

DRAFT

**APPLICATION FOR ENVIRONMENTAL
AUTHORISATION (Regulation 21- S & EIA process)**

SCOPING REPORT

**FOR THE BRYPAAL SOLAR
PROJECT**

REF NO: DRAFT NO.3 MAY 2017

Content of the scoping report

		Page
Part 1	Details of applicant	1
Part 2	(a) details of- (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	2
Part 3	(b) the location of the activity, including- (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	4
	(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	5
Part 4	(d) a description of the scope of the proposed activity, including- (i) all listed and specified activities triggered; (ii) a description of the activities to be undertaken, including associated structures and infrastructure;	7
Part 5	(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	18
Part 6	(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	24
	(h) a full description of the process followed to reach the proposed preferred activity, site and location within the site, including -	26

	(i) details of all the alternatives considered;	29
	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	
	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	33
	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	37
	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-	46
	(aa) can be reversed;	
	(bb) may cause irreplaceable loss of resources; and	
	(cc) can be avoided, managed or mitigated;	
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	51
	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	70
	(viii) the possible mitigation measures that could be applied and level of residual risk;	75
	(ix) the outcome of the site selection matrix;	
	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	76
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	77
Part 7	a plan of study for undertaking the environmental impact assessment process to be undertaken, including-	78-83
	(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	
	(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;	
	(iii) aspects to be assessed by specialists;	
	(iv) a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	
	(v) a description of the proposed method of assessing duration and	

	<p>significance; (vi) an indication of the stages at which the competent authority will be consulted; (vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process; (ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.</p>	
<p>Part 8</p>	<p>j) an undertaking under oath or affirmation by the EAP in relation to- (i) the correctness of the information provided in the report; (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties; (k) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment; (l) where applicable, any specific information required by the competent authority; and (m) any other matter required in terms of section 24(4)(a) and (b) of the Act.</p>	<p>84-85</p>

S & EIR

Submission of scoping report to competent authority (CA):

Regulation 21. (1) If S&EIR must be applied to an application, the applicant must, within **44 days** of receipt of the application by the competent authority, submit to the competent authority a scoping report which has been subjected to a public participation process of at least 30 days and which reflects the incorporation of comments received, including any comments of the competent authority.

(2) Subject to regulation 46, and if the findings of the scoping report is still valid and the environmental context has not changed, the submission of a scoping report as contemplated in subregulation (1) need not be complied with-

(a) in cases where a scoping report was accepted as part of a previous application for environmental authorisation and the application was refused because of insufficient information;

(b) on condition that regulation 16 is complied with and that such application is accompanied by proof that registered interested and affected parties, who participated in the public participation process conducted as part of the previous application, have been notified of this intended resubmission of the application prior to submission of such application;

PART 1

1	Details of applicant	
1.1	Applicant name:	Vintage Energy (Pty) Ltd.
1.2	Registration number (if applicant is a company)	
1.3	Responsible person name (If the applicant is a company):	Mr. J du Preez
1.3.1	Applicant/ Responsible person ID number:	
1.4	Responsible position, e.g. Director, CEO, etc.:	Mr. J du Preez
1.5	Physical address:	Eastbury House, Hampton Park,20 Georgian Crescent East Bryanston , 2196
1.6	Postal address:	Postnet Suite 148, Private Bag X75, Bryanston
1.6.1	Postal code:	2021
1.7	Telephone:	011-514 0995

PART 2

(a) details of-

(i) the EAP who prepared the report; and

EAP:	Mr. Frik Erasmus		
Professional affiliation/registration:	South African Council for Natural Scientific Professions (SACNASP): Prof. Nat. Sci. : 400120/05		
Contact person (if different from EAP):	Me. Cindy Faul		
Company:	Boscia Environmental Solutions C.C.		
Physical address:	10 Borrius Street , Potchefstroom, 2531		
Postal address:	10 Borrius Street , Potchefstroom, 2531		
Postal code:	2531	Cell:	
Telephone:		Fax:	
E-mail:	sumsar@worldonline.co.za cindyfaul35@yahoo.com		


(ii) the expertise of the EAP, including a curriculum vitae; **See Appendix A.**

The EAP, Mr. Erasmus has been involved in environmental studies, research, environmental management, compilation of Basic assessments EIA/EMP'S, EMP environmental auditing for the past 30 years.

Qualifications (Highest):

M.Sc. (Geography); M.Sc (Environmental Management & Analyses)
Prof. Natural Scientist (Reg. No. 400120/05) SACNASP;
Member of the IAIASA (See C.V for more detail in Appendix A).

PART 3

	(b) the location of the activity, including-
	 <p>Distance: Brypaal project site is located 53,23 KM south of Kakamas</p>
	(i) the 21 digit Surveyor General code of each cadastral land parcel;
	SG21 CODE: C03600000000013400004
	(ii) where available, the physical address and farm name;
	<p>Farm: Remainder of Portion 4 of 134 of the Farm Brypaal</p> <p>District: Sinyanda (changed to:) - ZF Mgcawu</p>

(iii) where the required information in items (i) and (ii) is not available, the **coordinates** of the boundary of the property or properties;

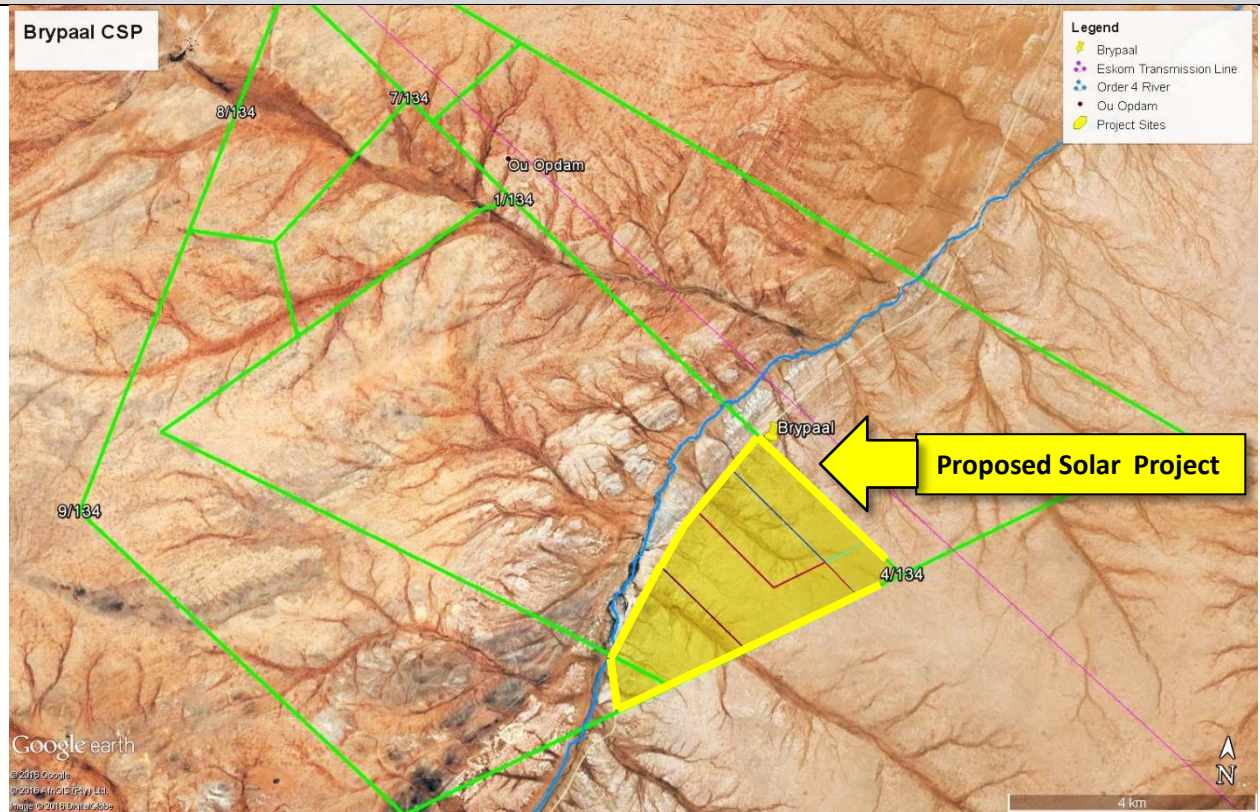
29°11'48.91" S 20°23'19.44" E

(c) a **plan** which locates the proposed activity or activities applied for at an appropriate scale, or, if it is-

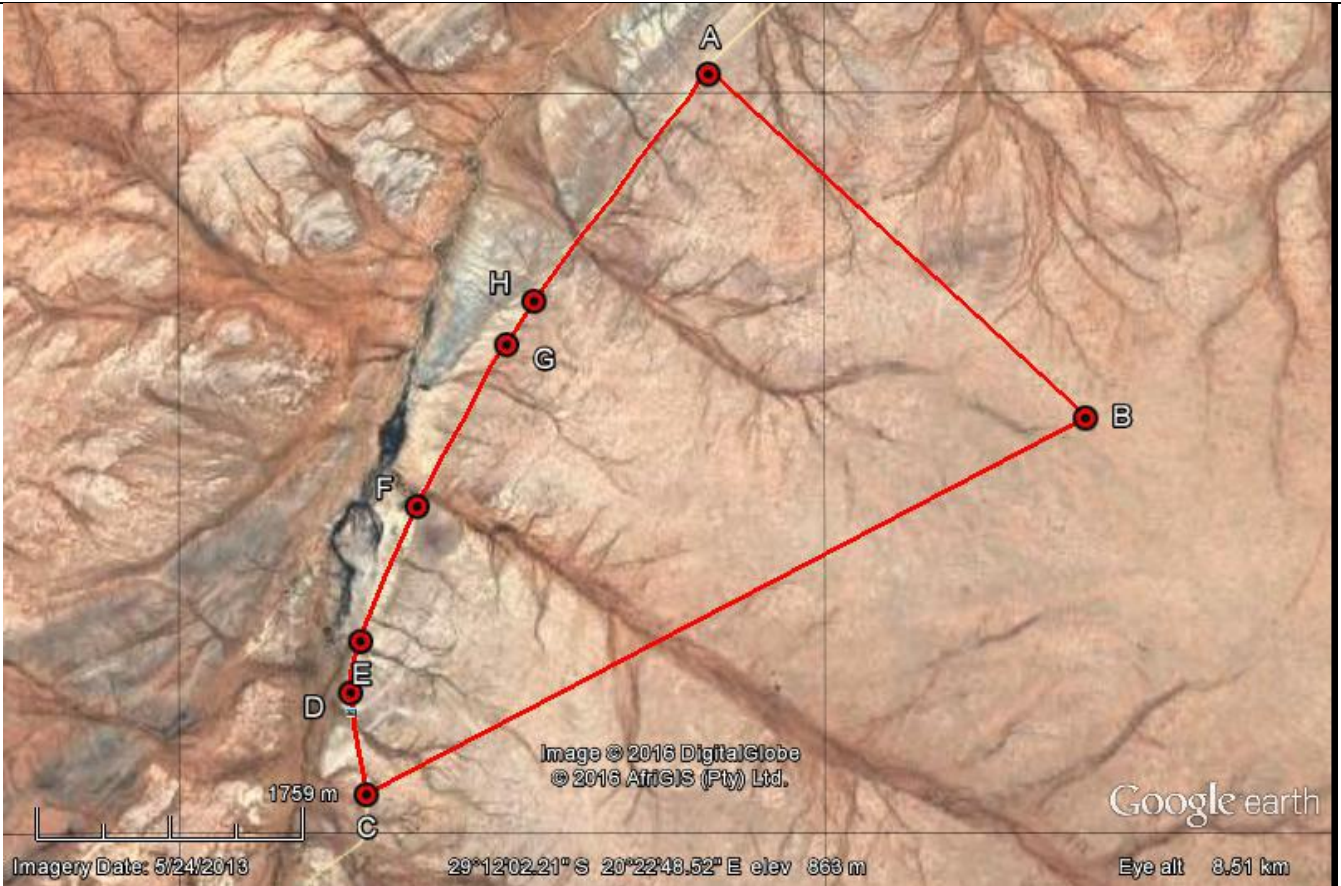
(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or

(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;

See below:



Brypaal PV Solar Project focus area:



Total surface area available for the project: 1032 ha

PART 4

(d) a description of the scope of the proposed activity, including-

Proposed activity: 100MW Photovoltaic (PV)Solar Power project (PVSP)

The construction of a **PHOTOVOLTAIC SOLAR POWER (PVSP) facility (with associated infrastructure)** for the generation of electricity from a renewable resource (solar radiation from the sun) where the electricity output is 100MW in total. The 100 MW electricity will be fed into the existing Escom national grid (See Part 4 for the location of existing Escom transmission line).



Photo and sat image of an existing PV project

The **surface area** available for the project is approximately **1032 ha** in total.

The actual project footprint (probable 500 ha) will depend on the surface areas required for the different components of the project, namely :

1) The **PV SOLAR FIELD**: Consist of the photovoltaic solar arrays (panels). Multiple panels will be required to form the solar PV arrays which will comprise the PV facility. **Surface area required 1,5 to 4 ha/MW = (100W X 4ha= 400ha).**

2) The **POWER INVERTERS/TRANSFORMER UNIT**: The solar arrays are typically connected to each other in strings and the strings connected to inverters that convert DC to AC. These inverters may be mounted on the back of the panel's support substructures or alternatively in a central inverter station. The strings are connected to the inverters by low voltage DC cables. Power from the **inverters** is collected in medium voltage transformers through AC cables, which may be buried or pole-mounted or piles with pre-manufactured concrete footings to support the PV panels, depending on voltage level and site conditions. Cabling between the structures, to be lain underground where practical.

Connecting the solar facility to the national grid (Escom) will be via an **onsite transformer unit**. A **new power line** which will connect the PV facility into the national grid via a **new substation (need to be constructed by Escom)**.

3) Solar Resource Measuring Station

A permanent solar resource measuring station will be required on the site to measure incoming solar radiation levels.

4) **Access roads** (temporary & permanent roads, 4 m- 6 m wide).

5) Temporary **LAYDOWN AREA** (workshops, mobile offices, mobile ablution facilities, material storage area, vehicle parking area, water tanks (for potable use & construction, dust suppression), fencing, etc.) A lay down area adjacent to the site or on site will be required. This will be temporary in nature (unless the property owner wishes to continue using it in the long term). The contractors' site offices and other temporary facilities will be located on site for the duration of the construction phase.

6) Permanent office/workshop/control room, etc. buildings

7) Permanent living quarters for operational phase workers

8) Equipment (Trucks & front-end loaders, excavators, cranes, etc.)

9) Topsoil /Overburden stockpiles/fill material

10) Opencast quarries/excavations – for cut & and fill material

11) Water Desalination plant (pipelines towards water storage and power plant)

12) Water storage facilities (reservoir, tanks?)

