MAINSTREAM RENEWABLE POWER SOUTH AFRICA

AMENDMENT APPLICATION TO THE ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED 75MW PLATSJAMBOK FARM (WEST) PHOTOVOLTAIC SOLAR ENERGY FACILITY, LOCATED NEAR PRIESKA IN THE SIYATHEMBA LOCAL MUNICIPALITY, PIXLEY KA SEME DISTRICT MUNICIPALITY IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA

Draft Part 1 Additional Information Report

DFFE Ref. No.: 12/12/20/2320/4
Issue Date: 18 October 2022
Revision No.:1
Project No.: 17690

Date:	18 October 2022
Document Title:	Amendment Application to the Environmental Authorisation for the Proposed 75mw Platsjambok Farm (West) Photovoltaic Solar Energy Facility, located near Prieska in the Siyathemba Local Municipality, Pixley Ka Seme District Municipality in the Northern Cape Province of South Africa – Draft Part 1 Additional Information Report
Author:	**Rendani Rasivhetshele** BSc (Hons) Environmental Management (UNISA) Reg. EAP (EAPASA) 2019/1729. Cand.Sci. Nat (SACNASP)
Version Number:	1
Checked by:	**Natalie Pullen** MSc Environmental Biotechnology (Rhodes University) Reg. EAP (EAPASA) (#2018/132)
Approved:	**Natalie Pullen** MSc Environmental Biotechnology (Rhodes University) Reg. EAP (EAPASA) (#2018/132)
Signature:	
For:	Mainstream Renewable Power South Africa

Confidentiality Statement

MAINSTREAM RENEWABLE POWER

AMENDMENT APPLICATION TO THE ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED 75MW PLATSJAMBOK FARM (WEST) PHOTOVOLTAIC SOLAR ENERGY FACILITY, LOCATED NEAR PRIESKA IN THE SIYATHEMBA LOCAL MUNICIPALITY, PIXLEY KA SEME DISTRICT MUNICIPALITY IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA

DRAFT PART 1 ADDITIONAL INFORMATION REPORT

Contents Page

List of Tables

List of Figures

List of Appendices

Glossary of terms

Archaeological resources: This includes:

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
  wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- Features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Alluvial: Resulting from the action of rivers, whereby sedimentary deposits are laid down in river channels, floodplains, lakes, depressions etc

Biodiversity: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

Cultural significance: This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Cumulative Impact: In relation to an activity, cumulative impact means the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

The "Equator Principles": A financial industry benchmark for determining, assessing and managing social & environmental risk in project financing

Environmental Impact Assessment: In relation to an application, to which Scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of the application.

Environmental Impact Report: In-depth assessment of impacts associated with a proposed development. This forms the second phase of an Environmental Impact Assessment and follows on from the Scoping Report.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

Ephemeral: When referring to a stream or drainage line, it refers to the flow characteristics by which only periodic surface flows typically occur. Similarly when referring to a pan or depression, this would be characterised by only periods of time when surface water occurs within it, usually associated with the rainy season.

Greenhouse gas: Gases (primarily carbon dioxide, methane, and nitrous oxide) in the earth's lower atmosphere that trap heat, thus causing an increase in the earth's temperature and lead towards the phenomenon of global warming.

Heritage resources: This means any place or object of cultural significance. See also archaeological resources above

Heritage Significance Grades:
a) Grade I: Heritage resources with qualities so exceptional that they are of special national significance;
(b) Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
(c) Grade III: Other heritage resources worthy of conservation,

Hydromorphic / hydric soil: Soil that in its undrained condition is saturated or flooded long enough during the growing season to develop anaerobic conditions favouring growth and regeneration of hydrophytic vegetation. These soils are found in and associated with wetlands.

Kilovolt (kV):a unit of electric potential equal to a thousand volts (a volt being the standard unit of electric potential. It is defined as the amount of electrical potential between two points on a conductor carrying a current of one ampere while one watt of power is dissipated between the two points).

Precipitation: Any form of water, such as rain, snow, sleet, or hail that falls to the earth's surface.

Red Data species: All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.

Renewable Energy: Energy which harnesses naturally occurring non-depletable sources of energy, such as solar, wind, hydro, tidal wave, ocean current and geothermal, or a combination of these energy types, to produce electricity.

Riparian: The area of land adjacent to a stream or river that is influenced by stream induced or related processes.

Scoping Report: An "issues-based" report which forms the first phase of an Environmental Impact Assessment process

Social change processes: Processes that are set in motion by project activities and policies. They take place independently of a social context and can lead to several other processes. Depending on the characteristics of the local social setting and mitigation process that are put in place, social change process can lead to social impacts (Vanclay and Slootweg, 2003).

Social impacts: The consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally live and cope as members of society. These impacts are felt at various levels, including individual level, family or household level, community, organisation or society level. Some social impacts are felt by the body as physical reality, while other social impacts are perceptual or emotional (Vanclay, 2002).

Stone Age: The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.
Early Stone Age 2 000 000 - 150 000 Before Present
Middle Stone Age 150 000 - 30 000 BP
Late Stone Age 30 000 - until c. AD 200

Sustainable Development: Integration of social, economic and environmental factors into planning, implementation and decision-making so as to providing for the needs of the present without impairing the ability of future generations to meet their own needs.

List of Abbreviations

AIA	Archaeological Impact Assessment
C&RR	Comments and Response Report
CPV	Concentrating Photovoltaic
BID	Background Information Document
DEA	Department of Environmental Affairs
DEIR	Draft Environmental Impact Report
DEAT	Department of Environmental Affairs and Tourism (currently known as DEA)
DSR	Draft Scoping Report
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
ENPAT	Environmental Potential Atlas
EP	Equator Principles
EPFI	Equator Principles Financial Institutions
EWT	Endangered Wildlife Trust
FEIR	Final Environmental Impact Report
FGM	Focus Group Meeting
FSR	Final Scoping Report
GHG	Greenhouse gas
GIS	Geographic Information System
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
IUCN	International Union for the Conservation of Nature and Natural Resources
IRP	Integrated Resource Plan
IUCN	International Union for the Conservation of Nature and Natural Resources
KSW	Key Stakeholder Workshop
kV	Kilo Volt
LSA	Late Stone Age
LM	Local Municipality
MAP	Mean Annual Precipitation
MW	Megawatt
MWp	Megawatt peak
NCDTEC	Northern Cape Department of Tourism, Environment and Conservation
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)

NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NERSA	National Energy Regulator of South Africa
NGO	Non-Government Organisations
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NSD	Potential Noise-Sensitive Development
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PM	Public Meeting
PPA	Power Purchase Agreement
PPP	Public Participation Process
PSRs	Potentially Sensitive Receptors
PV	Photovoltaic
REFIT	Renewable Energy Feed-In Tariff
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SAWS	South African Weather Service
SIA	Social Impact Assessment
SKA	Square Kilometre Array
WESSA	Wildlife and Environment Society of South Africa

MAINSTREAM RENEWABLE POWER

AMENDMENT APPLICATION TO THE ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED 75MW PLATSJAMBOK FARM (WEST) PHOTOVOLTAIC SOLAR ENERGY FACILITY, LOCATED NEAR PRIESKA IN THE SIYATHEMBA LOCAL MUNICIPALITY, PIXLEY KA SEME DISTRICT MUNICIPALITY IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA

DRAFT PART 1: ADDITIONAL INFORMATION REPORT

1 INTRODUCTION

1.1 Background

South Africa Mainstream Renewable Power Platsjambok West (Pty) Ltd (hereafter referred to as Mainstream) was issued with an Environmental Authorisation (EA) for the proposed 75MW Platsjambok West Photovoltaic (PV) Solar Energy Facility (SEF), located near Prieska in the Siyathemba Local Municipality, Pixley ka Seme District Municipality in the Northern Cape Province of South Africa on September 2012 (DFFE Reference No.: 12/12/20/2320/5).

Subsequent to the issuing of the original EA in September 2012, the following amendments have been undertaken and granted for the authorised SEF:

- The EA was amended on 19 of June 2015 to extend the validity period of the EA and to change the contact details of the EA holder (DFFE Reference No.: 12/12/20/2320/5/AM1).
- The EA was amended on 11 of August 2017 to extend the validity period of the EA and to change the contact details of the EA holder (DFFE Reference No.: 12/12/20/2320/5/AM2).
- The EA was amended on 17 of August 2020 to extend the validity period of the EA and contact details of the holder of the EA (DFFE Reference No.: 12/12/20/2320/5/AM3).
- The EA was amended on 11 of September 2020 to extend the validity period of the EA and contact details of the holder of the EA (DFFE Reference No.: 12/12/20/2320/5/AM4).
- The EA was amended on 21 May 2021 to split the EA into two portions, the IPP portion (DFFE Reference No.: 12/12/20/2320/5/1).
- The EA was amended on 21 May 2021 to split the EA into two portions, the Eskom portion (DFFE Reference No.: 12/12/20/2320/5/2).

The Platsjambok West Photovoltaic (PV) Solar Energy Facility is to be constructed on the Remainder of Platsjambok Farm No 102

The following infrastructure have been authorised by the DFFE:

- Solar PV facility with a capacity to generate 75MW
- The panel arrays of approximately 15m x 4m in the area
- Office and maintenance buildings
- Internal access roads
- Cabling to connect PV arrays to DC to AC inverters
- On-site 33/132kV IPP sub-station
- 132kV overhead power lines to connect to an existing power line that traverses the site or Kronos sub station (i.e. three power lines authorised but only one will be constructed)

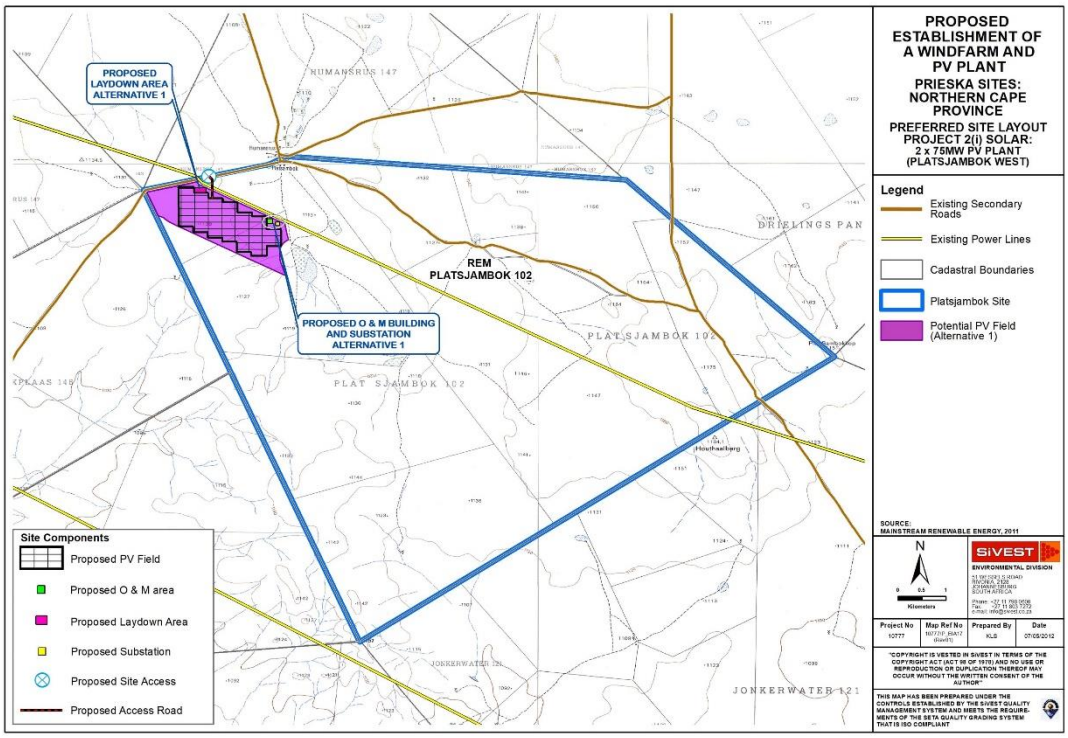

Figure 1: Proposed Platsjambok Farm wind and solar project

1.2 Motivation

The key motivating factor for the request to amend the EA validity period, is to ensure that the applicant has a project that is compliant with the requirements of the Department of Mineral Resources and Energy ("DMRE") (previously the Department of Energy) Renewable Energy Independent Power Producer Procurement ("REIPPP") Programme. Due to various reasons, outside of the Applicant's control, the planned announcements and roll-out of bidding rounds have not occurred as previously planned for. As a result, the REIPPP Programme has been delayed, resulting in the project not yet being selected as a preferred bidder, further necessitating the need for the EA validity period to be extended.

Extension of the validity of the EA will ensure that the EA remains valid for the undertaking of the authorised activities such that the project can be bid into future bidding rounds of the REIPPP Programme or similar programmes.

Between 2011 and 2015, 302 bids were submitted in support of the REIPPP Programme with around 30% (92) of the projects being awarded. Following these bid rounds, there was a significant delay in the signing of Power Purchase Agreements by Eskom, and as a result no further bid rounds were opened between 2015 and 2021. It is well understood that the nature of this bidding process is highly competitive, and that bid windows have been planned for 2023. However, there is some uncertainty around the planned bid window submission and award dates, and as has been shown in the past, these dates may change at short notice, and impact on the Applicant's ability to participate in the process, as this EA validity as it currently stands lapses in 2022.

For this reason, application is being sought to extend the current validity of the EA.

1.3 Expertise of Environmental Assessment Practitioner

SiVEST has considerable experience in the undertaking of Environmental assessments, including amendments processes. Staff and specialists who have worked on this project and contributed to the compilation of this report are detailed in Table 1 below.

Table 1: Project Team

Name and Organisation	Role
Natalie Pullen – SiVEST Environmental Division	Project Leader
Rendani Rasivhetshele – SiVEST Environmental Division	Report compilation
David Hoare – David Hoare Consulting	Biodiversity (Flora and Fauna)
Chris van Rooyen – Chris van Rooyen Consulting	Avifauna
Bruce Scott-Shaw – NatureStamp	Surface water
Johann Lanz – Johann Lanz	Soils and Agricultural Potential
Kerry Schwartz – SLR	Visual
Wouter Fourie – PGS Heritage	Heritage
Lloyd McFarlane - ACER (Africa) Environmental Consultants	Social
Duan Swart - GaGE Consulting	Geotechnical
Ntuthuko Hlanguza – SiVEST Civil Engineering Division	Transportation
Siphiwokuhle Buthelezi – SiVEST Environmental Division	GIS and Mapping
Hlengiwe Ntuli – SiVEST Environmental Division	Public participation

2 BASELINE STATUS OF THE RECEIVING ENVIRONMENT ASSESSED THROUGH THE EIA PROCESS (EIA REPORT 2012)

The Northern Cape Province is considered to be one of the most suitable regions for solar energy facilities. Accordingly, land portions located outside of Prieska have been identified as a potential site. A general description of the study area is outlined in the sections below.

2.1 Locality

The proposed PV plant will be established on the following land portion:

- Remainder of the Farm Platsjambok No.102, Prieska (7 238.42 hectares)

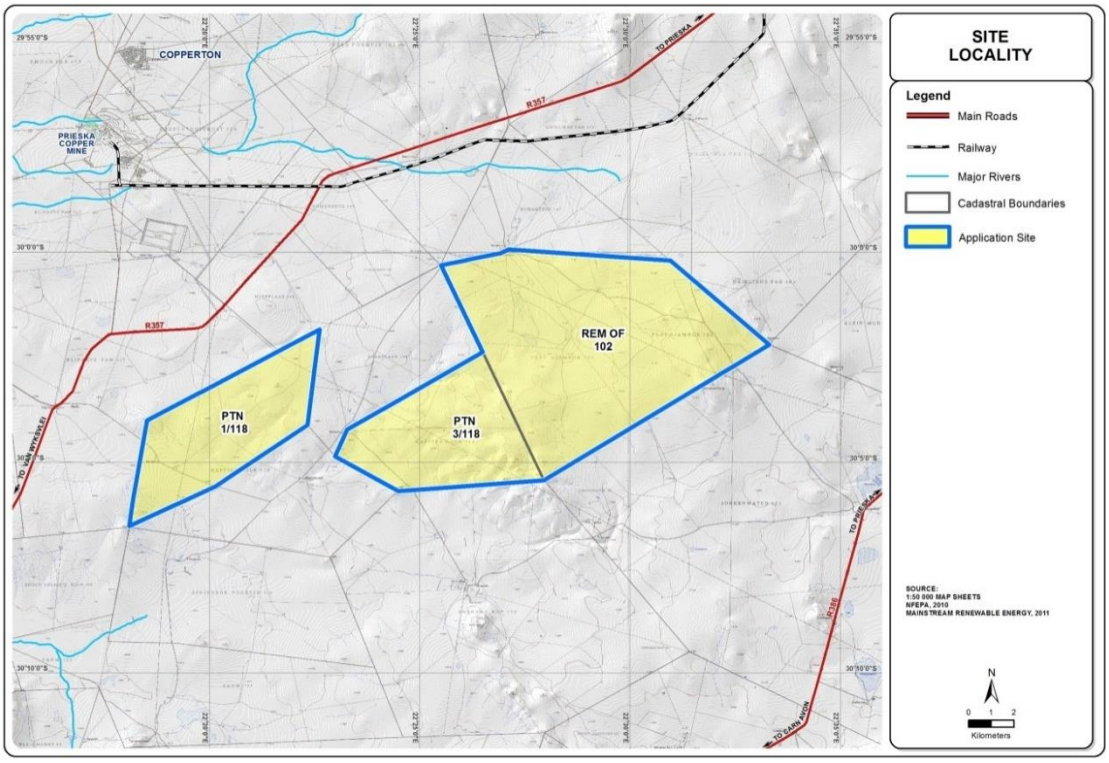

Figure 2: Site locality map

The study area is situated approximately 45km south-west of Prieska and is accessed via the R357 and R386 respectively (Figure 3). The site is located within the Northern Cape District Management Area 07 (NCDMA) of the Pixley ka Seme District Municipality of the Northern Cape Province. The District Management Area surrounds the Siyathemba Local Municipality which has thus been included in the greater study area.

The town of Prieska is situated south of the Orange River at the foot of the Doringberg. It is accessible from the N10 highway (south out of Kimberley).

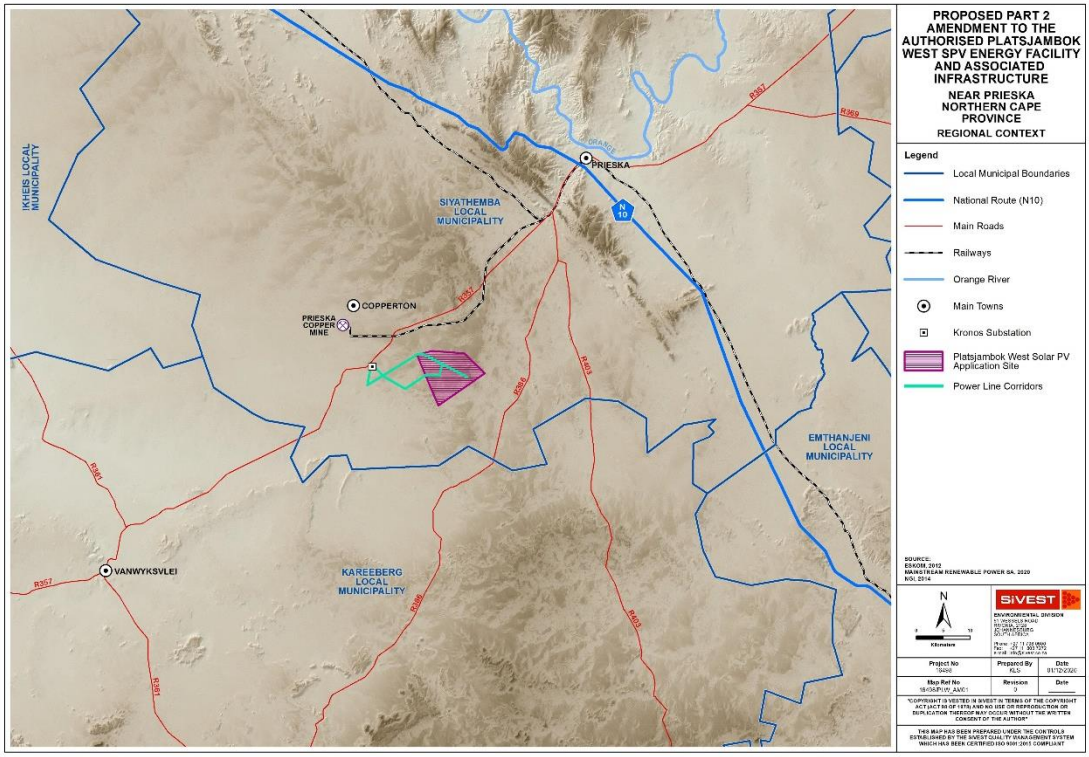

Figure 3: Regional locality map

2.2 Study Area Description

The site proposed for the development is approximately 7168.66 ha in size of which a smaller area will be required for the establishment of the proposed photovoltaic plant.

The study area is dominated by relatively short natural shrub land, which is used as general grazing land for sheep, with no sign of formal agricultural fields or cultivation. The area within and surrounding the proposed site is largely vacant with a relatively low human footprint in the form of scattered farmsteads. The closest built-up area (approximately 15km to the north-west) is the small mining town of Copperton and the defunct Prieska Copper Mine, which was closed in 1996 (**Error! Reference source not found.**). Other built form includes transmission and distribution power lines which traverse the study area and a network of gravel access roads both within the boundaries of the site and in the surrounding area.

The topography within and surrounding the site is characterised by generally flat landwith an average gradient of less than 10%, as well as some slightly more undulating relief in the form of low ridges and koppies in the south-eastern part of the site on the farm Platsjambok. Although no priority river or stream systems are located on the site, several drainage lines prevail in the western half of the study area and seven wetlands have been identified. The size and number of wetlands relative to the size of the proposed study area is however, small and few respectively.

