.	This is provided in the CD attachment to this document.

1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No
If yes, is confidential information attached as a separate document in hard copy?	No

1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		No	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.		Yes	
Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal
DEC	Vegetation Clearing Permit	No	N/A
DIA	Section 18 approval	Yes	N/A

PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

2.1 flora and vegetation;

2.2 fauna;

2.3 rivers, creeks, wetlands and estuaries;

2.4 significant areas and/ or land features;

2.5 coastal zone areas;

2.6 marine areas and biota;

2.7 water supply and drainage catchments;

2.8 pollution;

2.9 greenhouse gas emissions;

2.10 contamination; and

2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

(a) the source of the information; and

(b) the currency of the information.

2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

[A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (Environmental Protection (Clearing of Native Vegetation) Regulations 2004)]. Please contact the Department of Environment and Conservation (DEC) for more information.

(please tick) ✔ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

Total vegetation to be cleared: 0.38 ha.

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

☐ Yes ✔ No **If yes**, on what date and to which office was the application submitted of the DEC?

RIA will obtain a permit to clear native vegetation prior to commencement of works.

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

✔ Yes ☐ No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

Limited flora and vegetation surveys have previously been undertaken by volunteer groups. Previous surveys for the island include:

- A survey of the vascular flora of Rottnest Island undertaken between 1998 and 2001 by 40 volunteers (including experienced botanists). All species identifications were confirmed by the Western Australian Herbarium (Attachment 2a); and
- A partial flora inventory survey undertaken for the golf course in June 2012 by volunteer Marion Timms who has extensive botanical experience (Attachment 2a).

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

✔ Yes ☐ No

If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

✔ Yes ☐ No

If yes, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

Desktop searches of DEC's Threatened (Declared Rare) and Priority Flora database and related lists (searched in November 2012) identified two priority flora species *Hydrocotyle* sp. Hamelinensis (G.J Keighery s.n. PERTH 02391325), formerly *Hydrocotyle hamelinensis*, (Priority 2) and *Lepidium puberulum* (Priority 4) occurring within 10 km of the golf course. These species have not been identified within the golf course.

Given the highly disturbed nature of the site (existing golf course) these species are unlikely to occur within the project area.

Approximately half of the golf course is located within the buffer area of a Threatened Ecological Community (TEC) (*Callitris preissii* and *Melaleuca lanceolata* forest and woodland) (refer to Figure 2 of Attachment 1). Owing to the highly disturbed nature of the site (an existing golf course), it is highly unlikely that remaining vegetation within the golf course is associated with a TEC.

The site is also within the buffer area of a Priority Ecological Community (PEC), *Hypersaline microbial community 1 (Government House Lake, Rottnest)* (refer to Figure 2 of Attachment 1). Government House Lake is located approximately 300 m south of the golf course. The microbial community PEC is associated with hypersaline lakes. No hypersaline lakes occur within the site; however Garden Lake, which is hypersaline, is located immediately adjacent to the southern perimeter of the site.

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

☐ Yes ✔ No **If yes**, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

2.1.8 What is the condition of the vegetation at the site?

The condition of the vegetation within the golf course was assessed by RIA Environment Team. Based on Keighery's[2] (1994) condition scale rating, the majority of the site was classified as being in a 'Completely Degraded' condition, with the site mostly devoid of native species.

Isolated stands of *Melaleuca lanceolata* (Rottnest Island Teatree) are scattered throughout the site, however these are highly fragmented.

The remnant littoral vegetation adjacent to the nearby lakes was considered to be in 'Excellent to Very Good' condition.

The drainage line running north to south through the site is considered to be in 'Good to Degraded' condition owing to the loss of native species.

2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick) ✔ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.2.2 Describe the nature and extent of the expected impact.

The golf course is significantly disturbed and supports only limited remnant habitat. The proposed upgrade to the golf course will require clearing of approximately 0.38 ha of scattered vegetation across the 22 ha site.

Despite the disturbed nature of the site, the golf course is recognised as being used by a relatively large number of Quokkas (*Setonix brachyurus*), which are listed under Schedule 1 of the *Wildlife Conservation Act 1950* and as

[2] Keighery, B. (1994) Bushland Plant Survey: A Guide to Community Surveys. Wildflower Society of Western Australia, Perth WA.

Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*. The RIA Environment Team undertakes monthly surveys to determine the number of Quokkas utilising the golf course. Recent surveys have recorded between 368 (July 2012) and 584 (October 2012) individuals, with the mean number of Quokkas recorded from the golf course being 475 (see Attachment 2b).

It is likely that Quokkas will be displaced during the construction phase of the upgrade, with a reduction in available foraging habitat likely to temporarily occur for the duration of the construction phase. During construction, it is possible that Quokkas will relocate to nearby areas within and surrounding the golf course. This may result in increased competition in surrounding populations due to the short-term reduction in habitat.

The proposed irrigation and application of fertilisers to the golf course will likely result in increased availability and quality of foraging habitat for Quokkas within the golf course (i.e. improved grasses). As such, it is anticipated that the proposed improvements to the golf course may subsequently result in an increase in the quokka population in the longer term. The RIA will continue to monitor the golf course Quokka population on a monthly basis throughout construction and operation of the upgrade. Should a significant change (either increase or decrease) in Quokka numbers be observed, the RIA will liaise with the Department of Environment and Conservation to determine appropriate management strategies.

Two additional Schedule 1 species, the Rottnest Island Dugite (*Pseudonaja affinis exilis*) and Rottnest Island Bobtail (*Tiliqua rugosa* subsp. *exilis*) have been observed at the golf course by the RIA Environment Team. Individuals of these species and other reptile species which utilise the golf course area may experience direct or indirect impacts (e.g. vehicle interaction or displacement, exposure to chemicals) as a result of construction activities.

Bush bird species that utilise the vegetation proposed to be cleared for the construction of the golf course could be impacted. However, adjacent habitat of better quality is available and only a very small amount of vegetation is proposed to be cleared (0.38 ha).

Rottnest Island is considered an Important Bird Area by BirdLife International. The island supports important breeding populations of the vulnerable Fairy Tern, more than 1% of the world non-breeding population of Banded Stilt on an annual basis, and regionally-important numbers of Wedge-tailed Shearwater and Red-necked Stint. Both the Banded Stilt and Red-necked Stint have been recorded foraging in Garden Lake, immediately adjacent to the proposed development (Locality Plan in Attachment 1). There is potential for runoff from the golf course following heavy rainfall events to enter nearby lakes. However, water and nutrient balance modelling indicates that runoff is not predicted to occur, except in the first year when turf is establishing (See Attachment 2c).

Further information relating to the potential impacts associated with runoff from the golf course and proposed mitigation strategies are discussed in Section 2.3.5.

The Banded Lapwing (*Vanellus tricolor*), has been observed nesting on the fairways of the golf course, however breeding season occurs from June to November so this species is unlikely to be disturbed by construction activities.

A Construction Environmental Management Plan (CEMP) will be prepared prior to the commencement of works and implemented for the proposed upgrade to the golf course to minimise potential impacts to Quokkas and other fauna during construction activities.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

✔ Yes ☐ No **If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

A copy of the Golf Course Quokka Population Benchmark Survey Preliminary Results (November 2012) prepared by the RIA is included in Attachment 2b.

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

✔ Yes ☐ No (please tick)

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

✔ Yes ☐ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

A search was conducted of the site using the NatureMap tool with a 10 km buffer (See Attachment 2d). The search highlighted a number of conservation significant species as outlined in Table 1 (below). Marine species have been omitted from the results due to the nature of the site and the proposal.

Table 1. Specially Protected Fauna within 10 km of the site

Common Name	Species Name	Conservation Status (*Wildlife Conservation Act 1950* / DEC Priority fauna list)
Baudin's Cockatoo	*Calyptorhynchus baudinii*	Schedule 1
Indian Yellow-nosed Albatross	*Diomedea chlororhynchos* subsp. *carteri*	Schedule 1
Tristan Albatross	*Diomedea exulans* subsp. *exulans*	Schedule 1
Gibson's Albatross	*Diomedea exulans* subsp. *gibsoni*	Schedule 1
Southern Giant Petrel	*Macronectes giganteus*	Schedule 1
Rottnest Dugite	*Pseudonaja affinis subsp. exilis*	Schedule 1
Quokka	*Setonix brachyurus*	Schedule 1

Fairy Tern	*Sterna nereis subsp. nereis*	Schedule 1
Rottnest Island Bobtail Lizard	*Tiliqua rugosa subsp. konowi*	Schedule 1
Perth Slider	*Lerista lineata*	Priority 3
Hooded Plover	*Charadrius rubricollis*	Priority 4
Little Bittern	*Ixobrychus minutus*	Priority 4

In addition to the species outlined in Table 1, there are also records of 31 migratory bird species protected under International Agreement within 10 km of the site.

2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick) ✔ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

The proposed development is located within 200 m of Lockey's Lake (located within the existing golf course boundary), Garden Lake and Herschel Lake, as well as an intermittent drainage line which runs through the golf course.

Rottnest Island Lakes are classified as Nationally Important Lakes in Australia under the Directory of Important Wetlands in Australia.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

✔ Yes ☐ No **If yes**, please describe the extent of the expected impact.

The proposal will require clearing of approximately 0.23 ha of vegetation located within 200 m of a lake (i.e. Lockey's Lake, Garden Lake and Herschel Lake).

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

✔ Yes ☐ No **If yes**, please describe the extent of the expected impact.

There is an existing natural drainage line which runs through the golf course from Lockey's Lake to Garden Lake. The golf course design includes some realignment of this drainage line, which will consider and mitigate potential environmental impacts as far as practicable.

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

✓ Yes ☐ No **If yes**, please describe the extent of the expected impact.

There is potential for runoff from the golf course following heavy rainfall events to enter nearby watercourses, in particular Lockey's Lake, Garden Lake and the intermittent drainage line that runs through the golf course (see Attachment 1). However, water and nutrient balance modelling indicates that runoff is not predicted to occur, except in the first year when turf is establishing (See Attachment 2c). Any runoff which does occur is likely to occur as sheet flow to the intermittent drainage line in the golf course, and infiltrate to groundwater or eventually flow to Garden Lake.

The following management measures will be implemented to minimise potential for runoff to nearby lakes and watercourses:

- Weather stations will be used to ensure irrigation does not occur when it is raining, and soil moisture sensors will prevent irrigation of waterlogged soils. These measures have been proposed to prevent runoff of irrigation water to the nearby lakes; and
- Pesticides application will not occur when the soil is waterlogged, before or after rain or irrigation, to avoid runoff to nearby surface water bodies.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	☐ Yes	✓ No	☐ Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	☐ Yes	✓ No	☐ Unsure
Perth's Bush Forever site	☐ Yes	✓ No	☐ Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	☐ Yes	✓ No	☐ Unsure
The management area as defined in s4(1) of the *Swan River Trust Act 1988*	☐ Yes	✓ No	☐ Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	☐ Yes	✓ No	☐ Unsure

2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

✓ Yes ☐ No **If yes**, please provide details.

The whole of Rottnest Island is proclaimed as an A-class Reserve, which is managed by the Rottnest Island Authority under the *Rottnest Island Authority Act 1987*.

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

✔ Yes ☐ No **If yes**, please provide details.

The site is partially located within an ESA associated with a TEC (See Figure 2 in Attachment 1).

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

☐ Yes ✔ No **If yes**, please provide details.

2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300 metres of a coastal area?

(please tick) ✔ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?

The site boundary is approximately 150 m from the primary dune, and 175 m from the high tide level at its closes point.

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cuspate headland, coastal dunes or karst?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact.

2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

☐ Yes ✔ No **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

✔ Yes ☐ No **If yes**, please describe what category of area.

A search of the Department of Water's Geographic Data Atlas indicated the whole of Rottnest Island is located within the Rottnest Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914*.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☐ Yes ✔ No **If yes**, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

☐ Yes ✔ No **If yes**, please describe what category of area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

✔ Yes No (please tick)

Sufficient water is available for the implementation of Stage 1 of the proposal; however until new arrangements for the WWTP and/or desalination plants are implemented, the fairways will not be reticulated. Separate to this proposal, the RIA has submitted an application to DEC to amend their existing Part V operating licence for the Rottnest Island WWTP to allow discharge via irrigation to the Rottnest Island golf course. Treated wastewater from the WWTP is currently used to irrigate the island's oval.

2.7.5 Will the proposal require drainage of the land?

☐ Yes ✔ No **If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick) ✔ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

The average annual irrigation requirements of the golf course have been estimated to be 67.1 ML (Paul F. Jones & Associates, 2012[3]). This figure represents the annual operational needs of the proposal following the completion of Stage 2 (see Attachment 2c for more information).

Water requirements for the construction phase for dust suppression, turf establishment and other construction related activities are currently unconfirmed.

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

Construction water supply for Stage 1 will be sourced from rainwater storage and the desalination plant and as such will be of drinking water quality standard. The water source for fairway reticulation during the Stage 2 refurbishment, and on-going operation of the course, will be recycled wastewater from the proposed upgraded WWTP. In the event of non-availability of recycled wastewater, the course may be irrigated using stored rainwater or desalination water.

Use of recycled wastewater for irrigation of the golf course will be subject to approval from the DEC (amendment to the existing Part V licence for the WWTP) and Department of Health (approval of a Recycled Water Quality Management Plan).

2.8 Pollution

[3] Paul F. Jones & Associates (2012) *Rottnest Island Golf Course Specification for Golf Course Irrigation*. Mt. Martha: Paul F. Jones & Associates Pty Ltd.

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick) ☐ Yes **If yes**, complete the rest of this section.

✓ No **If no**, go to the next section.

Discharge of fertiliser and chemicals (e.g. herbicides) to the environment will be managed under the Construction Environmental Management Plan and leasing agreement requirements and provisions. These will be specified in an RIA Golf Course Environmental Management and Operating Plan, and the proponent will be required to operate within these conditions, and to maintain the currency of the plan.

Treated wastewater is proposed to be used to irrigate the golf course, but this discharge will be managed in accordance with the Part V licence conditions for the operation of the WWTP. Water quality and the impacts of irrigating with recycled water on the receiving environment will be managed in accordance with a Recycled Water Quality Management Plan and a Nutrient and Irrigation Management Plan (NIMP) (See Attachment 2c).

In preparing the NIMP for the proposed upgrade, the Model for Effluent Disposal using Land Irrigation (MEDLI) was used to assess the water and nutrient balance of irrigation at the Rottnest golf course and sports oval using recycled wastewater.

The model simulated irrigation of 9.6 ha of couch turf with treated wastewater over a 20 year period. Modelling showed that nitrogen uptake by couch turf is predicted to exceed the application rate, and additional fertiliser will be required. Phosphorus uptake by couch turf combined with adsorption to soil accounted for the entire amount applied. The RIA will require the golf course manager to identify risk and have a systematic management approach that adequately covers all environmental aspects. Application of fertiliser and treated wastewater will be managed through turf and soil management practices.

The water and nutrient balance modelling shows that irrigation of the Rottnest golf course with treated wastewater will have minimal impact on the shallow groundwater, provided the performance of the WWTP is maintained and appropriate management practices and mitigation strategies are implemented.

The performance of the WWTP and any associated discharge to the environment will be managed under the existing or revised Part V operating licence.

To reduce the potential for any impacts occurring to the nearby environmentally sensitive hypersaline lakes or the local groundwater aquifer, several mitigation measures have been included including:

- Sprinklers are designed only to cover ground which is intended to be irrigated, thus avoiding spray into nearby lakes;
- A weather station built into the irrigation system will be used to ensure irrigation does not occur when it is raining, and soil moisture sensors will prevent irrigation of waterlogged soils;
- Construction Environmental Management Plan;

- Obliging the proponent (through the lease) to operate the course in accordance with a Golf Course Environmental Management and Operating Plan, provided by the Authority;
- Ongoing monthly monitoring of groundwater and salt lakes;
- Quarterly soil monitoring; and
- In the long term, establishment of a cohesive groundwater & salt lakes model, including nutrient profiles, trigger thresholds, mixing regimes, and potential impacts from fertiliser and nutrient input.

As a precautionary measure and to set a benchmark of water quality against which operational performance can be measured, monitoring of groundwater and nearby lakes will occur on a monthly basis for the first 12-24 months, and then quarterly in subsequent years to detect any impacts from the proposed irrigation scheme. RIA has commenced baseline water quality monitoring in accordance with the NIMP.

In the event that recycled water from the WWTP is found to be unfit for irrigation purposes, or impacts to environmental receptors are detected, irrigation with treated wastewater would cease and effluent would be diverted to evaporation basins at the WWTP for disposal until such a time that the desired water quality is achieved.

Further information on the MEDLI modelling is included in the NIMP (see Attachment 2c).

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

☐ Yes ✔ No **If yes**, please describe what category of prescribed premise.

2.8.3 Will the proposal result in gaseous emissions to air?

☐ Yes ✔ No **If yes**, please briefly describe.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

☐ Yes ✔ No **If yes**, please briefly describe.

2.8.5 Will the proposal result in liquid effluent discharge?

☐ Yes ✔ No **If yes**, please briefly describe the nature, concentrations and receiving environment.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

☐ Yes ✔ No **If yes**, please describe.

2.8.7 Will the proposal produce or result in solid wastes?

☐ Yes ✔ No **If yes**, please briefly describe the nature, concentrations and disposal location/ method.

2.8.8 Will the proposal result in significant off-site noise emissions?

☐ Yes ✔ No **If yes**, please briefly describe.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

✔ Yes ☐ No **If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

The proposed upgrade is not expected to result in any additional noise impacts beyond that associated with the current golf course operations. A CEMP will be prepared and implemented consistent with the requirements of the *Environmental Protection (Noise) Regulations 1997*.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

✔ Yes ☐ No **If yes**, please describe and provide the distance to residences and other "sensitive premises".

An increase in dust levels within the local area may be experienced during the construction phase, however dust will be managed via the implementation of the CEMP.

2.8.11 If the proposal has a residential component or involves "sensitive premises", is it located near a land use that may discharge a pollutant?

☐ Yes ✔ No ☐ Not Applicable

If yes, please describe and provide the distance to the potential pollution source

2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

☐ Yes ✔ No **If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

☐ Yes ✔ No ☐ Unsure **If yes**, please describe.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

✔ Yes ☐ No **If yes**, please describe.

Groundwater wells have been installed across the site and groundwater samples collected and analysed for a suite of contaminants as a baseline for future post construction and operational performance evaluation. Additionally, soil samples have been taken for physical and chemical classification and to identify any potential acid sulphate soils on the site. A summary report of the results of these investigations is provided in Attachment 2e.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

☐ Yes ✔ No **If yes**, please describe.

Although not located directly within the site, a contaminated site (ID 39676) exists approximately 300 m to the east of the site (Attachment 2f). This site is reported as being contaminated with hydrocarbons, which have been detected in the groundwater beneath the site.

2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

✔ Yes ☐ No ☐ Unsure **If yes**, please describe.

An ethnographic survey of the site was undertaken in March 2012 by R.E. O'Connor and Associates. Section 18 consent has been granted by the Minister for Indigenous Affairs under the *Aboriginal Heritage Act 1972.* The RIA will comply with the conditions of the Section 18 consent throughout the proposed works.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

✔ Yes ☐ No **If yes**, please describe.

The proposal is located on the existing Rottnest Island Golf Course.

The whole of Rottnest Island is an A-class Reserve, which is managed by the Rottnest Island Authority under the *Rottnest Island Authority Act 1987.*

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

☐ Yes ✔ No **If yes**, please describe.

3. PROPOSED MANAGEMENT

3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

1. The precautionary principle.	✔ Yes	☐ No
2. The principle of intergenerational equity.	✔ Yes	☐ No
3. The principle of the conservation of biological diversity and ecological integrity.	✔ Yes	☐ No
4. Principles relating to improved valuation, pricing and incentive mechanisms.	✔ Yes	☐ No
5. The principle of waste minimisation.	✔ Yes	☐ No

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

✔ Yes ☐ No

3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

✔ Yes ☐ No **If yes**, please list those consulted and attach comments or summarise response on a separate sheet.

The RIA has consulted and engaged with several State government agencies regarding the proposed upgrade to the golf course, including

- The Department of Environment and Conservation regarding the proposed amendment to the existing Part V licence for the WWTP
- The Department of Indigenous Affairs regarding heritage approvals; and
- The Health Department regarding the development of a Recycled Water Quality Management Plan.

In addition the RIA has consulted with the Rottnest Island Business Community and has received feedback from visitors through recent market surveys. The proposal has featured in media articles this year, and is a strategy within the Rottnest Island Management Plan (RIMP) 2009-2014, a publicly available document that includes a public consultation process. The RIMP strategy calls for expanded recreational activities and the development of additional tourism and recreation products.