13) Waste handling facilities (for construction & operational phase)

14) Surface run-off control system (trenches, canals, run-off dissipating structures, culverts, etc.

15) Fencing (Access control)

See listed activities (GN 983, 984, 985).

This project should be seen as part of the **Strategic Infrastructure Projects (SIPs)** as described in the National Development Plan, 2011 for the Northern Cape Province, namely: SIP 8: Green energy in support of the South African economy. This involves support for sustainable green energy initiatives on a national scale through a diverse range of **clean energy options** as envisaged in the Integrated Resource Plan (IRP2010).

Technology Overview: Photovoltaic Systems:

Photovoltaic (PV) systems are widely applied in South Africa for powering professional niche applications such as telecommunications, microwave links, navigational aids and meteorology stations, where PV is well established as the best practical option. PV is also applied in small-scale remote power supplies for domestic use, game farms and community water pumping schemes. **PV cells are made from semi-conductor materials** that are able to release electrons when exposed to solar radiation by using the photo-electric effect. Electrons from several PV cells are gathered together through conductors to make up the generation capacity of one module and many modules can be connected together to produce power in large quantities. Internationally, PV is the fastest-growing power generation technology and between 2000 and 2009 the installed capacity globally grew on average by 60% per year. Worldwide more than 35GW of PVs are installed and operating, and **in South Africa as much as 8GW PV could potentially be installed by 2020.**

(Source: Dept. of Environmental Affairs (2015): EIA Guideline).



(i) all listed and specified activities triggered;

Listed activities in terms of the EIA Regulations, 2014 that have been triggered for RE developments: S & EIR:

LISTED ACTIVITIES & SPECIFIED ACTIVITIES AS PER THE DETAILED PROJECT DESCRIPTION (LISTING NOTICE NO. 2)	
Listed activity as described in GN R 325	<p>Activity 1: The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs — (a) within an urban area; or (b) on existing infrastructure.</p>
Description of project activity that triggers listed activity	<p>The surface area available for the project is approximately 1032 ha in total. The actual project footprint will depend on the surface areas required for the different components of the project, namely :</p> <ol style="list-style-type: none"> 1) The PV SOLAR FIELD (100MW) 2) The POWER INVERTERS/TRANSFORMER UNIT 3) Solar Resource Measuring Station 4) Access roads (temporary & permanent roads, 4-6 m wide). 5) Temporary LAYDOWN AREA (workshops, mobile offices, mobile ablution facilities, material storage area, vehicle parking area, water tanks (for potable use & construction, dust suppression), fencing, etc.) 6) Permanent office/workshop/control room, etc. buildings 7) Permanent living quarters for operational phase workers 8) Equipment (Trucks & front-end loaders, excavators, cranes, etc.) 9) Topsoil /Overburden stockpiles/fill material 10) Opencast quarries/excavations – for cut & and fill material 11) Water Desalination plant (pipelines towards water storage and power plant) 12) Water storage facilities (reservoir, tanks?) 13) Waste handling facilities (for construction & operational phase) 14) Surface run-off control system (trenches, canals, run-off dissipating structures, culverts, etc.) 15) Fencing (Access control)

<p>Listed activity as described in GN R 325</p>	<p>Activity 9: The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.</p>
<p>Description of project activity that triggers listed activity</p>	<p>The construction of POWER INVERTERS/TRANSFORMER UNIT and power lines (400 kV) up to the a new required Eskom connection (substation outside the project site, on an adjacent property 885m to 1006 m north of PV Solar project site border fence).</p> <p>Note: Applicant busy with project planning. Info to be supplied by applicant.</p>
<p>Listed activity as described in GN R 325</p>	<p>Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p>
<p>Description of project activity that triggers listed activity</p>	<p>The clearance of an footprint area of up to probable 500ha of a total of 1032 hectares of indigenous vegetation during site preparation for the establishment of the indicated activities under Activity (1) –</p> <p>The actual project footprint will depend on the surface areas required for the different components of the project, namely :</p> <ol style="list-style-type: none"> 1) The PV SOLAR FIELD (100 MW) 2) The POWER INVERTERS/TRANSFORMER UNIT 3) Solar Resource Measuring Station 4) Access roads (temporary & permanent roads, 4 m wide). 5) Temporary LAYDOWN AREA (workshops, mobile offices, mobile ablution facilities, material storage area, vehicle parking area, water tanks (for potable use & construction, dust suppression), fencing, etc.) 6) Permanent office/workshop/control room, etc. buildings 7) Permanent living quarters for operational phase workers 8) Equipment (Trucks & front-end loaders, excavators, cranes, etc.) 9) Topsoil /Overburden stockpiles/fill material 10) Opencast quarries/excavations – for cut & and fill material 11) Water Desalination plant (pipelines towards water storage and power plant) 12) Water storage facilities (reservoir, tanks?) 13) Waste handling facilities (for construction & operational phase) 14) Surface run-off control system (trenches, canals, run-off dissipating structures, culverts, etc.) 15) Fencing (Access control)

LISTED ACTIVITIES & SPECIFIED ACTIVITIES AS PER THE DETAILED PROJECT DESCRIPTION (LISTING NOTICE NO. 1)

<p>Listed activity as described in GN R 327</p>	<p>Activity 12:</p> <p>The development of—</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</p> <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs—</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; —</p> <p>excluding—</p> <p>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> <p>(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;</p> <p>(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;</p> <p>(dd) where such development occurs within an urban area; [or]</p> <p>(ee) where such development occurs within existing roads, [or] road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</p>
<p>Description of project activity that triggers listed activity</p>	<p>Possible the construction of the following:</p> <p>(i) canals exceeding square metres in size;</p> <p>(ii) channels exceeding square metres in size;</p> <p>(iii) bridges exceedingsquare metres in size;</p> <p>(iv) dams, where the dam, including infrastructure and water surface area, square metres in size;</p> <p>(v) weirs, where the weir, including infrastructure and water surface area, square metres in size;</p> <p>(vi) bulk storm water outlet(s) structures exceedingsquare metres in size;</p> <p>(x) buildings exceedingsquare metres in size;</p> <p>(xii) infrastructure or structures with a physical footprint of square metres or more;</p> <p>a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>Note: Applicant busy with project planning. Info to be supplied by applicant.</p>

<p>Listed activity as described in GN R 327</p>	<p>Activity 13: Listed activity as described in GN R 327 Activity 13: The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.</p>
<p>Description of project activity that triggers listed activity</p>	<p>The 100 MW PVSP project utilizes kl/ annum water from a desalination plant, as process water for dust suppression, cleaning, construction, etc. Reservoir (tanks) would be constructed with a capacity of kl . Water will be recycled via lined collection dam facilities.</p> <p>Surface run-off that ends-up in the dirty environment would be captured via a collection of trenches/canals and channeled to a evaporation pond (capacitykl) .</p> <p>Note: Applicant busy with project planning. Info to be supplied by applicant.</p>
<p>Listed activity as described in GN R 327</p>	<p>Activity 14: The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous goods, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.</p>
<p>Description of project activity that triggers listed activity</p>	<p>The construction of temporary diesel tank storage facilities (bunded) as part of the contractor lay down site. (Capacity.....L)</p> <p>Note: Applicant busy with project planning. Info to be supplied by applicant.</p>
<p>Listed activity as described in GN R 327</p>	<p>Activity 19: Listed activity as described in GN R 327 Activity 19: The infilling or depositing of any material of more than [5] 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than [5] 10 cubic metres from [–(i)] a watercourse; [(ii) the seashore; or (iii)the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater—] but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or] (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) 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.</p>

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

<p>Description of project activity that triggers listed activity</p>	<p>1) During initial site preparation operation, the site will be surveyed and levelled for particular project (infrastructure) components (listed activities). This will involve vegetation clearance, topsoil/overburden removal & stockpiling at dedicated stockpile areas.</p> <p>2) Dedicated quarries will be mechanically excavated for obtaining construction infill/backfill material (weathered overburden material). Prior to removal of material the topsoil need to be stockpiled in a dedicated stockpile next to the quarry. The material will be loaded onto trucks and transport to construction site where required for infilling, backfilling, terraces, benches, etc.</p> <p>3) Surface run-off control trenches/canals/evaporation dam sites//culverts/energy dissipating structures, etc. need to be excavated/constructed.</p>
<p>Listed activity as described in GN R 327</p>	<p>Activity 24: The development of a road— (i) [a road] for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) [a road] with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road— (a) [roads] which [are] is identified and included in activity 27 in Listing Notice 2 of 2014; (b) [roads] where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.</p>
<p>Description of project activity that triggers listed activity</p>	<p>Note: Applicant busy with project planning. Info to be supplied by applicant.</p>

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

<p>Listed activity as described in GN R 327</p>	<p>Activity 28: Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</p>
<p>Description of project activity that triggers listed activity</p>	<p>The construction of a PV SOLAR POWER (PVSP) facility (with associated infrastructure) for the generation of electricity from a renewable resource (solar radiation) where the electricity output is 100MW in total.</p> <p>The clearance of an footprint area of less than 1032 hectares (- 400 ha for PV facility, other supporting infrastructure (maybe a additional 100 ha) , etc.) of indigenous vegetation during site preparation for the establishment of the indicated activities under Activity (1) (Listing No. 2)</p>

LISTED ACTIVITIES & SPECIFIED ACTIVITIES AS PER THE DETAILED PROJECT DESCRIPTION (LISTING NOTICE NO. 3)	
Listed activity as described in GN R 324	Activity 1: The development of billboards exceeding 18 square metres in size outside urban areas, mining areas or industrial complexes.
	<ul style="list-style-type: none"> g. Northern Cape i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. World Heritage Sites; iv. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; v. Sites or areas identified in terms of an international convention; vi. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; vii. Core areas in biosphere reserves; viii. Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; ix. Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or x. In an estuary.
Description of project activity that triggers listed activity	During the construction phase information/ identification of the project/ safety information billboards/ safety warning signs will be provided on site.
Listed activity as described in GN R 324	Activity 4: The development of a road wider than 4m with a reserve less than 13.5m. (Provincial/geographical qualifications apply based on environmental attributes)
	<ul style="list-style-type: none"> g. Northern Cape i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. World Heritage Sites; iv. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; v. Sites or areas identified in terms of an international convention; vi. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; vii. Core areas in biosphere reserves; viii. Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; ix. Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or x. In an estuary.
Description of project activity that triggers listed activity	An access road will be constructed on site to give access to the contractors initially and eventually where required a permanent road on site for easy access during the operational phase of the PVSP project. An access road is also needed as along the border fence for security reasons and also act as a fire-break.

<p>Listed activity as described in GN R 324</p>	<p>Activity 10: The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 m³ (Provincial/geographical qualifications apply based on environmental attributes)</p>
	<p>a. Northern Cape i. In an estuary; ii. Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland; iii. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or iv. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or (cc) Within 500 metres of an estuary.</p>
<p>Description of project activity that triggers listed activity</p>	<p>The construction of temporary diesel tank storage facilities (bunded) as part of the contractor lay down site. (Capacity.....L)</p> <p>See also Activity 14 (GN 325).<i>(The selection of the particular activity will depend on the capacities required.</i></p> <p>Note: Applicant busy with project planning. Info to be supplied by applicant.</p>
<p>Listed activity as described in GN R 324</p>	<p>Activity 14: Listed activity as described in GN R 324 Activity 14: The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs— (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>

	<p>g. Northern Cape</p> <p>i. In an estuary;</p> <p>ii. Outside urban areas:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) World Heritage Sites;</p> <p>(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;</p> <p>(ee) Sites or areas identified in terms of an international convention;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Core areas in biosphere reserves;</p> <p>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</p> <p>(ii) Areas seawards of the development setback line or within 1 kilometre from the high-water mark of the sea if no such development setback line is determined; or</p> <p>iii. Inside urban areas:</p> <p>(aa) Areas zoned for use as public open space;</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or</p> <p>(cc) Areas seawards of the development setback line.</p>
<p>Description of project activity that triggers listed activity</p>	<p>See also Activity 15 (GN 325). (The selection of the particular activity will depend on the actual dimensions of the structures required.</p> <p>Note: Applicant busy with project planning. Info to be supplied by applicant.</p>

(ii) a description of the activities to be undertaken, including associated structures and infrastructure;

(See previous tables with reference to “Description of project activity that triggers listed activity”)

<p>See Infrastructure Plan (Plan ???).</p> <p>Provide a plan drawn to a scale acceptable to the competent authority but not less than 1:10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site. Need to be included in the appendices.</p> <p>Note :The applicant (Vintage Energy (Pty) Ltd. is busy with project planning, design of the project, compilation of plans indicating location and dimensions of different project components (as identified under Activity 1: (Listing notice No. 2) GN 984) and also other activities as identified in terms of GN 983 and GN 985.</p>
--

PART 5

(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;

POLICY AND LEGISLATIVE CONTEXT:

No.	APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
1	Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), (the Act) and the Environmental Impact Assessment Regulations, 2014 the Regulations)	GNR 983, 984, 985	Application to be submitted for Environmental Authorization in terms of the National Environmental Management Act, 1998 in respect of Listed Activities that has been triggered by applications (As been identified).
2	National Environmental Management: Biodiversity Act (Act 10 of 2004 as amended)	NEMBA	Application for the necessary permits would be made if the specialist Fauna & Flora studies are completed and any recommendation is made to do so.
3	National Environmental Management: Waste Act	NEMWA	An waste license need to be applied for and a waste management plan should be compiled. Relevant activities which would require the Waste Management Licence application process to be undertaken before renewable energy development activities could commence.

4	National Water Act (Act 36 of 1998 as amended)	NWA Section 21	An <u>water use license</u> need to be applied for. The process has already been started. Base line surface water and ground water study are currently being conducted.
5	National Heritage Resources Act (No. 25 of 1999)	NHRA	Application for the necessary <u>permits</u> would be made once the Specialist has recommended in his report (Heritage Impact Assessment) to do so.
6	Conservation and Agricultural Resources Act (Act No 43 of 1983)	CARA	<p>The mandate of the Conservation and Agricultural Resources Act 1983 (Act No 43 of 1983) (CARA) is to conserve “natural agricultural resources” (the soil, the water sources and the vegetation, excluding weeds and invader plants) through production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.</p> <p>Possible impacts such as soil erosion, eradication of weeds and invader plants will be addressed in the EMPR document for the proposed PVSP project site.</p>
7	Electricity Regulation 2006 (No. 4 of 2006) as amended by the ERAA in 2007)	ERA	<p>The act requires registration and licensing of anyone wanting to generate, transmit, reticulate (i.e. network), distribute, trade, or import and export electricity.</p> <p>The applicant is consultation with the Dept. of Energy in this regard.</p>

Relevant activities which would require the Waste Management Licence application process to be undertaken before renewable energy development activities could commence.