2.3 Climate

The study area has an arid continental climate with a summer rainfall regime i.e. most of the rainfall is confined to summer and early autumn. Mean Annual Precipitation (MAP) is approximately 242 mm of rain per year, with most of it occurring during autumn,with the highest amount being received in March and the lowest in July ((Figure 4). The Mean Annual Precipitation (MAP) is approximately 205 mm per year. Prieska typically experienceshot days and cold nights with the average summer temperature of approximately 33ºC and the average winter night time temperatures of approximately 1˚C (**Table 2**).

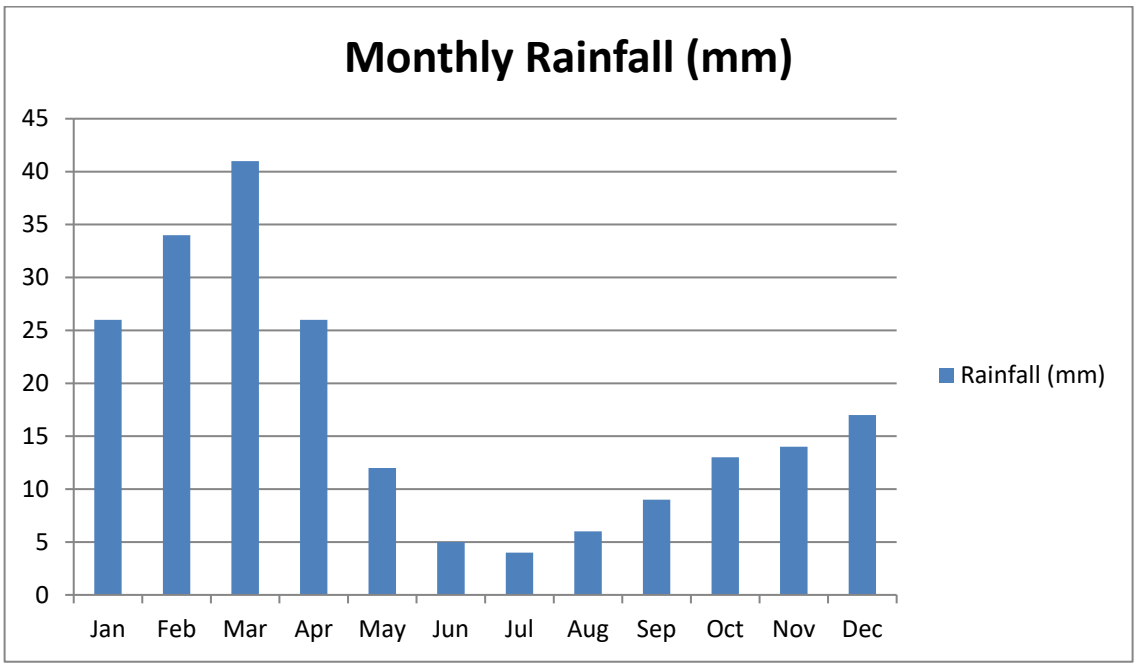

Figure 4: Mean Monthly Rainfall Graph for Prieska (Source: South Africa's Rain Atlas)

Table 2: Mean monthly and annual temperature for Prieska (Source: http://www.saexplorer.co.za)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Avg
Midday Temp (°C)	33	31	29	25	22	18	18	21	24	27	30	32	26
Night Temp (°C)	17	16	13	10	5	2	1	4	7	10	13	15	9

2.4 Geology

The study area is underlain by a variety of parent materialsincluding quartzite, sedimentary and tillite. Tillite is however, the most dominate geologic material and underlies the entire western and central portions of the site. Tillite consists of consolidated masses of unweathered blocks and unsorted glacial till. Quartzite, a medium grained metamorphic rock, underlies the eastern portions

of the larger adjoining area and is formed from recrystallised sandstone with the fusion of sedimentary quartz grains. Non-descript sedimentary geologic materials are found in the northern portion of the eastern area.

2.5 Biodiversity (Flora & Fauna)

The original Biodiversity Assessment was preivoulsy conducted by SiVEST, as well as an Avifauna Assessment. The environmental baseline from a biodiversity perspective is presented below.

2.5.1 Habitats

Faunal populations are dependent on the flora that supports them therefore assumptions regarding the presence of fauna can be made based on the flora present. The study area is very uniform in nature with characteristic Nama Karoo shrubland.

- Acacia *mellifera-Stipagrostis* shrubland

The north eastern part of the site is characterised by grassy plans dominated by *Stipagrostis* species. This area contains the Shepherds Tree / Stink Bush (*Boscia foetida subsp foetida*) and the tree layer is dominated by *Acacia mellifera*.

- Asteraceae (daisy) dominated "bossieveld"

The majority of the study area is dominated by this vegetation and is characterised by low bushes mostly of the Asteraceae or daisy family. Grasses are present in these areas but are scarce. Patches of *Rhigozum trichotomum* are present where the sandy soils suit the species.

- Grassy pans

Some local depressions are present which have developed into pans. Although they hold water very seldom they are unique in relation to the surrounding areas. Grass diversity is not exceptional and *Stipagrostis* species dominate.

- Avifauna Habitat Types

The land use and land cover in the study area presents a number of avifaunal habitats that occur. These are described in more detail below.

    - Rocky Karoo scrubland plains

This is the predominant natural habitat type that occurs across most of the study area. Very low Karoo-type scrubveld vegetation characterised by a very low density of vegetation occurs on very flat to gently undulating plains (Figure 5). These plains are often very rocky, with a sparse density of open ground, with very little grass cover, appear to be very important for the game bird species on the site as both Korhaan species and the Ludwig's Bustards recorded on the site were mostly

encountered in this habitat type. They are also inhabited by a number of smaller bird species typically encountered in such vegetation all over the Karoo.

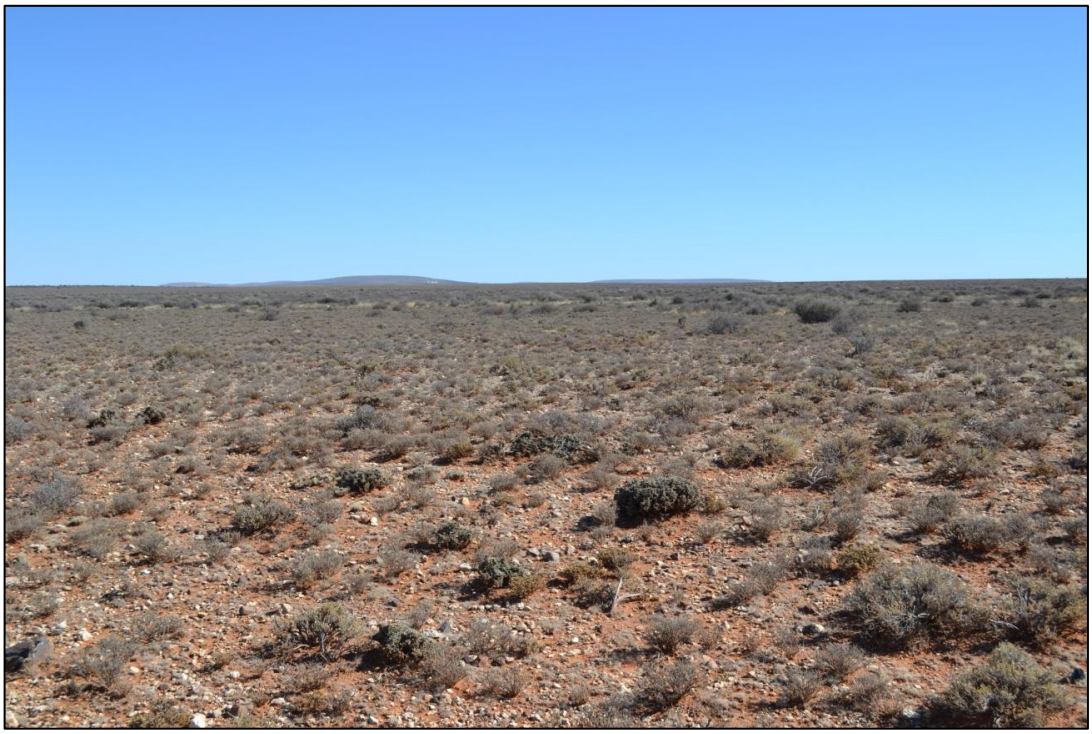

Figure 5: Rocky Karoo scrubland plains on the site

- Sandy Bushmanland grassy shrubland

This habitat type appears to be exclusively associated with areas of sandy soils. These sandy soils appear to be of alluvial origin, and provide suitable rooting areas for a few grass species that occur, including a few *Stipagrostis* species and some *Eragrostis* species. Karoo-type scrubs also occur in this habitat type, but are typically larger in size than the scrubs found on the above habitat type. There is typically a much greater vegetation cover in this habitat type. These sandy grassy plains also appear to be well-utilised by both Korhaan species encountered on the site, as well as a similar range of smaller bird species typical of the Karoo.

Figure 6: Example of sandy grassy scrubveld on the site

- Low quartzite ridges

As described above, the low quartzite ridges occur exclusively in the eastern-most part of the Platsjambok component of the development site (Figure 7). These occur as very low, linear features. Importantly however, the presence of extensive bedrock outcropping on these ridges has allowed the proliferation of *Acacia melifera* shrubs, as well as a reasonable number of Shepherds Trees (*Boscia foetida*). This natural habitat has the most diverse avifaunal life, with a number of mostly passerine species encountered (especially where the rocky ridges intersect ephemeral drainage lines along which similar vegetation is present).

Figure 7: Acacia melifera shrubs on a quartzite ridge

- Ephemeral Drainage lines

A number of ephemeral drainage lines are present across the site, especially in the southern parts of the site. In places these drainage lines are no more than a poorly defined valley bottom with no discernible vegetation change, but some drainage lines are characterised by taller shrubs that the surrounding Karoo plains, and are thus important. Due to this factor, the drainage lines are likely to support a slightly higher density of bird species, similar in composition to the quartzite ridges.

- Grassy Pans

A few grassy pans occur in the northern part of the Platsjambok part of the site (Figure 8). The pans are exclusively grassy in nature with very little scrub coverage. While relatively uniform in terms of vegetation cover, they appear to support a few species that are not commonly found in other parts of the site (e.g. African Quail Finch & Desert Cisticola).

Figure 8: A grassy pan on the site

- Farmsteads

A number of farmsteads occur on the development site and within the wider area. Although artificial, these farmsteads and their associated gardens (which comprise of mostly exotic tall trees and shrub species) are a very important habitat for a number of bird species due to the availability of water, cover, nesting areas and likely improved food availability as compared to the surrounding arid areas. The presence of these “oases” is likely to have allowed the expansion of a number of bird species into the area which did not historically or naturally occur in the area (such as the

Hadeda Ibis). These areas are also very well-utilised by a number of small bird species, as well as the most common raptor in the area, the Pale Chanting Goshawk, probably due to the increased occurrence of rodent and reptile prey species around these areas as well as suitable roosting and hunting perches.

- Feedlots

Feedlots where sheep are provided with food and water (as well as being fenced in at night) are another important bird habitat in the area, although artificial and limited in spatial size. The easy availability of water in drinking troughs, and food in numerous forms attracts many bird species to these areas, in particular doves, Lark-like Buntings and a number of canary species. In places these feedlots are characterised by the presence of higher shrub-type vegetation and trees than the surrounding areas (probably due to the increased availability of ground water), thus attracting other bird species such as scrub-robins and tit-babblers.

- Other human infrastructure

Although not a habitat as such, other human-related infrastructure that occurs in the study area is very important for a number of bird species, particularly as roosting, perching and even nesting areas. Two power line routes traverse the site, and these power lines are well-utilised by a number of species for perching and roosting, including Pied Crows, and some raptor species In addition telephone lines occur along most roads in the area. These are important as perching areas for a number of species, including the raptor species present as well as the Spotted Eagle-Owl. Importantly the larger telephone lines that are located along the R357 road have been utilised by Sociable Weavers to construct their massive communal nests(Figure 9). These birds were only observed within a certain proximity of their nests (nests were also observed along the power lines in the eastern part of the site). Due to the non-availability of natural nesting areas (such as on mature camel thorn trees which do not occur in the study area), it is thought to be likely that these birds have extended their range southwards into this area. The disused mining infrastructure to the west of the site may well provide suitable roosting and nesting opportunities for a number of bird species.

Figure 9: A sociable weaver nest on a telephone pole

2.5.2 Transformation

The study area currently operates as a functioning grazing farm and the associated impacts are present. The larger study area can however be considered to be intact due to the low sheep carrying capacity.

2.5.3 Flora in the study area

The vegetation types in question have approximately seven (7) endemic species.

The vegetation types on the site are described as Bushmanland Basin Shrubland and the Bushmanland Arid Grassland. These fall within the Nama Karoo Biome.

The Bushmanland Basin Shrubland vegetation type is characterised by low shrubs species which include: *Aptosimum spinescens*, *Hermannia spinosa*, *Pentzia spinescens, Zygophyllum microphyllum* and *Aptosimum elongatum*. It is considered to be Least Threatened and none of it is conserved in statutory conservation areas (Mucina, *et al,* (2006).

The Bushmanland Arid Grassland vegetation type is characterised by graminoids such as *Aristida adscensionis, A. Congesta* and *Eragrostis nindensis*; small trees such as *Acacia mellifera*, and *Boscia foetida*; tall shrubs namely *Lycium cinereum, rhigozum trichotomum* and *Cadaba aphylla*as well as low shrubs such as *Aptosimum spinescens, Hermannia spinosa* and *pentzia spinescens*.

2.5.4 Fauna in the study area

Friedman and Daly, (2004) list several red data mammal species that could potentially occur in the study area. The Honey Badger (*Mellivora capensis*) and the Littledale's Whistling Rat (*Parotomys littledalei*) both listed as Near Threatenedare likely to occur in the study area. On the other hand, the Black Rhinoceros (*Diceros bicornis bicornis*) which is listed as Critically Endangered, the Lesueur's Wing-gland Bat *Cistugo lesueuri* and Geoffroy's Horseshoe Bat *Rhinolophus clivosus* which are Near Threatened, along with several other recorded mammal species are not likely to occur in the study area due to the anthropogenic activities that have taken place.

Amphibians have been recorded for the study area however these are likely to be present near water courses. The study area is extremely dry and the presence of amphibians is unlikely.

Several reptile species are likely to be present and these are listed below.

2.5.5 Mammals

Various mammal species are likely to occur within the study area. Appendix 2 of the biodiversity Assessment Report comprisesof a list of mammals that are likely to occur in study area with the assigned level of threat facing each particular species. A map was used to correlate the occurrence of the Red Data species with their approximate occurrence within the study area. According to Friedman & Daly, (2004), the majority of species within the study area are listed as species of least concern. As mentioned above, the Honey Badger (*Mellivora capensis*) and the Littledale's Whistling Rat (*Parotomys littledalei*) which are both listed as Near Threatenedare likely to occur in the study area.

Several other species distribution fall across the site however anthropogenic activities such as farming and road development have led to the decrease or absence of these species.

- Field assessment results

During field assessments, several specimens of the Striped Mouse (*Rhabdomys pumilio*) (**Figure 10**) were captured and released.

Figure 10: Striped Mouse (*Rhabdomys pumilio)*

Yellow mongoose (*Cynictis penicillata*),scrub hares (*lepus saxatilis*) and ground squirrels (*Xerus inauris*) were common on the farms. Evidence of larger burrowing mammals was very evident in the more sandy areas, mostly associated with the ridge area. Species present include the Aardvark (*Orycteropus afer*), Porcupines (*Hysterixafricaeaustralis*) and Bat eared foxes (*Octocyon megalotis*).

Figure 11: Aardvark excavation on the site

According to the landowners, the Black footed cat (*Felis nigripes*) is fairly common on the site. The species is considered to be vulnerable and is listed as such on CITIES. Care must be taken to avoid any breeding sites.

Trapping success of small mammals was low generally perhaps due to the low cover which is typical of the Nama Karoo Biome where although vegetation grows on rich soils, plant growth is limited by climate. Cover is among the most important factors that influence small mammal abundance and richness. This is because unlike open habitats which increase predation risk (Kotler, 1997), habitats with cover provide protection againstpredators (Asher *et al.,* 2004; Keller & Schradin, 2008). According to Silva *et al.,*(2005), open habitats exhibit low mammal diversity due to reduced cover (which provides food and resources) hence leading to lower fecundity (Grant *et al.,* 1982). Therefore, greater species abundance and richness are expected in areas that exhibit dense cover.

Furthermore, sheep grazing observed within the study area influences the existence of small mammals in the area. Although in terms of grazing, the farm where the proposed site is situated is well managed in that rest periods are allowed between camps, it is predicated that grazing has an impact on small mammal richness and abundance to some degree. According to Bergstrom (2004), the presence of livestock has a negative effect on both small mammal species richness and abundance. Moreover small mammals can be seen as indicators of environmental conditions (Linzey & Kesner, 1997). This is because changes in the environment due to heavy grazing leads to changes in the habitats for small mammals therefore affecting their abundance, survival and breeding success (Dooley & Bowers, 1996). In the North American rangelands, trampling and grazing have been shown to reduce the lower vegetation cover for small animals hence increasing their exposure to predators (Grant *et al.,* 1982; Birney et al., 1976; Edge *et al.,* 1995). In addition trampling may affect the burrowing substrate for the rodents (Bergstrom, 2004).

2.5.6 Amphibians

Of all amphibian species previously recorded in the study area, only the Giant Bullfrog (*Pyxicephalus adspersus*) is categorised as Near threatened. Other amphibian species previously recorded in the study area are not threatened (Du Preez and Carruthers, 2009). It is important to note that although the Giant Bullfrog and other amphibians are recorded in the study area, they are not likely to occur. This is because the study area is extremely dry with very little rainfall and amphibian numbers are expected to be very low. The table below indicates the species that have been previously recorded.

Table 3: Amphibian species in the study area

Scientific name	Common name	Category
Amietophrynus gutturalis	Guttural Toad	Not threatened
Vandijkophrynus gariepensis	Karoo Toad	Not threatened
Cacosternum boettgeri	Boettger's Caco	Not threatened
Amietia fuscigula	Cape River Frog	Not threatened
Amietia angolensis	Common River Frog	Not threatened
Pyxicephalus adspersus	Giant Bullfrog	Near threatened
Xenopus laevis	Common Platanna	Not threatened
Tomopterna tandyi	Tandy's Sand Frog	Not threatened

2.5.7 Reptiles

Several reptile species are present in the study area. Table 4 highlights these species (Branch 1998). According to the current Red Data information, none of these species are currently Red Listed (McLachlan, 1978). The Red Data book is currently being updated.

Habitat for these species is currently available.

Table 4: Reptiles in the study area

Common name	Scientific name
Tent tortoise	*Psammobates tentorius*
Delalande's Beaked Blind Snake	*Rhinotyphlops lalandei*
Schinz's Beaked Blind Snake	*Rhinotyphlops schinzi*
Brown House Snake	*Lamprophis fuliginosis*
Mole snake	*Pseudoaspis cana*
Dwarf Beaked Snake	*Dipsina multimaculata*
Karoo Sand Snake or Whip Snake	*Psammophis notostictus*
Namib Sand Snake	*Psammophis leightoni*
Common or Rhombic Egg Eater	*Dasypeltis scabra*
Beetz's Tiger Snake	*Telescopus beetzii*
Coral Snake	*Aspidelaps lubricus*
Cape Cobra	*Naja nivea*
Puff adder	*Bitisarietansarietans*
Horned adder	*Bitis caudalis*
Cape skink	*Mabuya capensis*
Western Three-stripped Skink	*Mabuya occidentalis*
Western Rock Skink	*Mabuya sulcata*
Variegated skink	*Mabuya variegata*
Spotted Desert Lizard	*Meroles suborbitalis*
Cape Sand Lizard	*Pedioplanis laticeps*
Spotted sand lizard	*Pedioplanis lineoocellata pulchella*
Namaqua Sand Lizard	*Pedioplanis namaquensis*
Karoo girdled lizard	*Cordylus polyzonus*
Ground Agama	*Agama aculeata*
Southern Rock Agama	*Agama atra*
Giant Ground Gecko	*Chondrodactylus angulifer*
Bibron's Thick-toed Gecko	*Pachydactylus bibronii*
Cape Thick-toed Gecko	*Pachydactylus capensis*
Marico Thick-toed Gecko	*Pachydactylus mariquensis mariquensis*
Unspecified	*Pachydactylus purcelli*

Common name	Scientific name
Common Barking Gecko	*Ptenopus garrulus*

2.5.8 Avifauna

- Occurrence of Red Data bird species in the study area

A number of Red Data species could potentially occur within the development site. These are listed below. The table lists the conservation status of the species.

Table 5: Red Data bird species in the study area

Species	***Scientific Name***	**Conservation Status**	**Recorded on the site?**
Common name	**Scientific name**	**Category**	
African White-backed Vulture	*Gyps africanus*	Vulnerable	
Secretarybird	*Sagittarius serpentarius*	Near Threatened	Y
Tawny Eagle	*Aquila rapax*	Vulnerable	
Martial Eagle	*Polemaetus bellicosus*	Vulnerable	
Lanner Falcon	*Falco biarmicus*	Near Threatened	
Lesser Kestrel	*Falco naumanni*	Vulnerable	
Blue Crane	*Anthropoides paradiseus*	Vulnerable	
Kori Bustard	*Ardeotis kori*	Vulnerable	
Ludwig's Bustard	*Neotis ludwigii*	Vulnerable	Y
Sclater's Lark	*Spizocorys sclateri*	Near Threatened	Y
Red Lark	*Certhilauda burra*	Vulnerable	

- Occurrence of Bird Species as recorded on the site (SABAP2 Data)

Two site visits were undertaken to the project site during which birds were recorded. The following table lists the birds that were recorded on the site and the habitat in which they were recorded. Although not all habitats were covered during both visits, and in spite of the two visits not being sufficient to draw seasonal conclusions relating to the distribution of birds, the table below provides a reasonable indication of the distribution of bird species recorded across the various habitats on the site. These species were recorded as part of the South African Bird Atlassing Project (SABAP2). At the time of writing the submissions made by the author were the only submissions made for the pentads within the study area with one exception, thus the list below should be taken as the birds recorded on the site as part of the SABAP2 project.

