

DRAFT BASIC ASSESSMENT REPORT

PROPOSED RENEWABLE ENERGY
GENERATION FACILITY ON ROBBEN ISLAND,
WESTERN CAPE

APRIL 2016

BASIC ASSESSMENT REPORT



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This basic assessment report is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of 08 December 2014. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable tick the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? YES NO
If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

Robben Island Museum (RIM), in partnership with the Department of Tourism, are proposing to install land mounted Photovoltaic (PV) Technology on Robben Island to improve its sustainability efforts and reduce power generation costs on the Island. Currently, RIM spends approximately R 11 million on diesel a year and it is anticipated that the installation of a PV facility will greatly reduce this cost.

The Island has its own power supply system which provides the island with its electricity needs. This is achieved by five 275 kilowatt generators that are driven on diesel. Almost half of the power used is consumed by the desalination plant, which is located within the village precinct to the southeast of the Island. The generation of electricity is critical to the development of Robben Island and therefore the Integrated Conservation Management Plan (ICMP) (2013-2018) for Robben Island has identified the need to increase the Island's electricity efficiency. The desalination plant currently produces up to 500 000litres of potable water per day.

It is proposed that the energy generated through the operation of the PV facility is used to power the desalination plant. The PV facility will have the generation capacity of approximately 500kW.

RIM is a public entity responsible for managing, maintaining, presenting, developing and marketing Robben Island as a national estate and World Heritage Site. It was established by the Department of Arts and Culture in 1997.

Initially, two feasible sites were identified as potential site alternatives (Appendix A1 and A2) for the location of the proposed PV facility and assessed as part of the Basic Assessment Process. The two sites are as follows:

Site Alternative 1 (preferred option): The old cricket ground which is located within the village precinct on the south-eastern boundary of the island. The cricket ground refers to the site of a previously formal, now degraded, open space with a cricket ground relatively recently topped by a cricket mat on the ground. The earliest history of the site indicates that it was a marginal space the Convict Station and the Male Leaper Wards (demolished in the 1930s) and was possibly the southern end of the site of part of the Male Leaper settlement. It is a formal structured open space in the system of places and spaces that during the prison period were occupied by the warders, and now occupied by ex-prisoners and Robben Island Employees.

Site Alternative 2: The agricultural site, or landbou, is located off the coastline and towards the middle of the island, directly between the old agricultural buildings (specifically the piggery), the Lime Quarry and the area of 'bush' located east of the agricultural buildings and marked as planned planting to be considered for conservation in Le Grange (2001). It is contained in a natural dip in topography between these features. In the 1960s prisoners worked at the site, initially as a form of punishment but later it was seen more as 'social rehabilitation'.

During the assessment phase of the project, site alternative 2 was eliminated as a potential site as the Heritage Impact Assessment has identified the significant cultural and heritage value associated with the site and therefore should not be disturbed or altered in any way. In addition, the Fauna and Flora Impact Assessment noted that site alternative 2 had a greater ecological value and would have more significant irreversible impacts should it be selected. As a result site alternative 2 was rejected as a feasible site and Site Alternative 1 has been progressed as the preferred site. A summary of the full site alternative assessment is included within the Alternative Site Selection Document attached as Appendix J1.

The proposed PV facility will have a footprint of approximately 1 ha (including associated infrastructure). Currently, the desalination plant is powered by means of an 11 kV powerline originating from the Islands power plant, and will continue to run through this. The electricity generated through the PV facility will run to an existing power plant and then be converted and fed to the desalination plant. All cables (electrical and fibre optic) associated with the project will be installed underground within existing roads.

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The PV cells will be fixed tilt polycrystalline PV modules mounted onto aluminium or steel galvanised frames with pile driven, screw driven or concrete foundations. The maximum tilt height of the panels will be 1.9m and have a life span of approximately 20 years refer to Appendix C, for the proposed preliminary layout. It is envisaged that the PV structures and associated infrastructure will co-exist with wildlife where possible, having species grazing or browsing around and under them. However, it is likely that should penguins be allowed access, that they will utilise these structures for burrowing under as they will provide a shade source. The ongoing operational cleaning requirements and maintenance requirements may present a significant disturbance to the penguins and therefore a perimeter fence is being proposed for the facility. This fence will not need to exceed 0.8m in height but is will need to be burrow proof. The opportunity exists to provide a designated area for a research project to initially test the compatibility of the breeding penguins with an operating PV facility.

Following consultation with Earthwatch, UCT and SANCCOB, it was raised that the proposed PV facility provides an exciting opportunity for a penguin initiative, where a new penguin colony could potentially be established within an area that will be cordoned off with access being provided within the perimeter fence facing the coast. This would have great conservation value in that it would provide a control test environment from which to monitor the penguin's movements and behaviour. The proposed 'Penguin Initiative Project' has been described in further detail within Appendix J2.

The following structures and infrastructure will be installed as part of the PV facility (refer to drawing 1538/107 REV 1 in Appendix C for further detail):

- Transmission cables
- Fibre Optic Cables
- PV Panels
- Mini Substation
- Administration Block
- Swithgear/ Invertor house
- 2m wide access track

Due to the World Heritage Status of the Island and the ecological and avifaunal sensitivities, the following specialist input has been undertaken in support of the Basic Assessment Process:

- Heritage Impact Assessment
- Visual Impact Assessment
- Fauna and Flora Impact Assessment
- Avifaunal Impact Assessment

The Basic Assessment process has concluded that the cricket ground site is a viable site that presents limited negative impacts that can be suitably mitigated. The cricket ground site is not individually identified as a site with any heritage values attached. The sustainable credentials of the project with respect to the generation of renewable energy and the social and economic benefits that can be gained provide sufficient motivation for this project to be progressed. Notwithstanding this, the overall benefit that can be derived through the Penguin Initiative Project (see Appendix J2) in terms of conservation value is of national and international importance as the African Penguin is an endangered species that will benefit from the lessons learnt through this research project.

- b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN 983, 984 and 985	Description of project activity
<i>GN.R 983- Listing Notice 1</i>	
<p><i>(1) The development of facilities or infrastructure for the generation of electricity from a renewable resource where-</i></p> <p style="padding-left: 20px;"><i>(i) the electricity output is more than 10 megawatts but less than 20 megawatts; or</i></p> <p style="padding-left: 20px;"><i>(ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare;</i></p> <p><i>excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs</i></p>	<p>The proposed Photovoltaic (PV) Facility will not have an electricity output exceeding 20 megawatts, however, it will cover an area of 1 hectare or more. This activity is therefore triggered by the proposed development.</p>

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<p><i>within an urban area.</i></p> <p>(12) <i>The development of-</i></p> <ul style="list-style-type: none"> <i>(i) canals exceeding 100 square metres in size;</i> <i>(ii) channels exceeding 100 square metres in size;</i> <i>(iii) bridges exceeding 100 square metres in size;</i> <i>(iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size;</i> <i>(v) weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size;</i> <i>(vi) bulk storm water outlet structures exceeding 100 square metres in size;</i> <i>(vii) marinas exceeding 100 square metres in size;</i> <i>(viii) jetties exceeding 100 square metres in size;</i> <i>(ix) slipways exceeding 100 square metres in size;</i> <i>(x) buildings exceeding 100 square metres in size;</i> <i>(xi) boardwalks exceeding 100 square metres in size; or</i> <i>(xii) infrastructure or structures with a physical footprint of 100 square metres or more;</i> <p><i>where such development occurs-</i></p> <ul style="list-style-type: none"> <i>(a) within a watercourse;</i> <i>(b) in front of a development setback; or</i> <i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</i> <p><i>excluding-</i></p> <ul style="list-style-type: none"> <i>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i> <i>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i> <i>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</i> <i>(dd) where such development occurs within an urban area; or</i> <i>(ee) where such development occurs within existing roads or road reserves.</i> 	<p>There is no defined development set-back line on Robben Island and therefore this activity is triggered by the proposed development.</p>
<p>(15) <i>The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding -</i></p> <ul style="list-style-type: none"> <i>(i) the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i> <i>(ii) the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i> <i>(iii) the development of temporary structures within the beach zone where such structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared; or</i> <i>(iv) activities listed in activity 14 in Listing Notice 2 of 2014, in which case that activity applies.</i> 	<p>Coastal Public Property as stated in section 7 (1) (c) and 7 (1) (d) of the Integrated Coastal Management Act (No. 24 of 2008) (ICM Act):</p> <p><i>"7.Composition of coastal public property-</i></p> <p><i>(1) Coastal public property consists of-</i></p> <ul style="list-style-type: none"> <i>(a) coastal waters;</i> <i>(b) land submerged by coastal waters, including-</i> <ul style="list-style-type: none"> <i>(i) land flooded by coastal waters which subsequently becomes part of the bed of coastal waters; and</i> <i>(ii) the substrata beneath such land;</i> <i>(c) any natural island within coastal waters;</i> <i>(d) the seashore, including-</i>