NEMWA Activity Listing Category A (relevant to Renewable Energy)

Storage of waste:

3(1)The storage including the temporary storage of general waste in lagoons.

Recycling and recovery:

3(2)The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000m².

3(5)The recovery of waste including the refining, utilisation, or co-processing of waste in excess of 10 tons but less than 100 tons of general waste per day or excess of 500kg but less than 1 ton of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.

Treatment of Waste:

3(6)The treatment of general waste using any form of treatment at a facility that has the capacity to process in excess of 10 tons but less than 100 tons.

3(7)The treatment of hazardous waste using any form of treatment at the facility that has the capacity to process in excess of 500kg but less than 1 ton per day excluding the treatment of effluent, wastewater or sewage.

The Hazardous Substances Act (No. 15 of 1973)

The Hazardous Substances Act (HAS, No. 15 of 1973) was promulgated to provide for the control of substances which may cause injury, ill-health or death. Substances are defined as hazardous if their inherent nature is: toxic, corrosive, irritant; strongly sensitising, flammable and pressure generating (under certain circumstances) which may injure cause ill-health, or death in humans. HAS is administered by the department of health in consultation with other departments.

The Hazardous Substances Act also provides for matters concerning the division of such substances or products into four groups in relation to the degree of danger, the prohibition and control of the importation, manufacture, sale, use, operation, application and disposal of such substances.

- Group 1 substances include all hazardous substances (as defined above);
- Group 2 substances include mixtures of Group 1 substances;
- Group 3 substances include substances found in certain electronic products (i.e. product with an electronic circuit); and
- Group 4 substances include all radioactive substances

Minimum Requirements for the Handling, Classification and Disposal of Hazardous Wastes Under the South African National Standards (SANS), hazardous substances are given an identification number and are classified into nine classes (**Table 11**). Minimum requirements for dealing with these substances are provided in **Table 12** below.

National Water Act (Act 36 of 1998 as amended)

The National Water Act (NWA) includes provisions requiring that a **water use license** be issued by the Department of Water & Sanitation (DWS) before a project developer engages in any activity defined as a water use in terms of the NWA. Water use definitions considered probably or possibly relevant to Renewable Energy projects in terms of the NWA, section 21, includes:

- Taking of water from a water resource;
- Storing of water;
- Impeding or diverting the flow of water in a water course;
- Engaging in a stream flow reduction activity;
- Engaging in a controlled activity (this includes the use of water for power generation purposes);
- Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
- Altering the bed, banks, course, or characteristics of a watercourse. This includes altering the course of a watercourse (previously referred to as a river diversion).

A guideline⁶ has been produced by the DWS which provides direction and assistance to applicants and stakeholders and water users on the following:

- The various water uses that require authorisation;
- Necessary consultative processes;
- The departmental requirements for the specific water uses;
- The evaluation and assessment process;
- Information on the decision-making process
- The appeal process.

The guideline covers all water use authorisation mechanisms through all stages of the authorisation process, providing an overview of the water uses, contact details of relevant official, details of the information required during the licence application process, and an overview of the process leading to the issuing of a water use authorisation (see Figure 5below). The CA responsible for administrating the NWA is the DWS regional office, dependent on the province in which the activity is taking place. Please note that the appeal process is only initiated as and when required (after the EA has been granted or denied).

National Heritage Resources Act (No. 25 of 1999)

National Heritage Sites in South Africa are places that are of historic or cultural importance and which are for this reason declared in terms of Section 27 of the National Heritage Resources Act (NHRA). The designation was a new one that came into effect with the introduction of the Act on 1 April 2000 when all former National Monuments declared by the former National Monuments Council and its predecessors became provincial heritage sites as provided for in Section 58 of the Act.

Both national and provincial heritage sites are protected under the terms of Section 27 of the NHRA and a permit is required to work on them. National Heritage Sites are declared and administered by the national Heritage Resources Authority, SAHRA whilst provincial heritage sites fall within the domain of the various provincial heritage resources authorities. **Heritage resources are protected by the Act and may not be disturbed in any way without a permit issued by the South African Heritage Resources Agency or the relevant Provincial Heritage Resources Authority. Section 38(1) of the NHRA stipulates the triggers which would require a Heritage Impact Assessment (HIA) to become part of an EIA submitted for consideration by the relevant state department.**

Electricity Regulation 2006 (No. 4 of 2006) as amended by the ERAA in 2007)

The Electricity Regulation Act (No 47 of 1999, as amended in 2007; RGA) provides a national regulatory framework for the electricity supply industry and makes the National Energy Regulator of South Africa the overseer and enforcer of the framework. **The act requires registration and licensing of anyone wanting to generate, transmit, reticulate (i.e. network), distribute, trade, or import and export electricity.** In addition, the act regulates the reticulation of electricity by municipalities⁷.

In order to become registered, the applicant must:

Submit an application for registration accompanied by a prescribed registration fee.

- In order to obtain a license, the applicant must provide:
- A prescribed application fee;
- Description of the applicant, including vertical and horizontal relationships with other persons engaged in the operation of generation, transmission and distribution facilities, the import or export of electricity, trading or any other prescribed activity relating thereto;
- Documented evidence of the administrative, financial and technical abilities of the applicant as may be required by the Regulator;
- A description of the proposed generation, transmission or distribution facility to be constructed or operated or the proposed service in relation to electricity to be provided, including maps and diagrams where appropriate;
- A general description of the type of customer to be served and the tariff and price policies to be applied;
- The plans and the ability of the applicant to comply with applicable labour, health, safety and environmental legislation, subordinate legislation and such other requirements as may be applicable;
- A detailed specification of the services that will be rendered under the licence; and
- Evidence of compliance with any integrated resource plan applicable at that point in time or provide reasons for any deviation for the approval of the Minister.

Conservation and Agricultural Resources Act (Act No 43 of 1983)

The mandate of the Conservation and Agricultural Resources Act 1983 (Act No 43 of 1983) (CARA) is to conserve “natural agricultural resources” (the soil, the water sources and the vegetation, excluding weeds and invader plants) through production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.

Section 6 of the Act concerns the control measures which the following may be applicable to IPPs (subsections (2) (f), (g) and (o)):

- the regulating of the flow pattern of run-off water;
- the utilization and protection of the vegetation; and
- the construction, maintenance, alteration or removal of soil conservation works or other structures on land.

Regulation 8 regulating the flow pattern of run-off water states that no land user shall in any manner whatsoever divert any run-off water from a water course on his farm unit to any other water course, except on authority of a written permission by the executive officer. No land user shall effect an obstruction that will disturb the natural flow pattern of run-off water on his farm unit or permit the creation of such obstruction unless the provision for the collection, passing through and flowing away of run-off water through, around or along that obstruction is sufficient to ensure that it will not be a cause for excessive soil loss due to erosion through the action of water or the deterioration of the natural agricultural resources.

Regulations 15 and 16 under this Act, which contain problem plants (known as weeds or invaders), were amended during March 2001 and make provision for four categories of problem plants:

- Category 1: Prohibited plants which must be controlled, or eradicated where possible (except in bio-control reserves, which are areas designated for the breeding of biocontrol agents)
- Category 2: Mainly commercial plantation spp. but also plants for woodlots, animal fodder, soil stabilisation etc.; allowed only in demarcated areas (by permit) under controlled conditions and in bio-control reserves
- Category 3: Mainly ornamental spp., no further planting allowed (except with special written permission), nor trade in propagative material. Existing plants may *remain but must be prevented from spreading. (* except those within the flood line of watercourses or wetlands or as directed by the executive officer)
- Bush encroachers: indigenous woody spp. which requires sound management practices to prevent them from becoming a problem.

CARA is administered by the National Department of Agriculture (DoA), through its Directorate: Land Use and Soil Management (D: LUSM).

B19: Subdivision of Agricultural Land Act (SALA) (Act no 70 of 1970) as amended

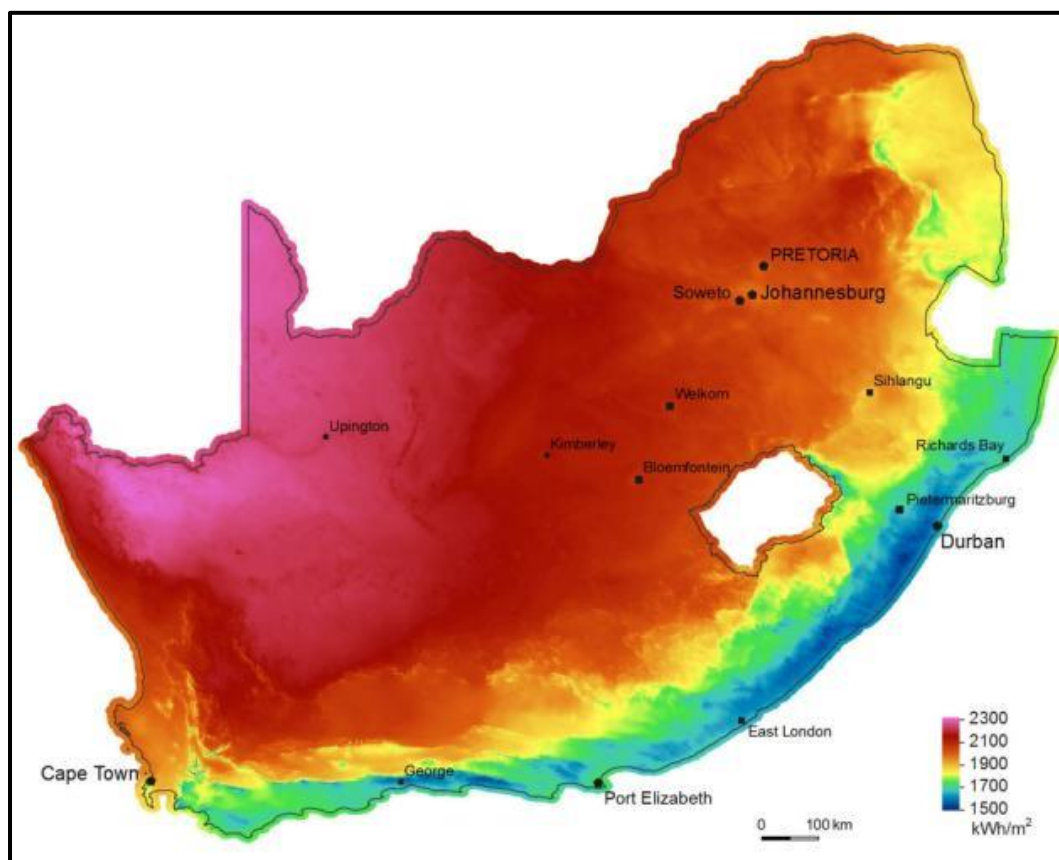
The Subdivision of Agricultural Land Act (“Subdivision Act”) regulates the subdivision of all agricultural land in the Republic. The declared purpose of the Act is to prevent the creation of uneconomic farming units and this purpose is achieved through the requirement that the Minister of Agriculture, Forestry and Fisheries (“Minister of Agriculture”) must consent to the proposed subdivision. This purpose is to prevent the degradation of prime agricultural land in the Republic.

PART 6

(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;

Solar Energy:

South Africa experiences some of the highest levels of solar radiation in the world (between 1500 and 2300 kWh/m²/annum) and therefore, possesses considerable solar resource potential for solar water heating applications, solar photovoltaic (PV) and concentrated solar power (PVSP) generation.



There is a focus in South Africa on moving towards increasing the generation base from renewable energy sources. The fact that the Department of Energy has a Renewable Energy Independent Power Producer Procurement Programme is a testament that the government is seeking more independent power producers to meet the country's ever growing electricity demand. Additionally the **Integrated Resource Plan for Electricity 2010-30** being implemented by the Department of Energy, highlights the electricity demand forecasts and Government's plan to meet this demand through a variety of approaches and technologies, one of which is to **implement more renewable energy projects**. The need for solar power technology developments in South Africa has been increasing over the recent years, as it is a means of providing the country with an alternate energy supply, the need for which is directly proportional to the increase in social and economic growth and development within the country. South African citizens are also growing more aware of global issues such as climate change and sustainable development, which also tie into using more "environmentally friendly" methods with which to meet the country's energy requirements. In the past, most of South Africa's energy demands were met using fossil fuels, mainly coal. South Africa does, however, have the means with which to generate electricity via renewable energy resources, such as solar, wind, hydro, tidal, wave, geothermal, and others.

The use of renewable energy resources contributes to diversifying the fuel sources used for energy production, improving electricity production efficiency, decreasing the quantity of burned fossil fuels, decreasing Greenhouse Gas (GHG) emissions and decreasing the amount of other aerial pollutant emissions. This all, in turn, contributes to improving the sustainability of South Africa's development.

The development of solar energy is important for South Africa to reduce its overall environmental footprint from power generation (including externality costs), and thereby to steer the country on a pathway towards sustainability. Coal-based power generation is a major global source of carbon dioxide emissions, which contributes to global warming. Coal power also leads to releases of harmful emissions such as oxides of sulphur and nitrogen. Traditional coal-based electricity generation currently contributes approximately 90% of South Africa's supply, which indicates the economic need to develop renewable energy facilities in South Africa. The MRP Douglas project would contribute to this target. Solar generation avoids the water consumption associated with generation of power from coal, which is important given that South Africa is an arid country with severe water constraints. Eskom currently uses approximately 2% of South Africa's total fresh water resources to produce power largely from wet-cooled coal power stations. These power stations typically use approximately 10 000 m³ of fresh water per MW per annum (Eskom presentation, Water Security Africa, 18-20 May 2009). Accelerated climate change has the potential to impact on the availability and quantity of water in South Africa, with decreases in summer rainfall predicted in the interior and increasing instances of droughts and floods. This creates a risk for water-dependent power generation. **By comparison, solar energy has no direct water consumption for operation but only for periodic cleaning of the solar panels. This important characteristic reduces the demand on South Africa's already overstretched water resources while also avoiding the risks of drought on ability to generate power.**

Need and desirability of the activity in the context of the preferred location:

The location of the property (Brypaal), on which the proposed development options are under consideration, will be ideally located in terms of available electricity infrastructure connection (near (885m-1006m to the existing Eskom transmission 132 kVA infrastructure), road access, water supply and topography (flat slope area). The total surface area available is 1032 ha of which probable 500ha will be utilized for PV solar field and supporting infrastructure.

If implemented, the proposed Brypaal PV solar development would add an **additional 100 MW** into the Eskom grid. The development will generate electricity from a renewable energy resource which has nearly zero carbon dioxide emissions, unlike coal fired power plants, South Africa's main electricity resource.