Table 6: Bird species recorded on site

Common Name	*Scientific Name*	Habitat Type in which Species was Recorded						
		Karoo Plains	Sandy Scrubveld	Grassy Pans	Quertzite Ridges	Farmsteads	Feedlots	Human Infrastr.
Common Ostrich		X						
Hadeda Ibis	*Bostrychia hagedash*					X	X	
Egyptian Goose	*Alopochen aegyptiacus*							
Secretarybird	*Sagittarius serpentarius*	X						
Black-chested Snake-Eagle	*Circaetus pectoralis*	X						X
Southern Pale Chanting Goshawk	*Melierax canorus*	X			X	X	X	X
Greater Kestrel	*Falco rupicoloides*	X	X					X
Pygmy Falcon	*Polihierax semitorquatus*							X
Helmeted Guineafowl	*Numida meleagris*	X				X		
Ludwigs Bustard	*Neotis ludwigii*	X						
Karoo Korhaan	*Eupodotis vigorsii*	X		X				
Northern Black Korhaan	*Afrotis afraoides*	X	X	X				
Blacksmith Lapwing	*Vanellus armatus*					X		
Spotted Thick-knee	*Burhinus capensis*	X						
Double-banded Courser	*Rhinoptilus africanus*		X					
Namaqua Sandgrouse	*Pterocles namaqua*	X						
Speckled Pigeon	*Columba guinea*					X	X	
Cape Turtle-Dove	*Streptopelia capicola*					X		
Laughing Dove	*Streptopelia senegalensis*					X		

Common Name	*Scientific Name*	Habitat Type in which Species was Recorded						
		Karoo Plains	Sandy Scrubveld	Grassy Pans	Quertzite Ridges	Farmsteads	Feedlots	Human Infrastr.
Namaqua Dove	*Oena capensis*	X			X	X	X	
Spotted Eagle-Owl	*Bubo africanus*					X		X
Common Swift	*Apus apus*					X		
White-rumped Swift	*Apus caffer*					X		
Little Swift	*Apus affinis*	X				X		
African Palm-Swift	*Cypsiurus parvus*					X		
White-backed Mousebird	*Urocolius indicus*					X		
Red-faced Mousebird	*Urocolius indicus*					X		
European Roller	*Coracias garrulus*							X
Acacia Pied Barbet	*Tricholaema leucomelas*				X	X		
Eastern Clapper Lark	*Mirafra fasciolata*	X	X					
Fawn-coloured Lark	*Calendulauda africanoides*		X		X			
Sabota Lark	*Calendulauda sabota*	X	X		X			
Karoo Long-billed Lark	*Certhilauda subcoronata*				X			
Spike-heeled Lark	*Chersomanes albofasciata*	X	X		X			
Red-capped Lark	*Calandrella cinerea*	X						
Sclaters Lark	*Spizocorys sclateri*	X					X	
Large-billed Lark	*Galerida magnirostris*	X	X				X	
Grey-backed Sparrowlark	*Eremopterix verticalis*	X		X			X	
Barn Swallow	*Hirundo rustica*	X	X	X	X	X	X	X
Greater Striped Swallow	*Hirundo cucullata*					X	X	X
Rock Martin	*Hirundo fuligula*					X		

Common Name	*Scientific Name*	Habitat Type in which Species was Recorded						
		Karoo Plains	Sandy Scrubveld	Grassy Pans	Quertzite Ridges	Farmsteads	Feedlots	Human Infrastr.
Pied Crow	*Corvus albus*	X						X
African Red-eyed Bulbul	*Pycnonotus nigricans*					X		
Mountain Wheatear	*Oenanthe monticola*				X			
Capped Wheatear	*Oenanthe pileata*	X					X	
Familiar Chat	*Cercomela familiaris*		X			X		
Tractrac Chat	*Cercomela tractrac*	X						
Anteating Chat	*Myrmecocichla formicivora*	X	X		X			
Karoo Scrub-Robin	*Cercotrichas coryphoeus*		X		X	X	X	
Kalahari Scrub-Robin	*Cercotrichas paena*				X	X	X	
Chestnut-vented Tit-Babbler	*Parisoma subcaeruleum*				X		X	
Long-billed Crombec	*Sylvietta rufescens*		X			X		
Desert Cisticola	*Cisticola aridulus*		X	X				
Grey-backed Cisticola	*Cisticola subruficapilla*	X	X				X	
Black-chested Prinia	*Prinia flavicans*	X	X		X	X	X	
Rufous-eared Warbler	*Malcorus pectoralis*	X	X		X			
Chat Flycatcher	*Bradornis infuscatus*	X						X
Fiscal Flycatcher	*Sigelus silens*		X			X		
Pririt Batis	*Batis pririt*				X	X	X	
Cape Wagtail	*Motacilla capensis*					X		
African Pipit	*Anthus cinnamomeus*	X						
Common Fiscal	*Lanius collaris*				X		X	

Common Name	*Scientific Name*	Habitat Type in which Species was Recorded						
		Karoo Plains	Sandy Scrubveld	Grassy Pans	Quertzite Ridges	Farmsteads	Feedlots	Human Infrastr.
Bokmakierie	*Telophorus zeylonus*	X	X		X		X	
Dusky Sunbird	*Cinnyris fuscus*						X	
White-browed Sparrow-Weaver	*Plocepasser mahali*				X	X		
Sociable Weaver	*Philetairus socius*	X	X			X		X
Sparrow House	*Passer domesticus*					X		
Cape Sparrow	*Passer melanurus*	X				X	X	
Southern Grey-headed Sparrow	*Passer diffusus*						X	
Scaly-feathered Finch	*Sporopipes squamifrons*	X					X	
Southern Masked-Weaver	*Ploceus velatus*		X		X	X		
Red-billed Quelea	*Quelea quelea*	X	X			X		
Southern Red Bishop	*Euplectes orix*	X						
African Quailfinch	*Ortygospiza atricollis*			X				
Red-headed Finch	*Amadina erythrocephala*					X	X	
Black-throated Canary	*Crithagra atrogularis*					X		
Yellow Canary	*Crithagra flaviventris*						X	
White-throated Canary	*Crithagra albogularis*	X					X	
Lark-like Bunting	*Emberiza impetuani*	X				X	X	

- Occurrence of Priority Bird Species

A number of priority species were identified during the site visits; these are listed below. Species recorded in the wider area have been included as these could easily move onto the site of the proposed development. These include the following:

- Secretary bird
- Black-chested Snake Eagle
- Southern Pale Chanting Goshawk
- Greater Kestrel
- Pygmy Falcon
- Karoo Korhaan
- Northern Black Korhaan
- Ludwig's Bustard
- Namaqua Sandgrouse
- Eastern Clapper Lark
- Karoo Long-billed Lark
- Fawn-coloured Lark
- Sclater's Lark

Figure 12: Karoo Korhaan recorded near the development site

As described above the two korhaan species encountered on the site as well as the Ludwig's Bustard were encountered almost exclusively in the Karoo scrubveld plains, and to a lesser degree in the sandy scrubveld. The latter species as well as the Karoo Korhaan were only sited on the Karoo scrubveld plains while the Northern Black Korhaan appeared to have a wider habitat tolerance. In the case of the Ludwig's Bustard, this is potentially important in terms of the impact of the proposed development, as most of the site is covered by the habitat in which it occurs and thus would be affected by the proposed development.

Most of the raptors recorded, as well as the owls recorded were observed on man-made infrastructure, especially telephone poles and power lines. Due to the natural absence of trees in the landscape, raptors appear to have adapted and appear to use telephone poles and power lines as important perches for hunting. This suggests that when they occur in the study area, most raptors would inhabit areas where such suitable perches / roosting places are present, such as along roads and power line servitudes. Information provided by local farmers suggests that when vultures do occur (occasionally) in the study area, they are observed to move along the large power line servitude that runs across the development site. The record for the Greater Kestrel on the Platsjambok site was for a pair that was observed around a nest on one of the wooden power line towers. Nests of Pied Crows were observed in similar locations and even on the Mierdam wind monitoring mast. Power line towers are thus important for nesting; the proposed construction of another power line between the Kronos and Kuprum Substations, if developed, would further enhance nesting opportunities. Thus, power line and telephone line servitudes should be viewed as important areas for raptor occurrence in the study area.

Figure 13: Black-chested Snake-Eagle perched on a roadside telephone pole south-west of the Klippan Farmstead along the R357

The most common resident raptor in the study area is the Pale Chanting Goshawk. These birds were observed all over the study area, with pairs having well-defined territories. Like most of the other raptors these birds were typically observed along telephone lines and to a lesser degree along the power lines in the area. Pairs were often observed in close proximity to farmsteads.

A number of lark species were observed to undertake the aerial displays, including the Eastern Clapper Lark, Karoo Long-billed Lark and Sabota Lark. These species have differing habitat preferences; the Eastern Clapper Lark is by far the most widespread and common lark in the study

area and is found all over the site in natural habitats. The Sabota Lark has similar diverse habitat tolerances, but tends to favour areas of thicker and bushier vegetation. Lastly the Karoo Long-billed Lark is very habitat-specific and is only encountered in areas of rocky ground on the site, i.e. the on the low quartzite ridges. All of these species undertake high aerial displays, often rising to significant heights above the ground.

It is important to note that no specific flight paths of birds were noted on the site, although it must be remembered that no detailed pre-construction avifaunal monitoring has been undertaken. There are no large or permanent open water bodies on the site, thus there is no movement of water birds to and from the site from the direction of the Orange River to the north, where most water birds would be likely to be concentrated. The korhaans and bustards on the site were not observed to fly to and from the site, and these birds were only observed in flight when flushed. The only birds observed on site that are likely to undertake a daily flight to and from the site are Barn Swallows. It is expected that the Barn Swallows in the local area roost in the nearest suitable habitat – i.e. the reedbeds along the Orange River. These birds would leave these roosts at dawn, flying out to their foraging areas, and returning at dusk. This is seemingly supported by the appearance of Barn Swallows on the site approximately 45 minutes to an hour after sunrise on the site during the December field trip when the swallows were present.

2.5.9 Bats

- Species probability of occurrence

Table 7: Species that may be roosting on the study area, the possible site specific roosts, and their probability of occurrence.LC = Least Concern; NT = Near Threatened; V = Vulnerable; DD = Data Deficient (Monadjem*et al.*, 2010).

Species	Common name	Probability of occurrence	Conservation status	Possible roosting habitat to be utilised on study area
Eidolon helvum	Straw coloured fruit bat	Very Low - None	LC	A non breeding migrant
Rhinolophusclivosus	Geoffroy's horseshoe bat	Low	LC	Roosts gregariously in caves, no known caves close to the study site.
Rhinolophusdarlingi	Darling's horseshoe bat	Medium	LC	Roosts gregariously in caves and rock hollows, and culverts.
Rhinolophusdenti	Dent's horseshoe bat	Medium	DD	Caves, hollows, mines, culverts. Well in distribution,

				but roosting space may be limited.
Nycteris thebaica	Egyptian slit-faced bat	**High**	LC	Cavities, aardvark burrows, and culverts under roads. Any suitable hollows.
Tadarida aegyptiaca	Egyptian free-tailed bat	**Confirmed**	LC	Crevices, buildings, very adaptable and very common.
Miniopterus natalensis	Natal long-fingered bat	Low	**NT**	Roosts gregariously in caves, no known caves close to the study site.
Eptesicus hottentotus	Long-tailed serotine	Medium	LC	Crevice dweller and in buildings. Rock crevices limited on site.
Neoromiciacapensis	Cape serotine	**High**	LC	Under bark of trees and roofs of buildings, very common and adaptable.

- Bat detection and route scouting

Very few bat calls (2 in total) were recorded during vehicle based monitoring within the site (**Figure 12**). Physical scouting (**Figure 15**), as well as searches of Google Earth images of the site revealed that the site is void of any meaningful roosting opportunity for bats. A few sources of open water were detected using Google Earth searches of the site but these are likely not significant enough to attract bats from the closest roosting site which are likely in Copperton and Prieska. The lack of bat activity during monitoring can probably be attributed to the lack of roosting space and open drinking water available on site. The lack of bat activity at this site should not be considered a permanent trend since bat activity can vary greatly on a seasonal basis due to insect availability. Even if bats do not use this site for regular foraging, possible seasonal migrations of bats may cause bats to fly through the site.

Figure 14: Bat species and activity detected during vehicle monitoring on site, showing very low levels of activity. Orange circles indicate where Egyptian free-tailed bats (*Tadaridaaegyptiaca*) where detected.

Figure 15: Typical topography of site showing lack of roosting opportunities for bats.

2.6 Surface Water

The environmental baseline from a surface water perspective is presented below.

The study area falls within a part of South Africa's Nama Karoo Region that is highly arid. Average Rainfall is extremely low – at an average of around 135mm MAP for the two vegetation types found on the site (Mucina and Rutherford, 2006). Coupled with the very high average temperatures during the day time over most of the year and the Mean Annual Soil Moisture Stress (i.e. the % of days when evaporative demand is more than the soil moisture supply) of 86%, there are thus naturally very few surface water features on the site, as surface water is not a significant factor in terms of the geomorphology of the landscape.

The terrain of the site is typically very flat with wide, very gently undulating plains occurring across much of the site. This terrain is derived from the underlying geology, which comprises of sedimentary geology (Ecca Shales) and tillite in the areas in which the plains are encountered. Only in the far eastern part of the Platsjambok part of the site is the terrain different, due to a different underlying substrate in the form of quartzite. Here a series of low quartizitic ridges occur in a wider context of slightly more undulating terrain. The nature of the terrain over most of the site has implications for surface water drainage on the site. Most of the site is very poorly drained, and parts of the site are endorehic (inward draining). A few pans exist in the northern parts of the Platsjambok site that are highly characteristic of this type of drainage. Over the rest of the site where drainage lines typically occur they are very shallow and poorly defined in cross-sectional profile, rather than being incised. The nature of rainfall entails that they are ephemeral and episodic in nature, i.e. only flowing on very rare occasions when sufficient rainfall occurs to generate sufficient surface runoff. In a few places, these watercourses have been dammed in an attempt to trap any surface overflow, but these are not common in the context of the site.

Due to the low amount of rainfall and ability of soils on the site to remain saturated for any amount of time, there are no hydric soils that are found on the site. Hydric soils are soils found in wetlands, display a number of morphological characteristics that are derived from periods of saturation, during which the soils become denuded of oxygen, thus initiating certain chemical and morphological characteristics that define these soils. The soils found the pans were found to not be hydric in nature.

In terms of vegetation, the pans on the site are characterised by grassy vegetation (mainly *Stipagrostis sp* – Bushmans grass), with the vegetation cover being very good. As the pans are not characterised by saturated soils, there is no hydromorphic vegetation within them. The extensive vegetation cover within the pans and the presence of grass species rather than dwarf shrubs is indicative of a slightly higher soil moisture content as compared to the surrounding soils.

Figure 16: Photograph showing grassy vegetation in part of the pan

Vegetation in the drainage lines typically differed little from the surrounding scrubveld, with little divergence in terms of species composition and even vegetation size, with very little larger vegetation. Unlike many drainage lines in the Karoo, the drainage lines are typically un-impacted by the invasive *prosopis sp.*

2.7 Agricultural Potential and Soils

The Agricultural Potential Assessment was previously conducted by SiVEST. The environmental baseline from anagricultural potential and soil perspective is presented below.

2.7.1 Agricultural Potential

Agricultural potential is described as an area's suitability and capacity to sustainably accommodate an agricultural land use with this potential being benchmarked against crop production. By taking all the site characteristics (climate, geology, land use, slope and soils) into account the agricultural potential for the majority of the study area is classified as being extremely low for crop production while moderately low for grazing. This poor agricultural potential rating is primarily due to restrictive climatic characteristics and soil depth limitations. The site is not classified as high potential nor is it a unique dry land agricultural resource.

The farms which constitute the assessment area for this project are currently used as extensive grazing land for free range sheep production (Figure 17). Stocking rates are estimated at around 1

SSM (small stock unit) per 8 hectares. Water is the major limiting factor to local agricultural enterprises and the proposed development area does not contain nor border a perennial river / freshwater impoundment which could be used as a source of irrigation water.The site does not currently accommodate any centre pivots, irrigation schemes or active agricultural fields. Seasonal pans tend to have the highest grazing potential due to the increased plant available water. Drinking water for the animals is sourced from groundwater resources.

Figure 17: A typical flock of sheep grazing on the Prieska Site

2.7.2 Soil Characteristics

According to the ENPAT database the Prieska site is dominated by apedal soil types (Figure 18). Apedal soils lack well formed peds other than porous micro-aggregates and are weakly structured. Apedal soils tend to freely drained and due to overriding climate conditions these soils will tend to be Eutrophic (high base status). The study area is classified as having an effective soil depth, depth to which roots can penetrate the soil, of less than 0.45 m deep which is a limiting in terms of sustainable crop production (Figure 19).

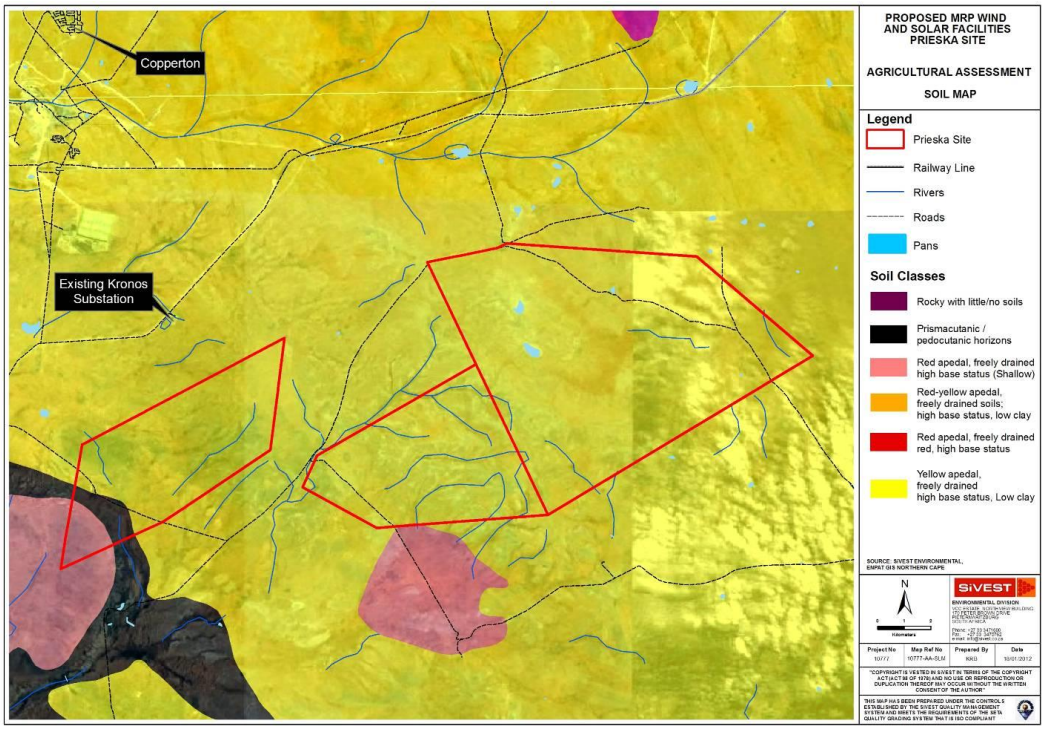

Figure 18: Broad soil type map

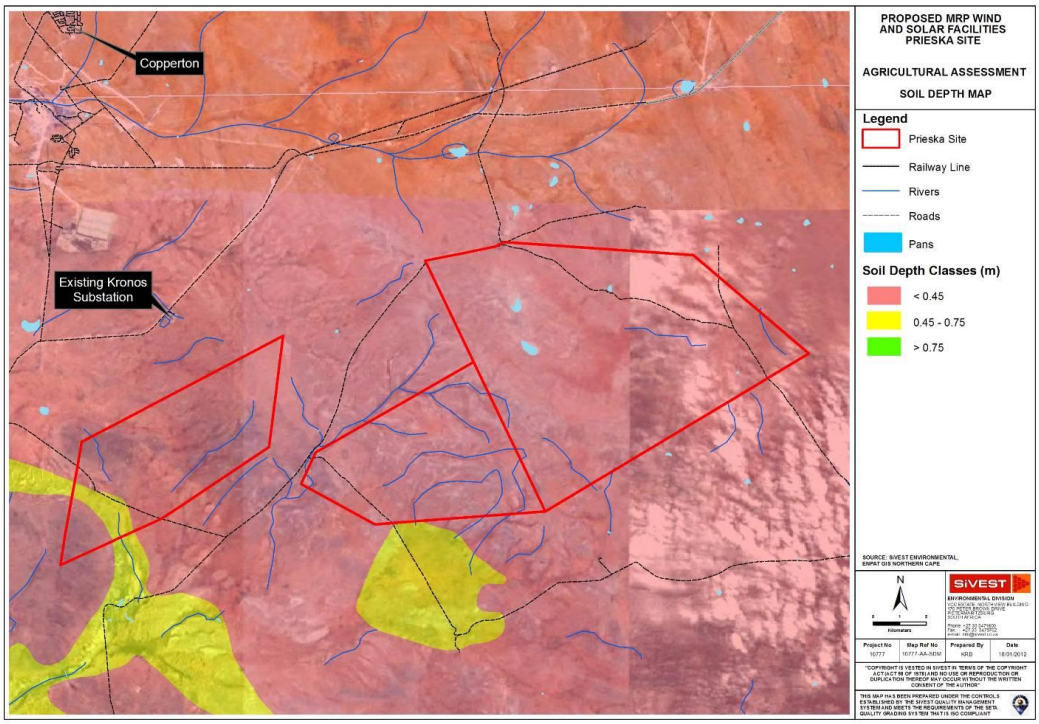

Figure 19: Soil depth map

The ENPAT Database also provides an overview of the study area's agricultural potential based on its soil characteristics, it should be noted this spatial dataset does not take prevailing climate into account. Restrictive climate characteristics, due to the strong summer rainfall regime, moisture stress and low winter temperatures will further reduce the agricultural potential of the area under assessment. The study area is dominated by soils which are not suited for arable agriculture Figure 20) mainly due to the shallow effective rooting depth.