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	<p align="center"><i>(i) the seashore of a natural or reclaimed island; and</i></p> <p align="center"><i>(ii) the seashore of reclaimed land;"</i></p> <p>Based on the definition, Robben Island does form part of Coastal Public Property and therefore this activity is triggered as a result of the proposed development.</p>
<p><i>(17) Development-</i></p> <ul style="list-style-type: none"> <i>(i) in the sea;</i> <i>(ii) in an estuary;</i> <i>(iii) within the littoral active zone;</i> <i>(iv) in front of a development setback; or</i> <i>(v) if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater;</i> <p><i>in respect of-</i></p> <ul style="list-style-type: none"> <i>(a) fixed or floating jetties and slipways;</i> <i>(b) tidal pools;</i> <i>(c) embankments;</i> <i>(d) rock revetments or stabilising structures including stabilising walls;</i> <i>(e) buildings of 50 square metres or more; or</i> <i>(f) infrastructure with a development footprint of 50 square metres or more -</i> <p><i>but excluding-</i></p> <ul style="list-style-type: none"> <i>(aa) the development of infrastructure and structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i> <i>(bb) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i> <i>(cc) the development of temporary infrastructure or structures where such structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared; or</i> <i>(dd) where such development occurs within an urban area.</i> 	<p>Site Alternative 1 is located within 100m of the high water mark and therefore this activity is triggered by the proposed development.</p>
<p><i>(19) The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-</i></p> <ul style="list-style-type: none"> <i>(i) a watercourse;</i> <i>(ii) the seashore; or</i> <i>(iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater-</i> <p><i>but excluding where such infilling, depositing , dredging, excavation, removal or moving-</i></p> <ul style="list-style-type: none"> <i>(a) will occur behind a development setback;</i> <i>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or</i> <i>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies.</i> 	<p>There is no defined development setback line on Robben Island and therefore this activity is triggered by the proposed development.</p>
<p><i>GN.R 985- Listing Notice 3</i></p>	
<p><i>(12) The clearance of an area of 300 square metres or</i></p>	<p>Site Alternative 1, the Cricket Ground site is within 100m of</p>

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<p>more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>In Eastern Cape, Free State, Gauteng, Limpopo, North West and Western Cape provinces:</p> <ul style="list-style-type: none"> ii) Within critical biodiversity areas identified in bioregional plans; iii) Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; or ... 	<p>the high water mark, although it is not covered by indigenous vegetation.</p>
<p>(14) The development of-</p> <ul style="list-style-type: none"> (i) canals exceeding 10 square metres in size ; (ii) channels exceeding 10 square metres in size; (iii) bridges exceeding 10 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area exceeds 10 square metres in size; (v) weirs, where the weir, including infrastructure and water surface area exceeds 10 square metres in size; (vi) bulk storm water outlet structures exceeding 10 square metres in size; (vii) marinas exceeding 10 square metres in size; (viii) jetties exceeding 10 square metres in size; (ix) slipways exceeding 10 square metres in size; (x) buildings exceeding 10 square metres in size; (xi) boardwalks exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more; <p>where such development occurs-</p> <ul style="list-style-type: none"> (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. <p>In Western Cape:</p> <ul style="list-style-type: none"> i. Outside urban areas, in: <ul style="list-style-type: none"> (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas listed in terms of an International Convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas on the estuary side of the development 	<p>There is no defined development setback line on Robben Island and therefore this activity is triggered by the proposed development. In addition, Robben Island is a World Heritage Site.</p>

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setback line or in an estuarine functional zone where no such setback line has been determined.	
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2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

PLEASE REFER TO THE APPENDIX J1 FOR THE ALTERNATIVE SITE SELECTION DOCUMENT

Alternative 1 (preferred alternative)		
Description: The Cricket Ground Site	Lat (DDMMSS)	Long (DDMMSS)
The cricket ground is located within the village precinct on the south eastern boundary of the island. The site is an achievable distance away from the main power plant and is in very close proximity to the desalination plant located within the village precinct. The vegetation on the site is predominantly grassland as it has been managed as a cricket ground for more than 50 years. The site is within 100m of the high water mark and therefore the area appears to support a number of sea birds. The cricket ground is adjacent to an important moulting beach for the penguins and right next to the site where the swift tern and crowned cormorants were seen breeding in 2015 and 2014. There is also a Heronry and a Swift Tern colony nearby. The site is located on the coastline of Robben Island that is visible from Cape Town and therefore any development of this site may be visible from the mainland. Furthermore the site is located within the historical village precinct which has	33° 48'25.61 ²	18° 22'46.64 ²

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heritage value for the island. Any development on this site will need to consider avifauna, visual and cultural heritage impacts. This site was considered technically feasible and therefore has been progressed to assessment phase.		
Alternative 2		
Description:	Lat (DDMMSS)	Long (DDMMSS)
The undeveloped land is adjacent to old agricultural buildings located within the middle of the island. The site is equi-distant from the main power plant and the desalination plant located within the village precinct. The proposed site appears to be a vegetated dune feature that is bordered to the north by a forest of alien species, which is ear-marked for removal as part of the island invasive species clearance programme. To the east is the Hydroponics Building, this building started as a dairy in the 1960s and was later transformed into a greenhouse with a translucent roof creating an environment for rapid plant growth. Smaller buildings in the area housed engines that were used to pump water to supply the agricultural activities. To the west of the site is Boundary Road and to the southwest are the remains of the piggery buildings. To the south is natural vegetation beyond which is the limestone quarry. The HIA concluded that the site is fatally flawed due to the site's significant cultural and heritage value as a result of activities undertaken on the site during the apartheid era and is therefore not deemed viable. Refer to Appendix D1 for HIA report.	33° 48' 17.50" S	18° 22' 17.50" E
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
More sites were initially identified but were not considered technically feasible and therefore did not get progressed. Appendix J1 includes a full description of the alternative sites selected and the high level assessment of these.		

In the case of linear activities:

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

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b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The site layout is determined as a result of sunlight and absorption rates. Therefore no alternative layouts were considered.		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

c) Technology alternatives

Alternative 1 (preferred alternative)
Photovoltaic Technology was the only feasible technology alternative for the Island. The PV cells will be fixed tilt polycrystalline PV modules mounted onto aluminium or steel galvanised frames with pile driven, screw driven or concrete foundations. The tilt height of the panels will be 1.9m and have a life span of approximately 20 years.
Alternative 2
N/A
Alternative 3
N/A

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)
N/A
Alternative 2
N/A
Alternative 3
N/A

e) No-go alternative

The no-go option is for Robben Island to continue to use its five 275 kilowatt generators that are driven on diesel. The cost of diesel is continually fluctuating and therefore the continued reliance on diesel is not deemed a sustainable financial option. In addition, the storage of large volumes of fuel on the Island significantly increases the risk of fires and spills or leaks which could contaminate both soils and the ocean.

Paragraphs 3 – 13 below should be completed for each alternative.

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3. PHYSICAL SIZE OF THE ACTIVITY

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1¹ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

10 500m ²
m ²
m ²

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

m
m
m

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:

m ²
m ²
m ²

4. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	NO
	100m

Describe the type of access road planned:

A 2m wide dirt access/ service road will need to be constructed to provide access from the road to the site entrance. The road will not exceed 100m in length. The access track will be made from compacted stone.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

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- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

Refer to Appendix A1 and A2.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A. Refer to Appendix A3.

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8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES	NO	Please explain
The property is not formally zoned however the entire island is deemed Coastal Public Property.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The Western Cape Spatial Development Framework provides a new spatial pattern for the future development of the Province. The proposed PV Facility does not go against or limit any of the high level strategic policies stated within the PSDF.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
The proposed PV facility will be installed on Robben Island which is outside of the urban edge. The proposed facility is located within 100m of the high water mark and within what is deemed Coastal Public Property.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	NO	Please explain
The IDP is a five year plan that guides all planning and development in Cape Town. The proposed activity does not go against or limit the progress of the broad objectives of the IDP. Although the City of Cape Town is moving towards sustainable use of natural resources and perusing alternative methods of energy generation (particularly through gas to energy projects) it is focused more on a city wide basis, this project aims at supporting these objectives and can be used as a case study for the roll out of renewable energy projects, not just locally but nationally.			
(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
Robben Island is covered under the Table Bay District Plan. The project aims to support the strategies outlined within the Approved Structure Plan (APS) of the Municipality as it does not go against or limit the progress of the broad objectives outlined within the APS.			

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<p>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</p>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
<p>The island has its own power supply system which provides the island with its electricity needs. This is achieved by five 275 kilowatt generators that are driven on diesel. Almost half of the power used is consumed by the desalination plant which is located within the village precinct to the southeast of the island. The generation of electricity is critical to the development of Robben Island and therefore the Integrated Conservation Management Plan (2013-2018) for Robben Island has identified the need to increase the islands energy efficiency capabilities.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
<p>The installation and operation of the PV facility is in line with the Integrated Conservation Management Plan (2013-2018) for Robben Island which identifies the need to increase the islands energy efficiency.</p>			
<p>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</p>	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> Please explain
<p>The proposed PV facility will reduce the cost of the electricity generation on the island, allowing the cost savings to be used to maintain the World Heritage Status of Robben Island and its international legacy. Although this is not identified as a priority within the IDP, it does not go against or limit the progress of the broad objectives of the IDP.</p>			
<p>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</p>	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input checked="" type="checkbox"/> Please explain
<p>Robben Island has only a small community of RIM employees, there are approximately 134 people living on the Island. The island relies on the potable water produced by the desalination plant. The desalination plant accounts for approximately half of the electricity usage on the Island and therefore running the desalination plant off the electricity produced by the PV facility will reduce the islands dependency on a non-renewable energy source and reduce the cost of energy production.</p>			
<p>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Please explain
<p>The project will not require any additional capacity to be created. The Island currently produces its own power and the desalination plant provides potable water.</p>			