(h) a **full description** of the **process** followed to reach **the proposed preferred activity, site and location within the site**, including -

(i) details of all the **alternatives** considered;

STEP	PROPOSED PREFERRED ACTIVITY:	DESCRIPTION ACTIVITY/ACTION
1	Type of activity to be undertaken:	<p>Alternative 1: The initial project proposal was the construction of a CSP (Concentrated Solar power) facility. Due to the restrictions poses by the availability of a reliable water source (the Sout River and borehole water) the decision was taken to rather plan for a (Alternative 2) PV solar facility which only makes use of water during the construction and cleaning during the operational phase. (This was concluded after inputs given by EKO Environmental, the Geo-hydrologist).</p> <p>The preferred activity/technology which is now being planned for is :</p> <p>The construction of a PHOTOVOLTAIC SOLAR POWER (PVSP) facility (with associated infrastructure) for the generation of electricity from a renewable resource (solar radiation from the sun) where the electricity output is 100MW in total. The 100 MW electricity will be fed into the existing Escom national grid</p>
2	Proposed preferred site and location within the site	
2.1	Identification of a piece of land/property near existing Escom transmission line / infrastructure, access roads and possible water resource.	Vintage Energy (the applicant) identified the property and is in consultation with the property owner, Mr. Spannenberg. An agreement was reach between the parties for the possible utilization of the piece of land for a planned solar project.
2.2	The property on which or location where it is proposed to undertake the activity	<p>Farm: Remainder of Portion 4 of 134 of the Farm Brypaal</p> <p>By using topographical map in combination of satellite imagery and initial site investigation it was concluded that the project site (as been indicated in part 3) that have been selected, poses the most promise as an ideal location for the proposed PV Solar project.</p>

2.3	Available surface area in the project focus site:	<p>A total surface area of 1032 ha is available for the project.</p> <ul style="list-style-type: none"> • This more than enough as the PV project will probably require 400ha for the solar field and additional ±100ha for supporting infrastructure such as roads , buildings, etc. • Given the fact that sufficient surface area is available, alternative location of project infrastructure components could be best planned for. <u>Planning need to take place with environmental limitations (if any) also in mind as identified in environmental specialist studies as part of the EIA.</u>
2.4	<p>Note : The applicant (Vintage Energy (Pty) Ltd. is busy with project planning, design of the project, compilation of plans indicating location and dimensions of different project components (as identified under Activity 1: (Listing notice No. 2) GN 984) and also other activities as identified in terms of GN 983 and GN 985.</p>	
3	<p>Currently the following environmental specialist studies are undertaken, namely:</p> <ul style="list-style-type: none"> • Geo-technical study • Geology description of the study area • Soil description of the study area • Topography of the study area • Climate description of the study area • Land use and land capability of the study area • Biodiversity assessment (fauna & flora survey) of the study area • Surface and ground water survey of the study area • Socio-economic impact study of the project • Archaeological/human heritage study of the study area <p>These reports and /or descriptions of environment and findings/recommendations will be included in the EIA as appendices or descriptions of the environment within the EIA.</p>	

4	Alternatives
	<p>Land-use alternatives At present the proposed site is zoned for agricultural land-use, and is mainly used for sheep grazing. The area investigated during the EIA process for the proposed development defined by a non-arable and low potential grazing land. Hence, agricultural land use is not a preferred alternative.</p> <p>Location alternatives:</p> <ul style="list-style-type: none"> • Technical suitability The proposed Brypaal site falls within the area designated as being of high suitability for grid connection as it is 885 to 1006 m from the 400kV Eskom power line. • Ecological suitability No CBA are present on or in close proximity to the proposed Brypaal site. No threatened ecosystems listed under s.52(1)(a) of NEMBA is present on the site. • Visual suitability The site is not visible from the nearby town of Kakamas. No protected area will be impacted visually by the proposed PV Solar project. <p>Technology and layout alternatives as part of the development: Different spatial configurations are considered when investigating site layout alternatives. Site-specific and technology alternatives as well as the “no go” option will be explored during the EIA phase once the layout plans of the Brypaal PV Solar project are available. Alternatives with regard to grid connection and possible power line routes between the on-site substation and the existing power line (alternative routes) will also be examined in detail for the EIA, once the routing alternatives have been considered.</p>

Note: This section will be amended as more info is getting available.

(ii) details of the **public participation process** undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;

Public Participation (PP) is not only a legal requirement (Chapter 6 of NEMA), but also a vital component of any environmental authorisation process. Guidelines specify **public review periods of 30 days** and emphasizes the importance of due process in involving previously disadvantaged communities. This is done by providing documentation in local languages and giving sufficient opportunity for rural communities to be involved in the BA or S&EIR process. The objectives of the Public Participation Process are:

- To provide stakeholders with information on the proposed project and opportunities to **comment**;
- To ensure that stakeholders have the opportunity to raise **issues of concern and suggestions** for enhanced benefits;
- To ensure that stakeholders have the opportunity to **comment** on the technical and public participation processes of the BA + S&EIR; and
- To ensure that stakeholders have the opportunity to comment on the findings of the BA or S&EIR.(Source:DEAT EA guideline (2015))

IDENTIFICATION CRITERIA	Mark with an X where applicable	
	YES	NO
Will the landowner be specifically consulted?	X	
Will the lawful occupier on the property other than the Landowner be consulted?		
Will a tribal authority or host community that may be affected be consulted?		
Will recipients of land claims in respect of the area be consulted?		
Will the landowners or lawful occupiers of neighbouring properties been identified?	X	
Will the local municipality be consulted?	X	
Will the Authority responsible for power lines within 100 metres of the area be consulted?	X	
Will the Authorities responsible for public roads or railway lines within 100 metres of the area applied for be consulted?	X	
Will the Authorities responsible for any other infrastructure within 100 metres the area applied for be consulted? (Specify)- Escom	X	
Will the Provincial Department responsible for the environment be consulted? <ul style="list-style-type: none"> • Already started during July 2016 	X	
Will all of the parties identified above be provided with a description of the proposed project as referred above?	X	
Will all the parties identified above be requested in writing to provide information as to how their interests (whether it be socio-economic, cultural, heritage or environmental) will be affected by the proposed solar project?	X	
Other, Specify		

The **S & EIR Process table** below stipulates the Legal EIA time frames. Note these timeframes represent a generic guide specific to NEMA authorization and can vary on a project to project basis:

S & EIR PROCESS	
1	Compilation of the Application for a Environmental authorization:
1.1	Submit Application form to CA (Competent Authority)
1.2	CA acknowledges application form within 10 days
1.3	CA should submit comments to applicant within 30 days
2	Compilation of Scoping Report:
2.1	Scoping report subjected to public participation process of at least 30 days
	<p>Tasks: This section provides an overview of the tasks being undertaken in the Scoping Phase, with a particular emphasis on providing a clear record of the public participation process followed.</p> <p>Task 1: I&AP identification, registration and the creation of an electronic database (register) Prior to advertising the EIA process an initial database of I&APs will be developed for the Scoping process (include requests to register interest in the project by I&APs.) While I&APs will be encouraged to register their interest in the project from the start of the process, following the public announcements (see Task 2), the identification and registration of I&APs will be ongoing for the duration of the study. Stakeholders from a variety of sectors, geographical locations and/or interest groups can be expected to show an interest in the development proposal, for example</p> <ul style="list-style-type: none"> • Government /State departments (national, provincial and local); • Environmental NGOs; • Community Representatives and CBOs; • Directly affected communities; • Business and Commerce; and • Other. <p>In terms of the electronic database (register), I&AP details are being captured and automatically updated as and when information is distributed to or received from I&APs. This ongoing and up-to-date record of communication is an important component of the public participation process. It must be noted that while not required by the regulations those I&APs proactively identified at the outset of the Scoping Process will remain on the project database through the EIA process and will be kept informed of all opportunities to comment and will only be removed from the database by request. As per the EIA Regulations, future consultation during the Impact Assessment phase will only take place with registered I&APs. Stakeholders who were involved in the initial consultation will be added to the register. The I&AP register will be updated throughout the EIA process.</p> <p>Task 2: Announcement of the Scoping process/project: In order to notify and inform the public of the proposed project and invite members of the public to register as I&APs, the project and EIA process will be advertised in the Gemsbok local newspaper .</p> <p>An advertisement will be placed in the Gemsbok local newspaper (one in English and one in Afrikaans). A copy of the advertisements will be attached in the appendices during the preparation of the final scoping report.</p>

	<p>Distribution of the Background information Document (BID) and a letter of invitation to participate sent to all I&APs on the database (register), accompanied by a registration, comment and reply sheet that was mailed/emailed to the entire stakeholder database.</p> <p>Site notices will be placed at the boundary fences/gate of the PV Solar project focus area.</p> <p>Public Meeting in Kakamas: – where the facilitator, the representatives of the project applicant and the EIA team are present to interact and engage with members of the public, key I&AP groups (such as Councillors, surrounding landowners, affected organs of state, environmental organisations). They will be and proactively invited to attend a meeting where they are provided with an overview of the project and EIA process (Draft Scoping report as basis for discussion). A register and minutes will be kept during the meeting. I & Ap's will be asked to provide contact details and written comments by completing the forms handed out and sent via the Post Office, e-mail, etc.</p> <p>The comments received and issues raised, both in writing and at the public meeting, will be captured in a Comment and Response Report. All comments received from I&APs during this comment period will be included in the Comments and Response Report that will accompany the final Scoping Report to be submitted to the CA.</p>
2.2	Submit Scoping Report (SR) to CA within 44 days receipt of the application by the CA
2.3	The CA, within 43 days of receipt of a scoping report accept or refuse the SR

3	Compilation of EIA Report & EMPR:
3.1	DRAFT EIAR & EMPR subjected to public participation process of at least 30 days
3.2	Incorporate comments received and also of CA.
3.3	Submit notification in writing that the EIR & EMPR will be submitted within 156 days of the receipt of the application by the CA.- EIAR & EMPR subjected to another public participation process of at least 30 days
	<p>Public participation during the impact assessment phase of the EIA will entail a review of the findings of the EIA, presented in the Draft EIA and EMP Reports. These reports will be made available for public comment. I&APs will be advised timeously of the availability of these reports and how to obtain them. Stakeholders will be encouraged to comment either in writing (mail or email) or by telephone. A I & AP stakeholder meeting will be held to discuss the impact assessment. Ample notification of due dates will be provided. All the issues, comments and suggestions raised during the comment period on the Draft EIA Report/EMP will be added to the Comment and Response Report (CRR) that will accompany the Final EIA Report/EMP. The Final EIA Report/EMP will be submitted to the CA for a decision about the proposed PV Solar project.</p>
3.4	<p>Within 106 or 156 days of the acceptance of the scoping report submit to the CA EIR & EMPR .</p> <p>If the scope of work must be expanded, which outcome could not be anticipated prior to the undertaking of the assessment, or in the event where exceptional circumstances can be demonstrated, the CA may, prior to the lapsing of the relevant prescribed timeframe, extend the relevant prescribed timeframe extension.</p>

3.5	CA within 10 days acknowledges receipt of EIR & EMPR
4	Decision on the S & EIR application:
4.1	CA within 107 days of receipt of the EIR & EMPR grant or refuse authorization
4.2	The CA must, within 05 days notify (letter) the applicant of the decision
4.3	The applicant, within 08 days of the date of the decision, notify I&AP's of the decision and publish a notice and the applicant, within 08 days of the date of the decision, notify I&AP's of the decision and publish a notice draw the attention of all registered interested and affected parties to the fact that an appeal maybe lodged against the decision in terms of the National Appeals Regulations, if such appeal is available in the circumstances of the decision.

NOTE: At this stage the formal public participation process need to be conducted. All supporting documentation will be attached once compiled after inputs from I & Ap's, such as minutes, comment & response report, notices, etc. The process will commence once the formal application have been lodged to the CA (Competent Authority).

(iii) a summary of the **issues raised** by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;

NOTE: At this stage the formal public participation process need to be conducted. Written comments and comments received during the public meeting will be included in the final Scoping report (Table summary below) for submission to the Northern Cape Department of Environment and Nature Conservation (NCDENC) (Upington).

Table : Summary of the issues raised by interested and affected parties

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.	Date Comments Received	Issues raised	Response to issues
AFFECTED PARTIES			
Landowner/s			
Mr. P Spannenberg		The applicant is in constant contact with the property owner. At this stage the owner has no environmental related issues with project.	
Lawful occupier/s of the land			
Landowners or lawful occupiers on adjacent properties			
Municipality			
Kai !Garib Municipality (Local)			
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA etc.			
Eskom		The applicant is in contact with Eskom.	
South African Heritage Resources Agency (SAHRA)			

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

STATE DEPARTMENTS			
<p>Northern Cape Department of Environment and Nature Conservation (Upington)</p> <p>Contact person: Me. Samantha De la Fontaine (Pr.Sci.Nat.) Production Scientist Grade A: District Ecologist</p>			<p>The initial site visit was accompanied by Samatha from the NCDENC. She is totally aware of the project and the proposed project site.</p>
<p>Dept. of Environmental Affairs <i>through the</i> NCDEN</p>			
<p>Dept. of Energy (Pretoria)</p> <p>Contact Person:</p>			<p>The Applicant is in constant contact with the Dept. of Energy.</p>
<p>National Department of Agriculture & Forestry (Directorate: Agricultural Resource Conservation)</p>			
<p>Department of Water & Sanitation (DWS)</p>			
INTERESTED PARTIES			

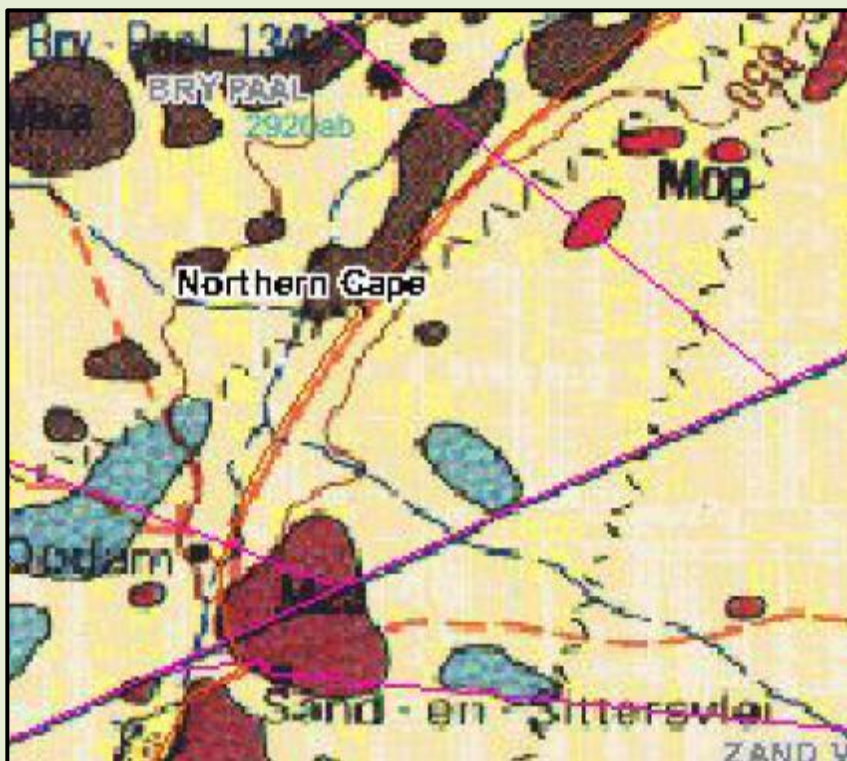
(iv) the **environmental attributes** associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

1. Baseline Environment:

<p>1.1 EXISTING SURFACE INFRASTRUCTURE</p>	<p>The proposed PVSP project site (1032ha) is part of a existing farm (agricultural) utilized for grazing production for sheep. No other structure exists on the site itself. Access is gained by existing farm roads (2 spoor).</p>
	

1.2 PRESENCE OF SERVITUDES	None.
----------------------------	-------

1.3 GEOLOGY



GEOLOGY LEGEND:


Lithology		STRATIGRAPHY
Q- alluvium, sand, calcrete		Quaternary deposits
Gneiss, Granite, quartzite, shale, etc.		Namaqwaland metamorphic region

Source: 1:250 000 Geology map

An Geological survey and geotechnical survey of the proposed PV project site currently being carried out by by Boscia Environmental Sevices (BES).