- Soil Survey and Field Characteristics

Due to the size of the site (12 853ha) local agricultural activities (unimproved grazing land) and the nature of the proposed activities, an exploratory soil survey was performed.The soils identified on the development site are predominantly calcic, rocky and shallow with a low agricultural potential. Rocky and shallow calcic soils (Coega Form) cover most of the surveyed area (Figure 20). Virtually all the soils encountered on site contained at least one layer that was limiting to plant growth and these layers included Lithocutanic, hard rock and hard pan carbonate. The soils' properties identified during the field verification reflect the arid climate in which they were formed.

The location and description of the sample points were used to create a verified soil map showing homogeneous soil bodies (Figure 20). Combining the effective depth information (i.e. depth to root limiting layer) and Inverse Distance Weighting one is able to obtain a generalised soil depth for the PDA (Figure 21). Soils with an effective depth of greater than 50 cm were rarely observed during the soil survey with most soils exhibiting an effective soil depth of less than 30 cm.

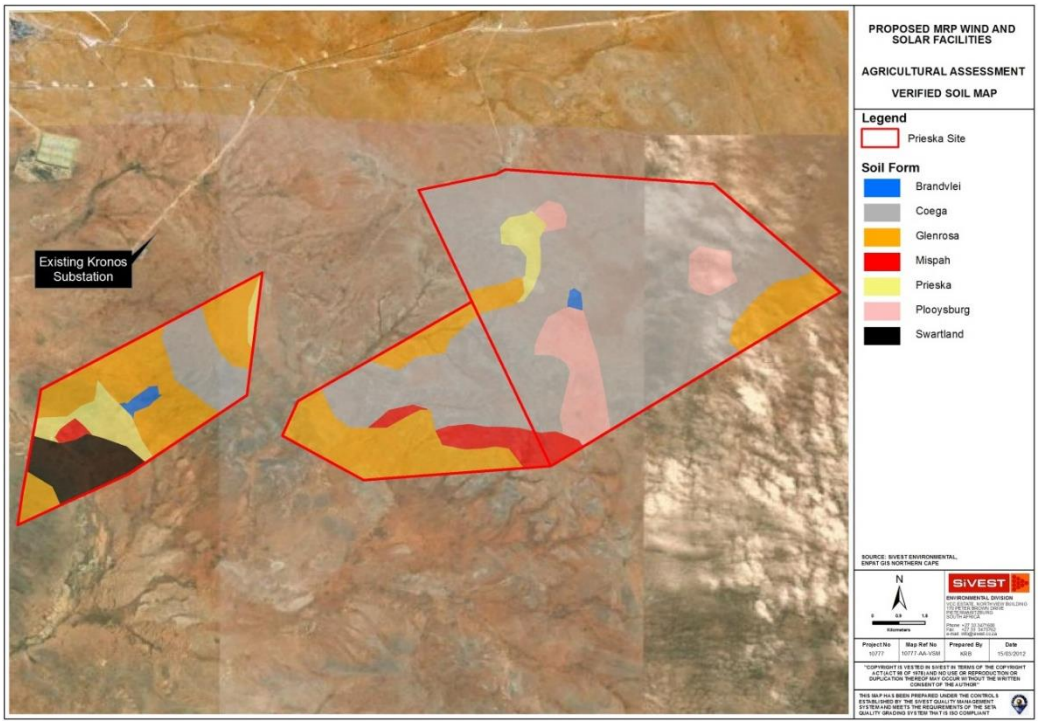

Figure 20: Verified Soil Map for the Prieska Sites

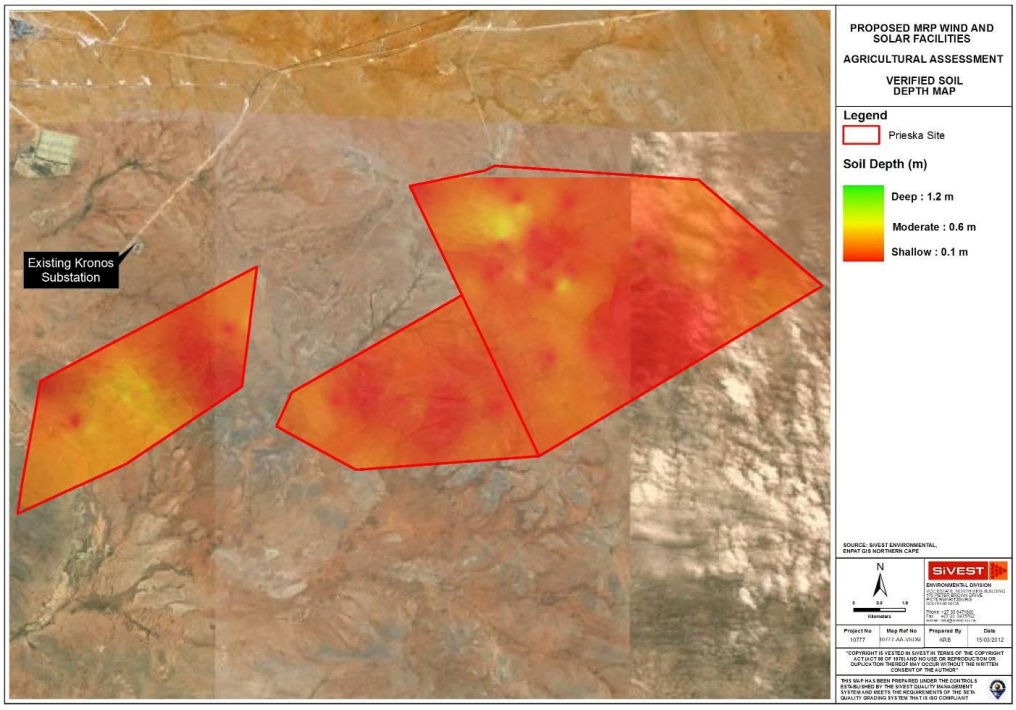

Figure 21: Verified Soil Depth Map

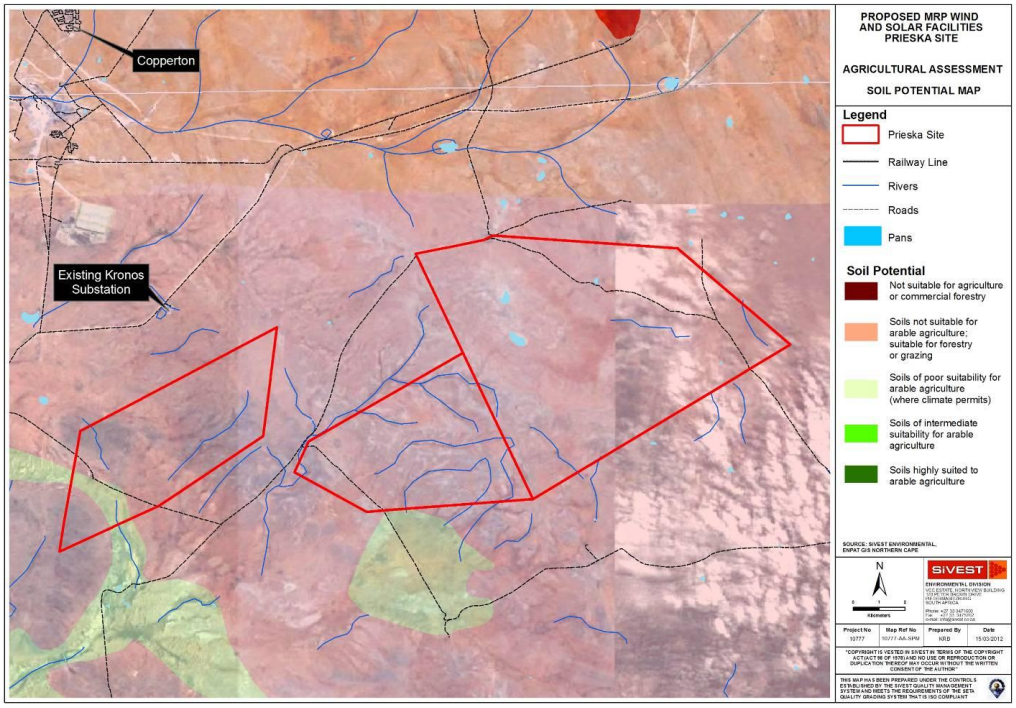

Figure 22: Soil Potential Map

2.7.3 Verified Agricultural Potential

Overall agricultural potential is based on assessing a number of inter-related factors including climate, topography, soil type, soil limitations and current land use. In this area climate is the overriding and foremost limiting factor to sustainable agricultural production. The combination of low rainfall and an extreme moisture deficit means that sustainable arable agriculture cannot take place without some form of irrigation. The site does not contain nor is it bounded by a reliable surface water irrigation resource and the use of groundwater for this purpose does not seem agriculturally and economically feasible. This is due to the high cost of borehole installation and the sheer volume of water required for irrigation purposes.

As mentioned above, shallow lithic and calcic soils (Coega Form) cover most of the total survey area. Virtually all the soils encountered had a layer that was limiting to plant growth and are very susceptible to erosion. Effective soil depth rarely exceeded 50 cm. A map indicating agricultural potential in terms of crop production for site is provided Figure 23. The majority of the site has been classified as having low potential for crop production due to an arid climate and highly restrictive soil characteristics. The site isnot classified in terms of registering a high agricultural potential and they are not a unique dry land agricultural resource. The site is considered to have a moderately low value when utilised as grazing land, its current use.

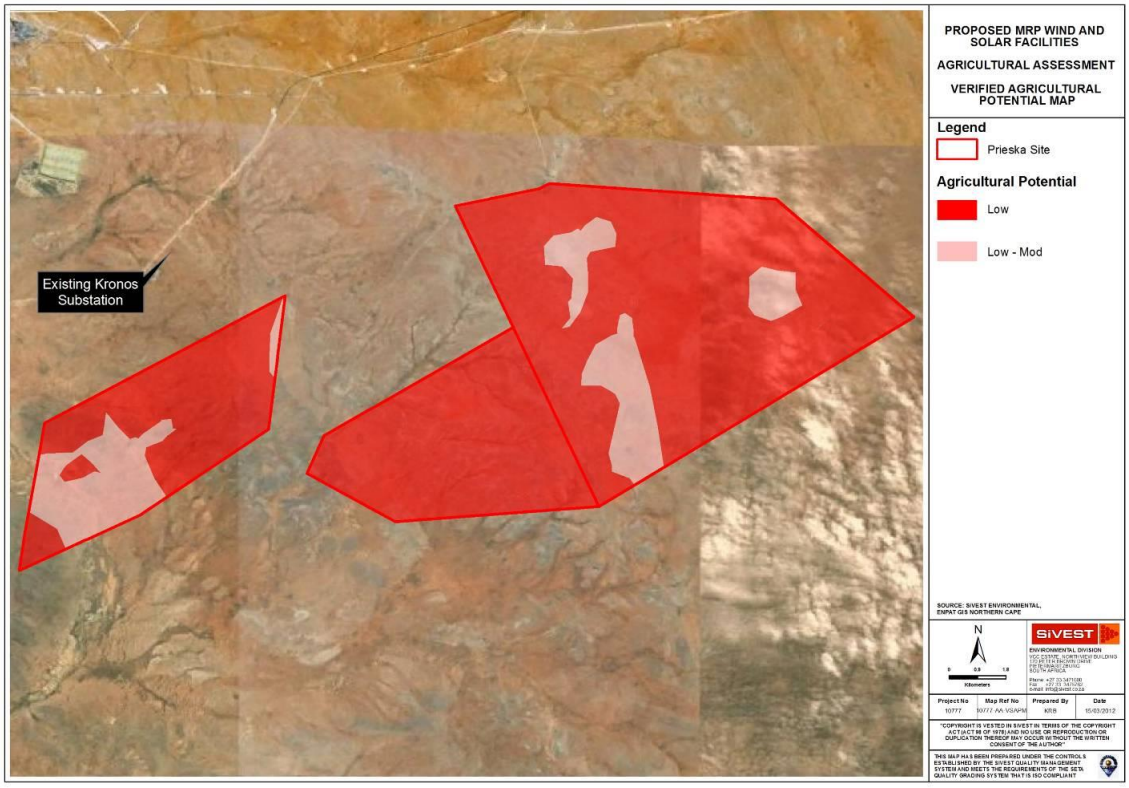

Figure **23**: Agricultural Potential Map

2.8 Visual

The Visual Assessment was conducted by SiVEST. The environmental baseline from a visual perspective is presented below.

2.8.1 Physical Landscape and Land Use related Characteristics of the Study Area

Descriptions of the physical landscape characteristics of the study area, namely, topography, vegetation cover and land use, are included below as part of its visual characterisation.

The topography in the wider study area around the site is characterised by a mix of very flat plains (typical of much of the Karoo), as well as areas of slightly more undulating relief, including some low ridges on the farm Platsjambok and a number of isolated low koppies. This generally flat relief engenders wide vistas, especially from higher-lying ground.

The natural vegetation comprises of very low scrub vegetation due to the natural aridity of the area. Vegetation on the plains typically comprises of very low shrubs, being very small in size in areas of stony ground and being slightly higher (to around 500mm) in areas of sandier soils. Only in very limited areas on the study site, including along some ephemeral drainage lines, and along some of the low ridges and koppies in the area does the slightly larger vegetation occur. In these areas, black thorn shrubs (*Acacia mellifera*) of up to 2-3m in height occur sparsely, especially on rocky ground. In certain areas, man has had an impact on the natural vegetation, especially around farmsteads, where over many years tall trees and other typical garden vegetation have been established. Around certain farmsteads, little 'plantations' of prickly pear cacti have been established. In areas where this artificial vegetation has been established, the vegetation can be effective in blocking views.

Due to the highly arid nature of the area's climate, livestock rearing (of sheep) is the predominant rural land use in the wider area. As such, the natural vegetation has been retained across the vast majority of the study area, and the landscapes have retained a very mostly natural character, as described in more detail below.

The nature of the climate and corresponding land use which entails that stocking densities are low has resulted in relatively large farm properties across the area, thus the area has a very low density of rural settlement, with only a handful of scattered farmsteads occurring across the area.
Built form in the parts of the study area where livestock rearing occurs is thus limited to isolated farmsteads, gravel access roads, ancillary farm buildings, telephone lines, fences and the remnants of old workers' dwellings.

In some parts of the study area, a greater human influence is visible, in the form of mining infrastructure and electricity transmission infrastructure. Close to Copperton (to the west of the development site), the infrastructure associated with a now-defunct mine still exists, with the headgear, as well as an old slimes dams being prominent landmarks. Current mining is present to the east of the development site along the R386 road where salt is being mined from a large salt pan. As indicated in the overall study area orientation map above, there are a number of large

power lines that bisect the site, and two large substations (Kronos and Cuprum) occur with a density of high steel structures.

- Visual Implications

Due to the topographical and vegetative characteristics of the area, a viewer in the study area will have a general impression of a natural, rural where there are wide-ranging vistas over the flat to very gently undulating terrain that are constrained very little by the vegetation. The generally low degree of human habitation and obvious impact on the landscape level thus engenders the area with a largely natural, rural feel. The flat terrain entails that the horizon is usually very flat and visible across an entire 360^{o}arc of the viewer. The limited effect of vegetation in screening the horizon and sky to the viewer adds to this natural feel.

In areas where the topography is gently undulating, vistas can be restricted if the viewer is located within one of the very gentle valleys. Low ridges can be somewhat effective in enclosing and restricting the viewshed of a viewer especially if the viewer is close to the foot of the ridge. Conversely if the viewer is located on higher ground, then the vista 'opens up', with views extending to distant relief. This is illustrated well if one considers the vistas that are visible to the people driving south along the R386 to the south of the site. In the vicinity of the Vrede farmstead, the road runs alongside the base of a low ridge that is effective in blocking views to the east of the road. Only where the road rises up onto higher ground to the south–west do is the motorist presented with views of the surrounding areas, including the site and the higher ground around Platsjambok koppie.

The generally wide ranging vistas have implications for the visibility of the power-generation infrastructure that is proposed to be located on the development site – large structures such as the solar fields would be highly visible from most parts of the study area.

2.8.2 Visual Character and the importance of the Karoo Cultural Landscape

As has been explained above, the physical and land use-related characteristics of the study area contribute to its visual character. Visual character is also influenced by the presence of built infrastructure such as buildings, roads and other objects such as electrical infrastructure. Visual character can be defined based on the level of change or transformation from a completely natural setting, which would represent a visual baseline in which there is little evidence of human transformation of the landscape. This is not to say that landscapes transformed by man are necessarily visually degraded, as many landscapes and visual settings around the world are a product of hundreds or even thousands of years of human influence, and thus represent a perceived 'natural visual baseline'. Varying degrees of human transformation of a landscape would engender differing visual characteristics to that landscape, with a highly modified urban or industrial landscape being very different to a largely natural undisturbed landscape.

Built infrastructure within most of the study area is limited to a low density of gravel access roads, boundary fences, very few farm buildings and other farming infrastructure such as windmills, as well as much larger-scale infrastructure such as mining infrastructure as well as power lines and substations. As explained above, the low density of human settlement and associated low level of

change to the natural environment engenders the area with a largely natural visual character which can best be described as a rural or pastoral visual character, however with an element of human (industrial) influence.

The only spatial divergence from this mostly rural character is in the immediate area within and surrounding the small settlement of Copperton, where a cluster of houses occurs. The settlement and has an urban visual character, which means that it is characterised more by anthropogenic objects (such as buildings and roads) than natural features. However, it should be noted that the very small extent of the settlement and the immediate transition into scrublands on its boundary entails that it does not really stand out as an area with a different visual character.

The greater study area can thus be considered to be typical of a Karoo or "platteland" landscape that would typically be encountered across the high-lying dry western and central interior of South Africa. Much of South Africa's dry Karoo interior consists of wide open, uninhabited spaces sparsely punctuated by widely scattered farmsteads and small towns. Traditionally the Karoo has been seen by many as a dull, lifeless part of the country that was to be crossed as quickly as possible en route between the major inland centres and the Cape coast, or between the Cape and Namibia. However in the last couple of decades this has been changing, with the launching of tourism routes within the Karoo, and the promotion of tourism in this hitherto little visited, but large part of South Africa. In a context of increasing urbanisation in South Africa's major centres, the Karoo is being marketed as an undisturbed getaway, especially as a stop on a longer journey from the northern parts of South Africa to the Western and Eastern Cape coasts. Examples of this may be found in the relatively recently published "Getaway Guide to Karoo, Namaqualand and Kalahari" (Moseley and Naude-Moseley, 2008). The exposure of the Karoo in the national press during 2011 as part of the debate around the potential for fracking (hydraulic fracturing) mining activities has brought the natural resources, land use and lifestyle of the Karoo into sharp focus.Many potential objectors stress the need to preserve environment of the Karoo, as well as preserving the 'Karoo Way of Life', i.e. the stock farming practices which are highly dependent on the use of abstracted ground water (e.g. refer to the Treasure Karoo Action Group website http://treasurethekaroo.co.za/).

These examples of how the Karoo is valued provide a good example of how the typical Karoo landscape can be considered a valuable 'cultural landscape' in a South African context. Cultural landscapes are becoming increasingly important concepts in terms of the preservation and management of rural and urban settings across the world; the concept of 'cultural landscape' is a way of looking at place that focuses on the relationship between human activity and the biophysical environment (Breedlove, 2002). The cultural landscape concept is a relatively new one in the heritage conservation movement across the world. In 1992 the World Heritage Committee adopted a definition for cultural landscapes:

Cultural landscapes represent the combined worlds of nature and of man illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal

Cultural Landscapes can fall into three categories (according to the Committee's Operational Guidelines):

i) "a landscape designed and created intentionally by man";
ii) an "organically evolved landscape" which may be a "relict (or fossil) landscape" or a "continuing landscape";
iii) an "associative cultural landscape" which may be valued because of the "religious, artistic or cultural associations of the natural element"

The typical Karoo landscape of wide open plains, and isolated relief, interspersed with isolated farmsteads as well as windmills and stock holding pens, is an important part of the cultural matrix of the South African environment. The presence of the Karoo farmstead, as well as the ubiquitous windmill, fence line and herds of sheep is an important representation of how the harsh, arid nature of the environment of this part of the country has shaped patterns of human habitation and interaction with the environment in the form of the predominant land use and economic activity practiced in the area over centuries of human habitation. The presence of, and spatial orientation of small Karoo towns, such as Prieska, engulfed by an otherwise rural environment, form an integral part of the wider Karoo landscape. As such the Karoo landscape as it exists today has value as a cultural landscape in a South African context. In the context of the types of cultural landscape listed above, the Karoo cultural landscape would fall into the second category, that of an organically evolved, “continuing” landscape.

In the context of the study area, the various landscapes, as visible to the viewer, present excellent examples of such a Karoo cultural landscape. In addition to the features noted above, there are two other physical characteristics found in the study area that are unique to the dry west of the country; the impressive sociable weavers’ nests that are found along roads on telephone poles, as well as the Quiver tree or ‘Kokerboom’.

Figure 24: Sociable Weaver nest and windmill in the Study Area

The roads through the study area present good examples of these typical landscapes. The area is not typically visited as part of leisure tourism trips (although the Nelspoortje guest house markets itself as offering the visitor a typical Karoo farm stay), however the aesthetic quality of the landscape is nonetheless important, considering the study area's location in a wider context of proximity to the N10 highway route, the Orange River at Prieska and the highly scenic Doringberge which host a number of hiking trails. A significant change to this landscape has the potential to degrade its aesthetic quality and to threaten the conservation or preservation of the particular cultural landscape in a local context.