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<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	YES	NO	Please explain
<p>As the project occurs on Robben Island, the municipality does not supply electricity, water or sewerage infrastructure. The project will therefore not impact on the infrastructure planning of the municipality.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	YES	NO	Please explain
<p>The proposed project promotes the use of renewable energy rather than an increased use of non-renewable energy. The project is part of a national programme to roll out renewable energy generation projects at a number of sites of national importance (i.e. Robben Island and national botanical gardens). The national government has issued three Determinations for the procurement of 3 725MW by 2016, 3 200MW by 2020 and 6 300MW by 2030. The allocated quantities are derived from the IRP 2010-2030² target of 17 800MW new generation capacity set aside for renewables.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	YES	NO	Please explain
<p>Although the Island is a World Heritage Site, the Island is ideal for renewable energy technology as it has very few shaded areas and large areas of open space. The environmental impact is minimal as the island is heavily invaded with both alien fauna and flora.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	YES	NO	Please explain
<p>The cricket ground site consists of manicured lawn and has little ecological significance. Furthermore it has been shown that the cricket ground has no inherent significance in its current form either historically or currently. It has not been previously identified as a site for conservation. Its probable use as a warders parade ground has been significantly eroded if not destroyed by its current configuration. It has some significance as a structuring open space element in a buffer between the village and the beach, and between the administrative and residential zones of the village.</p> <p>Valued and used open space in the village is located on the historical cricket ground, referred to as the sports field, and not on this site. As such the development of this site for a renewable energy project is considered appropriate.</p>			

² IRP 2010-2030- Integrated Resource Plan 2010-2030 (implemented by the Department of Energy)

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10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain
<p>The proposed PV facility will reduce the Islands dependency on the use of non-renewable energy generation by developing a 'cleaner' more sustainable energy source. The Island is considered a sensitive environment, for both its heritage and ecological value, and the potential impacts associated with the use of diesel poses a potential risk in terms of contamination (both through transport across the ocean and spills or leaks onsite). In addition, the use of non-renewable resources is deemed unsustainable both in terms of sourcing it and financing the use of it.</p> <p>From a heritage aspect, the proposed development on the cricket ground could have potentially positive impacts as the site in its current use has lost historical value. It is anticipated that there is a potential for locating lost historical elements and providing new information that may reveal layered understandings such as foundations and artefacts within or below the compacted soil. In addition, the site could potentially improve its significance through conservation and use (i.e. construction of the PV facility). These positive benefits outweigh the change in land use and loss of potential heritage significance.</p> <p>The cricket ground site is of low ecological significance as it has already been transformed by the development of the land to a cricket ground. The site is covered with manicured lawns and as such is only utilised by fauna as a through fare due to the lack of shelter and nesting areas. In addition, the location of the cricket ground in close proximity to the ocean and the penguin moulting and breeding sites offers a unique opportunity in terms of the Penguin Initiative Project (Appendix J2).</p> <p>As the Island is a Word Heritage Site as a result of its cultural and historical significance and that the Island is home to a number of endangered fauna and avifauna, the low heritage and ecological significance, in relation to other potential sites on the Island, make the site the most suitable from a technical and environmental aspect.</p>			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
<p>Yes, this project can be seen as a case study for the use of renewable energy within the City of Cape Town municipality as well as nationally.</p>			

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12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO	Please explain
<p>The island holds a significant cultural value too many people especially those imprisoned on the Island and those who have been historically disadvantaged through the Apartheid era. The site selected for the PV facility has been assessed from a cultural and heritage aspect to determine a location which holds the least significant cultural value. The heritage assessment incorporated meaningful engagement with key stakeholders such as:</p> <ul style="list-style-type: none"> • Ex political prisoners (EPPs) EPPA Reference group Committee was identified by RIM as the appropriate representative forum, • The Department of Correctional Services, • Armscor, • Residents on the Island, • The Churches (The Anglican Diocese of Cape Town with regard to the Church of the Good Shepherd and the Cape Mazaar Society in relation to the Kramat), • The Leprosy Mission, • Traditional chiefs, • The Khoe and San communities, and • Transnet (who will be informed by RIM management), <p>The cricket ground site is not individually identified as a site with any heritage values attached. Based on this consultation it was broadly noted that if there are no environmental or heritage impacts and if people are not affected, then the installation of the PV panels should go ahead on the island. It was seen as positive. No resident stated that the installation on the cricket ground/parade ground site was inappropriate or unacceptable provided concerns with respect to screening, safety, glare etc. were adequately addressed.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO	Please explain
<p>The area identified for the potential PV facility has not formally been zoned however it is within 100m of a high water mark. According to the City of Cape Town's Development Edges Policy: Urban and Coastal Edge, all areas between the delineated coastal Urban Edge line and the highwater mark (Coastal Conservancy Areas) <i>"Should be considered and retained as non-development areas, except for accommodating appropriate low-impact recreational and tourism activities such as appropriately sited and designed pathways and benches"</i>. However, any tourists on Robben Island are not allowed to wonder freely around the Island or near the coastal areas. The PV facility will be constructed on an area which is already disturbed/ developed as it has had historic use as a cricket ground. The cricket ground is within the village precinct and the proposed PV facility will lead to a change in the form and grain of this area of the village as the site is currently open space which will be changed by the construction of the PV facility. However, the modest scale and size of the proposed solar project improves the overall congruity of this section of the village.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO	Please explain
<p>The 18 Strategic Integrated projects have been developed, by the national government, which integrate more than 150 of the individual infrastructure plans into a coherent package. The SIP relevant to the proposed project is the Energy SIPs namely SIP 8- Green Energy in support of the African Economy and SIP 9- Electricity generation to support socio-economic development. SIP 8 aims to support sustainable green energy initiatives on a national scale through a diverse range of clean energy options as envisaged in the IRP 2010-2030 and support bio-fuel production facilities. SIP 9 aims to accelerate the construction of new electricity generation capacity in accordance with the IRP 2010-2030 to meet the needs of the economy and address historical imbalances. Monitor implementation of major projects such as new power stations: Medupi, Kusile and Ingula.</p>			

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15. What will the benefits be to society in general and to the local communities?	Please explain	
Robben Island has only a small community of RIM employees. The island relies on the potable water produced by the desalination plant. The desalination plant accounts for approximately half of the electricity usage on the Island and therefore running the desalination plant off the electricity produced by the PV facility will reduce the islands dependency on a non-renewable energy source and reduce the cost of energy production.		
16. Any other need and desirability considerations related to the proposed activity?	Please explain	
N/A		
17. How does the project fit into the National Development Plan for 2030?	Please explain	
The National Development Plan outlines the need to reduce South Africa's Carbon Footprint and decrease dependency of electricity generation from non-renewable resources.		
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.		
23	Relevant Objective	Incorporation
a)	Promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment.	The general objectives of Integrated Environmental Management were taken into account by considering and evaluating all potential negative and positive impacts of the proposed construction and operation of the on the physical environment, fauna and flora, socio-economic conditions and cultural heritage.
b)	Identify, predict and evaluate the actual and potential impact on the environment, socioeconomic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2.	
c)	Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them.	Refer to the EMPr (Appendix G) for detailed mitigation measures that aim to limit the impact that the project will have on the sensitive environments identified.
d)	Ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment.	The stakeholder consultation processes has been undertaken in a comprehensive, transparent, diligent and independent manner in accordance with Regulation 40 and 41 of GNR 982. Refer to Appendix E for the Public Participation Report.
e)	Ensure the consideration of environmental attributes in management and decision making which may have a significant effect on the environment; and	This BAR outlines the project detail and assesses the significance of anticipated impacts (Section D) in order to assist the authority in the decision making process.
f)	Identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2.	A summary of the relevant Principles and how they have been taken into account are contained in the table below (Item 18). Refer to the EMPr (Appendix G) for detailed mitigation measures that aim to limit the impact that the project will have on the sensitive environments identified.
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.		
	Relevant Objective	Incorporation
4 (a)	Sustainable development requires the consideration of all relevant factors including the following:	

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(i)	That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;	This BAR identifies potential impacts and provides mitigation measures to avoid/ reduce /minimise environmental impacts and disturbance to the surrounding environment. See Section D of this BAR and EMPr (Appendix G).
(ii)	that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;	
(iii)	that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;	
(iv)	that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;	<p>The proposed construction of the PV facility includes trenching and construction activities. Any soil removed during trenching will be used to backfill the trenches. Waste streams likely to be produced as a result of the proposed activities are cement, general waste, wood, plastic and very limited amounts of hazardous waste (if any).</p> <p>Once the facility is operational waste streams will include general administration waste, waste water and waste associated with maintenance and up keep of the facility. Measures regarding the handling of waste generated during the construction and operation are included in the EMPr (Appendix G).</p>
(vii)	that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and	The BAR includes uncertainties and assumptions which will be considered by the applicant in order to ensure that a cautious and conservative approach is adopted.
(viii)	that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.	This BAR identifies potential impacts and provides mitigation measures to avoid/ reduce /minimise environmental impacts and disturbance to the surrounding environment. See Section D of the BAR and EMPr (Appendix G).
(c)	Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.	The public participation process has been conducted in line with the requirements of the Public Participation Process outlined in Chapter 6 of the GN. R. 982.
(e)	Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.	An EMPr (Appendix G) has been compiled as part of the Basic Assessment Process. The EMPr must be formally updated to ensure that the Applicant takes responsibility for the consequences of the decommissioning and any unforeseen impacts that result from the construction and operational activities.
(f)	The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.	The Basic Assessment Process provides for the participation of potential I&AP's. A detailed summary of the Public Participation undertaken to date is attached as Appendix E. The Public Participation Process is undertaken to ensure that the public are provided with an opportunity to play an active role in the decision-making process. The public participation process has been and will continue to be fair, transparent and inclusive.
(g)	Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.	
(h)	Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate	The proposed project promotes the use of sustainable renewable resources. As Robben Island is a National and International site of importance and the introduction of renewable energy generation capacity