<p>1.4 CLIMATE</p> <p>* Climatic region: W</p>	<p><u>Region W and SWAs - Desert and poor steppe</u></p> <p>This region occupies about half of the Northern and Western Cape Province, southern South West Africa and the Namib desert further north. The rainfall is unreliable, amounts to about 250 mm (10 inches) per year in the interior and decreases to an insignificant 50 mm (2 inches) or less towards the west coast. In the interior the precipitation is mainly due to convectional showers in summer and autumn occurring on about two days per month, whilst on or near the coast the sparse rainfall occurs mainly in winter. Single very rare heavy showers can account for as much as the normal annual precipitation. Hail is seldom recorded in this region. Snow occurs about five times per annum on the southern mountain ranges (around Sutherland) but is rare on the western escarpment, though this type of precipitation has been recorded in the Namib as far north as Walvis Bay.</p> <p>Due to the cold Benguela current the west coast is frequently <i>foggy</i>. Fog advances onto the coastal flats (sometimes as far as 20-30 miles inland) during the night and recedes seaward in the forenoon; this diurnal motion is connected with the intense heating of the land during three day and cooling at night due to terrestrial radiation. The moisture necessary for maintaining the prolific (wild flower) vegetation which adorns the countryside in the western Cape (Namaqualand) after a fortuitous winter shower, is probably largely due to condensation from low clouds and fog.</p> <p>Temperatures are subject to great variation both seasonal and diurnal. The average daily maximum temperature in January is of the order of 35°C (95°F) and in July 18°C (64°F), whilst extremes can reach respectively 46°C (115°F) and 32°C (90°F). Average daily minima are about 17°C (63°F) in January and 3°C (37°F) in July; extremes can reach 5°C (41°F) and -10°C (14°F) respectively. On the interior plateau frost is common in winter. One of the hottest areas in South Africa is found in the Orange River Valley around Goodhouse and one of the coldest spots is Sutherland in the Roggeveld. In the Kalahari and Southwest Africa one sometimes encounters dust storms similar to the "haboob" of the Sudan, whilst the coastal belt is subject to hot easterly winds and sandstorms which are decidedly unpleasant. The latter occur mainly during the winter season when an anticyclone is established over the interior.</p> <p>Source: WB28.</p>
---	---

	<p>An Soil survey of the proposed PVSP project site is currently being done by Boscia Environmental Services (BES).</p>
--	--

<p>1.7 PRE-MINING CAPABILITY</p> <p>LAND</p>	<p>This is an existing farm with indication that the surface area is being utilized for grazing purposes (sheep) and the land capability of the site itself is classified as non-arable, low potential grazing land (according to ARC GIS, 2016). (See location on satellite image , Part 3).</p> <p>Grazing potential: 7 ha/small stock unit. 31-40 ha/ large stock unit.</p> 
<p>1.8 LAND-USE</p>	<p>This is an existing farm with indication that the surface area is being utilized for grazing purposes (sheep) and the land capability of the site itself is classified as non-arable, low potential grazing land (according to ARC GIS, 2016). (See location on satellite image , Part 3).</p>

1.9 VEGETATION (FLORA)	32 – ORANGE RIVER BROKEN VELD Source (Veld types of South Africa, Acocks (1988:p81))
-------------------------------	--

Typical vegetation cover found in the study area.



The majority of the area is already disturbed by agricultural activities activity.

The vegetation of the proposed PROJECT AREA falls under veld type no. 32, Orange River Broken Veld, of Acocks (1975).

32a. Typical Orange River Broken Veld

The presence of *Aloe dichotoma* with *Euphorbia avasmontana* makes this veld type quite unmistakable. Just as the valley bushveld and related types are adaptations of the eastern coastal branch of the tropical flora to arid conditions, so the Orange River Broken Veld is an adaptation of the central branch of the tropical flora, while the Namaqualand Broken Veld is not only an adaptation of the west coastal and central branches, but also of certain elements of the eastern branch which have worked their way right along the coast. The Orange River Broken Veld also has a few elements of the east coastal flora and of the west coastal flora, which have come up the Orange River Valley or else across the eastern part of the upper plateau where False Karoo is now found.

The typical Orange River Broken Veld occurs on a variety of rocks, e.g. banded ironstone, dolomite, quartzite and granite. Altitude ranges from 750-1350 m above sea level and rainfall from about 150-350 mm per annum. Owing to its proximity to the permanent water of the Orange River, it is, as a rule, badly tramped out.

Typical trees and shrubs include the following, with *Tamarix usneoides* coming up the Orange River nearly as far as Koegas:

Aloe dichotoma, *Euphorbia avasmontana*, *Sarcostemma viminale* form *Acacia mellifera* subsp. *Detinens*,
karroo W
erioloba

Rhus lancea W,
laevigata
burchellii
dregeana

Salix capensis W, *Tarchonanthus camphoratus*, *Phaeoptilum spinosum*,
Ziziphus mucronata

Rhigozum trichotomum
obovatum

Lycium oxycarpum, *Ehretia rigida*, *Boscia albitrunca*, *Cadaba aphylla* *Putterlickia pyracantha*, *Nymanian capensis*, *Ficus ingens*,
Olea europaea subsp *Africana*, *Grewia flava*, etc.

An **Flora survey** will be conducted on the proposed PVSP project site. The majority of the project focus area falls within the ECOLOGICAL SUPPORT AREA but is not covered by the Namakwa District Biodiversity Sector Plan (Source: SANBI).

<p>1.10 ANIMAL LIFE (FAUNA)</p>	<p>Domestic animals such as sheep (Dorper) do occur on the site.</p> <p>An Fauna survey will be conducted on the proposed PVSP project site. The majority of the project focus area falls within the ECOLOGICAL SUPPORT AREA but is not covered by the Namakwa District Biodiversity Sector Plan (Source: SANBI).</p>
<p>1.11 SURFACE WATER</p>	<p>Water management area (14) : Lower Orange River</p> <p>River: Salt River which is a tributary of the Hartbees River.</p> <p>The proposed PVSP project site falls under the primary drainage region D and in quaternary sub-catchment D53H. The catchment is approximately 147 km² in size.</p> <p>An Surface and Groundwater survey is currently being conducted by Eko Environmental.</p>
<p>1.11.1</p>	<p>Process and potable water will be supplied from a desalination plant and associated reservoir . Water for dust suppression will be supplied by tanker from probable newly drilled boreholes.</p> <p>An Surface and Groundwater survey is currently being conducted by Eko Environmental, which will spell out recommendations in this regard.</p>
<p>1.12 GROUND WATER</p> <p>1.12.1 Water use</p>	<p>No boreholes occur on the proposed PVSP project site.</p> <p>Process and potable water will probably be obtained from boreholes and/or the Salt River via a desalination plant/ reservoir.</p> <p>An Surface and Groundwater survey is currently being conducted by Eko Environmental, which will spell out recommendations in this regard.</p>
<p>1.13 AIR QUALITY</p>	<p>The proposed PVSP project site will be situated in a broader rural area where the air quality is being affected by natural fires, dust storms, adjacent farming operations, vehicles travelling on the provincial gravel road, etc. Steam will be generated at the power plant during the operational phase.</p>
<p>1.14 NOISE</p>	<p>Generators, vehicles, trucks, earth-moving equipment construction equipment, etc. will generate noise , especially during the construction phase.</p> <p>The operational phase the noise will be restricted to the immediate worker environment at the power plant and vehicles traveling the existing provincial road.</p>

<p>1.14 SITES OF ARCHAEOLOGICAL OF AND CULTURAL INTEREST</p>	<p>There are no known sites of archaeological interest (graves etc.) on the proposed PVSP project site. The majority of surface area is already disturbed by agricultural activities.</p> <p>An archaeological /human heritage study will be conducted on the proposed PVSP project site.</p>
<p>1.15 SENSITIVE LANDSCAPES</p>	<p>None.</p>
<p>1.16 VISUAL ASPECTS</p>	<p>The proposed PVSP project will only be visible from the gravel provincial road. (See location on satellite image , Part 3).</p>

(v) the **impacts and risks** identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be avoided, managed or mitigated;

Potential environmental impacts associated with solar projects:

The potential environmental impacts associated with solar power (land use and habitat loss, water use, and the use of hazardous materials in manufacturing) vary greatly depending on the technology to be used. In broad terms the range of potential impacts could include:

- **Land use:** Depending on their location, larger utility-scale solar facilities can raise concerns about land degradation and habitat loss. Total land area requirements estimates for utility-scale PV systems range from 1.5 to 4 ha per megawatt, while estimates for CSP facilities are between 0.65 and 2.7 ha per megawatt₃;
- **Water use:** Solar PV cells do not use water for generating electricity. However, as in all manufacturing processes, some water is used to manufacture solar PV components. CSP in common with all thermal electric plants, require water for cooling. Water use depends on the plant design, plant location, and the type of cooling system;
- **Hazardous materials:** The PV cell manufacturing process includes a number of hazardous materials, most of which are used to clean and purify the semiconductor surface. These chemicals (similar to those used in the general semiconductor industry) include hydrochloric acid, sulphuric acid, nitric acid, hydrogen fluoride, 1,1,1- trichloroethane, and acetone. The amount and type of chemicals used depends on the type of cell, the amount of cleaning that is needed, and the size of silicon wafer;
- Other impacts in terms of noise, visual issues, electromagnetics and aircraft interference.

The below **Table** will give a list of the main activities that will be performed under each aspect.

Table : Impact identification matrix for PVSP Solar project operations

PHASE	Environmental Components	ABIOTIC										BIOTIC			VISUAL	SOCIO-ECONOMIC		
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic impacts	Affected parties	
	Activity, Product or Service																	
Construction phase	GN R325: Description of project activity that triggers listed activity:																	
	Activity 1: The construction of a PHOTOVOLTAIC SOLAR POWER (PVSP) facility (with associated infrastructure) for the generation of electricity from a renewable resource (solar radiation) where the electricity output is 100MW in total.	X	X	X	X	X	X	X	X	X	X	X		X		X	X	
	Activity 9: The construction of substation (transformers) and power lines (400 kV) up to the Eskom connection (main substation outside the project site, property).			X						X	X	X		X		X	X	
	Activity 15: The clearance of an footprint area of up to probable 500ha of a total of 1032 hectares of indigenous vegetation during site preparation for the establishment of the indicated activities under Activity (1) –			X	X	X	X		X	X	X	X		X		X	X	
	GN R327: Description of project activity that triggers listed activity:																	

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

PHASE	Environmental Components	ABIOTIC								BIOTIC			VISUAL	SOCIO-ECONOMIC			
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural	Socio-economic impacts	Affected parties
	Activity, Product or Service																
4	<p>Activity12 :</p> <p>Possible the construction of the following:</p> <p>(i) canals exceeding square metres in size;</p> <p>(ii) channels exceeding square metres in size;</p> <p>(iii) bridges exceedingsquare metres in size;</p> <p>(iv) dams, where the dam, including infrastructure and water surface area, square metres in size;</p> <p>(v) weirs, where the weir, including infrastructure and water surface area, square metres in size;</p> <p>(vi) bulk storm water outlet(s) structures exceedingsquare metres in size;</p> <p>(x) buildings exceedingsquare metres in size;</p> <p>(xii) infrastructure or structures with a physical footprint of square metres or more;</p> <p>a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</p>	X	X	X	X	X	X		X	X	X	X		X		X	X
5	<p>Activity 13:</p> <p>The PVSP project utilizes kl/ annum water from a desalination plant, as process water during steam generation (turbine house) and also drinking water, dust suppression, cleaning, etc. Reservoir (tanks) would be constructed with a capacity of kl . Water will be recycled via lined collection dam facilities.</p> <p>Surface run-off that ends-up in the dirty environment would be captured via a collection of trenches/canals and channeled to a evaporation pond (capacitykl) .</p>	X	X	X	X	X	X	X	X	X	X	X		X		X	X

6

7

PHASE	Environmental Components	ABIOTIC								BIOTIC			VISUAL	SOCIO-ECONOMIC			
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic impacts	Affected parties
Activity, Product or Service																	
Activity 14:																	
The construction of temporary diesel tank storage facilities (bunded) as part of the contractor lay down site. (Capacity.....L) Environmental Components (See activities identified under Listing Notice 2).		X	X	X	X	ABIOTIC	X	X	X	X	X	BIOTIC		VISUAL		SOCIO-ECONOMIC	
Impacts																	
Activity, Product or Service																	
Activity 19:																	
1) During initial site preparation operation the site will be surveyed and levelled for particular project (infrastructure) components (listed activities). This will involve vegetation clearance, topsoil/overburden removal & stockpiling at dedicated stockpile areas.																	
2) Dedicated quarries will be mechanically excavated for obtaining construction infill/backfill material (weathered overburden material). Prior to removal of material the topsoil need to be stockpiled in a dedicated stockpile next to the quarry. The material will be loaded onto trucks and transport to construction site where required for infilling, backfilling, terraces, benches, etc.		X	X	X	X	X	X	X	X	X	X	X		X		X	
3) Surface run-off control trenches/canals/evaporation dam sites//culverts/energy dissipating structures, etc. need to be excavated/constructed.																	