Figure 25: A typical vista within the study area

2.8.3 Visual Sensitivity

The visual character as discussed above engenders the study area with a certain level of visual sensitivity. This sensitivity can be defined in the context of change of the visual environment, and the potential for the resource quality to be degraded by a development (such as the proposed development) which could result in change in the visual character of the area. As described above, the visual character of the study area is strongly linked to its natural and rural characteristics. Although large-scale objects do exist within the study area, these do not occupy a sufficiently large area or are not of sufficient densities to have a significant impact on the visual character of the area.

An important component of visual sensitivity is the presence, or absence of visual receptors that may value the aesthetic quality of that landscape. As described below, a number of receptor locations that are potentially sensitive receptors are present in the study area. In many instances visual sensitivity in such a rural setting is closely tied into the practising of leisure tourism in an area, especially that which relies on the aesthetics of the area as part of its attraction. There is

significant tourism visitation in the area, however it is likely that only a very small and insignificant component of this is leisure-based. Most of the tourism demand (that has resulted in the tourism 'product' in the form of accommodation facilities having been established) relates to the presence of the Alkantpan Ammunitions Testing Range located to the south of Copperton, which draws business tourism to the local area.

Although no formal protected areas or leisure / nature-based tourism activities exist within the study area, the context of the study area as a rural area with a relatively low density of human change and influence in the landscape provides the landscape with a certain level of visual sensitivity.

- Visually sensitive areas within the site boundaries

Although most of the sensitive receptors are not located within the development site itself, there are a few receptor locations within the development area or very close to the site. In order to reduce direct visual impacts a buffer of 1km was created around each sensitive receptor location. Where these buffers fall within the site, it was determined that these buffers should be treated as exclusion zones in which no infrastructure, should be allowed to be developed.

In spite of the flat terrain, there are a few low ridges and isolated koppies which do rise above the flatter plains and which predominate on the site. Due to their higher elevation, these areas will be the parts of the site most visible to surrounding areas, especially as they will tend to draw the focal attention of the viewer when looking onto the site as they mark a contrast from the flatter areas surrounding them. In addition relief in a flat landscape typically brings a scenic element to that landscape, as scenic quality or visual quality of a landscape typically increases with increasing relief, as well as with increasing complexity of visual elements. As stated by Porteous, (1996), the greater the topographical variation, the greater the scenic quality (Wu *et al*, 2006). These factors of increased elevation and thus increased visibility, as well as the increased scenic component associated with these landscape features engenders these features with a strong degree of visual sensitivity.

These areas typically occur in the eastern-most parts of the development site, where a few low east-west running ridges occur, and which rise up to the local high point of Platsjambok Koppie and Houthaalberg Koppie. An isolated koppie occurs in the southern part of the development site, the aptly-named "Loskoppie".

2.8.4 Presence and Location of Sensitive Receptors

A sensitive receptor is defined as a receptor which could experience a potential adverse visual impact due to a development such as the proposed development. This takes into account a subjective factor on behalf of the viewer – i.e. whether the viewer would consider the impact as a negative impact. As described below the adverse impact is often associated with the alteration of the visual character of the area in terms of the intrusion of the solar facility into a 'view', which may affect the 'sense of place'. The identification of sensitive receptors was initiated in the scoping phase of the project and has been refined through ground-truthing in this phase of the project.

The table below lists all of the identified sensitive receptor locations that would be potentially visually affected by the proposed project. The table includes those receptor locations within a 5km radius of the development site.

Table 8: Presence and location of sensitive receptors

Sensitive Receptor Location	Distance Band Zone in which Receptor is located
Nelspoortjie Guest Farm and Farmstead	2km-5km
Humansrus Farmstead	0-500m
Platsjambok Farmstead*	Within Site
Vrede Farmstead	>5km
Who Can Tell Farmstead	>5km
Jonkerwater Farmstead	>5km
Graspan North Farmstead	2km-5km
Graspan South Farmstead	2km-5km
Grenaatskop Farmstead	2km-5km
KleinK'kolk Farmstead	1km-2km
Hoekplaas Farmstead*	0-500m
Voorspoed Farmstead	2km-5km
Mierdam Farmstead*	Within Site
Grootfourieskolk Farmstead	>5km
Klippan Farmstead	2km-5km

* - These farmsteads have been listed as sensitive receptor locations, although it should be noted that these are the residences of one of the landowners of the site.

A 5km has been selected as the radius within which receptor locations have been identified, as any significant visual impact is likely to be experienced within this zone. Beyond 5km, the visual impacts are less significant as the visibility of an object decreases exponentially over larger distances.

Of these static sensitive receptor locations a number have been designated as key observation locations on which the visual contrast rating has been undertaken.

The map below indicates the location of the sensitive receptors around the site.

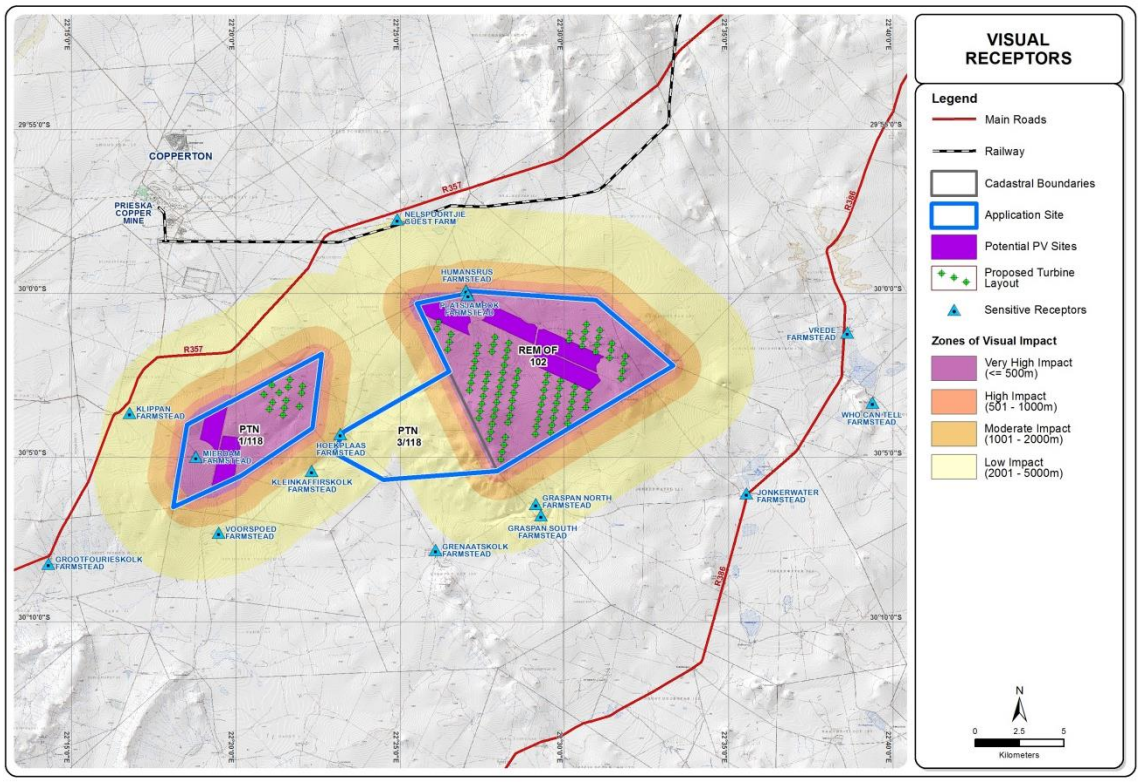

Figure 26: Map showing location of receptor locations in the study area

In many cases, roads, along which people travel, are considered as sensitive receptors. A number of public roads traverse the area around the development sites, the closest of which is the R357 un-surfaced road that runs to the north and west of the site (running within the 5km buffer of the site). The R386 also runs to the east of the site, but is at a much greater distance. In addition a local farm access road runs between the two components of the development site. None of these roads are considered to be sensitive receptor roads. They are used almost exclusively as local access roads, with very little use for any other purposes. As described above the area is not associated with any particular scenic value or any other tourism use. In addition the R357 passes close to the now disused Copperton Mine and associated slimes dam, as well as the Kronos Substation. Thus the area around the development site traversed by this road can be considered to be visually 'degraded' by a prevalence of large human infrastructure, and is highly unlikely to be associated with any visual sensitivity.

2.9 Geotechnical Aspects

The GeotechnicalAssessment was conducted by Mainstreamand. The environmental baseline from a geotechnical perspective is presented below.

Published geological records show that the site is underlain by a variety of bedrock parent materials including quartzite, sandstone and Tillite (consisting of consolidated masses of unweathered blocks

and unsorted glacial till). The general succession of soil / rock at the site from a geotechnical engineering perspective as revealed by the trial pits include the following:

- Topsoil – generally loose sand/silt
- Bedrock - Weakly cemented Calcite/Sandstone/Siltstone becoming harder with depth

2.10 Heritage

The Heritage Assessment was conducted by Dr. Johnny Van Schalkwyk. The environmental baseline from a heritage perspective is presented below.

2.10.1 Regional Overview

It seems as if finds of Early Stone Age material this far to the west is very limited and no report of any such finds in the study region could be found. This is a fact that has been commented on by various authors (see Morris 2000b).

By the 19thcentury some Dutch speaking trekboers moved into the region, grazing their stock. As they depended on water for their live-stock, these farmers would have stuck close to available water sources and it was only during the wetter parts of the rain season that they might have accessed other areas for short periods of time. An investigation of the Title Deeds of most of the farms under consideration indicated that they were surveyed during the early part of the twentieth century, implying that they would have been occupied since then.

The one industrial activity that is practised in the region on a commercial basis is the mining of copper at nearby Copperton. The history of the development of mining activities at Copperton is graphically described by Hocking (n.d.). Although the existence of copper on the farm Vogelstruisbult was known since the early 20$_{th}$ century, little was done to exploit it. It was only during the late 1960s that the potential importance of the deposit was realised and a number of shafts were sunk: the Marais and Hutchings shafts. To house the workers at the mine a residential area was developed and named Copperton. The mine was closed down in 1991.

An investigation of the Title Deeds of most of the farms under consideration indicated that they were surveyed during the latter part of the nineteenth century, implying that they would have been occupied since then. Platsjambok was surveyed and granted to G.F. Rens on 26 October 1882.

- Identified Sites

The following Heritage sites, features and objects were identified in the proposed development area:

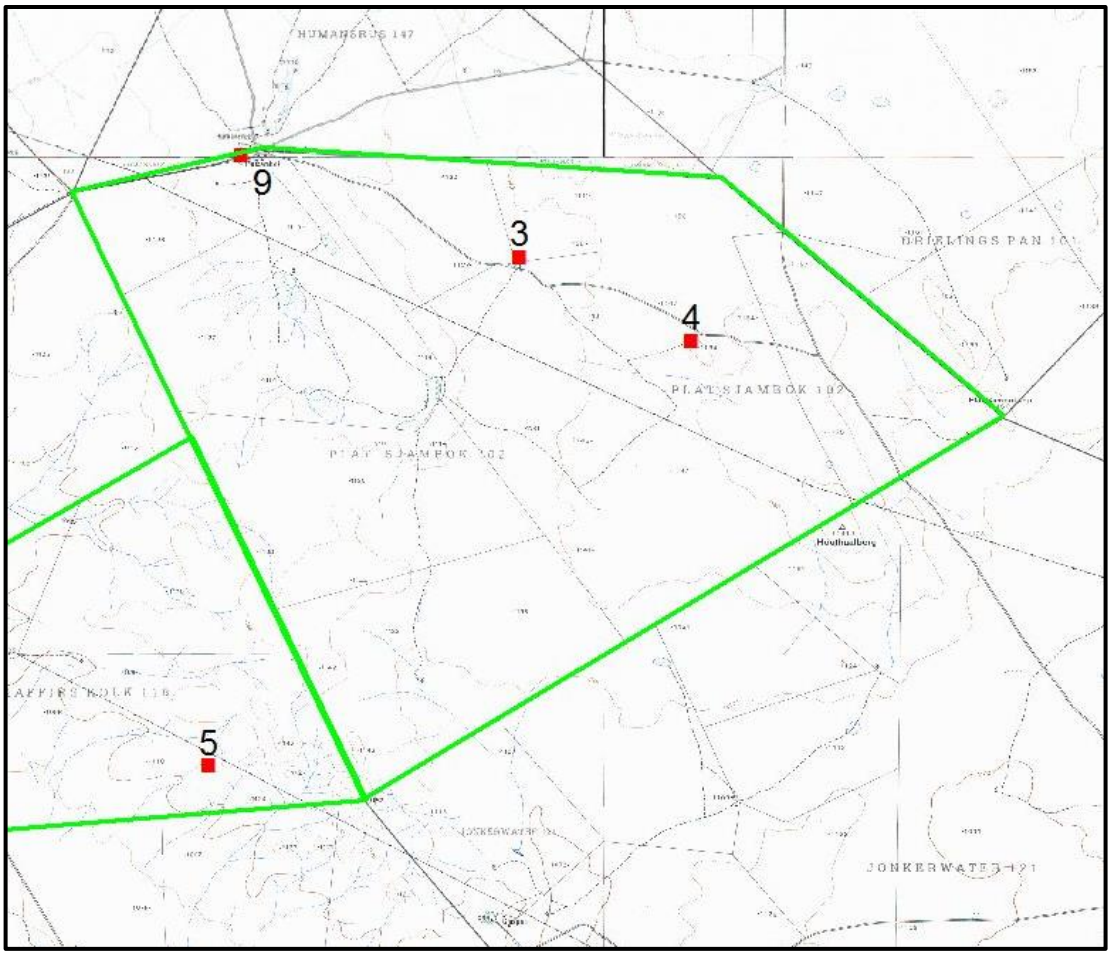

Figure 27: Map showing the location of the identified sites

Archaeological Sites

Table 9: Archaeological sites Identified on the proposed site

Location	No. 3 No. 4	S 30.01446 S 30.02619	E 22.48782 E 22.51180
Stone tools were identified to occur specifically in areas where there are outcrops or lowhills and most commonly date to the Middle Stone Age, although one site also includedmaterial that can be dated to the Later Stone Age. None of the sites can be classified asquarry sites or factory sites and no indication of human settlement was found. Because oftheir location the sites are viewed to be lookout pointswhere people watched for game.The material used for the production of the tools ishardened shale, chalcedonyandquartziteand the tools include retouched flakes, blades and scrapers.One hammer stonewas found with the LSA material. The density of the toolscatters varies between 1 artifactper 1m²to 10artifactsper 1 m². None of these areas are bigger than 20 x 20 metres.			
Significance	High on a regional level – Grade III		
Mitigation			

There must be hundreds of similar occurrences in the larger region. As they are all surface finds, their significance is judged to be low. However, as very little is known about the Stone Age occupation of the larger region, studying of these sites might contribute to a better understanding of the prehistory of the region. As first option it is therefore recommended that these areas are avoided if possible. If that is not possible, it is recommended that systematic surface collections are made and that this material is housed at a museum. This can only be done under a permit from SAHRA.

Figure 28: The material identified on the various Stone Age sites

2.11 Socio-economic Environment

The Socio-economic Assessment was conducted by Nonka Byker and An Kritzinger from MasterQ Research. The environmental baseline from a socio-economic perspective is presented below.

The baseline profile (status quo) of the receiving environment is described in terms of the various socio-economic change processes (cf. Vanclay, 2002). The baseline profile mostly focused on the local municipal area, but reference was made to the district and the province, where deemed necessary. The profile was structured according to the following social change processes:

- **Geographic processes**: land use patterns;
- **Demographic processes**: the composition of the local community;
- **Economic processes**: the way in which the local people make a living and the economic activities in the society;
- **Institutional and Legal processes**: the role and efficiency of the local authority and other service providers in the area in terms of their capacity to deliver services to the local area; and
- **Socio-cultural processes**: How the local population behave, interact and relate to each other, their environment, and the belief and value systems that guide these interactions.

2.11.1 Geographical Processes

The Siyathemba Local Municipality (SLM) is located in the Pixley Ka Seme District Municipality of the Northern Cape Province and is located quite centrally within the largely arid Northern Cape. It is bordered solely by other Northern Cape Municipalities, namely Siyancuma Local Municipality in the North, Thembelihle Local Municipality in the East, Emthanjeni Local Municipality in the South-East, Kareeberg Local Municipality in the South-West, and !Kheis Local Municipality in the West. The settlements of note in SLM are Prieska, Marydale, and Niekerkshoop with Prieska being the main centre locally.

There are several main roads in the SLM and one National Route – the N10, which runs right past Prieska on its way to Port Elizabeth. In addition, several large railways exist within SLM's borders, mostly to serve freight moving purposes. The LM is a sparsely populated with few settlements, large open spaces, and minimal infrastructure. It is also one which suffers from several socio-economic issues, pitfalls, and threats.

The Northern Cape District Management Area 07 (NCDMA07) is one of only a few DMAs nationally. These areas are usually only reserved for regions of conservation/national parks and/or areas which are extremely sparsely populated. In the case of NCDMA 07 it is the latter which prevails since the area has a minute population relative to the land area it occupies. Furthermore, it has been mentioned by The Municipal Demarcation Board that they wish to integrate all DMAs into existing Local Municipalities (LMs) in the near future. NCDMA07 is located in the Pixley Ka Seme District Municipality alongside eight Local Municipalities. The area consists of wide open spaces and a very low population.

According to the SLM IDP (2010) stock farming takes place throughout the region, mainly consisting of small stock (sheep and goats) that produces mutton and wool. Irrigated farming also takes place with irrigation from the Orange and Vaal Rivers, but is mostly confined to areas surrounding these rivers. Despite the confined areas, irrigated farming forms a large part of the agricultural activities in the region and in include maize, peanuts, lucerne, grapes, dry beans, soya beans, potatoes, olives, popcorn, pecan nuts, pistachio nuts, and cotton farming.

Industries are mostly confined to light industries, but the IDP states that the constant supply of water (from the Orange and Vaal Rivers) offers the potential of using the products produced in the area as a basis for benefaction.

The proposed site is located along the R357, approximately 6km southeast of the Copperton Mine and 45km southwest of Prieska. Some social impacts can be expected in Prieska as the closest town. Both sites are bisected by existing power lines (66kV, 132kV and 400kV lines). An existing Eskom substation lies to the west of the sites, adjacent to the R357. The area is further characterised by a number of scattered households, three of which are located on the sites itself.

3 CURRENT STATUS OF THE ENVIRONMENT

3.1 Ecology

Imagery from Google Earth shows that there have been no changes on site over time. The vegetation patterns as originally described (Koch 2012) appears to have remained stable aside from the construction of the solar energy facility on the adjacent site in 2019. The general status and species composition of the site will be confirmed during an upcoming field assessment, but it is not expected that any fundamental changes will be observed. The preliminary conclusion is therefore that the baseline conditions on site have not changed. Available information indicates that the biophysical environment on site is unchanged between the original assessment and the current date, except for the construction of the solar energy facility on the adjacent site.

3.2 Avifauna

The project development area is classified as High sensitivity for avifauna, according to the DFFE online screening tool. The development sites contain confirmed habitat for species of conservation concern (SCC). The occurrence of SCC was confirmed during the original surveys in March 2012. Ludwig's Bustard, Secretarybird (Globally Endangered, Regionally Vulnerable) and Sclater's Lark (Globally and Regionally Near threatened) were recorded at the site. The subsequent site visit in October 2022 confirmed that the habitat has not changed and that habitat for the above listed SCC, as well as the other SCC, and Lappet-faced Vulture Torgos tracheliotis (Globally and Regionally Endangered) exists at the development area. This classification is assessed to be accurate as far as the potential presence of SCC is concerned, based on actual conditions recorded on the ground during the site visits in March 2012, and the subsequent site visit conducted in October 2022.

3.3 Surface Water

The evaluations of the original Surface Water Report has shown that no additional impacts will arise to those previously assessed.

3.4 Agricultural & Soils

There has been no significant change to the baseline agricultural environment since the original assessment. The agricultural potential of the study area is still totally limited by climate and soil constraints.

3.5 Visual

A desktop assessment was undertaken using Google Earth Imagery in conjunction with information drawn from more recent VIAs undertaken by SiVEST in the vicinity of the Platsjambok West SEF project area (VIA for Aletta140MW Wind Energy Facility, 2017 and VIA for Aardvark Solar Facilities 1 – 6, 2021). From this assessment, it was established that there has been little significant change in the baseline characteristics or the number of sensitive receptors in the Platsjambok West SEF VIA study area since 2013.

3.6 Geotech

The evaluations of the original Geotech has shown that no additional impacts will arise to those previously assessed.

3.7 Heritage

The evaluations of the original HIA and subsequent documentation has shown that it is envisaged that no changes are envisaged to the project impact.

3.8 Transport

The evaluations of the original Transport and subsequent documentation has shown that it is envisaged that no changes are envisaged to the project impact.

3.9 Social

The evaluations of the original SIA and subsequent documentation has shown that it is envisaged that no changes are envisaged to the project impact.

4 SITE VERIFICATION AND NEW GUIDELINES/PROTOCOLS

The proposed development does not fall within the Renewable Energy Development Zone (REDZ) or Electrical Grid Infrastructure corridors. Where required, specialists have taken into consideration the Protocol for the specialist assessment and minimum report content requirements for environmental impacts (Government Gazette No 43855, 30 October 2020).

4.1 Ecology

Following current legislation, an assessment of the site would have required compliance with gazetted Species Protocols. A Screening Tool report for the site shows that Terrestrial Biodiversity and Aquatic Biodiversity Themes have Very high sensitivity. This would need to be confirmed by an on-site field verification, followed by a Site Sensitivity Verification. Information from the original assessment (Koch 2012) indicates that the very high sensitivity for these two themes is confirmed on the basis that the site is in a natural state therefore biodiversity zones are as mapped. For the Plant Theme (Medium sensitivity) and Animal Theme (High sensitivity), the sensitivity would need to be confirmed on-site and either a Compliance Statement provided by the specialist, or an Assessment.

4.2 Avifauna

The project development area is classified as **High** sensitivity for avifauna, according to the DFFE online screening tool. The development sites contain confirmed habitat for species of conservation

concern (SCC), as defined in the Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species (Government Gazette No 43855, 30 October 2020), namely listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered, Vulnerable, near threatened or Data Deficient. The classification of High sensitivity is linked to the potential occurrence of Ludwig's Bustard (Globally and Regionally Endangered).

5 TERMS OF REFERENCE FOR SPECIALISTS

The specialists were provided with the same terms of references as provided by the DFFE requesting additional information (refer to the specialist's letters).

6 CONFIRMATION OF IMPACT RATING AND MITIGATION MEASURES

The following specialist studies were undertaken in 2012 as per the Plan of Study for EIA:

- Biodiversity Assessment (including fauna, flora and avifauna)
- Surface Water Assessment
- Agricultural Potential and Soils Assessment
- Visual Impact Assessment
- Geotechnical Assessment
- Heritage Impact Assessment
- Socio-economic Assessment

Below is a summary of the findings:

Table 10: Summary of findings and recommendations (2012)

Environmental Parameter	Summary of major findings	Recommendations
Biodiversity	It is not likely that the proposed development will be to the detriment of the biodiversity of the region due to the pristine nature of the area. A number of particularly sensitive bird habitats and priority bird species were identified. The most sensitive bird habitats (low quartzite ridges and grassy pans) are located in the northern part of the Platsjambok site. In spite of the relatively low density and total number of species on the site in the context of the area's aridity, a number of birds that are important in a national and southern African context would occur on the site.	▪ A walk down of the more sensitive areas such as the ridge area to avoid any trees if possible and potential rare mammal breeding sites is recommended. ▪ A formal monitoring and reporting strategy/protocol should be developed for monitoring the impact on the vegetation and biodiversity in general in the area during construction. ▪ If Red Data species are located during construction, the relevant permits must be applied for from the relevant authorities. ▪ The precautionary principle should be applied during the construction and care taken to implement the recommended mitigation measures.
Surface Water	Surface water features are not a significant part of the natural biophysical features on the site due to the very arid nature of the area, however they should be considered as sensitive features. Roads and underground cabling can also have significant impacts on surface water features and therefore the mitigation measures (provided) will need to be adhered to.	▪ The PV layouts should be altered slightly to either avoid the drainage lines completely, or to ensure that these drainage lines are not physically affected by the proposed PV arrays. ▪ No power line towers should be located within any surface water feature.
Agricultural Potential and Soils	The site is not classified as high potential nor is it a unique dry land agricultural resource. Thestudy area has been classified as having an extremely low potential for crop production due to an arid climate and highly restrictive soil characteristics but are considered to have a moderately low value as grazing land, its current use. Normal grazing (the dominant agricultural activity) may be permitted within the PV fields. The proposed site is	▪ Clearing activities should be kept to a minimum (road and PV site footprint). ▪ In the unlikely event that heavy rains are expected activities should be put on hold to reduce the risk of erosion. ▪ If additional earthworks are required, any steep or large embankments that are expected to be exposed during the 'rainy' months should either be armoured with fascine like structures.

Environmental Parameter	Summary of major findings	Recommendations
	dominated by grazing land and this activity is considered of low sensitivity when assessed within the context of the proposed development. The impact of the proposed development on the study area's agricultural potential will be extremely low, with the loss of agricultural land being attributed to the creation of the service roads, within the PV Fields.There are no centre pivots, irrigation schemes or active agricultural fields which will be influenced by the proposed development. Therefore, from an agricultural perspective, there are no problematic or fatal flaw areas for the site.	▪ If earth works are required then storm water control and wind screening should be undertaken to prevent soil loss from the site. ▪ It is recommended that to the option of allowing seasonal grazing within the PV Fields be considered further by Mainstream in consultation with the landowner to further mitigate the loss of grazing land.
Visual	The likely visual impact of the proposed solar power plant from most of the key receptor locations has been determined to be insignificant. This is mainly due to the extensive distance between the PV layouts and the key observation locations. The thick vegetation that surrounds most receptor locations is also very effective in shielding the actual receptor location (household) from views of the proposed development. Farmsteads located within, or on the boundaries of the development site would potentially be subject to a greater degree of visual impact. However due to these farmsteads belonging to, and being inhabited by the owners of the properties on which the development is proposed, these locations are not thought to be sensitive, as they will benefit from the project financially	▪ None
Geotechnical	The site is underlain by a variety of bedrock parent materials including quartzite, sandstone and Tillite (consisting of consolidated masses of unweathered blocks and unsorted glacial till).	▪ Detailed geotechnical investigation will be required once the PV layout is confirmed, the substation site is selected and the plant layout has been finalised.

Environmental Parameter	Summary of major findings	Recommendations
	The general succession of soil / rock at the site from a geotechnical engineering perspective is: ▪ Topsoil – generally loose sand/silt ▪ Bedrock – Weakly cemented Calcite / Sandstone / Siltstone becoming harder with depth	
Heritage	Only three heritage sites (incl. features and objects)were identified on the proposed development site, which include two stone age sites a farmstead. All of which can be classed as having high significance on a regional level.	▪ Sensitive heritage resource areas are to be excluded as no-go areas and a sufficient buffer zones must be implemented. ▪ All suggested mitigation measures must be implemented and included in the EMPr for the proposed development.
Socio-economic	Apart from the possibility of temporary employment, overall the construction phase is characterised by negative low social impacts. In certain instances the implementation of mitigation measures can bring about positive changes. One such case would be the implementation of an effective HIV/AIDS prevention programme that extends to the local communities where construction workers will spend their free time, as this can also serve to inform and empower local people to make better and more informed decisions regarding their future (sexual) behaviour. Where Mainstream has the opportunity to bring about positive change to local communities they should pursue such opportunities where possible. Majority of impacts that would occur during the construction phase would affect people's sense of wellbeing and security within their social environment. A number of changes to the	▪ Address all social issues identified during the EIA phase by engaging social specialists where necessary or by ensuring that ECOs used during construction have the necessary knowledge and skills to identify social problems and address these when necessary. ▪ Inform neighbouring landowners beforehand of any construction activity that is going to take place in close proximity to their property.Inform them of the number of people that will be on site and on the activities they will engage in. ▪ Ensure that employees are aware of their responsibility in terms of Mainstream's relationship with landowners and communities surrounding the site. Implement an awareness drive to relevant parts of the construction team to focus on respect, adequate communication and the 'good neighbour principle.

Environmental Parameter	Summary of major findings	Recommendations
	socio-economic environment would lead to economic impacts, but for the most part these impacts would be restricted to individuals or individual households and would not extend to the community at large. The presence of the PV plant during the operation and maintenance phase overall will have a low positive impact, although certain elements will yield medium positive impacts whereas other elements are expected to have a more negative connotation. Most positive impacts are of an economic nature, most significantly Mainstream's corporate social investment in the area, which in turn could lead to an array of other positive social upliftment projects (outside the scope of this study). Negative impacts are expected to be on the low side and would in all probability be over-shadowed by the more positive contributions that Mainstream will make to the area through their CSI.	

Key

LOW NEGATIVE		**LOW POSITIVE**	
MEDIUM NEGATIVE		**MEDIUM POSITIVE**	
HIGH NEGATIVE		**HIGHPOSITIVE**	

Table 11: Impact rating summary for the proposed PV plant during the construction phase

Environmental Aspect	Environmental Impacts	Impact Rating without Mitigation	Impact Rating with Mitigation
Biodiversity	Loss of habitat for red data / general species	-24 (low negative)	-6(low negative)
	Edge Effect	-28 (low negative)	-7(low negative)

Environmental Aspect	Environmental Impacts	Impact Rating without Mitigation	Impact Rating with Mitigation
	Destruction of foraging habitat for bats	-11 (low negative)	-8 (low negative)
	Loss of physical habitat for birds	-26 (low negative)	- 13 (low negative)
Surface Water	Impacts on surface water features	-12 (low negative)	-12 (low negative)
Agricultural Potential and Soil	Degradation of local soil and land use resources	-9 (low negative)	-8 (low negative)
Visual	Visual impacts	-26 (low negative)	-10 (low negative)
Heritage	Disturbance of stone age sites	-40 (medium negative)	-38 (medium negative)
	Damage to farmsteads	-36 (medium negative)	-10 (low negative)
	Damage to cemeteries	-40 (medium negative)	-10 (low negative)
Social-economic	Employment and output creation	18 (low positive)	30 (medium positive)
	Social mobilisation	-20 (low negative)	-7 (low negative)
	Health and safety	-60 (high negative)	-28 (low negative)

Table 12: Impact rating summary for the proposed PV plant during the operational phase

Environmental Aspect	Environmental Impacts	Impact Rating without Mitigation	Impact Rating with Mitigation
Biodiversity	Loss of habitat for red data / general species	-10 (low negative)	-6(low negative)
	Edge effect	-26 (low negative)	-7(low negative)
	Disturbance on birds / creation of the barrier effect	-26 (low negative)	-26 (low negative)
Surface Water	Impacts on surface water features	-12 (low negative)	-12 (low negative)
Agricultural Potential and Soil	Loss of agricultural land and / or production	-12 (low negative)	-12 (low negative)
Visual	Visual impacts	-17 (low negative)	-17 (low negative)
Heritage	Disturbance of stone age sites	-40 (medium negative)	-38 (medium negative)
	Damage to farmsteads	-36 (medium negative)	-10 (low negative)
	Damage to cemeteries	-40 (medium negative)	-10 (low negative)
Social-economic	Employment and output creation	18 (low positive)	33 (medium positive)
	Tax income	14 (low positive)	14 (low positive)
	Corporate social investment	27 (low positive)	48 (medium positive)
	Agricultural output	-11 (low negative)	-11 (low negative)

Environmental Aspect	Environmental Impacts	Impact Rating without Mitigation	Impact Rating with Mitigation
	Tourism	-10 (low negative)	-10 (low negative)
	Property prices	-10 (low negative)	-10 (low negative)
	Sense of place	-24 (low negative)	-20 (low negative)

Table 13: Impact rating summary for the proposed PV plant during the decommissioning phase

Environmental Aspect	Environmental Impacts	Impact Rating without Mitigation	Impact Rating with Mitigation
Biodiversity	Loss of habitat for red data / general species	+8 (low positive)	+6(low positive)
	Edge effect	+10 (low positive)	+7(low positive)

7 POTENTIAL FOR CHANGE IN THE SIGNIFICANCE OF IMPACTS AS ASSESSED IN THE EIA AS A RESULT OF THE REQUESTED AMDENDMENT

7.1 Impacts on Ecology

The original assessment (Koch 2012) identified three impacts for the proposed project, as follows:

- Loss of habitat for Red List / general species (Low significance, low after mitigation)
- Edge effect (on biodiversity) (Medium significance, low after mitigation)

Several mitigation measures were proposed in the original assessment (Koch 2012), as follows (with comments in italics and square brackets):

- An on-site ecologist should be present when site excavation takes place to ensure that any uncovered species are protected from destruction. [*Any measures related to plant species should be contained in the appropriate Management Plan, e.g., Plant Rescue Management Plan*].
- Demarcation of sensitive areas prior to construction activities starting.
- Use of appropriate construction methods in the sensitive area.
- Use of appropriate construction methods in the sensitive areas. [*Appropriate construction methods are not defined*].
- A copy of the Environmental Impact Report and associated Environmental Management Programme as well as the specialist study must be present at the construction site for easy reference to specialist recommendations in sensitive areas.
- It is recommended that the construction crew be educated about the sensitivities involved in these areas as well as the potential species they could encounter. A poster of sensitive species (compiled by a qualified specialist) should be kept on the construction site for easy reference. [*A flora permit is required for any protected plant species expected to be lost to the development - the identity of such species and numbers affected must be compiled during a Pre-Construction Walkthrough Survey*].
- Rehabilitation to be undertaken as soon as possible after construction in sensitive area has been completed.
- Only vegetation within the study area must be removed. [*Assume specialist meant "within the footprint of the construction and infrastructure of the proposed project"*].
- Vegetation removal must be phased in order to reduce impact of construction. [*The phasing of vegetation removal within the project footprint area will make no difference to the final outcome*].
- Construction site office and laydown areas must be clearly demarcated, and no encroachment must occur beyond demarcated areas. [*In general, project activities should be within the approved footprint area only*].
- All natural areas impacted during construction must be rehabilitated with locally indigenous plant species. [*Assume this applies to temporary construction impacts. This should be covered in the Rehabilitation/Revegetation Management Plan*].
- Construction areas must be well demarcated, and these areas strictly adhered to.

- The use of pesticides and herbicides in the study area must be discouraged as these impacts on important pollinator species of indigenous vegetation
- Soils must be kept free of petrochemical solutions that may be kept on site during construction. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora. [*It is assumed that there is a legal obligation to adhere to any measures related to dangerous / hazardous chemicals and that these measures are contained in the relevant Management Plan*].
- Six monthly checks of the area should take place for the emergence of invader species. [*Management of alien plant species should be detailed in an Alien Invasive Management Plan, which should also include monitoring requirements. Management of alien plant species is a legal requirement, as per NEMBA and CARA. The impact of alien plant species should have been assessed as a potential impact*.].
- Mitigation measures mentioned for the construction phase above must be implemented for any maintenance of the development that may be undertaken during the operation phase.
- Correct rehabilitation with locally indigenous species.
- Monitoring programme to ensure that rehabilitation efforts are successful to ensure that risks such as erosion and the edge effect are avoided. [*Edge effects are unavoidable where infrastructure is located in previously natural spaces*.]
- Constant maintenance of the area to ensure re-colonisation of floral species. [*This should be covered in the Rehabilitation/Revegetation Management Plan*].
- Regular removal of alien species which may jeopardise the proliferation of indigenous species. [*Management of alien plant species should be detailed in an Alien Invasive Management Plan*].

New proposed mitigation measures

The following mitigation measures are proposed to replace those in the original assessment:

- Ensure that impacts during construction and operation are restricted to the project footprint area and do not spread into surrounding natural areas.
- Compile and implement the following management plans, each of which should include appropriate monitoring guidelines:
  a. Rehabilitation Management Plan.
  b. Alien Invasive Management Plan.
  c. Open Space Management Plan.
  d. Plant Rescue/Protection Management Plan.
  e. Black-footed Cat Management Plan (in consultation with EWT).

- Obtain all required protected fauna, protected flora and protected tree permits from the relevant authorities. This will require a detailed pre-construction walk-through survey of the infrastructure footprint area. This is primarily a legal compliance measure and is not necessarily to mitigate any specific impacts.

7.1.1 *Conclusion*

In conclusion, the proposed amendment of the Environmental Authorisation to extend the commencement period will have no implications for the original assessment. They will not change

the potential impacts. The baseline conditions have also not changed; therefore, the original assessment is valid. It is recommended that the amendment to the extension of the commencement period be approved. Revised mitigation measures are proposed to align with current best practice.

7.2 Impacts on Avifauna

Bird distribution data of the South African Bird Atlas 2 (SABAP 2) was obtained from the University of Cape Town (2022), as a means to ascertain which species occur within the broader area i.e., within a block consisting of 8 pentads where the proposed project development area will be located. A pentad grid cell covers 5 minutes of latitude by 5 minutes of longitude (5'× 5'). Each pentad is approximately 8 × 7.6 km. From 2007 to date, a total of 68 full protocol lists (i.e., surveys lasting a minimum of two hours each) have been completed for this area. In addition, 36 ad hoc protocol lists (i.e., surveys lasting less than two hours but still yielding valuable data) have been completed. The broader area was selected on the basis of the number of checklists that had been completed, in order to get a more representative view of the avifauna that could occur at the project site.

According to the SABAP2 projects, a total of 152 species occurs in the broader area. The species that were recorded on and around the project development area during the site visit on 5 October 2022 are listed below:

Table 14: Avifauna recorded by SABAP 2 and during surveys in the broader area in March 2012 and at the Platsjambok West development area in October 2022. Species of conservation concern (SCC) are shaded in green

Species name	Scientific name	Full protocol reporting rate	Ad hoc protocol reporting rate	Global status	Regional status	Recorded during monitoring in the broader area 2012	Recorded at Platsjambok East and West 2022
Acacia Pied Barbet	***Tricholaema leucomelas***	**54.41**	**11.11**	**-**	**-**	**x**	
African Black Swift	***Apus barbatus***	**0.00**	**2.78**	**-**	**-**	**x**	
African Hoopoe	***Upupa africana***	**17.65**	**0.00**	**-**	**-**		
African Palm Swift	***Cypsiurus parvus***	**1.47**	**0.00**	**-**	**-**		
African Pipit	***Anthus cinnamomeus***	**10.29**	**5.56**	**-**	**-**	**x**	
African Red-eyed Bulbul	***Pycnonotus nigricans***	**25.00**	**2.78**	**-**	**-**	**x**	
African Sacred Ibis	***Threskiornis aethiopicus***	**1.47**	**0.00**	**-**	**-**		
Alpine Swift	***Tachymarptis melba***	**5.88**	**0.00**	**-**	**-**		
Ant-eating Chat	***Myrmecocichla formicivora***	**66.18**	**25.00**	**-**	**-**	**x**	**x**
Ashy Tit	***Melaniparus cinerascens***	**19.12**	**0.00**	**-**	**-**		
Barn Swallow	***Hirundo rustica***	**38.24**	**5.56**	**-**	**-**	**x**	**x**
Black-chested Prinia	***Prinia flavicans***	**72.06**	**11.11**	**-**	**-**	**x**	

Species name	Scientific name	Full protocol reporting rate	Ad hoc protocol reporting rate	Global status	Regional status	Recorded during monitoring in the broader area 2012	Recorded at Platsjambok East and West 2022
Black-chested Snake Eagle	*Circaetus pectoralis*	10.29	2.78	-	-	x	
Black-eared Sparrow-Lark	*Eremopterix australis*	33.82	5.56	-	-		
Black-faced Waxbill	*Brunhilda erythronotos*	2.94	0.00	-	-		
Black-headed Canary	*Serinus alario*	2.94	5.56	-	-		
Blacksmith Lapwing	*Vanellus armatus*	10.29	2.78	-	-	x	x
Black-throated Canary	*Crithagra atrogularis*	25.00	2.78	-	-	x	
Black-winged Kite	*Elanus caeruleus*	0.00	2.78	-	-		
Black-winged Stilt	*Himantopus himantopus*	2.94	8.33	-	-		x
Bokmakierie	*Telophorus zeylonus*	60.29	0.00	-	-	x	
Booted Eagle	*Hieraaetus pennatus*	7.35	0.00	-	-		
Bradfield's Swift	*Apus bradfieldi*	2.94	0.00	-	-		
Buffy Pipit	*Anthus vaalensis*	0.00	5.56	-	-		
Burchell's Courser	*Cursorius rufus*	1.47	0.00	-	VU		
Cape Bunting	*Emberiza capensis*	16.18	0.00	-	-		
Cape Crow	*Corvus capensis*	8.82	0.00	-	-		
Cape Penduline Tit	*Anthoscopus minutus*	11.76	8.33	-	-		
Cape Robin-Chat	*Cossypha caffra*	7.35	0.00	-	-		x
Cape Shoveler	*Spatula smithii*	1.47	0.00	-	-		
Cape Sparrow	*Passer melanurus*	77.94	16.67	-	-	x	
Cape Teal	*Anas capensis*	2.94	0.00	-	-		
Cape Turtle Dove	*Streptopelia capicola*	61.76	0.00	-	-	x	
Cape Vulture	*Gyps coprotheres*	0.00	2.78	VU	EN		
Cape Wagtail	*Motacilla capensis*	36.76	5.56	-	-	x	
Cape Weaver	*Ploceus capensis*	1.47	0.00	-	-		
Cape White-eye	*Zosterops virens*	1.47	0.00	-	-		
Capped Wheatear	*Oenanthe pileata*	33.82	22.22	-	-	x	
Chat Flycatcher	*Melaenornis infuscatus*	70.59	16.67	-	-	x	x
Chestnut-vented Warbler	*Curruca subcoerulea*	36.76	0.00	-	-	x	
Cloud Cisticola	Cisticola textrix	0.00	0.00	-	-		
Common Buzzard	*Buteo buteo*	2.94	0.00	-	-		
Common Greenshank	*Tringa nebularia*	1.47	0.00	-	-		
Common Ostrich	*Struthio camelus*	1.47	2.78	-	-	x	
Common Quail	*Coturnix coturnix*	1.47	0.00	-	-		
Common Sandpiper	*Actitis hypoleucos*	1.47	0.00	-	-		

Species name	Scientific name	Full protocol reporting rate	Ad hoc protocol reporting rate	Global status	Regional status	Recorded during monitoring in the broader area 2012	Recorded at Platsjambok East and West 2022
Common Swift	*Apus apus*	13.24	0.00	-	-	x	x
Crested Barbet	*Trachyphonus vaillantii*	1.47	0.00	-	-		
Crowned Lapwing	*Vanellus coronatus*	10.29	2.78	-	-		
Desert Cisticola	*Cisticola aridulus*	42.65	2.78	-	-	x	
Diederik Cuckoo	*Chrysococcyx caprius*	7.35	2.78	-	-		
Double-banded Courser	*Rhinoptilus africanus*	32.35	2.78	-	-	x	
Dusky Sunbird	*Cinnyris fuscus*	26.47	5.56	-	-	x	
Eastern Clapper Lark	*Mirafra fasciolata*	63.24	11.11	-	-	x	
Egyptian Goose	*Alopochen aegyptiaca*	23.53	2.78	-	-	x	
European Bee-eater	*Merops apiaster*	0.00	0.00				
Fairy Flycatcher	*Stenostira scita*	5.88	0.00	-	-		
Familiar Chat	*Oenanthe familiaris*	48.53	16.67	-	-	x	
Fawn-colored Lark	*Calendulauda africanoides*	41.18	5.56	-	-	x	
Fiscal Flycatcher	*Melaenornis silens*	17.65	2.78	-	-	x	
Greater Kestrel	*Falco rupicoloides*	29.41	11.11	-	-	x	
Greater Striped Swallow	*Cecropis cucullata*	38.24	5.56	-	-	x	
Grey Tit	*Melaniparus afer*	4.41	0.00	-	-		
Grey-backed Cisticola	*Cisticola subruficapilla*	23.53	0.00	-	-	x	x
Grey-backed Sparrow-Lark	*Eremopterix verticalis*	54.41	5.56	-	-	x	
Hadada Ibis	*Bostrychia hagedash*	23.53	2.78	-	-	x	
Helmeted Guineafowl	*Numida meleagris*	25.00	0.00	-	-	x	x
House Sparrow	*Passer domesticus*	41.18	11.11	-	-	x	
Jackal Buzzard	*Buteo rufofuscus*	2.94	0.00	-	-		x
Kalahari Scrub Robin	*Cercotrichas paena*	50.00	0.00	-	-	x	
Karoo Chat	*Emarginata schlegelii*	5.88	0.00	-	-		
Karoo Eremomela	*Eremomela gregalis*	2.94	0.00	-	-		x
Karoo Korhaan	*Eupodotis vigorsii*	73.53	36.11	-	NT	x	
Karoo Long-billed Lark	*Certhilauda subcoronata*	36.76	0.00	-	-	x	
Karoo Prinia	*Prinia maculosa*	1.47	0.00	-	-		
Karoo Scrub Robin	*Cercotrichas coryphoeus*	51.47	11.11	-	-	x	x
Karoo Thrush	*Turdus smithi*	14.71	0.00	-	-		
Kittlitz's Plover	*Charadrius pecuarius*	1.47	0.00	-	-		
Kori Bustard	*Ardeotis kori*	16.18	2.78	NT	NT		
Lanner Falcon	*Falco biarmicus*	5.88	0.00	-	VU		