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	means	on the Island promotes environmental awareness to both the local and regional communities.
(i)	The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.	This BAR identifies potential impacts and provides mitigation measures to avoid/ reduce /minimise environmental impacts and disturbance to the surrounding environment. See Section D of the BAR.
(j)	The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.	The EMPr (Appendix G) makes provision for on-site training of staff so that they perform their work with all the necessary skills and training. All the necessary training, personal protective equipment and safety signage will be provided to employees and contractors during the construction and operational activities.
(k)	Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.	The Basic Assessment Process provides for the participation of potential I&AP's. The Public Participation undertaken to date is attached as (Appendix G).
(l)	There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.	Section 11 of the BAR identifies the policies, and laws (at all levels of government) which were considered during the preparation of the Assessment report/process.
(m)	Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.	The Draft BAR has been made available for comment to all stakeholders, including organs of state. All comments received on the Draft BAR will be included in the Final BAR.
(p)	The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.	The applicant, Department of Public Works, as well as RIM have been made aware of this principle.
(q)	The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.	The public participation process has been and will continue to be fair, transparent and inclusive allowing all potential I&AP's to raise concerns related to the proposed project.
(r)	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.	<p>As the proposed project is being planned on a World Heritage Site, which is home to a number of indigenous fauna and flora including protected sea birds which breed on the Island, the following studies have been undertaken</p> <ul style="list-style-type: none"> • Heritage Impact Assessment (Appendix D1); • Visual Impact Assessment (Appendix D2); • Fauna and Flora Impact Assessment (Appendix D3); • Avifaunal Impact Assessment (Appendix D4); <p>These studies will determine the possible impacts and mitigation measures associated with the proposed project.</p> <p>Refer to the EMPr (Appendix G) for detailed mitigation measures that aim to limit the impact that the project will have on the environment.</p>

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11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act (Act 107 of 1998)	The proposed project requires Environmental Authorisation prior to the construction and operation of the PV facility.	DEA	In progress
Western Cape Provincial Spatial Development Framework	Ensure that the proposed project is in line with the provincial SDF.	Provincial Government of the Western Cape	N/A
Cape Town Spatial Development Framework	Ensure that the project is in line with the municipal SDF.	City of Cape Town Municipality	N/A
Robben Island Conservation Management Plan (2013-2018)	All activities on the Island need to be undertaken according to the Conservation Management Plan.	RIM	N/A

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES	NO
Unknown	

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

General (non-hazardous) waste will be recovered and reused where possible (for example wooden pallets, plastic wrapping, boxes and nuts and bolts), transported to mainland via means of a boat together with other domestic waste produced on the island and then delivered to an appropriately licenced general landfill facility.

Hazardous waste will be disposed of in the hazardous waste bins that will be provided onsite. Waste will be transferred back to the mainland as and when required and will be collected by a hazardous waste service provider. Hazardous waste must be disposed of at a hazardous waste disposal.

Where will the construction solid waste be disposed of (describe)?

Solid waste will be disposed of onsite into waste skips. The waste skips will then be covered and transported to the mainland where it will be collected by an appropriate and accredited service provider.

Will the activity produce solid waste during its operational phase?

YES	NO
Unknown	

If YES, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

Waste will be disposed of into onsite bins and transported back to mainland and disposed of by an appropriate service provider. It is anticipated that minimal amounts of waste will be produced through operational activities.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

It is anticipated that general (non-hazardous) waste that cannot be recovered will be disposed of at a licensed general waste landfill along with the domestic and general waste produced on the Island.

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Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? YES NO

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility? YES NO

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES NO

If YES, what estimated quantity will be produced per month?

m³

Will the activity produce any effluent that will be treated and/or disposed of on site?

YES NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES NO

If YES, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The only water use will relate to the cleaning operations, all water used will fall to the ground and provide minimal irrigation for the surrounding ground cover plants. There is no opportunity to reuse water.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES NO

If YES, is it controlled by any legislation of any sphere of government?

YES NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

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It is not anticipated that the proposed project will have any direct emissions associated with the operational phase of the project.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	NO
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES	NO
YES	NO

If YES, is it controlled by any legislation of any sphere of government?

Describe the noise in terms of type and level:

It is not anticipated that the operational phase of the project will significantly increase the ambient noise of the Island however; typically string invertors DB levels emit approximately 50dBA at a 1m distance.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

litres	
YES	NO

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

The proposed project is to increase energy efficiency on the Island. Very little electricity will be utilised during the operational phase of the PV facility.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

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SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?

YES	NO
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If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Western Cape
District Municipality	City of Cape Town
Local Municipality	City of Cape Town Metropolitan Municipality
Ward Number(s)	54
Farm name and number	The farm No. 1436
Portion number	0
SG Code	Unknown

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

No registered zoning however it is deemed Coastal Public Property. The site is located on Robben Island which is a World and National Heritage Site.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

YES	NO
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1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input checked="" type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO	YES	NO	YES	NO
An area sensitive to erosion	YES	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

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4. GROUND COVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "E" is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO	UNSURE
Non-Perennial River	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

N/A

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential ^A	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum

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Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe): Sea

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

N/A

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO
Core area of a protected area?	YES	NO
Buffer area of a protected area?	YES	NO
Planned expansion area of an existing protected area?	YES	NO
Existing offset area associated with a previous Environmental Authorisation?	YES	NO
Buffer area of the SKA?	YES	NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	NO
	Uncertain	
The site is located on Robben Island which is a World Heritage Site. The cricket ground site is not individually identified as a site with any heritage values attached. Refer to Appendix D1 for the HIA report.		

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

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The HIA, completed by Rennie Scurr Adendoff Architects with Cedar Tower Services and attached as Appendix D1, made the following conclusions:

- 1) The agricultural site, site Alternative 2, is of Outstanding Universal Value and should be conserved and protected from any development. This alternative was therefore deemed to have a fatal flaw and was not progressed.
- 2) The moderate beneficial impact on the economic and environmental sustainability of the Island can be achieved at the cost of the change of scale and form of a limited and defined open space (the cricket ground) which is currently of no significance at National or World Heritage levels.
- 3) A slight overall positive impact will be achieved from the installation of the described PV facility on the cricket ground site, on condition that the installation is limited to the assessed area using plans of the assessed height and form, and retaining all the technical specifications that were assessed.
- 4) Mitigation of the negative impact related to the change in form and scale of the site should take the forms of:
 - Landscape planting around the boundaries of the site using indigenous forms of vegetation;
 - Ensuring the safety and protection of all inhabitants of the Island (fencing, lighting);
 - The development of historical research and understanding of the particular site's history and contribution to the islands over all historical periods; and
 - Interpretive material installed on site, and available at the research centre.

Will any building or structure older than 60 years be affected in any way?

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO
YES	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

Please refer to Appendix J3 for proof of submission of Documents to SAHRA

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

Robben Island forms part of the City of Cape Town's Ward 54. The ward has an unemployment rate of 5.02%.

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Economic profile of local municipality:

Labour Force Indicators	Black African	Coloured	Asian	White	Other	Total
Population aged 15 to 64 years	4 513	1 803	632	12 815	854	20 617
Labour Force	2 459	1 205	372	3 540	446	14 022
Employed	255	1 132	350	9 176	405	13 318
Unemployed	204	73	22	364	41	704
Not Economically Active	2 054	598	260	3 275	408	6 595
Discouraged Work-seekers	24	7	1	45	6	83
Other not economically active	2 030	591	259	3 230	402	6 512
Rates %						
Unemployment rate	8.30%	6.06%	5.91%	3.82%	9.19%	5.02%
Labour absorption rate	49.97%	62.7%	55.38%	71.60%	47.42%	64.60%
Labour Force participation rate	54.49%	66.83%	58.86%	74.44%	52.22%	68.01%

Level of education:

85% of those aged 20 years and older have completed Grade 12 or higher.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 25-28 Million
What is the expected yearly income that will be generated by or as a result of the activity?	R 0
Will the activity contribute to service infrastructure?	YES NO
Is the activity a public amenity?	YES NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unknown
What is the expected value of the employment opportunities during the development and construction phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	10-20% local subcontractors
How many permanent new employment opportunities will be created during the operational phase of the activity?	DPW will use the current maintenance staff currently on the Island.
What is the expected current value of the employment opportunities during the first 10 years?	No new employment anticipated.
What percentage of this will accrue to previously disadvantaged individuals?	No new employment anticipated.

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity

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information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

- a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	N/A

- b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	0%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	
Degraded (includes areas heavily invaded by alien plants)	0%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	100%	The cricket ground site consists of manicured lawns. There are no areas containing natural vegetation and there is no infrastructure that will need to be removed.