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

PHASE	Environmental Components	ABIOTIC										BIOTIC			VISUAL	SOCIO-ECONOMIC		
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic impacts	Affected parties	
	Activity, Product or Service																	
8	Activity 28 = See activity 1 & 15 of GN 325																	
	GN R324: Description of project activity that triggers listed activity:																	
	Activity 1: During the construction phase information/ identification of the project/ safety information billboards/ safety warning signs will be provided on site.													X				
	Activity 4: An access road will be constructed on site to give access to the contactors initially and eventually where required a permanent road on site for easy access during the operational phase of the PVSP project. An access road is also needed as along the border fence for security reasons and also act as a fire-break.	X	X	X	X	X	X		X	X	X	X		X		X		
9																		

(vi) **Methodology** used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;

A. Assessment and evaluation of potential impacts.

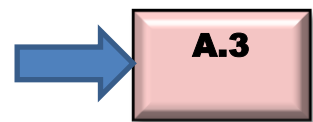
A.1. **List of each potential impact** identified in paragraphs 3 and 6 above. (Include all the items to be included in the list referred to in the concomitant section of the guideline posted on the official website of the Department)



A.2. Concomitant **impact rating** for each potential impact listed in paragraph 7.1 above in terms of its nature, extent, duration, probability and significance. (Provide a definition of the criteria used for each of the variables used for rating potential impacts and ensure that the potential impacts are rated specifically with the assumption that no mitigation measures are applied).



A.3. Indication of the **phases** (construction, operational, decommissioning) and estimated time frames in relation to the potential impacts rated.



Impact assessment involves the consideration of physical, biological, socio-economic and cultural information to estimate the likely characteristics and parameters of the impact. The aim of impact assessment is to provide a basis for determining the likely significance of each impact with sufficient accuracy to develop appropriate mitigation measures.

4



INTRODUCTION:

This chapter describes and evaluates the effects of the PV Solar Project and the associated activities on the natural and social environments.

The different environmental components, on which the project (can) have an impact, are:

1. Geology
2. Topography
3. Soil
4. Land Capability
5. Land Use
6. Vegetation

7. Wildlife
8. Surface Water
9. Ground Water
10. Air Quality
11. Noise
12. Archaeological and Cultural sites
13. Sensitive Landscapes
14. Visual Aspects
15. Socio-economic Structure
16. Interested and Affected Parties

IMPACT ASSESSMENT

Before the impact assessment could be done the different project activities/infrastructure components were identified:

PROJECT ACTIVITIES/INFRASTRUCTURE COMPONENTS:

4

	<p>Activity12 : Possible the construction of the following: (i) canals exceeding square metres in size; (ii) channels exceeding square metres in size; (iii) bridges exceedingsquare metres in size; (iv) dams, where the dam, including infrastructure and water surface area, square metres in size; (v) weirs, where the weir, including infrastructure and water surface area, square metres in size; (vi) bulk storm water outlet(s) structures exceedingsquare metres in size; (x) buildings exceedingsquare metres in size; (xii) infrastructure or structures with a physical footprint of square metres or more;</p> <p>a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</p>
--	--

5		<p>Activity 13:</p> <p>The PVSP project utilizes k/ annum water from a desalination plant, as process water during steam generation (turbine house) and also drinking water, dust suppression, cleaning, etc. Reservoir (tanks) would be constructed with a capacity of kl . Water will be recycled via lined collection dam facilities.</p> <p>Surface run-off that ends-up in the dirty environment would be captured via a collection of trenches/canals and channeled to a evaporation pond (capacitykl) .</p>
6		<p>Activity 14:</p> <p>The construction of temporary diesel tank storage facilities (bunded) as part of the contractor lay down site. (Capacity.....L)</p>
Activity, Product or Service		
1	Construction phase	GN R325: Description of project activity that triggers listed activity:
		<p>Activity 1:</p> <p>The construction of a PHOTOVOLTAIC SOLAR POWER (PVSP) facility (with associated infrastructure) for the generation of electricity from a renewable resource (solar radiation) where the electricity output is 100MW in total.</p>
		<p>Activity 9:</p> <p>The construction of substation (transformers) and power lines (400 kV) up to the Eskom connection (main substation outside the project site,property).</p>
		<p>Activity 15:</p> <p>The clearance of an footprint area of up to probable 500ha of a total of 1032 hectares of indigenous vegetation during site preparation for the establishment of the indicated activities under Activity (1) –</p>
		GN R327: Description of project activity that triggers listed activity:
2		

7	<p>Activity 19:</p> <p>1) During initial site preparation operation the site will be surveyed and levelled for particular project (infrastructure) components (listed activities). This will involve vegetation clearance, topsoil/overburden removal & stockpiling at dedicated stockpile areas.</p> <p>2) Dedicated quarries will be mechanically excavated for obtaining construction infill/backfill material (weathered overburden material). Prior to removal of material the topsoil need to be stockpiled in a dedicated stockpile next to the quarry. The material will be loaded onto trucks and transport to construction site where required for infilling, backfilling, terraces, benches, etc.</p> <p>3) Surface run-off control trenches/canals/evaporation dam sites//culverts/energy dissipating structures, etc. need to be excavated/constructed.</p>
---	---

8	<p>Activity 28 = See activity 1 & 15 of GN 325</p>
	<p>GN R324: Description of project activity that triggers listed activity:</p>
9	<p>Activity 1: During the construction phase information/ identification of the project/ safety information billboards/ safety warning signs will be provided on site.</p> <p>Activity 4: An access road will be constructed on site to give access to the contactors initially and eventually where required a permanent road on site for easy access during the operational phase of the PVSP project. An access road is also needed as along the border fence for security reasons and also act as a fire-break.</p>

- **Assessment of the impacts created by the PVSP PROJECT activities**
Before any assessment can be made the following evaluation criteria need to be described:

*Explanation of **probability** of impact occurrence*

Probability of impact occurrence	Explanation of probability
Very low	<20% sure of particular fact or likelihood of impact occurring.
Low	20 to 39% sure of particular fact or likelihood of impact occurring.
Moderate	40 to 59% sure of particular fact or likelihood of impact occurring.
High	60 to 79% sure of particular fact or likelihood of impact occurring.
Very high	80 to 99% sure of particular fact or likelihood of impact occurring.
Definite	100% sure of particular fact or likelihood of impact occurring.

*Explanation of **extend** of impact*

Extend of impact	Explanation of extend
Site specific	Direct and indirect impacts limited to site of impact only.
Local	Direct and indirect impacts affecting environmental elements within the Kakamas area.
Regional	Direct and indirect impacts affecting environmental elements within Northern Cape Province.
National	Direct and indirect impacts affecting environmental elements on a national level.
Global	Direct and indirect impacts affecting environmental elements on a global level.

*Explanation of **duration** of impact*

Duration of impact	Explanation of duration
Very short	Less than 1 year
Short	1 to 5 years
Medium	6 to 12 years
Long	13 to 50 years
Very long	Longer than 50 years
Permanent	Permanent

*Explanation of impact **significance***

Impact significance	Explanation of significance
No impact	There would be no impact at all - not even a very low impact on the system or any of its parts.
Very low	Impact would be negligible. In the case of negative impacts, almost no mitigation and/or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely to be better, in one or a number of ways, than this means of achieving the benefit.
Low	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and/or remedial activity would be either easily achieved or little would be required, or both. In case of positive impacts, alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Moderate significance	Impact would be real but not substantial within the bounds of those which could occur. In the case of negative impacts, mitigation and/or remedial activity would be both feasible and fairly easily possible. In the case of positive impacts, other means of achieving these benefits would be about equal in time, cost and effort.

High significance	Impacts of a substantial order. In the case of negative impacts, mitigation and/or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Very high significance	Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.

ASSESSMENT OF THE NATURE, EXTENT, DURATION, PROBABILITY AND SIGNIFICANCE OF THE POTENTIAL ENVIRONMENTAL, SOCIAL AND CULTURAL IMPACTS OF THE PROPOSED MINING OPERATION, INCLUDING THE CUMULATIVE ENVIRONMENTAL IMPACTS.

Assessment and evaluation of potential impacts KEY

1. Environmental Component	IMPACTS (Nature of the impact)				CUMULATIVE IMPACTS
Actions, activities or processes, including any NEMA EIA Regulation listed activities					
See list of activities and associated environmental components that are being impacted on, as being spelled out in Table 1 (Impact identification matrix for the proposed Brypaal PVSP project).	A.1				
Extent	Site				
Duration	Permanent				
Probability	Definite				
Significance	High				
Phase responsible for the impact	Const	Operation	Decommissioning	Closure	
			A.3		

D) FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE (IN RESPECT OF THE FINAL SITE LAYOUT PLAN) THROUGH THE LIFE OF THE PROJECT ACTIVITY (Including (i) a description of all environmental issues and risks that are identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

ASPECT	IMPACTS						
1. GEOLOGY							
Nature of the impact	<p>Geology (underlying rock material) is going to be destroyed to a certain extent during the construction phase of the PVSP project. Construction material will be obtained from newly established quarries on site that is going to be used as filling material during initial ground works on the proposed PVSP project site. It is expected that some cut and fill will take place in the construction of certain project components.</p> <p>The location of the quarries will be determined as part of the Geo-Technical survey done by BES.</p> <p>Once the construction of the PVSP facility has been completed the quarries will be rehabilitated with replacing the initial stockpiled topsoil (restricted resource on site) on top of sloped quarries.</p>						
Extent	Site				Listed Activity causing the impact:		
Duration	Permanent				GN325	GN327	GN324
Probability	Definite				1,9,15	12,13,14,19	4
Significance	High						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure			
	X						

ASPECT	IMPACTS				
2. TOPOGRAPHY					
Nature of the impact	<p>* Change in landform : The existing topography is described as flat with some rock outcrops (rock plates) and the majority of infrastructure required for the PVSP project would have a permanent impact on topography. Some infrastructure (contractor lay-down area) will be temporary on site. Construction rock material and topsoil will be stored in temporary stockpiles for construction purposes.</p> <p>An terraced landscape will be created (where required) to serve as the footprint of the different components of the PVSP project.</p> <p>* Disturbance of the surface drainage: Construction material will be obtained from newly established quarries on site that is going to be used as filling material during initial ground works on the proposed PVSP project site. It is expected that some cut and fill workings will take place in the construction of certain project components (trenches, canals, evaporation dams, access roads, etc. Quarries , trenches, canals , will act as that act as depressions in the environment that captures run-off (standing water).</p> <p>Normal surface drainage will be disturbed at a given point. Run-off if will be diverted away from the site (surface run-off control structures).</p> <p>The majority of infrastructure will remain for a estimated project life of 20-25 years. During closure the site will be rehabilitated and all infrastructure demolished. At closure certain infrastructure components could possible identified to be used in the future by the land owner .</p>				
Extent	Site				Listed activity causing the
Duration	Very long to Permanent				GN325 GN327 GN324
Probability	Definite				1,9,15 12,13 14, 19 4
Significance	High				
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	
	X	X			

3. SOIL		IMPACTS					
Nature of the impact	<p>This is a proposed new PVSP project site. The soils in the whole study area were found to be of the hard rock outcrops and shallow Coega soil form. Deeper soil (Hutton) is associated with dry stream tributaries(natural depression areas) that have been filled-up with aeolian deposits with time.</p> <p>Any future construction of infrastructure should be preceded by the removal of all available topsoil/overburden material (although limited). Topsoil removal during site preparation earmarked for the proposed PVSP project.</p> <p>In the process of removing topsoil the soil layers are mixed and the structure may be disturbed. Proceeding with quarrying without proper removal of topsoil and stockpiling.</p>						
	Extent	Site			Listed activity causing the impact:		
Duration	Long			GN325	GN327	GN324	
Probability	Definite			1,9,15	12,13 14, 19	4	
Significance	High						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	1,9,15	12,13 14, 19	4
	X	X					

3. SOIL		IMPACTS					
Nature of the impact	<p>The initial site preparation for and establishment of infrastructure components such as access roads, PV solar field, contractor laydown area ,etc. cause compaction of soil, the loss of a growth medium resource and the alienation of a particular surface area.</p> <p>The majority of the proposed PVSP project site is already disturbed by agricultural activity (grazing by sheep). The establishment, construction, operation and eventually rehabilitation (demolition) of listed structures would cause compaction of soil. All activities will be concentrated on the application area.</p>						
	Extent	Site			Listed activity causing the impact:		
Duration	Long			GN325	GN327	GN324	
Probability	Definite			1,9,15	12,13 14, 19	4	
Significance	High						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	1,9,15	12,13 14, 19	4
	X	X					

ASPECT		IMPACTS					
3. SOIL							
Nature of the impact	<p>Soil erosion: Due to the fact that certain surface areas would become compacted and this would lead to lesser infiltration of rainwater and more run-off that could cause erosion on bare disturbed surfaces. Erosion would always be possible until such time a vegetation cover is provided during rehabilitation phase.</p> <p>When removing topsoil during site preparation, little storm water control structures are in place. If a severe storm hits the area, it may lead to erosion on site. Topsoil stockpiles may be prone to erosion due to lack of vegetation cover. Water control structures may fail or severe rainstorms may cause excessive run-off. Surface compaction due to activities taking place.</p>						
Extent	Site			Listed activity causing the impact:			
Duration	Long			GN325	GN327	GN324	
Probability	Definite			1,9,15	12,13 14, 19	4	
Significance	High						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	1,9,15	12,13 14, 19	4
	X	X					

ASPECT		IMPACTS					
3. SOIL							
Nature of the impact	<p>Potential of soil contamination.</p> <p>Vehicles/trucks/cranes/ earth moving equipment breakages and oil/lubricant /diesel spills may contaminate soil.</p> <p>The temporary workshop may contaminate soil due to spillages and bad management. Bad surface water management may divert contaminated run-off water on soil and thereby contaminating it.</p>						
Extent	Site			Listed activity causing the impact:			
Duration	Long			GN325	GN327	GN324	
Probability	Definite			1,9,15	12,13 14, 19	4	
Significance	High						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	1,9,15	12,13 14, 19	4
	X	X					

ASPECT	IMPACTS					
3. SOIL						
Nature of the impact	Loss of soil structure In the process of removing topsoil the soil layers are mixed and the structure may be disturbed.					
Extent	Site			Listed activity causing the impact:		
Duration	Long			GN325	GN327	GN324
Probability	Definite					
Significance	Moderate					
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure		
	X	X				
				1,9,15	12,13 14, 19	4

ASPECT	IMPACTS					
3.SOIL						
Nature of the impact	Loss of soil fertility The mixing of soil during site preparation, compaction and potential pollution (spillages form oil etc.) all may cause this situation.					
Extent	Site			Listed activity causing the impact:		
Duration	Short			GN325	GN327	GN324
Probability	Definite					
Significance	High					
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure		
	X	X				
				1,9,15	12,13 14, 19	4