Species name	Scientific name	Full protocol reporting rate	Ad hoc protocol reporting rate	Global status	Regional status	Recorded during monitoring in the broader area 2012	Recorded at Platsjambok East and West 2022
Lappet-faced Vulture	*Torgos tracheliotos*	1.47	0.00	EN	EN		
Large-billed Lark	*Galerida magnirostris*	16.18	11.11	-	-	x	
Lark-like Bunting	*Emberiza impetuani*	69.12	25.00	-	-	x	
Laughing Dove	*Spilopelia senegalensis*	41.18	5.56	-	-	x	x
Layard's Warbler	*Curruca layardi*	5.88	0.00	-	-		
Lesser Grey Shrike	*Lanius minor*	5.88	2.78	-	-		
Lesser Kestrel	*Falco naumanni*	0.00	5.56	-	-		
Little Grebe	*Tachybaptus ruficollis*	2.94	0.00	-	-		
Little Swift	*Apus affinis*	30.88	0.00	-	-	x	
Long-billed Crombec	*Sylvietta rufescens*	25.00	0.00	-	-	x	
Ludwig's Bustard	*Neotis ludwigii*	41.18	16.67	EN	EN	x	x
Martial Eagle	*Polemaetus bellicosus*	2.94	5.56	EN	EN		
Mountain Wheatear	*Myrmecocichla monticola*	13.24	8.33	-	-	x	
Namaqua Dove	*Oena capensis*	36.76	8.33	-	-	x	
Namaqua Sandgrouse	*Pterocles namaqua*	50.00	5.56	-	-	x	
Nicholson's Pipit	*Anthus nicholsoni*	17.65	5.56	-	-		
Northern Black Korhaan	*Afrotis afraoides*	80.88	25.00	-	-	x	x
Orange River White-eye	*Zosterops pallidus*	0.00	2.78	-	-		x
Pale Chanting Goshawk	*Melierax canorus*	82.35	22.22	-	-	x	x
Pale-winged Starling	*Onychognathus nabouroup*	4.41	0.00	-	-		
Pied Crow	*Corvus albus*	83.82	33.33	-	-	x	
Pied Starling	*Lamprotornis bicolor*	1.47	0.00	-	-		x
Plain-backed Pipit	*Anthus leucophrys*	2.94	0.00	-	-		x
Pririt Batis	*Batis pririt*	25.00	2.78	-	-	x	
Pygmy Falcon	*Polihierax semitorquatus*	10.29	2.78	-	-	x	
Quailfinch	*Ortygospiza atricollis*	1.47	0.00	-	-	x	
Red-backed Shrike	*Lanius collurio*	1.47	0.00	-	-		x
Red-billed Quelea	*Quelea quelea*	5.88	0.00	-	-	x	
Red-billed Teal	*Anas erythrorhyncha*	1.47	0.00	-	-		x
Red-capped Lark	*Calandrella cinerea*	11.76	2.78	-	-	x	
Red-eyed Dove	*Streptopelia semitorquata*	2.94	0.00	-	-		
Red-faced Mousebird	*Urocolius indicus*	7.35	0.00	-	-	x	

Species name	Scientific name	Full protocol reporting rate	Ad hoc protocol reporting rate	Global status	Regional status	Recorded during monitoring in the broader area 2012	Recorded at Platsjambok East and West 2022
Red-headed Finch	*Amadina erythrocephala*	35.29	5.56	-	-	x	
Rock Dove	*Columba livia*	4.41	0.00	-	-		
Rock Kestrel	*Falco rupicolus*	11.76	11.11	-	-		
Rock Martin	*Ptyonoprogne fuligula*	52.94	11.11	-	-	x	
Rufous-cheeked Nightjar	*Caprimulgus rufigena*	4.41	0.00	-	-		
Rufous-eared Warbler	*Malcorus pectoralis*	86.76	13.89	-	-	x	x
Sabota Lark	*Calendulauda sabota*	79.41	30.56	-	-	x	
Scaly-feathered Weaver	*Sporopipes squamifrons*	38.24	5.56	-	-	x	
Sclater's Lark	*Spizocorys sclateri*	10.29	0.00	NT	NT	x	
Secretarybird	*Sagittarius serpentarius*	7.35	5.56	EN	VU	x	
Short-toed Rock Thrush	*Monticola brevipes*	2.94	2.78	-	-		
Sickle-winged Chat	*Emarginata sinuata*	16.18	2.78	-	-		
Sociable Weaver	*Philetairus socius*	67.65	27.78	-	-	x	
South African Shelduck	*Tadorna cana*	11.76	2.78	-	-		
Southern Fiscal	*Lanius collaris*	57.35	16.67	-	-	x	
Southern Grey-headed Sparrow	*Passer diffusus*	4.41	0.00	-	-	x	
Southern Masked Weaver	*Ploceus velatus*	60.29	8.33	-	-	x	
Southern Red Bishop	*Euplectes orix*	1.47	0.00	-	-	x	
Speckled Pigeon	*Columba guinea*	54.41	2.78	-	-	x	
Spike-heeled Lark	*Chersomanes albofasciata*	79.41	19.44	-	-	x	x
Spotted Eagle-Owl	*Bubo africanus*	20.59	2.78	-	-	x	x
Spotted Flycatcher	*Muscicapa striata*	1.47	0.00	-	-		
Spotted Thick-knee	*Burhinus capensis*	20.59	0.00	-	-	x	
Spur-winged Goose	*Plectropterus gambensis*	5.88	0.00	-	-		
Stark's Lark	*Spizocorys starki*	32.35	5.56	-	-		
Three-banded Plover	*Charadrius tricollaris*	4.41	0.00	-	-		x
Tractrac Chat	*Emarginata tractrac*	20.59	0.00	-	-	x	
Verreaux's Eagle	*Aquila verreauxii*	2.94	2.78	-	VU		
Wattled Starling	*Creatophora cinerea*	2.94	2.78	-	-		
Western Barn Owl	*Tyto alba*	2.94	0.00	-	-		
White-backed Mousebird	*Colius colius*	29.41	0.00	-	-	x	
White-bellied Sunbird	*Cinnyris talatala*	1.47	0.00	-	-		

Species name	Scientific name	Full protocol reporting rate	Ad hoc protocol reporting rate	Global status	Regional status	Recorded during monitoring in the broader area 2012	Recorded at Platsjambok East and West 2022
White-browed Sparrow-Weaver	***Plocepasser mahali***	**51.47**	**8.33**	**-**	**-**	**x**	
White-necked Raven	***Corvus albicollis***	**1.47**	**0.00**	**-**	**-**		
White-rumped Swift	***Apus caffer***	**23.53**	**2.78**	**-**	**-**	**x**	
White-throated Canary	***Crithagra albogularis***	**50.00**	**2.78**	**-**	**-**	**x**	
White-throated Swallow	***Hirundo albigularis***	**1.47**	**0.00**	**-**	**-**		
Yellow Canary	***Crithagra flaviventris***	**39.71**	**16.67**	**-**	**-**	**x**	
Yellow-bellied Eremomela	***Eremomela icteropygialis***	**44.12**	**22.22**	**-**	**-**		
Temminck's Courser	***Cursorius temminckii***	**0.00**	**0.00**	**-**	**-**		

7.2.1 *Conclusion*

- No new avifaunal sensitivities were recorded during the site inspection in October 2022 that had not already been identified previously in the Avian Impact Assessment Report (SiVEST 2013).
- No nests of Red Data priority species were recorded during the site inspection in October 2022.
- The site inspection in October 2022 confirmed that the findings of the Avian Impact Assessment Report (SiVEST 2022) are still valid and applicable, as the receiving environment had not changed in any material way.
- No additional mitigation measures were identified as a result of the site inspection in March 2022.

The proposed amendments are acceptable from an avifaunal perspective and will not change the nature or level of impact assessed. No additional mitigation measures will be required other than what was recommended in the original Avian Impact Assessment Report (SiVEST 2013). It is therefore recommended that the validity of the Environmental Authorisation be extended by an additional 3 years.

7.3 Impacts on Heritage

It is noted by the specialist that no changes to the layout and infrastructure from the original layouts are proposed and only the extension of the EA.

The evaluation of the original HIA and subsequent documentation has shown that it is envisaged no changes to the projected impact.

The management measures as included in the HIA (2011) remains true and needs to be implemented and is listed below.

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible.
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

7.3.1 *Conclusion*

It is our considered opinion that the extension of the EA for the authorised Mierdam will not have any additional impacts on the heritage resources inventory identified for the project as part of the original heritage study (van Schalkwyk, 2011). We conclude that this proposed extension of the EA can proceed from a heritage perspective.

7.4 Impacts on Visual

The proposed changes to the EA are considered to be purely administrative and will not give rise to additional visual impacts or exacerbate the impacts previously identified in the VIA for this development.

7.4.1 Conclusion

Furthermore, no additional recommendations or mitigation measures will be required, and all of the mitigation measures set out in the original VIA remain valid.

7.5 Impacts on Geotech

The previous geotechnical reports (Bernard, 2012 and Gibbs, 2013) suggests the sub-surface profiles on the sites comprises a thin sandy topsoil horizon, underlain by shallow 'competent' material of weakly cemented calcite/sandstone/siltstone. The BESS desktop assessment reports concluded the development of the sites will have a "Negative Low Impact" with no fatal flaws being identified that would render the proposed BESS site unsuitable. Considering the proposed changes to the 75MW Platsjambok West Photovoltaic (PV) Solar Energy Facility, from the geotechnical perspective, it is expected that there are unlikely to be any additional geotechnical impacts to those previously identified.

It is also most unlikely that the proposed changes to the project would either increase or reduce the significance of the impacts as assessed.

Regarding the above amendments, it is expected that no additional geotechnical impacts will arise to those previously identified. The proposed changes are not expected to decrease or increase any impact previously stated.

7.5.1 Conclusion

From a geotechnical and geological perspective, no fatal flaws, sensitivities or areas to avoid arise from the above amendments. It is therefore recommended that the proposed activity be authorised.

7.6 Impacts on Surface Water

The entire extent of the PV area, and associated infrastructure were previously assessed in terms of the EIA Regulations, 2014 (as amended). The aquatic biodiversity impact was confirmed to be very low. This is largely due to the lack of surface water resources within and around the site. The impacts and recommendations that were originally documented have not changed. Since the inception of the project, there have been no visible impacts from the existing PV areas, indicating that the impact of this activity is low and that the EMPr has been adhered to.

7.6.1 Conclusion

It is hereby recommended that the validity of the Environmental Authorisation be extended and the original input to the EMPr be kept the same.

7.7 Impacts on Agricultural

The impact rating as provided in the initial assessment remains valid. The mitigation measures provided in the initial assessment are still applicable. There are no new mitigation measures which need to be included into the EA.

7.7.1 Conclusion

The conclusions about the agricultural potential of the study area in the original assessment are completely valid and are verified in this assessment as still being true.

7.8 Impacts on Transport

The material findings of the original Transportation Study are summarised below:

- The proposed development was anticipated to have the greatest traffic impact during the construction phase due to the transportation of labour, construction plant, construction materials and PV Facility components. The anticipated traffic during the operation and maintenance phase was found to be significantly less.
- The main access to the facility was identified along the R357.
- The primary long-distance haulage routes were identified to emanate from Gqeberha (Port Elizabeth) and Saldanha Bay and follow a series of national routes (N10, N7) and provincial routes (R399, R27, R63, R386 and R357).

The above summarised points are among the primary factors influencing the outcomes and recommendations of the referenced Transportation Study. The circumstances giving rise to the Part 1 Amendment Application have not impacted on the factors stated above and therefore do not warrant any additional work in respect of the original Transportation Study.

7.8.1 Conclusion

An updated transportation assessment will not be required, and the findings and recommendations as contained in the previous report will still be valid. In terms of transportation, the proposed amendment of the environmental authorization can be approved.

7.9 Impacts on Social

The proposed changes to the EA are considered to be purely administrative and will not give rise to additional social impacts or exacerbate the impacts previously identified in the SIA for this development.

7.9.1 Conclusion

Based on an initial review of the impact assessment previously undertaken and the current state of the social environment, the proposed extension is unlikely to have a significant impact..

8 CUMULATIVE IMPACTS AND MITIGATION MEASURES IDENTIFIED WITHIN THE ORIGINAL EIA REPORT

8.1 Cumulative Impacts

Table 15: Cumulative impacts resulting from the proposed development

Environmental Parameter	Cumulative Impact
Ecology	**Construction** ▪ The movement of construction teams into the area (for all the projects in the area) could result in additional dust generation which could affect the vegetation and grazing potential in the area. Strict road maintenance is required. The Mainstream team must ensure that the construction footprint is strictly maintained to the absolute necessary to ensure that only the minimum area is utilised. This will minimise potentially cumulative impacts. **Operation** ▪ Ecological movement through the proposed development is critical to ensure movement of species. Emergence of alien species due to the influx of infrastructure is a risk that must be strictly managed through the EMPr. ▪ Bird mortalities as a result of the development could have cumulative threats on vulnerable bird species, however the significance is impossible to predict at this stage. **Decommissioning** ▪ Decommissioning of the plant will result in the elimination of the cumulative impacts mentioned above.
Heritage	▪ The cumulative effects on heritage resources could be high if stone-age, farmsteads or cemetery sites are physically disturbed or damaged.
Visual	▪ The proposed development is not the only renewable energy development proposed for the study area. If the proposed development along with other wind and solar facilities are approved and developed, the cumulative visual impact on certain of these receptor locations may be exacerbated. This may have the overall effect of changing the visual character of the area, making it an industrial energy node, with an altered visual baseline from what currently exists.
Geotechnical	▪ No cumulative impacts are anticipated..
Surface Water	▪ As the impacts on the surface water features would be of low intensity, and as surface water features are likely to be mostly avoided by the proposed development, no cumulative impacts are anticipated.
Agricultural Potential and Soils	▪ The cumulative impact will negligible. A slight increase in pressure on adjacent grazing may occur.
Visual	▪ The proposed development is not the only renewable energy development proposed for the study area. If the proposed development along with other wind and solar facilities are approved and developed, the cumulative visual impact on certain of these receptor locations may be exacerbated. This may have the overall

Environmental Parameter	Cumulative Impact
	effect of changing the visual character of the area, making it an industrial energy node, with an altered visual baseline from what currently exists.
Socio-economic	▪ The perception or expectation (even it if is unrealistic on the part of locals) that the project will offer employment often results in locals informing family and friends from elsewhere that there are jobs available in the area, which in turn then leads to the in-migration of jobseekers. This can make it difficult to distinguish between a permanent resident and an opportunistic jobseeker, which in turn can complicate a fair job allocation system should unskilled labour be required – even more so where there is very little demand, but an oversupply of labour. ▪ If a simultaneous in-migration of unemployed jobseekers occurs, this can intensify the temporary increase in need for housing. Some of the jobseekers might find shelter with friends or family while others are left destitute. This can then lead to the creation and/or expansion of informal settlements, which in turn can place additional strain on already limited resources (municipal services, available land, job opportunities, etc.). The expansion of informal settlement puts the local municipality under pressure as it increases the housing backlog with more and more people requiring formal housing and municipal services on par with RDP standards. ▪ If a HIV/AIDS prevention plan is implemented effectively within the local communities on a level that they understand, and if the necessary resources are easily available and accessible to the community (e.g. condoms, information posters, VCT centres, support groups) for the duration of the construction phase, this would leave an informed and empowered community behind who would be able to continue to prevent HIV infections by informing and empowering others. ▪ The presence of the PV Plant and associated infrastructure (substation and transmission line) can set an unintended precedent for further land use change. For example: If additional transmission lines are required in future it is oftentimes preferred to place such lines next to existing lines as the area is already regarded as disturbed. ▪ The cumulative impact of corporate social investments through Mainstream's proposed trust can be high. Economic empowerment (through funds and land), improved healthcare, business growth, skills development, and higher education are massive for the local people. These would increase earning potentials, improve livelihoods, increase life-spans, benefit quality of life variables, hasten local people out of poverty (where applicable), and assist future generations and relatives of those who benefit directly.

8.2 **Mitigation Measures**

8.2.1 *Ecology*

- Pre-construction site specific mitigation measures

The following mitigation measures are recommended for the study area:

- A full seasonal, pre-construction bird monitoring programme should be reinstated on the site. This monitoring would be critical to acquire a better understanding of the trends relating to the occurrence on the site of the priority species.
- The proponent should consider moving the PV infrastructure to parts of the site that are less sensitive. This recommendation is subject to the findings of the pre-construction bird monitoring.

- Construction site specific mitigation measures

The following mitigation measures are recommended for the study area:

- An on-site ecologist should be present when excavation takes place to ensure that any uncovered species are protected from destruction.
- Demarcation of sensitive areas prior to construction activities starting.
- Use of appropriate construction methods in the sensitive area.
- Intensive environmental audits (frequently in sensitive areas) by an independent party during this construction period.
- A copy of the Environmental Impact Report and associated Environmental Management Programme as well as the specialist study must be present at the construction site for easy reference to specialist recommendations in sensitive areas.
- It is recommended that the construction crew be educated about the sensitivities involved in these areas as well as the potential species they could encounter. A poster of sensitive species (compiled by a qualified specialist) should be kept on the construction site for easy reference.
- Rehabilitation to be undertaken as soon as possible after construction in sensitive area has been completed
- Only vegetation within the study area must be removed.
- Vegetation removal must be phased in order to reduce impact of construction.
- Construction site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas.
- All natural areas impacted during construction must be rehabilitated with locally indigenous plant species.
- Construction areas must be well demarcated and these areas strictly adhered to.
- The use of pesticides and herbicides in the study area must be discouraged as these impacts on important pollinator species of indigenous vegetation.
- Soils must be kept free of petrochemical solutions that may be kept on site during construction. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.

- Operation Site Specific Mitigation Measures

The following mitigation measures are recommended for the study area:

- Six monthly checks of the area should take place for the emergence of invader species.

- Mitigation measures mentioned for the construction phase above must be implemented for any maintenance of the development that may be undertaken during the operation phase.
- Correct rehabilitation with locally indigenous species.
- Monitoring programme to ensure that rehabilitation efforts are successful to ensure that risks such as erosion and the edge effect are avoided.
- Constant maintenance of the area to ensure re-colonisation of floral species.
- Regular removal of alien species which may jeopardise the proliferation of indigenous species.

- Decommissioning Mitigation and Management measures

All mitigation measures applied during construction will apply to the decommissioning phase of the project.

8.2.2 *Heritage*

Archaeological, historical and any other site or land considered of cultural value within the project boundary should be protected against vandalism, destruction and theft. Should these be discovered during any of the project activities, they should be preserved and appropriately management in accordance with the NHRA.

The following mitigation measures are recommended for the study area:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible.
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;.
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site.
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51 (1).
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods

proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

8.2.3 *Visual*

The following mitigation measures are recommended for the study area:

- No recommendations provided.

8.2.4 *Geotechnical*

The following mitigation measures are recommended for the study area:

- PV Foundations

A detailed geotechnical investigation will be required when the PV layout is confirmed and it should include:

- Further trial pits concentrated at the selected plant location
- Dynamic probes at selected locations to assess if any areas are suited to pile driving/ramming

- Substation Foundations

When the substation site is selected, a detailed geotechnical investigation will be required and it should include:

- At least two (2) trial pits
- Thermal and electrical resistivity tests

- MV Cables:

When the plant layout is finalised, a detailed geotechnical investigation will be required and should include:

- Trial pits along anticipated cable routes
- Thermal resistivity tests

8.2.5 *Surface Water*

The following mitigation measures are recommended for the study area:

- Mitigation measures related to roads

The following mitigation measures are recommended for the study area:

- Where at all possible, access roads should avoid crossing drainage lines.
- Existing access roads and tracks across wetlands must be used as far as possible, as these are typically associated with an existing impact on a wetland / stream. It is

preferable for existing drifts / causeways to be upgraded rather than new road structures built into an un-impacted section of the surface water feature.

- Where surface water features cannot be spanned by bridges, road design must incorporate a sufficient number and volume of culverts to allow flow that may occur within the feature to bypass the road in as natural a manner as possible.
- Measures to minimise stormwater ingress into surface water features off roads should be included in the design of the road. Stormwater from a road in the catchment of the feature should be directed into a deposition / swale area where it can infiltrate the ground and flow slowly into the feature, and not directly into it.
- Road design should take into account the potential for flooding and spate flows in wetlands, especially within valley bottom wetlands and along riverine corridors. Due to the nature of runoff in the study area, high flow peaks are likely to occur in the larger valley bottom drainage features due to the intermittent nature of rainfall and the development of soil crusting in many parts of the site. It is recommended that design be undertaken to withstand a 1:100 year flood.

- Mitigation measures related to underground cabling

The following mitigation measures are recommended for the study area:

- A simple mitigation measure would be to avoid the underground cables from being aligned across drainage lines. Alignment of the cabling should be routed to avoid crossing drainage lines as far as possible.
- In the event of a trench having to be excavated through a wetland, the following measures should apply:
    i. Care must be taken to avoid siltation in the wetland, and silt protection measures must be put in place downstream of the works.
    ii. If necessary re-vegetation should occur.
    iii. After construction the area should be monitored for the presence of any developing erosion.

8.2.6 *Agricultural Potential and Soils*

- Construction phase mitigation measures

The following mitigation measures are recommended for the study area:

- Clearing activities should be kept to a minimum (road and PV site footprint).
- In the unlikely event that heavy rains are expected activities should be put on hold to reduce the risk of erosion.
- If additional earthworks are required, any steep or large embankments that are expected to be exposed during the ‘rainy’ months should either be armoured with fascine like structures.
- If earth works are required then storm water control and wind screening should be undertaken to prevent soil loss from the site

- Operation phase mitigation measures

The following mitigation measures are recommended for the study area:

  - It is recommended that to the option of allowing seasonal grazing within the PV Fields be considered further by Mainstream in consultation with the landowner to further mitigate the loss of grazing land.

- Decommissioning phase mitigation measures

All mitigation measures applied during construction will apply to the decommissioning phase of the project.

8.2.7 *Socio-economic*

- Construction phase mitigation measures

Construction activities have the potential to largely impact on the social environment. Thus social mitigation measures ensure that construction activities are managed in such a manner that the positive impacts may be enhanced and the negative impacts are minimised as far as possible.

<u>Employment and Output Creation</u>

  - Ensure that the unskilled local jobs created are linked to a skills development programme for permanent employment

<u>Social Mobilisation</u>

  - Problem areas that are brought under the attention of the contractor should be rectified immediately. If the contractor is unable to so, this should be communicated to the landowner along with a plan on how and when the problem will be addressed. The landowner should be given regular feedback on the matter.
  - All mitigation measures contained in the EMPr should be implemented and monitored by an ECO. Remedial action should be taken where the contractor fails to comply with the EMPr.

<u>Health and Safety</u>

  - Mainstream or its contractor should appoint a service provider or local NGO to develop, implement and manage an HIV/AIDS prevention programme. The service provider or NGO should specialise in the field of HIV/AIDS.
  - The HIV/AIDS prevention programme should extend to the local community and should pay special attention to vulnerable groups such as women and youth.

- Operation phase mitigation measures

The following mitigation measures are recommended for the study area:

Employment and Output Creation

- Linking new and existing local businesses to the supply chain of the PV Plant.

Corporate Social Investment

- Using the most effective community structures for the trust fund, inclusion of existing structures, transparent rules in allocating funds, prioritisation according to community needs and building on existing regional synergies.

Sense of Place

- Implement mitigation measures detailed in the Visual Impact Assessment
- The impact on livelihoods should be monitored and evaluated before and after the construction of the PV Plant.

- Decommissioning phase mitigation measures

All mitigation measures applied during construction will apply to the decommissioning phase of the project.

9 POTENTIAL FOR CHANGE IN THE SIGNICANT OF CUMULATIVE IMPACTS AS ASSESSED IN THE EIA AS A RESULT OF THE REQUESTED AMENDMENT (2022)

9.1 Cumulative impacts on Ecology

The original ecological assessment (Koch 2012) indicates that possible issues of concern for cumulative impacts are dust generation, impacts on ecological movement of species, and emergence of alien species, and "Decommissioning of the plant will result in the elimination of the cumulative impacts mentioned above". The last statement is incorrect; loss of natural habitat is irreversible. This is because secondary vegetation that develops in areas where the soil profile is disturbed do not recover the original species composition. The reasons are ecologically complex and, with rare exceptions, means that any loss of natural habitat is permanent.

The spatial extent of cumulative impacts can be calculated by determining the loss of habitat within the footprint area of the project relative to the extent of similar habitat within an assessed area. The 2018 National Land Cover dataset has land cover data in 73 naturals, degraded and transformed categories. Statistics can be extracted using a GIS algorithm that provides proportions of different land cover classes within 30 km of the current site. Only those classes that occur within the footprint area are of interest to the analysis since it is these classes that are affected by the proposed project. Other renewable energy projects within 30 km of the current site are as follows:

The exact areas for each of these projects is now known, but an estimate of 2500 ha is made for the total footprint of the combined projects. It is also assumed that similar land cover classes are affected as for the current project. The outcomes of the analysis of possible impacts on spatial extent are as follows:

1. Within 30 km of the current project, 96.4% of the landscape (272593 ha) is still in a natural state.
2. The loss of habitat predicted to occur due to the current project is 0.07% of the remaining natural habitatwithin 30 km of the current site. This is negligible.
3. A maximum of 0.92% of the remaining natural habitat within 30 km of the current site is potentially affected by all combined projects on the renewable energy database. This total cumulative spatial effectis considered to be small.

The cumulative impact due to the proposed current project is negligible.

9.2 Cumulative impacts on Avifauna

Cumulative effects are commonly understood to be impacts from different projects that combine to result in significant change in an area, which could be larger than the sum of all the individual impacts. The assessment of cumulative effects therefore needs to consider all renewable energy projects within a 30 km radius that have received an EA or are in process at the time of starting the environmental impact process, as well as the proposed Platsjambok . There are currently forty (40) renewable energy projects authorised, operational or in process within a 30 km radius around the proposed Platsjambok SEF (excluding those who have been withdrawn, lapsed or refused). The projects were identified using the latest (2022) Renewable Energy EIA Application Database for SA from (DFFE).

Table 16: Renewable energy projects within 30 km of the current site

Name	DFFE registration	Status
8 Infinite energy (PTY) LTR 140mw wind energy facility near Copperton, Northern Cape Province	12/12/20/2099	Approved
Construction of a 40MW Solar Photovoltaic Facility on Mierdam Farm near Prieska, within the Siyathemba Local Municipality in the Northern Cape Province	12/12/20/2320/2	Approved
Proposed Helena Solar 3: 75mW Solar pV Energy Facility near Copperton within Siyathemba Local Municipality in Northern Cape Province	14/12/16/3/3/2/767	Approved
Proposed Helena Solar 2: 75 mW Solar pV Energy Facility near Copperton, Northern Cape Province	14/12/16/3/3/2/766	Approved
Proposed Helena Solar 3: 75mW Solar pV Energy Facility near Copperton within Siyathemba Local Municipality in Northern Cape Province	14/12/16/3/3/2/765	Approved
Proposed PV2 Photovoltaic (Solar) energy facility on farm Klipgats Pan near Cooperton, Northern Cape Province	14/12/16/3/3/2/491	Approved

Name	DFFE registration	Status
Proposed PV6 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/490	In process
Proposed PV5 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/489	In process
Proposed PV4 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/488	In process
Proposed PV3 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/487	In process
Proposed PV2 energy plants o Farm Klipgats Pan near Copperton, Northern Cape Province	14/12/16/3/3/2/486	In process
100MW Photovoltaic (PV) Facility on portion 4 of the farm No 117, farm Klipgats Pan, Copperton, Northern Cape Province	12/12/20/2501	Approved
Proposed establishment of a PV Solar facility (Plamtsjambok) in Prieska, Siyathemba Local Municipality, Northern Cape Province	12/12/20/2320/3	In process
Construction of a Solar Photovoltaic Facility near Prieska, within the Siyathemba Local Municipality in the Northern Cape Province	12/12/20/2320	Approved
Construction of a 75MW Solar Photovoltaic Facility on the western portion of the Platsjambok Farm (Platsjambok West) near Prieska, within the Siyathemba Local Municipality in the Northern Cape Province	12/12/20/2320/5	Approved
Proposed RE Capital 14 (Pty) Ltd development within! Kai Garib LM	14/12/16/3/3/2/708	In process
Proposed PV11 PV solar energy plant on farm Hoekplaas, near Copperton, Northern Cape Province	14/12/16/3/3/2/502	In process
Proposed PV10 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/501	In process
Proposed PV9 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/500	In process
Proposed PV8 energy plants on Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/499	In process
Proposed PV7 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/498	In process
Proposed PV6 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/497	In process
Proposed PV5 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/496	In process

Name	DFFE registration	Status
Proposed PV4 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/495	In process
Proposed PV3 energy plants o Farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/494	In process
Proposed PV2 energy plants on farm Hoekplaas near Copperton, Northern Cape Province	14/12/16/3/3/2/493	In process
Mulilo Sonnedix Prieska PV	12/12/20/2503	Approved
75MW Hermanus PV3 solar energy facility and its associated infrastructureon the farm Hermansrus No 147 in the Northern Cape Province	14/12/16/3/3/2/888	In process
75MW Hermanus PV4 solar energy facility and its associated infrastructureon the farm Hermansrus No 147 in the Northern Cape Province	14/12/16/3/3/2/887	In process
Humansrus Solar PV Energy Facility (Pty) Ltd	14/12/16/3/3/2/707	In process
Proposed Garob Wind Energy fascility project near Copperton in the Northern Cape Province	14/12/16/3/3/2/279	Approved
The Proposed Garob Wind Farm To Kronos Substation, 132kv Power Line, Near Copperton, Within The Siyathemba Local Municipality, Of The Pixley Ka Seme District Municipality In The Northern Cape Province	14/12/16/3/3/1/769	Approved
Proposed Bosjesmansberg solar energy facility site near Copperton, Siyathemba Local Municipality, Northern Cape Province	14/12/16/3/3/2/579/3	Approved
Proposed Moiblox soar project within Pixley Ka Seme District Municipality, Northern Cape Province	14/12/16/3/3/2/547	In process
Proposed wind energy facility near Copperton, Northern Cape Province	12/12/20/2099	Approved
Proposed PV energy plant on farm Struisbult near Copperton, Northern Cape Province	12/12/20/2502	Approved
Proposed construction of a photovoltaic power generation facility, Prieska, Nothern Cape Province	12/12/20/1722	Approved
Proposed Badudex solar project withing Pixley Ka Seme District municipality, Northern Cape Province	14/12/16/3/3/2/546	In process
The proposed Mulilo photovoltaic solar energy plant Copperton Mine in the Northren Cape Province	14/12/16/3/3/1/454	Approved

The total affected land parcel area taken up by authorised and planned renewable energy projects within the 30 km radius, including the Platsjambok West PV Project is approximately 678 km². The

total affected land parcel area affected by the Platsjambok West PV Project equates to approximately 71 km². The proposed Platsjambok West PV Project land parcel area thus constitute approximately 10% of the total areas taken up by the authorised and planned renewable energy projects. The cumulative impact of the proposed Platsjambok PV Project is thus anticipated to be low.

The total area within the 30km radius around the proposed Platsjambok PV Project equates to about 3036km² of similar habitat (excluding developed areas). The total combined size of the land parcels potentially affected by renewable energy projects will equate to approximately 22% of the available untransformed habitat in the 30km radius. Assuming that all the projects are actually constructed, the cumulative impact of all the proposed renewable energy projects is estimated to be high. However, the actual physical footprint of the renewable energy facilities will be much smaller than the land parcel areas themselves. Furthermore, several of these projects must still be subject to a competitive bidding process where only the most competitive projects will win a power purchase agreement required for the project to proceed to construction. If all mitigation measures listed in the specialist reports are strictly implemented the cumulative impact could be reduced to medium.

9.3 Cumulative impacts on Heritage

The cumulative impact related to the number of other proposed wind and solar renewable projects in the vicinity of the approved Platsjambok PV were evaluated. It is specialists considered opinion that the cumulative impact on cultural heritage resources, as originally assessed, will not change and is the same as assessed in the original EIA.

9.4 Cumulative impacts on Visual

Although the previous VIAs considered the likely cumulative impacts resulting from renewable energy facility (REF) developments in the vicinity of the Platsjambok SEF project, it should be noted that, in the interim, EAs have been granted in respect of several new REFs in the vicinity of the Platsjambok SEF project. These projects were identified using the DFFE's Renewable Energy EIA Application Database for SA (incremental release Quarter 2 2022) in conjunction with information provided by Independent Power Producers operating in the broader region. Two of these projects are Wind Energy Facilities (WEFs) while the remaining projects are all SEFs. Although the different technologies are expected to have different impacts, all renewable energy developments and associated grid connection infrastructure are relevant as they contribute to the alteration of the visual character of the broader area. Three of the SEF projects have been constructed and are in operation and Garob WEF is under construction. Hence the landscape has already undergone noticeable change.

The previous VIA recognised the development of the Mierdam SEF in this area as the extension of human infrastructural influence in the landscape that is currently centred on the old Copperton Mine and Kronos Substation. This would represent an extension of an already visually altered component of the landscape, rather than the creation of a marked change in an otherwise "unaltered" context. Accordingly, cumulative impacts were rated as **LOW**.

However, the development of the additional REFS as proposed would result in the area becoming a renewable energy node, further changing the visual character of the area and altering the inherent sense of place, extending an increasingly industrial character into the broader area, and potentially resulting in significant cumulative impacts. It is however anticipated that these impacts could be mitigated to acceptable levels with the implementation of the relevant mitigation measures. In addition, it is possible that these developments in close proximity to each other could be seen as one large Renewable Energy Facility (REF) rather than several separate developments. Although this will not necessarily reduce impacts on the visual character of the area, it could potentially reduce the cumulative visual impacts on the landscape.

Having considered the new information relating to renewable energy developments in the broader area, the overall significance of cumulative impacts is increased from **LOW** to **MODERATE.**

9.5 Cumulative impacts on Geotech

None.

9.6 Cumulative impacts on Agricultural

All renewable energy developments within 30 km of the development being assessed are taken into account in order to assess the cumulative impact.

All of these projects have the same agricultural impacts in an almost identical agricultural environment, and therefore the same mitigation measures apply to all.

In quantifying the cumulative impact, the area of land taken out of grazing as a result of all fifteen developments (total generation capacity of 995 MW) will amount to a total of approximately 2,400 hectares. This is calculated using the industry standards of 2.5 and 0.3 hectares per megawatt for solar and wind energy generation respectively, as per the Department of Environmental Affairs (DEA) Phase 1 Wind and Solar Strategic Environmental Assessment (SEA) (2015). As a proportion of the total area within a 30km radius (approximately 282,700 ha), this amounts to 0.85% of the surface area. That is well within an acceptable limit in terms of loss of low potential agricultural land, which is only suitable for grazing, and of which there is no scarcity in the country.

Due to all of the considerations discussed above, the cumulative impact of loss of future agricultural production potential will not have an unacceptable negative impact on the agricultural production capability of the area. The proposed development is therefore acceptable in terms of cumulative impact, and it is therefore recommended that it be approved.

9.7 Cumulative impacts on Transport

None

9.8 Cumulative impacts on Social

It is unlikely that the proposed extension to the EA validity will give rise to additional cumulative social impacts or exacerbate the impacts previously identified in the SIA for this development.

9.9 No Go Alternative

The No-Go Alternative is the option of not establishing the PV Plant near Prieska. The No-Go option would therefore result in contributing to the demand for electricity and more specifically renewable energy targets in South Africa not being met. This would also hinder the economic injection that the project promises to provide for the town of Prieska in the form of short term employment and long term job creation and financial injection.

The No-Go alternative has thus been eliminated due to the fact that the identified environmental impacts can be suitably mitigated and that by not building the project, the socio-economic benefits would be lost.

10 NEED AND DESIRABILITY

10.1 Climate friendly development

The uptake of renewable energy offers the opportunity to address energy needs in an environmentally responsible manner and thereby allows South Africa to contribute towards mitigating climate change through the reduction of GHG emissions. South Africa is estimated to currently be responsible for approximately 1% of global GHG emissions (and circa half of those for which Africa is responsible) and is currently ranked 9th worldwide in terms of per capita carbon dioxide emissions. The proposed development and the associated electricity generated as a result of the facility will result in considerable savings on tons of CO_2 emissions.

10.2 Reduce dependency on fossil fuels

At present, more than 90% of South Africa's energy is generated by coal-fired power stations. Apart from the fact that these are finite resources that will eventually run out, fossil fuels are also harmful to the environment when used to produce electricity. During combustion, fossil fuels such as coal emit many by-products into the atmosphere, two (2) of which are carbon dioxide (CO_2) and sulphur dioxide (SO_2). Both these gases have been shown to contribute to the worsening climate crisis. Solar is a free and infinite resource that occurs naturally in the environment. Converting wind energy into electricity releases no harmful by-products into the environment and will reduce the dependency on fossil fuels.

10.3 Employment Creation

The development, procurement, installation, maintenance and management of renewable energy facilities have significant potential for job creation and skills development in South Africa. The

construction phase will create temporary employment opportunities and the operation phase will create limited full-time employment opportunities.

11 CUMULATIVE IMPACT ASSESSMENT

Based on the overall assessments of the surrounding environment in relation to the proposed amendment, the specialists did not identify any additional cumulative impacts associated with the proposed amendments.

It was noted that all the original impacts assessments done as part of the EIA process are still applicable due to the fact that there is no change in the baseline environment of the project site. Also, given the nature of the project and the proposed amendment, there are not any new impacts than what was initially identified, as these amendments will take place within the authorised development footprint.

12 CONCLUSION AND MOTIVATION FOR APPROVAL OF THE REQUESTED AMENDMENTS

The specialist verification undertaken as part of the amendment application process have concluded that there are no fatal flaws associated with the proposed amendments being requested by the developer. Based on the specialist findings, it is concluded that the proposed amendments to extend the validity of the EA are not expected to result in an increase to the significance ratings for the identified potential impacts.

The requested amendments include:

» An extension of the commencement period (validity) of the Environmental Authorisation by an additional 3 years.

The following mitigation measures have been proposed by the biodiversity specialist to replace those in the original assessment:

1. Ensure that impacts during construction and operation are restricted to the project footprint area and do not spread into surrounding natural areas.
2. Compile and implement the following management plans, each of which should include appropriate monitoring guidelines:
   a. Rehabilitation Management Plan.
   b. Alien Invasive Management Plan.
   c. Open Space Management Plan.
   d. Plant Rescue/Protection Management Plan.
   e. Black-footed Cat Management Plan (in consultation with EWT).
3. Obtain all required protected fauna, protected flora and protected tree permits from the relevant authorities. This will require a detailed pre-construction walk-through survey of the

infrastructure footprint area. This is primarily a legal compliance measure and is not necessarily to mitigate any specific impacts.

The following are the key motivating factors which indicate the advantages to granting the requested amendments:

1. Impacts identified within the original report are still applicable for the proposed amendments. No additional impacts or change in impact significance will result because of the amendments as the environment has not changed.
2. There is no objection to the proposed amendments by any of the specialist consultants who have completed a verification assessment. There is no disadvantage to developing the project on this site considering the results of the site verification assessment, and the request to extend the commencement period should be granted by the Department.
3. All the potential cumulative impacts associated with the Mierdam PV planned within the area (30km radius) can be regarded as Low or positive.
4. The Mierdam PV has the ability to create employment, opportunities for contractors in the surrounding areas, ownership opportunities for local communities, skills, supplier and enterprise development spend and the implementation of socioeconomic development initiatives.
5. Green infrastructure makes a contribution to the just energy transition.

Based on the nature of the requested amendments for Mierdam PV, the specialist findings confirmed that the environment has not materially changed since the undertaking of the original EIA in 2012, and that the impact ratings as provided in the initial assessment remains valid, and that the mitigation measures provided in the initial assessment are still applicable. It can be concluded that the requested amendments will not lead to any additional impacts other than those identified and assessed within the EIA of 2012.

The proposed amendments do not constitute a listed activity and the mitigation measures recommended in the EIA are adequate to manage the expected impacts as a result of the proposed amendments.

Therefore, taking into consideration the conclusions from the specialist site verification and motivation reports and the findings of this report, it is concluded that the proposed amendments are acceptable from an environmental perspective, subject to the implementation of the recommended mitigation measures included in the EIA as well as the Environmental Management Programme (EMPr).

13 PUBLIC PARTICIPATION PROCESS TO BE FOLLOWED

Public participation is the cornerstone of any Environmental Assessment process. The principles of NEMA as well as the EIA Regulations govern the EIA process, including public participation. The Public Participation Process (PPP) for the proposed development has been conducted according to Chapter 6 of the EIA Regulations of December 2014. These include provision of sufficient and transparent information on an ongoing basis to stakeholders to allow them to comment.

The public participation process is primarily based on two factors; firstly, ongoing interaction with the environmental specialists and the technical teams in order to achieve integration of technical assessment and public participation throughout. Secondly, to obtain the bulk of the issues to be addressed early on in the process, with the latter half of the process designed to provide environmental and technical evaluation of these issues.

The following key public participation tasks have been undertaken:

- The database/register of I&APs has been updated and maintained.
- Placement of site notices at the site on **17 October 2022 and 18 October 2022**.
- Written notifications to registered I&APs as well as Organs of State regarding the availability of the Motivation Report were distributed on **18 October 2022**.
- Placement of an advertisement in Volksblad newspaper and Gemsbok Newspaper on **19 October 2022** announcing the availability of the Motivation Report for a 30-day review and comment period.
- The Motivation Report has been made available for the 30-day review and comment period from **18 October** to **17 November 2022** on the SiVEST website: https://www.sivest.com/za/renewable-energy/

Comments received during the 30-day review and comment period will be responded to in a comments and response report and included as an appendix in the final submission of the Motivation Report to the DFFE for consideration in the decision-making process. Proof of attempts made to obtain comments from relevant Organs of State and key stakeholders will also be included in the Final Motivation Report.

SiVEST Environmental Division
12 Autumn Road Rivonia 2128
P O Box 2921, Rivonia. 2128
+27 11 798 0600
+27 11 798 0634
Email info@sivest.co.za
www.sivest.co.za

Contact Person: Rendani Rasivhetshele
Email: rendanir@sivest.co.za