- c) Complete the table to indicate:
 (i) the type of vegetation, including its ecosystem status, present on the site; and
 (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems		
Ecosystem threat status as per the National Environmental Management:	Critical	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline
	Endangered			
	Vulnerable			
	Least			

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Terrestrial Ecosystems		Aquatic Ecosystems						
Biodiversity Act (Act No. 10 of 2004)	Threatened	YES	NO	UNSURE	YES	NO	YES	NO

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Fauna and Flora:

It is proposed that the PV facility be installed on an existing cricket ground where the vegetation of the site has consequently been transformed with no natural vegetation remaining. The vegetation on the cricket ground is dominated by alien annual grasses such as *Bromus spp.* and *Avena fatua* as well as *Cynodon dactylon*. Species around the margin of the cricket ground include *Tetragonia decumbens*, *Lycium oxycarpum*, *Mesembryanthemum crystallinum*, *Carpobrotus edulis*, *Trachyandra divaricate* and *Acacia cyclops*. Given the transformed nature of the site, there is very little diversity within the affected area. It is however used by a variety of animals such as francolin, guinea fowl and angulate tortoises. For further details refer to the Fauna and Flora Specialist Study attached as Appendix D3.

Avifaunal:

Robben Island is home to a number of endangered and protected species of bird species including penguins, gulls, terns, cormorants, African Black Oystercatcher and Cape Gannet. The cricket ground site is located adjacent to small pockets of vegetation (e.g. rooikrans) that has been used in the past for nest sites by African Penguins. The site is also adjacent to the important 'moulting beaches' for the penguins and close proximity to where the Swift terns bred in 2015 and 2014. There are crowned cormorants nesting and breeding in the bushes approximately 50m south of the cricket ground. Refer to Appendix D4 for the Avifaunal Impact Assessment.

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SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Media 24- Die Burger Independent News- The CapeTowner	
Date published	Die Burger- 9 th December 2015 and The CapeTowner- 10 th December 2015	
Site notice position	Latitude	Longitude
	33°54'24.27"S	18°25'20.83"E
Date placed	10 th December 2015	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Rhett Smart	CapeNature	rsmart@capenature.co.za
Mr Mpho	Ex Political Prisoners Association	eppaassociation@gmail.com
Nola Persons	SANCCOB	vet@sanccob.co.za
Les Underhill	Earthwatch (UCT-ADU)	les.underhill@uct.ac.za
Vernon Head	Western Cape Bird Forum	vhjarch@kingsley.co.za

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

REFER TO APPENDIX E FOR THE PUBLIC PARTICIPATION REPORT

Summary of main issues raised by I&APs	Summary of response from EAP
What is the lifespan of the project, and is there a plan for recycling the PV cells at the end of the project.	The approximately lifespan of a PV cell is 20 years however it is anticipated that the PV plant will remain operation with PV cells being replaced as and when required. Once the cell reaches its end of life the cells will be recycled. At this stage it is unknown which service provider will be utilised for the recovery and recycling process since often the manufacturer will agree to take back the goods at their end of life, therefore once a service provider is

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	<p>selected the end of life solution can be better understood. For example, First Solar has a recycling solution for PV panels and they have module recycling locations at their manufacturing facilities in the US, Malaysia and in Germany for the Europe market. As for modules in RSA, should the project owner opt for this solution, First Solar's modules would likely be shipped back to the facility in Malaysia for EOL recycling. However, it can be confirmed that Robben Island will ensure that the company is reputable and suitably accredited. This will be outlined within the facilities operating procedures to be developed by RIM following the construction process.</p>
<p>The potential impact of the PV facility on the view from the ferries that carry tourists.</p>	<p>The potential visual impacts for the proposed PV facility has been considered and assessed by an independent Visual Impact Specialist. The specialist has concluded that for the cricket ground site the overall extent of its visibility is considered local (extends beyond the immediate surrounds but is primarily contained within a 3km radius). Please refer Appendix D2 of the BAR for the full report.</p>
<p>The PV facility is within close proximity to residents houses, is it safe?</p>	<p>The PV facility is not considered to be a Health and Safety risk to residents on the Islands however, associated infrastructure such as invertors, batteries and chargers may pose a minor risk of fire. Fire control and mitigation measures will be installed onsite.</p> <p>The PV facility is however deemed a safer alternative to the current procedures as the PV facility will not require the storage of fuel.</p>
<p>What will the impact of potential glare have on the residents and how will it be mitigated?</p>	<p>Glare is not anticipated at lower levels that will be within the viewing level of residents. The panels are designed to tilt towards the sun resulting in glare being experienced at higher levels. Furthermore the panels will be facing in a northerly direction which is not in the direction of the entrances to the surrounding homes.</p>
<p>The impacts on flora, fauna and avifauna</p>	<p>The impact to flora fauna and avifauna has been considered and assessed within the fauna and flora impact assessment (Appendix D3) and the avifaunal impact assessment (Appendix D4).</p>

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and	Tel No	Fax No	e-mail	Postal address

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	Surname)				
DEA: Integrated Environmental Authorisations	Mr Vincent Chauke	012 399 9372	-	VChauke@environment.gov.za	Private Bag X9181, Cape Town, 8000
DEA: Integrated Environmental Authorisations: Protected Areas	Mr Danie Smit	012 399 9382		Dsmit@environment.gov.za	Private Bag X9181, Cape Town, 8000
DEA: Oceans and Coast	Mr Monde Mayekiso	021 819 2444	021 819 8410	mmayekiso@environment.gov.za	PO Box 52126, V&A Waterfront, Cape Town, 8002
DEA: Oceans and Coast	Mr Bruce Dyer	082 935 3153	-	bdyer@environment.gov.za	PO Box X9181, Cape Town, 8000
DEADP: Development Management Region 1	Mr Zaahir Toefy	021 483 2700	021 483 4372	Zaahir.Toefy@westerncape.gov.za	1st Floor, Utilitas Building, 1 Dorp Street, Cape Town, 8001
SAHRA: Built Environmental Unit	Greg Ontong	021 462 4502	021 462 4509	gontong@sahra.org.za	P.O. Box 4632 Cape Town 8001 111 Harrington Street (cnr. Roeland Street) Cape Town 8000
Heritage Western Cape	Errol Myburg	021 483 9845	021 483 9845	ceoheritage@westerncape.gov.za	3rd Floor, Protea Assurance Bldg, Greenmarket Square, Cape Town, 8000
City of Cape Town: Environment & Heritage Management	Mr Dimitri Georgeades	021 400 6518	021 425 4448	dimitri.georgeades@capetown.gov.za	2nd Floor, Media City Bldg. c/o Heerengracht & Hertzog Boulevard, Cape Town, 8001
City of Cape Town: Municipal Manager	Mr Achmat Ebrahim	021 400 1332		city.manager@capetown.gov.za	Private Bag X9181, Cape Town, 8000
City of Cape Town: Ward Councillor	Jacques Weber	021 417 0113		jacques.weber@capetown.gov.za	

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

The heritage impacts identified below have been taken from the HIA report (Appendix D1), the specialist aligned the assessment with the heritage recognised standards (ICOMOS) and as such there is not an assigned positive or negative rating for an impact. The HIA process does not fall within the ambits of the EIA processes of either NEMA or section 38 of the National Heritage Resources Act [NHRA]. The application is in terms of section 27 of the NHRA which overrides the EIA and HIA process for the cultural aspects of a World Heritage Site. The determining of significance of the potential impacts has therefore been required to follow the ICOMOS guideline/methodology of which paragraph 2.1.7 which states the following; *“Where statutory environmental impact assessments apply, the cultural heritage sections must take account of this ICOMOS guidance where the EIA relates to a WH property. An HIA undertaken as part of an EIA in these circumstances is not additional to normal EIA requirements, but uses a different methodology which clearly focuses on Outstanding Universal Value (OUV) and attributes that convey that OUV.”*

The heritage specialist has therefore produced a statement of significance of the site. This statement of significance will be presented to SAHRA and ultimately to the World Heritage Centre in Paris. SAHRA would then be required to issue or refuse a permit and include conditions where necessary. However; for the purposes of this Basic Assessment and a desire to make the specialist assessments comparative to be considered wholistically, the impacts as stated within the statement of significance have been interpreted by the EAP to bring them in line with the basic assessment report. Therefore the EAP has assigned each impact with a positive or negative rating, this has then been approved by the heritage specialist.

Rating	Significance	Description
L(1 - 4.9)	No Change	A potential Issue which was found to have no impact when evaluated
LM (5 - 9.9)	Very Low	Impacts will be site specific and temporary with no mitigation necessary
M (10 - 14.99)	Low	Impact will have a minor influence on the biophysical and/or social environment, and will not have an influence on the decision
MH (15 - 19.9)	Medium	Impact will have a moderate influence on the biophysical and/or social environment, and it should have an influence on the decision unless it is mitigated
H (20 - 25)	High	Impact will have a major influence on the biophysical and/or social environment, and would influence the outcome regardless of any possible mitigation

Table 2: Impact Summary- Construction Phase

Environmental Aspect	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative): Cricket Ground			

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
<i>Direct impacts:</i>			
Ground and Surface water	During construction direct impacts on surface and groundwater quality may include a low level of possible risks of contamination from hazardous building materials (e.g. paints, cement, fuels). Although, there are no formal water resources on the proposed site the sea is approximately 50m away, the risk of contamination to soil is slightly more significant as contamination may infiltrate soils and enter groundwater aquifers, or alternatively it may run-off during rainfall events and run into the sea.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • All equipment that has the potential to spill or leak must have a drip tray underneath at all times. • Cement must be mixed on an impermeable surface and not on the bare ground. • Any spilled or waste concrete onsite must be removed immediately and disposed of appropriately. • Adequate ablution facilities must be placed onsite. • All hazardous chemicals and materials must be stored within a lockable area on an impermeable surface. Refer to the EMPr (attached as Appendix G).
		Post-Mitigation No Change	
Fauna and Flora	Loss of sensitive vegetation and habitat	Pre-Mitigation No Change	<ul style="list-style-type: none"> • Vegetation clearing outside the cricket ground area to be kept to a minimum. No unnecessary vegetation to be cleared. • Sensitive areas should be cordoned off with hazard tape or similar.
		Post-Mitigation No Change	
	Disturbance and habitat loss for fauna	Pre-Mitigation No Change	<ul style="list-style-type: none"> • All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises, and owls which are often persecuted out of superstition. An electric fence should not be used, in order to prevent tortoise mortality. • Sensitive intact areas should be demarcated as no-go areas with construction tape or similar. • Any fauna threatened by the construction activities should be removed to safety by the ECO or appropriately qualified environmental officer.
		Post-Mitigation No Change	
Increased wind erosion risk and consequent degradation to the affected areas.	Pre-Mitigation No Change	<ul style="list-style-type: none"> • Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. • Any disturbed areas where wind erosion is a potential problem should be rehabilitated and protected with geotextiles or similar protective measures. Refer to the EMPr attached as Appendix G for further mitigation measures.	
	Post-Mitigation No Change		
Socio- Economic	Temporary job creation as a result of the construction activities.	Pre-Mitigation Low (+ve)	It is anticipated that between 5-15 employees will be needed during the construction period. The number of staff fluctuates during the various stages of construction.
		Post-Mitigation N/A	

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
Cultural /Heritage	Will the proposed PV Facility negatively affect the OUV of the WHS with specific reference to the impact on OUV criterion (iii) The buildings of Robben Island bear eloquent witness to its sombre history.	Pre-Mitigation Low (-ve)	<ul style="list-style-type: none"> • Landscape planting around the boundaries of the site using indigenous forms of vegetation. • All staff must undergo training to ensure that they are aware of the possibility of uncovering items of cultural or heritage value and the relevant procedure on the steps to take encase of such items being discovered. Refer to the EMPr (attached as Appendix G).
		Post-Mitigation Very Low (-ve)	
	Will the proposed PV Facility negatively affect the OUV of the WHS with specific reference to the impact on OUV criterion (vi) Robben Island and its prison buildings symbolize the triumph of the human spirit, of freedom, and of democracy over oppression.	Pre-Mitigation Low (-ve)	It must be noted that the selection of the cricket ground as the preferred site for the proposed PV facility mitigates the potential impact on the OUV that other selected sites would have as a result of the significant heritage and ecological impacts of alternatives sites on the Island.
		Post-Mitigation very Low (-ve)	
	Visual Intrusions	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • Site must be kept in a neat and tidy manner. • The construction footprint must be kept as small as possible to avoid any unnecessary disruptions to the existing vegetation and topography. • No blanket clearing or removal of vegetation outside of the building zone (unless part of the Island's management plan). • Natural vegetation or original path surfaces must be re-established on disturbed areas after construction. • Any construction offices, temporary ablutions and related facilities must be sensitively placed on the site where they will be least visible form key viewpoints. • No dumping in unauthorised and/or highly visible areas permitted. • Dust and litter control measures must be included in the Environmental Plan (EMP) and implemented during the construction phase.
		Post-Mitigation Very Low (-ve)	
	Change in character of the site	Pre-Mitigation Very Low (-ve)	The character of the site was already altered when the cricket ground was developed.
		Post-Mitigation N/A	
	Vulnerability to further loss of historical meaning.	Pre-Mitigation Low (-ve)	Although no mitigation is proposed, it must be noted that the history of the site is not well documented and through the heritage impact assessment, research into its previous uses has been undertaken. In addition, there is a potential for discoveries of building foundations and artefacts
		Post-Mitigation N/A	

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
			through construction activities, shedding further light on the site history.
	Potential for new information that contributes to layered understandings of the site and Island through the discovery of building foundations and artefacts.	Pre-Mitigation Medium (+ve)	Although no mitigation is considered necessary, any items or information of significance discovered regarding the site needs to be recorded. All information discovered needs to be made available for use in future publications and historical archives.
		Post-Mitigation N/A	
Noise	Increase in ambient noise as a result of construction activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • Ensure that construction activities occur during working hours and weekdays. • Major³ construction activities must be restricted to the months between September and February. Refer to the EMPr (attached as Appendix G).
		Post-Mitigation Very Low (-ve)	
Visual	The potential for visual disturbance as a result of the construction activities.	Pre-Mitigation Very Low (-ve)	Refer to mitigation measures proposed above for Visual Intrusions under cultural/heritage aspects.
		Post-Mitigation Very Low (-ve)	
Traffic	Increased vehicular movement on the Island as a result of the construction activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • Vehicles associated with construction activities should be kept onsite in a designated area. • Trenching activities occurring within the road reserve must ensure that it does not impact on tour buses and service vehicles. Refer to the EMPr (attached as Appendix G).
		Post-Mitigation Very Low (-ve)	
Air Quality	Decrease in ambient air quality as a result of the machinery and vehicles associated with the construction activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • All vehicles and machinery associated with the construction activities must be well maintained. • Vehicles must not be left idling when stationary. Refer to the EMPr (attached as Appendix G).
		Post-Mitigation No Change	

³ Major construction activities include- Excavation, cement mixing, laying of foundations and the use of large noisy machinery and industrial equipment. It must be noted that construction activities may be halted by heavy winds given the island location of the site and the proximity to sensitive areas can cause unforeseen delays. Should, minor construction activities overrun after February, it is considered reasonable to assume that the penguins would have become accustomed to the increase of activity in the area and are not anticipated to be negatively impacted so long as no major construction activity is undertaken beyond February. Furthermore, every effort will be made to ensure that as little disturbance during breeding and moulting season as possible occurs. In the event that construction does commence in September and/ run beyond February, an Avifaunal Specialist will need to approve the types of activities that would be acceptable during these months that will result in the least amount of disturbance to the Penguins and monitor the works if deemed necessary.

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Environmental Aspect	Impact summary	Significance	Proposed mitigation	
Avifaunal	Habitat destruction as a result of construction activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • Existing roads should be used where possible, and no access is to be provided to no-go areas. • The footprint of the PV facility must remain behind the red line indicated on the Avifaunal sensitivity map (Appendix A4), so as to ensure that no construction activities occur to south and east of this line. • The minimum footprint areas of infrastructure should be used wherever possible. • Vegetation may only be removed from within the site boundary. • All contractors are to adhere to the EMPr and should apply good environmental practise during construction. • Prior to construction, the avifaunal specialist must conduct a site walkover, assisted by the Robben Island Environmental Manager, to identify all penguin nest sites (potential, active or artificial), which would need to be buffered by a suitable distance and declared no-go areas. Likewise, habitat on the boundary of the site and in close proximity to the site that may potentially be used by nesting penguins in the future, must be identified, and its removal prohibited. • During construction, temporary access tracks should be kept to a minimum in order to limit direct vegetation loss and habitat fragmentation, while designated no-go areas must be enforced e.g. no unnecessary off road driving outside of designated areas. • Following construction, rehabilitation of all areas disturbed (e.g. temporary access tracks and laydown areas) must be undertaken and the EMPr should include measures for rehabilitation. <p>Refer to the EMPr attached as Appendix G.</p>	
		Post Mitigation No Change		
	Disturbance from construction related activities on certain sensitive species.	Pre-Mitigation Medium (-ve)		<ul style="list-style-type: none"> • The EMPr must be developed to be in line with the comprehensive Integrated Conservation Management Plan (ICMO) for the Island which has been drafted for the period 2013-2018. • The appointed ECO or Contractors Environmental Officer (EO) must be trained by an avifaunal specialist and the RIM Environmental Officer/Manager to identify the focal species as well as the signs that
		Post Mitigation Low (-ve)		

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
			<p>indicate possible breeding by these species, and then take appropriate action to prevent disturbance of new sites being used by these species. Before taking action, the RIM Environmental Officer/Manager should be consulted.</p> <ul style="list-style-type: none"> • Prior to construction, the avifaunal specialist must conduct a site walkover, assisted by the Robben Island Environmental Manager, to identify all penguin nest sites (potential, active or artificial), which would need to be buffered by a suitable distance and declared no-go areas. Likewise, habitat on the boundary of the site and in close proximity to the site that may potentially be used by nesting penguins in the future, must be identified, and its removal prohibited. • Major construction activities must be restricted to months of September, October, November, December, January and February. • The construction site must be clearly demarcated, and cordoned off within which all activities are to occur. No-go areas must be identified and strictly controlled so that no staff enter these areas under any condition. <p>Refer to the EMPr attached as Appendix G.</p>
	Pollution of habitats as a result of construction activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • A site specific Pollution and Waste Management Plan must be created, approved by the ECO and the bird specialist, and implemented. This document can be incorporated as part of the EMPr.
		Post Mitigation No Change	<ul style="list-style-type: none"> • The appointed ECO and/or Contractors EO must conduct a daily site inspection to ensure that no litter is exiting the site. • All skips and rubbish bins must be covered. • All vehicles carrying waste must be covered. • All hazardous materials are to be stored correctly, in line with legal requirements.
Waste	Construction generated waste as well as small amounts of domestic waste resulting from construction activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • Chemical Toilets must be provided from workers and these must be regularly serviced.
		Post Mitigation No Change	<ul style="list-style-type: none"> • The site shall be cleared of litter and construction waste on a regular basis (no litter and construction waste is allowed to lie around onsite).

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
			<ul style="list-style-type: none"> • All construction waste shall be removed from site and disposed of at a licenced landfill site on the mainland. • Hazardous wastes (e.g. used oils) shall be stored in appropriate hazardous waste receptacles and disposed of appropriately at a hazardous waste disposal facility on the mainland. • All construction materials (e.g. bags of cement) must be suitably stored and protected, so that they do not become damaged and unusable. • All personnel are to go through training of waste management during induction. <p>Refer to the EMPr (attached as Appendix G).</p>
<i>Indirect impacts:</i>			
None			
<i>Cumulative impacts:</i>			
None			

Table 3: Impact Summary- Operational Phase

Environmental Aspect	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative): Cricket Ground			
<i>Direct impacts:</i>			
Fauna and Flora	The disturbance to fauna and flora as a result of operational activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • Maintenance activities must be undertaken during working hours. • Any fauna found within the boundaries of the PV facility are not to be harmed in anyway. • The fences around the boundaries of the PV facility must be maintained in such a way as to allow animals to migrate through the PV facility, with the exception of penguins. • Activities associated with the operating of the PV facility must remain within the boundaries of the facility.
		Post-Mitigation Very Low (-ve)	
Cultural /Heritage	Improvement in the economic and environmental circumstances and sustainability of the Island at National and WHS	Pre-Mitigation Low (+ve)	Although not forming part of this application, it is possible to include the PV facility and its Penguin Colony as an alternative tourist route and experience in the future, perhaps generating additional revenue streams.
		Post-Mitigation N/A	
	Potential for restoring historical meaning and conservation through use.	Pre-Mitigation Low (+ve)	Although mitigation is not necessary it is important that the PV facility and the site on which it is located is maintained and well kept. Any historical information discovered pertaining to the Island needs to be
		Post-Mitigation N/A	

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
			recorded, provided to RIM and made available for future publications and archives.
	Change in character of the site	Pre-Mitigation Low (-ve)	Although the character of the site was already altered when the cricket pitch was installed, the site will remain changed in relation to its current use which is an open space. The PV facility contains modern technology which, in contrast to the environment around it is a permanent change.
		Post-Mitigation N/A	
Noise	Potential noise impacts associated with the operational activities such as cleaning, maintenance and up keep.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • No loud music and shouting is allowed onsite during cleaning and maintenance activities. • Any major maintenance or repair work which requires heavy equipment and a small workforce should be, where possible, undertaken between the months of October and February. Refer to the EMPr (attached as Appendix G).
		Post-Mitigation No Change	
Visual	Visual quality	Pre-Mitigation Low (-ve)	<ul style="list-style-type: none"> • Vegetative screens should be established along Beach road and the Coastline. • An ecologist must be appointed to assist with the final design and plant selection for vegetative screening.
		Post-Mitigation Low (-ve)	
	The potential for an area to conceal additional human intervention without significant loss to character or visual quality (i.e. Visual absorption capacity (VAC)) Factors contributing to the VAC include: <ul style="list-style-type: none"> • Topography and vegetation; • The degree of urbanisation; • The scale and density of surrounding developments. 	Pre-Mitigation Medium (+ve)	<ul style="list-style-type: none"> • Vegetative screens should be established along Beach road and the Coastline. • Landscape planting around the boundaries of the site using indigenous forms of vegetation.
		Post-Mitigation Medium (+ve)	
	Visual exposure and visibility	Pre-Mitigation Low (-ve)	<ul style="list-style-type: none"> • Vegetative screens should be established along Beach road and the Coastline. • Avoid high pole top security lighting. • Signage related to the project must be discreet and confined to the entrances. No corporate or advertising signage is permitted.
		Post-Mitigation Low (-ve)	
Visual intrusion	Pre-Mitigation	<ul style="list-style-type: none"> • The colour of the solar array 	

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
		Very Low (-ve)	structures, such as the supports and the rear of the panels, should be carefully selected, and be in the dark grey or green range, to minimise visibility and avoid reflectivity.
		Post-Mitigation Very Low (-ve)	
	Sensitivity of receptors	Pre-Mitigation Low (-ve)	<ul style="list-style-type: none"> • If required, install lighting fixtures that provide precisely directed illumination. • Use lights that are activated on movement on illegal entry to site.
		Post-Mitigation Low (-ve)	
Avifauna	Collision with PV Panels	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • An avifaunal specialist must compile an operational phase monitoring protocol for monitoring the PV site for avifaunal collisions which must be recorded and reported to Birdlife SA. • Should operational mortality monitoring find high levels of collision mortality (as determined by the avifaunal specialist), the avifaunal specialist should investigate further, potential mitigation options that could be implemented and give recommendations accordingly at the time.
		Post-Mitigation Very Low (-ve)	
	Electrocution	Pre-Mitigation No Change	
		Post-Mitigation No Change	

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
			<p>design and equipment in the new substation. Upon completion of construction the EWT's WEP is to be contacted to determine if mitigation is required and if so, what mitigation measures are to be implemented.</p> <ul style="list-style-type: none"> • No nests may be removed, without first consulting the avifaunal specialist.
	Disturbance and noise from operational activities such as operation and maintenance.	Pre-Mitigation Low (-ve)	<ul style="list-style-type: none"> • A site specific Operational Environmental Management Plan (OEMP) must be implemented, which gives appropriate and detailed description of how operational and maintenance activities must be conducted to reduce the unnecessary disturbance. • All staff are to adhere to the OEMP and should apply good environmental practice during all operations. • The appointed Operations facility Manager must be trained by an avifaunal specialist to identify the focal species as well as the signs that indicate possible breeding by these species. • Where possible, scheduled maintenance must be restricted to the months of November, December, January and February. More regular Maintenance such as cleaning is permitted outside of these times, but should be kept to the bear minimum. • No go areas must be identified and strictly controlled so that no maintenance staff enters these areas under any condition.
		Post-Mitigation Very Low (-ve)	
	The creation of nesting and/or roosting habitats.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> • Approximately 80% of the site is to be enclosed by a penguin proof fence that (as far as possible) prevents penguins from burrowing under and gaining access to the site. The avifaunal specialist must approve the final fence to be used by the contractor and the exact design and dimensions of such a fence will be finalised prior to construction through consultation between the contractor and the avifaunal
		Post-Mitigation Very Low (-ve)	

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
			specialist. <ul style="list-style-type: none"> The section of the facility, approximately 20%, that will be utilised as part of the Penguin Initiative must be fenced off in consultation with the avifaunal specialists, DEA Oceans and Coasts and SANCOBB. Bird perch deterrents (e.g. spikes) and physical exclusion barriers, fumes and covers may reduce the incidences of birds perching and nesting on PV facility infrastructure.
	The creation of a Penguin Colony in a designated area of the PV facility (Penguin Initiative Project).	Pre-Mitigation Medium (+ve)	<ul style="list-style-type: none"> Access to the colony area is to be restricted to cleaning and maintenance activities only. Cleaning is to be undertaken on a regular continual basis by only a small number of individuals. All staff undertaking cleaning and maintenance must undergo training by SANCOBB on handling of penguins. Noise must be kept to a minimum (i.e. no shouting or loud music). Staff must keep interactions with the penguins to a minimum.
		Post-Mitigation Medium (+ve)	
	The pollution of habitats as a result of operational activities.	Pre-Mitigation Very Low (-ve)	<ul style="list-style-type: none"> A site specific Pollution and Waste Management Plan must be created, approved by the ECO and bird specialist and implemented. All cleaning and maintenance staff are to adhere to the OEMP and should apply good environmental practice during operation. The appointed Operational Facilities Manager must conduct a weekly site inspection to ensure no litter is exiting the site. No waste skips are permitted on site. All rubbish bins (including those in offices) must be covered. All vehicles carrying waste must be covered. All hazardous materials are to be stored correctly, in line with legal requirements.
		Post Mitigation No Change	
<i>Indirect impacts:</i>			
Socio-economic	The fibre optic cable to be installed as part of the	Pre-Mitigation Low (+ve)	N/A

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Environmental Aspect	Impact summary	Significance	Proposed mitigation
	proposed PV facility will improve internet access on the Island and ultimately improving connectivity and information sharing.	Post-Mitigation N/A	
<i>Cumulative impacts:</i>			
Fauna and Flora	Habitat loss and fragmentation on Robben Island	Pre-Mitigation No Change	<ul style="list-style-type: none"> The development should not have an electric fence around it. If the facility must be lit at night, then this should be with downward-directed lights that do not attract insects.
		Post Mitigation No Change	
No Go			
Natural Resources	The continued use of a non-renewable resource which negatively impacts on the environment due to the direct potential for spills or leaks and indirectly the long term impact of cost and availability.	Pre-Mitigation Medium (-ve)	N/A- The proposed project serves as mitigation for the continued use of a non-renewable resource.
		Post-Mitigation N/A	

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

The most significant potential negative impacts identified are those associated with the heritage and avifauna during both the construction phase and the operational phase of the project. With regards to the heritage impacts identified in the impacts assessment, the pre-mitigation heritage impacts ranged from very low to medium. In terms of mitigation measures for heritage impacts, there are very few that can be implemented however, it must be noted that the selection of the cricket ground site and not including the agricultural site as a viable alternative can be seen as mitigation.