ASPECT	IMPACTS						
4.LAND CAPABILITY							
Nature of the impact	<p>Temporary loss of land capability to support grazing:</p> <p>Temporary loss of land capability to support grazing (20 years). The area where the infrastructure will be constructed will thus be alienated, until the area is rehabilitated. Some structures could probable remain if an alternative use is found.</p>						
Extent	Site			Listed activity causing the impact:			
Duration	Long			GN325	GN327	GN324	
Probability	Definite						
Significance	High						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	1,9,15	12,13 14, 19	4
	X	X					

ASPECT	IMPACTS					
5. LAND USE						
Nature of the impact	Temporary loss of land capability to support grazing (20 years). The area where the infrastructure will be constructed will thus be alienated, until the area is rehabilitated. Some structures could probable remain if an alternative use is found.					
Extent	Site			Listed activity causing the impact:		
Duration	Long to permanent			GN325	GN327	GN324
Probability	Definite					
Significance	High					
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure		
	X	X				
				1,9,15	12,13 14, 19	4

ASPECT	IMPACTS					
6.VEGETATION						
Nature of the impact	During the initial site preparation and construction of the PVSP project vegetation clearance, disturbance of the ecosystem, habitat and trampling will happen. Destruction of habitats for vegetation. Due to a disturbed ecosystem, bare ground and invasion of exotics and further spreading of exotics can follow. The vegetation needs to be cleared to remove the topsoil.					
Extent	Site			Listed activity causing the impact:		
Duration	Long			GN325	GN327	GN324
Probability	Definite					
Significance	High					
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure		
	X	X				
				1,9,15	12,13 14, 19	4

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

ASPECT	IMPACTS					
6. VEGETATION						
Nature of the impact	Habitat change, loss of species, spread of alien and invasive species. The change in the current habitat will be mitigated during replacement of topsoil and eventually final rehabilitation of the site.					
Extent	Site			Listed activity causing the impact:		
Duration	Permanent			GN325	GN327	GN324
Probability	Definite					
Significance	High					
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure		
	X	X				
				1,9,15	12,13 14, 19	4

ASPECT	IMPACTS					
7. WILDLIFE						
Nature of the impact	Wildlife or wildlife habitat destruction /change / disturbance. The flora which normally serves as habitat for animals would be destroyed during site preparation. The increase in activity will temporarily scare other animals. The area will serve as a new habitat after rehabilitation.					
Extent	Site			Listed activity causing the impact:		
Duration	Medium			GN325	GN327	GN324
Probability	Definite					
Significance	Low					
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure		
	X	X				
				1,9,15	12,13 14, 19	4

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

ASPECT	IMPACTS					
7. WILDLIFE						
Nature of the impact	Restoration of habitat. As rehabilitation progresses the habitat of certain species will be restored/created (Closure objective) Animals will probably only move back when human movement is limited.					
Extent	Site			Listed activity causing the impact:		
Duration	Short			GN325	GN327	GN324
Probability	Definite			1,9,15	12,13 14, 19	4
Significance	Low					
Phase responsible for the impact	Construction	Operational	Decommissioning			
	X	X				

ASPECT	IMPACTS					
8. SURFACE WATER						
Nature of the impact	Increased silt load. Clearing topsoil for footprint areas can increase infiltration rates of water to the groundwater system and decrease buffering capacity of soils to absorb contaminants from spills on surface. This can increase the risk of contamination of the groundwater system (increases aquifer vulnerability). The clearance of vegetation and the traffic on access roads will all contribute to an increase in the silt load on the project area.					
Extent	Local			Listed activity causing the impact:		
Duration	Short			GN325	GN327	GN324
Probability	Definite			1,9,15	12,13 14, 19	4
Significance	Low					
Phase responsible for the impact	Construction	Operational	Decommissioning			
	X	X				

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

ASPECT	IMPACTS				
8. SURFACE WATER					
Nature of the impact	<p>Change in surface water quality. Spillages from vehicles, diesel tanks lacking adequate bund walls, surface run-off (water, erosion, silt) that is not adequately diverted away from the PVSP project site.</p> <p>Change in water quantity: As this area is very small only 1032 hectares (10,3 km²) the impact of surface water will be very low in relation to the total drainage catchment surface area of 147 km².</p> <p>“Dirty / Clean” water systems at project site may impact on the quality of the surface water. The water should be contained in the surface runoff control measures provided therefore.</p>				
Extent	Local				Listed activity causing the impact:
Duration	Short				GN325 GN327 GN324
Probability	Definite				1,9,15 12,13 14, 19 4
Significance	Low				
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	
	X	X			

ASPECT	IMPACTS				
9. GROUND WATER					
Nature of the impact	<p>Reduction of groundwater quality</p> <p>The proposed PVSP project activities are not likely to impact on local ground-water quality. All project components forms part of a closed system.</p> <p>Storage of diesel/lubricants/oil, etc. will be done within bunded facilities. Therefore other than accidental spillages from vehicles/earthmoving equipment/storage facilities, PVSP facility breakages no further impact that could infiltrate and contaminate of the groundwater system is foreseen.</p>				
Extent	Site				Listed activity causing the impact:
Duration	Long				GN325 GN327 GN324
Probability	Definite				1,9,15 12,13 14, 19 4
Significance	Low to Moderate				
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	
	X	X			

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

10. GROUND WATER	IMPACTS						
Nature of the impact	Process water for PVSP facility: Water from a desalination plant (to be constructed) (river water) and water abstracted from newly drilled boreholes on the farm and stored in a reservoir/tank facility. Water will be used for abstracted from a borehole for dust suppression on the roads and potable water will be brought in with a tanker.						
Extent	Site				Listed activity causing the impact:		
Duration	Long				GN325	GN327	GN324
Probability	Definite						
Significance	High						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	1,9,15	12,13 14, 19	4
	X	X					

ASPECT	IMPACTS						
11. AIR QUALITY							
Nature of the impact	Dust will be generated during the initial site preparation and construction phase of the PVSP project (loading with an excavator on to a dump truck) and transportation on site/gravel/dirt/farm roads. Initial construction work with regard to infrastructure that involves the use of earth moving equipment. During the operational phase dust could be generated by vehicles travelling on the public gravel road that will possible have an impact on the keeping the PVSP facility clean.						
Extent	Site				Listed activity causing the impact:		
Duration	Short				GN325	GN327	GN324
Probability	Definite						
Significance	Low						
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	1,9,15	12,13 14, 19	4
	X	X					

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

ASPECT	IMPACTS					
12. NOISE POLLUTION						
Nature of the impact	<p>Generators, vehicles, trucks, earth-moving equipment construction equipment, etc. will generate noise , especially during the construction phase. Reverse warning alarms on earthmoving machines is a main source of nuisance and noise pollution.</p> <p>The operational phase the noise will be restricted to the immediate worker environment at the PV solar facility and vehicles traveling the existing provincial road.</p> <p>The PVSP project site will be constructed within a rural landscape with dwellings located further than 280m south , 482m and 391m west from site.</p> <p>The impact would also be of importance regarding the direct worker environment that should adhere to the requirements in terms of the Occupational Health and Safety Act.</p>					
Extent	Local			Listed activity causing the impact:		
Duration	short			GN325	GN327	GN324
Probability	Definite			1,9,15	12,13 14, 19	4
Significance	Low					
Phase responsible for the impact	Construction	Operational	Decommissioning			
	X	X				

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

ASPECT	IMPACTS					
13. ARCHAEOLOGICAL AND CULTURAL SITES	There are no known sites of archaeological interest (graves etc.) on the proposed PVSP project site. The majority of surface area is already disturbed by agricultural activities.					
Nature of the impact						
Extent	N/A			Listed activity causing the impact:		
Duration	N/A			GN325	GN327	GN324
Probability	N/A			1,9,15	12,13 14, 19	4
Significance	None					
Phase responsible for the impact	Construction	Operational	Decommissioning			

ASPECT	IMPACTS					
14. SENSITIVE LANDSCAPE						
Nature of the impact	No sensitive landscapes identified on the site.					
Extent	Not applicable			Listed activity causing the impact:		
Duration	Not applicable			GN325	GN327	GN324
Probability	Not applicable			1,9,15	12,13 14, 19	4
Significance	Not applicable					
Phase responsible for the impact	Construction	Operational	Decommissioning			

ASPECT	IMPACTS					
15. VISUAL ASPECTS						
Nature of the impact	The proposed PVSP project will only be visible from the gravel provincial road. (See location on satellite image , Part 3).					
Extent	Site			Listed activity causing the impact:		
Duration	Short			GN325	GN327	GN324
Probability	Definite			1,9,15	12,13 14, 19	4
Significance	Moderate					
Phase responsible for the impact	Construction	Operational	Decommissioning			
	X	X				

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

ASPECT	IMPACTS				
15. SOCIO-ECONOMICS					
Nature of the impact	<p>Increase in Socio – economic activity at local level.</p> <p>The project in itself would ensure that approximately 350 workers would be assured of a job during the construction phase of the project. The operational phase will require probable 20 workers in total. The majority will be responsible for regular maintenance work.</p> <p>Job creation plays a major role in increasing the economic wellbeing of employees and their dependants in the Kakamas area (District: ZF Mgcawu district).</p> <p>The increase in socio-economic activity will add to the current growth and development in Kakamas already created by similar solar projects.</p>				
Extent	Local				Listed activity causing the impact:
Duration	Long (20 year project)				GN325 GN327 GN324
Probability	Definite				1,9,15 12,13 14, 19 4
Significance	High				
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	
	X	X	X	X	

ASPECT	IMPACTS				
16. INTERESTED & AFFECTED PARTIES					
Nature of the impact	<p>The main impact on the landowner is visual impact and the PVSP project area of 1032ha that will not be available for agricultural activities (grazing for sheep) at any given time for the next 20-25 years.</p>				
Extent	Regional				Listed activity causing the impact:
Duration	Long				GN325 GN327 GN324
Probability	Definite				1,9,15 12,13 14, 19 4
Significance	High				
Phase responsible for the impact	Construction	Operational	Decommissioning	Closure	
	X	X			

ASSESSMENT OF THE IMPACTS POTENTIALLY CREATED BY THE ALTERNATIVE LAND USE:

No alternative land use is possible on the active fenced-off project site while the PVSP project is operational. The land would become available for alternative use again (after 20-25 years).

(vii) **positive and negative impacts** that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

SEE TABLE ON NEXT PAGE:



Table : Positive and Negative impacts that the proposed activity and alternatives will have on the environment: Matrix for PV Solar project

PHASE	Environmental Components	ABIOTIC									BIOTIC			VISUAL	SOCIO-ECONOMIC			
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic impacts	Affected parties	
	Activity, Product or Service																	
1	GN R325: Description of project activity that triggers listed activity:																	
	Activity 1: The construction of a PHOTOVOLTAIC SOLAR POWER (PVSP) facility (with associated infrastructure) for the generation of electricity from a renewable resource (solar radiation) where the electricity output is 100MW in total.	H-	H-	H-	H-	H-	M-	H-	L	L-	H-	H-		L-		H+	H+	
	Activity 9: The construction of substation (transformers) and power lines (400 kV) up to the Eskom connection (main substation outside the project site,property).			H-							L-	H-	L-		L-		H+	L-
	Activity 15: The clearance of an footprint area of probable 500 ha of a available surface area of 1032 hectares of indigenous vegetation during site preparation for the establishment of the indicated activities under Activity (1) The actual project footprint will depend on the surface areas required for the different components of the project.			H-	H-	H-	H-			L-	L-	H-	H-		L-		H-	H-
2	GN R327: Description of project activity that triggers listed activity:																	

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

PHASE	Environmental Components	ABIOTIC									BIOTIC			VISUAL	SOCIO-ECONOMIC		
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes		Visual impact	Archaeological & cultural	Socio-economic impacts
	Activity, Product or Service																
4	<p>Activity12 :</p> <p>Possible the construction of the following:</p> <ul style="list-style-type: none"> (i) canals exceeding square metres in size; (ii) channels exceeding square metres in size; (iii) bridges exceedingsquare metres in size; (iv) dams, where the dam, including infrastructure and water surface area, square metres in size; (v) weirs, where the weir, including infrastructure and water surface area, square metres in size; (vi) bulk storm water outlet(s) structures exceedingsquare metres in size; (x) buildings exceedingsquare metres in size; (xii) infrastructure or structures with a physical footprint of square metres or more; <ul style="list-style-type: none"> a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; 	H-	H-	H-	H-	H-	H-		L-	L-	H-	H-		L-		H+	H+
5	<p>Activity 13:</p> <p>The PVSP project utilizes kl/ annum water from a desalination plant, as process water for dust suppression, cleaning, construction, etc. Reservoir (tanks) would be constructed with a capacity of kl . Water will be recycled via lined collection dam facilities.</p> <p>Surface run-off that ends-up in the dirty environment would be captured via a collection of trenches/canals and channeled to a evaporation pond (capacitykl) .</p>	H-	H-	H-	H-	H-	H-	H-	L-	L-	H-	H-		L-		H+	X

SCC

6

7

PHASE	Environmental Components	ABIOTIC										BIOTIC			VISUAL	SOCIO-ECONOMIC		
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic impacts	Affected parties	
Activity, Product or Service																		
6	Activity 14:																	
	The construction of temporary diesel tank storage facilities (bunded) as part of the contractor lay down site. (Capacity.....L) Environmental Components					ABIOTIC												
	Impacts	H-	H-	H-	H-	H-	H-	H-	L-	L-	H-	H-		L-	Archaeological & cultural sites	H+	H+	
	Activity, Product or Service																	
7	Activity 19:																	
	1) During initial site preparation operation the site will be surveyed and levelled for particular project (infrastructure) components (listed activities). This will involve vegetation clearance, topsoil/overburden removal & stockpiling at dedicated stockpile areas. 2) Dedicated quarries will be mechanically excavated for obtaining construction infill/backfill material (weathered overburden material). Prior to removal of material the topsoil need to be stockpiled in a dedicated stockpile next to the quarry. The material will be loaded onto trucks and transport to construction site where required for infilling, backfilling, terraces, benches, etc. 3) Surface run-off control trenches/canals/evaporation dam sites/culverts/energy dissipating structures, etc. need to be excavated/constructed.	H-	H-	H-	H-	H-	H-	L-	L-	L-	H-	H-		L-		H+ & -		

SCOPING REPORT FOR THE BRYPAAL SOLAR PROJECT (DRAFT)

PHASE	Environmental Components	ABIOTIC										BIOTIC			VISUAL	SOCIO-ECONOMIC		
	Impacts	Geology	Topography	Soil	Land capability	Land use potential	Surface water	Ground water	Air quality	Noise	Vegetation	Wildlife	Sensitive landscapes	Visual impact	Archaeological & cultural sites	Socio-economic impacts	Affected parties	
	Activity, Product or Service																	
8	Activity 28 = See activity 1 & 15 of GN 325																	
	GN R324: Description of project activity that triggers listed activity:																	
	Activity 1: During the construction phase information/ identification of the project/ safety information billboards/ safety warning signs will be provided on site.													L-				
	Activity 4: An access road will be constructed on site to give access to the contactors initially and eventually where required a permanent road on site for easy access during the operational phase of the PVSP project. An access road is also needed as along the border fence for security reasons and also act as a fire-break.	H-	H-	H-	H-	H-	H-		L-	L-	H-	H-		L-		H+		

KEY:

L- LOW
M-MEDIUM
H- HIGH
VH – VERY HIGH + POSITIVE - NEGATIVE

(viii) the possible **mitigation measures** that could be applied and level of residual risk;

Impacts Mitigation

Assuming an IPP project triggers the need for Basic Assessment (BA) or scoping environmental Impact Assessment (S&EIA) under the EIA regulations, included in the assessment process is the preparation of an environmental management programme (EMPr). Project-specific measures designed to mitigate negative impacts and enhance positive impacts should be informed by good industry practice and are to be included in the

EMP. An independent environmental assessment practitioner will be employed by the applicant to prepare the BA, S&EIR, and EMPr to applicable standards.