The most significant heritage impacts identified are:

- Vulnerability of further loss of historical meaning which is considered to be of Medium negative significance.
- The potential for new information that contributes to layered understandings of the site and Island through the discovery of building foundations and artefacts is considered to be of Medium positive significance.

Although the potential for further loss of historical meaning is deemed significant, the site is currently not utilised and very little documented prior use has been found. Should the project not go ahead the site likely to remain unutilised. The proposed utilisation holds the potential for restoring historical meaning and conservation through use of the site. It is therefore considered that the positive impacts outweigh the negative.

The potential visual impacts associated with the project are directly linked to the heritage component to the project. The potential negative visual impacts assessed include visual quality, visual exposure and visibility, visual intrusion and sensitivity of receptors. The impact assessment showed that all impacts are of low significance for the proposed site. In

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addition the site's visual absorption capacity, potential for a site to conceal additional human intervention without significant loss of character or visual quality, is considered medium.

In terms of the avifauna, the impact assessment considered the impacts to be of low to medium significance during the construction phase and it is anticipated that through the implementation of the proposed mitigation measures that the impacts are reduced to low and very low, in some cases with no impact at all. During operation however, the impacts are slightly harder to mitigate. The most significant avifaunal impact identified and assessed is:

- Disturbance and noise from operational activities such as operation and maintenance of the PV facility is considered to be of low significance and it is anticipated that should the proposed mitigation measures be implemented the impact significance can be considered very low.

Although it has not been included as a definitive initiative and is not presented as a mitigation measure to the proposed avifaunal impacts, the proposal would be to offer up a defined section of the PV facility to the penguins and keep the remainder of the facility securely fenced. The maintenance and operation of this 'penguin colony' section will be managed under a strict programme of regular and controlled access for cleaning and maintenance. No ad hoc access to this section will be permitted unless deemed absolutely necessary, limiting the disturbance to the penguins. The remainder of the facility can then be cleaned on a standing roster with flexibility being available to clean on an ad hoc basis when deemed necessary e.g. high wind conditions that may have resulted in significant sea spray onto panels or seasonal bird breeding periods when higher frequency of bird dropping are experienced. Refer to Appendix J2 for a description and proposed layout of the Penguin Initiative Project. There are currently too many unknowns at this stage of the project such as a) the feasibility of placing artificial nests under the PV panels; b) how such an initiative would be financed, managed and monitored; c) whether the design of the structures would provide suitable shade/conditions to attract the penguins; d) the frequency and intensity of operational activities (including cleaning), and the exact methods/activities that would be conducted, and therefore the level of potential disturbance to either breeding or moulting birds. The initiative will therefore be taken forward and picked up in the final design and pre-construction phase (following the granting of the environmental authorisation) of the project through consultation with the DEA, Earthwatch, UCT and SANCCOB. It is however viewed as a potential positive element to the project particularly if the creation of a penguin colony is successful.

The overall assessment of the proposed PV facility in terms of avifaunal impacts has considered the proposals without the Penguin Initiative being implemented (i.e. the entire facility is fenced off with burrow proof fencing to keep penguins out) in order to present the proposed project as entirely separate and not dependent on the success of the proposed initiative. As such, if this initiative is successful the project will have far greater positive impacts than presented herein. This report therefore reflects the worst case scenario.

The Penguin Initiative Project, should it successfully go ahead, creates a unique opportunity where the endangered inhabitants on the Island will directly benefit from the project and show case how human modified landscapes, which often result in habitat loss and fragmentation, can benefit a species recovering from the brink of extinction. This project should therefore be viewed and assessed by the authorities in light of the willingness to seek to implement an initiative such as this, in the knowledge that the assessment contained herein has not been unreasonably over weighted by this positive initiative. As there is no guarantee that the Penguin Initiative Project will be successful, it is important for the project to be authorised on the basis of the worst case scenario (i.e. that the Penguin Initiative does not go ahead as present herein).

The table below provides an overall summary of the impacts identified and their considered significance as a result of the project:

Aspect	Impact	Significance	
		Pre-Mitigation	Post Mitigation
<i>Construction Phase</i>			
<i>Direct Impacts</i>			
Ground and Surface Water	Potential risk of ground and surface water during construction	Very Low (-ve)	No Change
Fauna and Flora	Loss of sensitive Vegetation	No Change	No Change
	Disturbance and habitat loss for fauna	No Change	No Change
	Increased wind erosion and consequent degradation to the affected areas	No Change	No Change
Socio-economic	Temporary job creation during the construction phase	Low (+ve)	N/A
Cultural/Heritage	Will the proposed PV facility negatively affect the OUV of the WHS with specific reference to the impact on OUV criterion (iii) the buildings of Robben Island bear eloquent witness to its	Low (-ve)	Very Low (-ve)

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	Will the proposed PV Facility negatively affect the OUV of the WHS with specific reference to the impact on OUV criterion (vi) Robben Island and its prison buildings symbolize the triumph of human spirit, freedom and of democracy	Low (-ve)	Very Low (-ve)
	Visual Intrusions	Very Low (-ve)	Very Low (-ve)
	Change in character of the site	Very Low (-ve)	N/A
	Vulnerability to further loss of historical meaning	Very Low (-ve)	N/A
	Potential for new information that contributes to layered understandings of the site and Island through the discovery of building foundations and artefacts.	Medium (+ve)	N/A
Noise	Increase in ambient noise as a result of construction activities.	Very Low (-ve)	Very Low (-ve)
Visual	The potential for visual disturbance as a result of the construction activities	Very Low (-ve)	Very Low (-ve)
Traffic	Increase in vehicular movement on the Island	Very Low (-ve)	Very Low (-ve)
Air Quality	Decrease in ambient air quality as a result of construction activities	Very Low (-ve)	No Change
Avifaunal	Habitat destruction	Very Low (-ve)	No Change
	Disturbance of certain sensitive species	Medium (-ve)	Low (-ve)
	Pollution of habitats	Very Low (-ve)	No Change
Waste	Construction generated waste and minor domestic waste produced onsite.	Very Low (-ve)	No Change
Indirect Impacts			
N/A			
Cumulative Impacts			
N/A			
Operational Phase			
Direct Impacts			
Fauna and Flora	The disturbance of fauna and flora as a result of operational activities	Very Low (-ve)	Very Low (-ve)
Cultural/Heritage	Improvement in the economic and environmental circumstances and sustainability of the Island and WHS	Low (+ve)	N/A
	Potential for restoring historic meaning and conservation through use	Medium (+ve)	N/A
	Change in character of the site	Low (-ve)	N/A
Noise	Potential noise impacts associated with the operational activities such as cleaning, maintenance and up keep	Very Low (-ve)	No Change
Visual	Visual quality	Low (-ve)	Low (-ve)
	Visual absorption capacity	Medium (+ve)	Medium (+ve)
	Visual exposure and visibility	Low (-ve)	Low (-ve)
	Visual Intrusion	Very Low (-ve)	Very Low (-ve)
	Sensitivity of receptors	Low (-ve)	Low (-ve)
Avifaunal	Collision with PV Panels	Very Low (-ve)	Very Low (-ve)
	Electrocution	No Change	No Change
	Disturbance and noise from operational activities	Low (-ve)	Very Low (-ve)
	The creation of nesting and/or roosting habitats	Very Low (-ve)	Very Low (-ve)
	The creation of a Penguin Colony in a designated area of the PV facility	Medium (+ve)	Medium (+ve)
	The pollution of habitats as a result of operational activities	Very Low (-ve)	No Change
Indirect Impacts			
Socio-economic	Installation of the fibre optic cable will improve internet accessibility.	Low (+ve)	N/A
Cumulative			
Fauna and Flora	Habitat loss and fragmentation on Robben Island	No Change	No Change
No-Go			
Natural Resources	Impacts associated with the continued use of a non-renewable resource.	Low (-ve)	N/A

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Alternative B

N/A

Alternative C

N/A

No-go alternative (compulsory)

The no-go alternative is that the PV facility is not constructed. Robben Island will continue to generate energy solely through the generators and heavy dependency on fuel, a non-renewable resource. This is deemed both environmentally and economically unsustainable.

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SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	NO
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

- An Environmental Control Officer (ECO) must be appointed during the construction to monitor and report against the conditions of the Environmental Authorisation and ensure compliance.
- The mitigation measures outlined in the EMPr and approved by the competent authority (DEA) in consultation with organs of state and stakeholders, must be implemented onsite.
- A maintenance plan is to be drawn up for the site where future maintenance or repair is required to be undertaken on site. Any heritage resources identified during this project should be protected as detailed in the EMPr.
- The appointment of a heritage specialist during excavation activities in the construction phase.
- The proposed Penguin Initiative should be implemented and its success monitored.
- Major construction activities should only take place between the months of September and February.
- The facility should be fenced off.
- Visual screening must be provided along the coastline as per the recommendations of the heritage and visual impact assessments.
- The site footprint must remain landward of the red line provided by the Avifaunal specialists, Refer to Appendix A4.

Is an EMPr attached?

YES	NO
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

- A1: Map of Site Alternative 1
- A2: Map of Site Alternative 2
- A3: Biodiversity Map
- A4: Avifaunal Sensitivity Map

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

- D1: Heritage Impact Assessment
- D2: Visual Impact Assessment
- D3: Fauna and Flora Impact Assessment
- D4: Avifaunal Impact Assessment

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

- J1: Alternative Site Selection Assessment
- J2: Proposed Penguin Initiative Project
- J3: Proof of submission of the Documents to SAHRA