Potential mitigation measures for solar energy projects include but are not limited to:

- Conduct pre-disturbance surveys as appropriate to assess the presence of sensitive areas, fauna, flora and sensitive habitats;
- Plan visual impact reduction measures such as natural (vegetation and topography) and engineered (berms, fences, and shades, etc.) screens and buffers;
- Utilise existing roads and servitudes as much as possible to minimize project footprint;
- Site projects to avoid construction too near pristine natural areas and communities;
- Locate developments away from important habitat for faunal species, particularly species which are threatened or have restricted ranges, and are collision-prone or vulnerable to disturbance, displacement and/or habitat loss;
- Fence sites as appropriate to ensure safe restricted access;
- Ensure dust abatement measures are in place during and post construction;
- Develop and implement a storm water management plan;
- Develop and implement waste management plan; and
- Re-vegetation with appropriate indigenous species to prevent dust and erosion, as well as establishment of alien species.

NOTE: The **Environmental Management Programme (EMPR)** will summarise the potential impacts of various aspects of the development in all its stages, from construction, through operations to eventual decommissioning and closure, together with the appropriate mitigation measures to manage the identified impacts. Responsibilities for implementing the mitigation measures will be identified and the frequencies with which the results of the various measures are to be monitored will be stated.

The **EIR & EMPR** will be submitted to the CA within 106 or **156 days** of the acceptance of the scoping report.

(ix) the outcome of the **site selection matrix**;

(x) **if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and**

Preferred alternatives and location of PV Solar Project:	
	For more info , see also section h (i), page 30 of the document regarding the process up to now.
	<p>A total surface area of 1032 ha is available for the project.</p> <ul style="list-style-type: none"> • This more than enough as the PV project will probably require 400ha for the solar field and additional ±100ha for supporting infrastructure such as roads , buildings, etc. • Given the fact that sufficient surface area is available, alternative location of project infrastructure components could be best planned for. • <u>Planning need to take place with environmental limitations (if any) also in mind as identified in environmental specialist studies as part of the EIA.</u>
	Note: More info will be included, once the specialist studies have been completed.

(xi) a concluding statement indicating the **preferred alternatives**, including preferred location of the activity;

Preferred alternatives and location of PV Solar Project:	
	For more info , see also section h (i), page 30 of the document regarding the process up to now.
	<p>A total surface area of 1032 ha is available for the project.</p> <ul style="list-style-type: none"> • This more than enough as the PV project will probably require 400ha for the solar field and additional ±100ha for supporting infrastructure such as roads , buildings, etc. • Given the fact that sufficient surface area is available, alternative location of project infrastructure components could be best planned for. • <u>Planning need to take place with environmental limitations (if any) also in mind as identified in environmental specialist studies as part of the EIA.</u>
	<p>Note: More info will be included, once the specialist studies have been completed.</p>

DRAFT

PART 7

I) a plan of study for undertaking the environmental impact assessment process to be undertaken, including-

PLAN OF STUDY FOR THE EIA:

The description of the **environmental attributes** associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects (h (iv) give an indication of the scope work or plan of study, for the EIA.

The plan of study for undertaking the EIA process includes the following:

- (i) A description of the **technology alternatives** to be considered and assessed within the preferred site, including the option of not proceeding with the activity, as described in **section h (i)**;
- (ii) A description of the **aspects** to be assessed as part of the environmental impact assessment process;
- (iii) aspects to be assessed by specialists; **(See table below)**:

ITEMS	ASPECTS/ACTIVITIES/STUDIES/REPORTS	SPECIALISTS RESPONSIBLE
1	BASELINE/SPECIALIST ENVIRONMENTAL STUDIES REQUIRED:	
1.1	Geology description of the study area	BES
1.2	Soil description of the study area	BES
1.3	Topography of the study area	BES
1.4	Climate description of the study area	BES
1.5	Biodiversity assessment (fauna & flora survey) of the study area	BES
1.6	Geotechnical report of the study area	BES
1.7	Surface and ground water survey of the study area	EKO ENVIRONMENTAL
1.8	Application for water use licence (Boreholes, pipelines, reservoirs, etc.)	EKO ENVIRONMENTAL
1.9	Archaeological/human heritage study of the study area	BES
1.10	WULA; Integrated Water and Waste Management Plan	EKO ENVIRONMENTAL
1.11	Landuse & land capability study of the study area	BES
1.12	Socio-economic impact study of the PV Solar Project	
2	ENVIRONMENTAL AUTHORISATION REPORTS/DOCUMENTATION ETC.	
2.1	Compilation of the application for a EA documentation	BES
2.2	Compilation of an Scoping Report	BES
2.3	Conducting consultation with the I & AP's, Public, State	BES
2.4	Facilitating at public consultation meetings	BES
2.5	Compilation of the necessary consultation reports, response, minutes, adverts, etc.	BES
2.6	Compilation of the EIAR and EMPR for the project	BES

- (iv) A description of the **proposed method of assessing the environmental aspects**, including aspects to be assessed by specialists, see table below;
- (v) A description of the proposed method of assessing duration and significance.
(See table below)

ITEMS	ASPECTS/ACTIVITIES/STUDIES/REPORTS	Method of assessing the environmental aspects
1	BASELINE/SPECIALIST ENVIRONMENTAL STUDIES REQUIRED:	
1.1	Geology description of the study area	Site visit and reconnaissance survey followed by geological mapping, sampling, assays and will be described in a specialist report. The description is also being used in the geotechnical survey.
1.2	Soil description of the study area	Site visit and reconnaissance survey . Soil survey, sampling, assays and will be described in a specialist report. The description is also being used in the geotechnical survey.
1.3	Topography of the study area	Description of the topography of the study area has been done by using existing info sources such as topographical map 2920ab, Terrain morphological map of South Africa, satellite imagery (Google Earth), existing info from the ARC GIS maps, determine the average slope along several sections throughout the project focus area. The project site has been visited and terrain morphology verified (Slope measured with a clinometer. Photos have been taken of the site at several locations. The description will be spelled out in a specialist report.
1.4	Climate description of the study area	Description (literature, data) of the climate of the study area has been done by using existing info sources such as WB28, climatic data from the Weather SA for weather stations located the closest to the project focus area. Also using existing info from the ARC GIS maps, to describe the rainfall, temperature and evaporation climate variables. The description will be spelled out in a specialist report.
1.5	Biodiversity assessment (fauna & flora survey) of the study area	Site visit and reconnaissance survey .that will be followed by the listing of all vertebrate species, determining the distribution of species and determining the conservation significance of species and sites within the project area. An vegetation survey will be done and a specialist report will be compiled.
1.6	Geotechnical report of the study area	Test pit excavation will be done followed by profile description. Sampling will be done followed by laboratory assays and tests. Professional interpretation and review of results will be done and presented in a specialist report.
1.7	Surface and ground water survey of the study area	An surface and ground water survey will be done of the project focus area and the immediate surroundings.
1.8	Application for water use license (Boreholes, pipelines, reservoirs, etc.)	As been indicated the application for a water use license will be handled by EKO Environmental. Application forms and correspondence will be include in a report that will form part of the Integrated Water and Waste Management Plan.
1.9	WULA; Integrated Water and Waste Management Plan	

1.10	Archaeological/human heritage study of the study area	Site visit and reconnaissance survey will be done. The description will be spelled out in a specialist report.
1.11	Landuse & land capability study of the study area	Description (literature, maps) of the land use and land capability of the study area will be done by using existing info sources such as literature, maps, satellite imagery and also using existing info from the ARC GIS maps. The project site has been visited and land use verified. Photos have been taken of the site at several locations. The description will be spelled out in a specialist report.
1.12	Socio-economic impact study of the PV Solar Project	
2	ENVIRONMENTAL AUTHORISATION REPORTS/DOCUMENTATION ETC.	
2.1	Compilation of the application for a EA documentation	
2.2	Compilation of an Scoping Report	
2.3	Conducting consultation with the I & AP's, Public, State	
2.4	Facilitating at public consultation meetings	
2.5	Compilation of the necessary consultation reports, response, minutes, adverts, etc.	
2.6	Compilation of the EIAR and EMPR for the project	All specialist reports will eventually form part as appendices of the EIAR. The impact assessment component of the EIA is subdivided into several environmental aspects to be studied. BES will use a combination of in-house specialists and specialists to review the environmental aspects which will be assessed as part of the environmental impact assessment process. These environmental aspects will be updated, and site and technology specific impacts and mitigation recommendations will be made. The significance of the impacts will be assessed in terms of the methodology described.

(vi) an indication of the **stages at which the competent authority (CA) will be consulted;**

(vii) **particulars of the public participation process** that will be conducted during the environmental impact assessment process; and

Step:	Compilation of EIA Report & EMPR:
3	
3.1	DRAFT EIAR & EMPR subjected to public participation process of at least 30 days
3.2	Incorporate comments received and also of CA.
3.3	Submit notification in writing that the EIR & EMPR will be submitted within 156 days of the receipt of the application by the CA.- EIAR & EMPR subjected to another public participation process of at least 30 days
	Public participation during the impact assessment phase of the EIA will entail a review of the findings of the EIA, presented in the Draft EIA and EMP Reports. These reports will be made available for public comment. I&APs will be advised timeously of the availability of these reports and how to obtain them. Stakeholders will be encouraged to comment either in writing (mail or email) or by telephone. A I & AP stakeholder meeting will be held to discuss the impact assessment. Ample notification of due dates will be provided. All the issues, comments and suggestions raised during the comment period on the Draft EIA Report/EMP will be added to the Comment and Response Report (CRR) that will accompany the Final EIA Report/EMP . The Final EIA Report/EMP will be submitted to the CA for a decision about the proposed PV Solar project.
3.4	Within 106 or 156 days of the acceptance of the scoping report submit to the CA EIR & EMPR . If the scope of work must be expanded, which outcome could not be anticipated prior to the undertaking of the assessment, or in the event where exceptional circumstances can be demonstrated, the CA may, prior to the lapsing of the relevant prescribed timeframe, extend the relevant prescribed timeframe extension.
3.5	CA within 10 days acknowledges receipt of EIR & EMPR
4	Decision on the S & EIR application:
4.1	CA within 107 days of receipt of the EIR & EMPR grant or refuse authorization
4.2	The CA must, within 05 days notify the applicant of the decision
4.3	The applicant, within 08 days of the date of the decision, notify I&AP's of the decision and publish a notice and the applicant, within 08 days of the date of the decision, notify I&AP's of the decision and publish a notice draw the attention of all registered interested and affected parties to the fact that an appeal maybe lodged against the decision in terms of the National Appeals Regulations, if such appeal is available in the circumstances of the decision.

(vii) a description of the **tasks** that will be undertaken as part of the environmental impact assessment process;

S & EIR PROCESS	
1	Compilation of the Application for a Environmental authorization:
1.1	Submit Application form to CA (Competent Authority)
1.2	CA acknowledges application form within 10 days
1.3	CA should submit comments to applicant within 30 days
2	Compilation of Scoping Report:
2.1	Scoping report subjected to public participation process of at least 30 days
2.2	Submit Scoping Report (SR) to CA within 44 days receipt of the application by the CA
2.3	The CA, within 43 days of receipt of a scoping report accept or refuse the SR
3	Compilation of EIA Report & EMPR:
3.1	EIAR & EMPR subjected to public participation process of at least 30 days
3.2	Incorporate comments received and also of CA.
3.3	Submit notification in writing that the EIR & EMPR will be submitted within 156 days of the receipt of the application by the CA.- EIAR & EMPR subjected to another public participation process of at least 30 days
3.4	Within 106 or 156 days of the acceptance of the scoping report submit to the CA EIR & EMPR If the scope of work must be expanded, which outcome could not be anticipated prior to the undertaking of the assessment, or in the event where exceptional circumstances can be demonstrated, the CA may, prior to the lapsing of the relevant prescribed timeframe, extend the relevant prescribed timeframe extension.
3.5	CA within 10 days acknowledges receipt of EIR & EMPR
4	Decision on the S & EIR application:
4.1	CA within 107 days of receipt of the EIR & EMPR grant or refuse authorization
4.2	The CA must, within 05 days notify the applicant of the decision
4.3	The applicant, within 08 days of the date of the decision, notify I&AP's of the decision and publish a notice and the applicant, within 08 days of the date of the decision, notify I&AP's of the decision and publish a notice draw the attention of all registered interested and affected parties to the fact that an appeal maybe lodged against the decision in terms of the National Appeals Regulations, if such appeal is available in the circumstances of the decision.

(ix) identify **suitable measures** to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

	<p>The Environmental Management Programme (EMPR) will summarise the potential impacts of various aspects of the development in all its stages, from construction, through operations to eventual decommissioning and closure, together with the appropriate mitigation measures to manage the identified impacts. Responsibilities for implementing the mitigation measures will be identified and the frequencies with which the results of the various measures are to be monitored will be stated.</p>
	<p>Within 106 or 156 days of the acceptance of the scoping report submit to the CA EIR & EMPR</p>

DRAFT

PART 8

- j) an undertaking under oath or affirmation by the EAP in relation to-
- (i) the correctness of the information provided in the report;
 - (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties;
- and
- (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;
- (k) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;
- (l) where applicable, any specific information required by the competent authority; and
- (m) any other matter required in terms of section 24(4)(a) and (b) of the Act.

SEE UNDERTAKING ON NEXT PAGE:

UNDERTAKING

The EAP herewith confirms

- (i) The correctness of the information provided in the reports;**

- (ii) The inclusion of comments and inputs from stakeholders and I&APs;**

- (iii) The inclusion of inputs and recommendations from the specialist reports where relevant; and**

- (iv) That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.**

Signature of the environmental assessment practitioner/s:

BOSCIA ENVIRONMENTAL SOLUTIONS C.C.

Name of company:

Date: