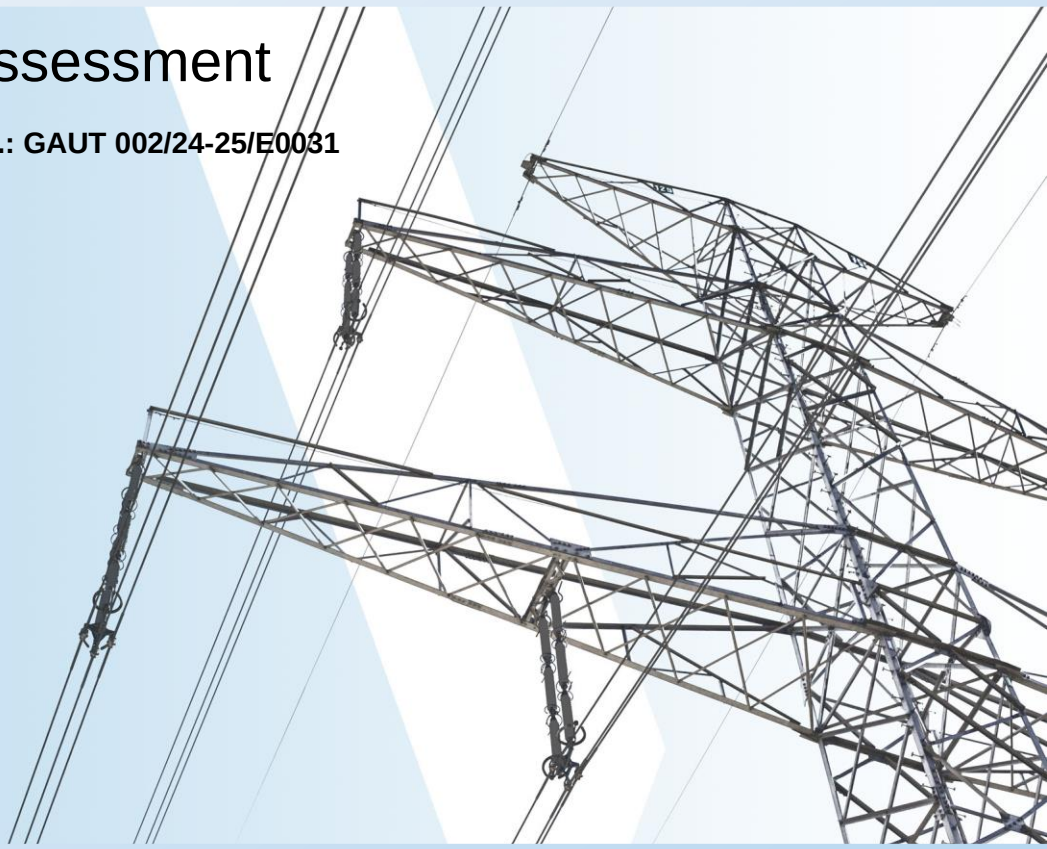
Enertrag South Africa (Pty) Ltd

132KV GRID CONNECTION AND ASSOCIATED INFRASTRUCTURE FOR THE IGOLIDE WIND ENERGY FACILITY, NEAR FOCHVILLE IN THE GAUTENG PROVINCE

Draft Basic Assessment

GDARD REFERENCE NO.: GAUT 002/24-25/E0031



GDARD REFERENCE NO.: GAUT 002/24-25/E0031
OCTOBER 2024

PUBLIC

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 41104282

OUR REF. NO. GDARD REFERENCE NO.: GAUT 002/24-25/E0031

DATE: OCTOBER 2024

WSP

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

Phone: +27 11 254 4800

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Draft BAR – Public Review			
Date	October 2024			
Prepared by	Jashmika Maharaj			
Signature	 jashmika.maharaj@wsp.com CN=jashmika.maharaj@wsp.com 11/14/24 4:36:28 PM			
Checked by	Ashlea Strong			
Signature	 Digitally signed by Ashlea Strong DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com Date: 2024.11.14 13:48:02 +02'00'			
Authorised by	Ashlea Strong			
Signature	 Digitally signed by Ashlea Strong DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com Date: 2024.11.14 13:48:09 +02'00'			
Project number	41104282			
Report number	01			
File reference	corp.pbwan.net\za\Central_Data\Projects\41100xxx\41104282 - Enertrag Egoli and Igolide WEF\41 PA\01-Reports\06 - BA\01 Draft BA			

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1/2022)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.

2. This template is current as of April 2022. It is the responsibility of the EAP to ascertain whether subsequent versions of the template have been published or produced by the competent authority.

3. A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.

4. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority (uploaded to the EIA online system) empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application. The EIA online system can be accessed at https://eia.gauteng.gov.za.**

5. **A copy (PDF) of the final report and attachments must be uploaded to the EIA online system. The EIA online system can be accessed at https://eia.gauteng.gov.za.**

6. **Draft and final reports submitted in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) must be emailed to environmentsue@gauteng.gov.za.**

7. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

8. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.

9. An incomplete report may lead to an application for environmental authorisation or Waste Management License being refused.

10. Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorization or Waste Management License being refused.

11. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation or Waste Management License being refused.

12. The applicant must fill in all relevant sections of this form. Incomplete applications will not be processed. The applicant will be notified of the missing information in the acknowledgement letter that will be sent within 10 days of receipt of the application.

13. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.

14. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development

Attention: Administrative Unit of the Sustainable Utilisation of the Environment (SUE) Branch

P.O. Box 8769

Johannesburg

2000

Ground floor, Umnotho House, 56 Eloff Street, Johannesburg

Administrative Unit telephone number: (011) 240 3051/3052

Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:						
File Reference Number:						
Application Number:						
Date Received:						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

The draft Basic Assessment Report (BAR) for the proposed development of the 132kV grid connection in support of the Igolide Wind Energy Facility (Department of Forestry, Fisheries and the Environment [DFFE] reference number: 14/12/16/3/3/2/2385, Environmental Authorisation [EA] dated 31 January 2024) was submitted with the Application form to this Department on the 25 October 2024.

However, the Applicant (ENERTRAG South Africa (Pty) Ltd (ENERTRAG)) and the EAP (WSP Group Africa (Pty) Ltd (WSP)) were made aware of this BAR template by the Competent Authority for the project, i.e. GDARD on the 30 October 2024. GDARD requested for the Departments BAR template in order for the Application submitted on the 25 October 2024 to be processed.

Subsequently, the GDARD BA template has been completed by the EAP and therefore is being submitted separately from the original draft BAR submitted on 25 October 2024. The original draft BAR has been appended to this form as a supporting document as the report provides a comprehensive breakdown of the proposed project and is written in accordance with Appendix 1 of the EIA Regulations, 2017 (as amended).

Is a closure plan applicable for this application and has it been included in this report? No

if not, state reasons for not including the closure plan.

The proposed development of the 132kV grid connection in support of the approved Igolide Wind Energy Facility (WEF) is proposed to be a permanent structure and therefore a closure plan is not included with this application.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? Yes

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? Yes

If no, state reasons for not attaching the list.

Have State Departments including the competent authority commented? No

If no, why?

The draft BAR is currently in the Public Participation Phase, and therefore has been submitted for 30-day public review. The public review period is between 15 November 2024 to 06 January 2025 (the public review dates considers the 15 December 2024 to 05 January 2025 departmental shutdown). Comments from state departments are still being received and will be responded to in the Comments and Responses Report, which will be submitted with the Final BAR.

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

132kV Grid Connection and Associated Infrastructure for the Igolide Wind Energy Facility, northeast of Fochville, within the Merafong City Local Municipality in the Gauteng Province.

Select the appropriate box

The application is for an upgrade of an existing development		The application is for a new development	X	Other, specify	

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES	NO
	X

If yes, describe the legislation and the Competent Authority administering such legislation

	YES	NO
If yes, have you applied for the authorisation(s)?		x
If yes, have you received approval(s)? (attach in appropriate appendix)	YES	NO
		x

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
The Constitution of South Africa (No. 108 of 1996)	National	8 May 1996
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	National & Provincial	27 November 1998
Identification of Procedures to be followed when applying for or deciding on an Environmental Authorisation Application for the Development of Electricity Transmission and Distribution	National	26 February 2021

Infrastructure when occurring in Energy Development Zones (GN 145)		
Adoption Of The Standard For The Development And Expansion Of Power Lines And Substations Within Identified Geographical Areas And The Exclusion Of This Infrastructure From The Requirement To Obtain An Environmental Authorisation (GNR 2313 dated 27 July 2022)	National	27 July 2022
National Environmental Management: Waste Act (59 of 2008) (NEM:WA)	National	2008
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	National	2004
National Environmental Management Protected Areas Act (No. 57 of 2003)	National	2003
The National Water Act (No. 36 Of 1998)	National	1998
The National Heritage Resources Act (No. 25 Of 1999)	National	1999
Mineral and Petroleum Resources Development Act (No. 28 of 2002)	National	2002
Noise Control Regulations in terms of the Environmental Conservation, 1989 (Act 73 of 1989)	National	1989
National Environment Management Air Quality Act (No. 39 of 2004)	National	2004
Conservation of Agricultural Resources Act (No. 43 of 1983)	National	1983
Civil Aviation Act (No. 13 of 2009)	National	2009
Occupational Health and Safety Act (No. 85 of 1993)	National	1993
National Energy Act (No. 34 of 2008)	National	2008
Electricity Regulation Act (No. 4 of 2006)	National	2006

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy of guideline	**Description of compliance**
The Constitution of South Africa (No. 108 of 1996)	The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	In terms of Section 24(2) of the NEMA, the Minister may identify activities, which may not commence without prior authorisation. The Minister thus published GNR 983 (as amended) (Listing Notice 1), GNR 984 (as amended) (Listing Notice 2) and GNR 985 (as amended) (Listing Notice 3) listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for authorisation are published in the EIA Regulations of 2014 (GNR 982) (as amended). Listing Notice 1 identifies activities that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of

	that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in this section are considered applicable to the development: A BA process must be followed. An EA is required and has been applied for with the GDARD.
Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (GNR 320, 20 March 2020 and GNR 1150, 30 October 2020)	The protocols provide the criteria for specialist assessment and minimum report content requirements for impacts for various environmental themes for activities requiring environmental authorisation. The protocols replace the requirements of Appendix 6 of the EIA Regulations, 2014, as amended. The assessment and reporting requirements of the protocols are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The following environmental themes were applicable to the proposed project: • Agricultural Theme • Animal Species Theme • Aquatic Biodiversity Theme • Archaeological and Cultural Heritage Theme • Civil Aviation Theme • Defence Theme • Palaeontology Theme • Plant Species Theme • Terrestrial Biodiversity Theme
Renewable Energy Development Zones and Strategic Transmission Corridors	On 16 February 2018, the DFFE gazetted the Renewable Energy Development Zones (REDZs) and Strategic Transmission Corridors and Procedures for the Assessment of Large-scale Wind and Solar Photovoltaic Energy Development Activities (GN 114) and Grid Infrastructure (GN 113). Subsequently, on 26 February 2021 a further three REDZ were gazetted (GN 142). The procedure allows for wind and solar PV activities within the eight REDZs and electricity grid development within the five power corridors to be subjected to a BA and not a full S&EIA process. In addition, the timeframes associated with the decision on the application is reduced from 107 days to 57 days. **The Igolide 132kV Grid Connection is located within the Central Strategic Corridor.**
Identification of Procedures to be followed when applying for or deciding on an Environmental Authorisation Application for the Development of Electricity Transmission and Distribution Infrastructure when occurring in Energy Development Zones (GN 145)	Regulation 3 of GN 145 states: The scope of this Notice applies to an application for an amendment to an environmental authorisation contemplated in Part 2 of Chapter 5 of the Environmental Impact Assessment Regulations, 2014, as amended, and for an application for an environmental authorisation when triggering the following activities related to the development of electricity transmission and distribution infrastructure, including any associated activities necessary for the realisation of such infrastructure, where the greater part of the facility is undertaken within a Renewable Energy Development Zone contemplated in paragraph 1 or 2 of this Schedule. Regulation 3 of GN145 is therefore applicable to the Igolide corridor, which is therefore subject to a BA process As required by Regulation 5 of GNR 145, the BAR outlines and assesses the corridor within which the pre-negotiated route will occur.
Adoption Of The Standard For The Development And	The Standard for the Development and Expansion of Power Lines and Substations within Identified Geographical Areas Revision 2 June 2022,

Expansion Of Power Lines And Substations Within Identified Geographical Areas And The Exclusion Of This Infrastructure From The Requirement To Obtain An Environmental Authorisation (GNR 2313 dated 27 July 2022)	and based on compliance with this Standard, exclude, in terms of section 24(2)(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) the activities, as set out in the Schedule, including listed or specified activities necessary for the realisation of the development or expansion of power line and substation infrastructure, from the requirement to obtain environmental authorisation. The standard will only apply to powerlines and their associated infrastructure where a site sensitivity verification has been undertaken and has verified that all sensitivities on site are medium or low. **In the case of the Igolide 132kV Grid Connection the norm does not apply as Terrestrial biodiversity was verified as Very High Sensitivity and Aquatic Biodiversity and Avifauna were both verified to be of high sensitivity.**
National Environmental Management: Waste Act (59 of 2008) (NEM:WA)	This Act provides for regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation. The Act also provides for the licensing and control of waste management activities through GNR. 921 (2013): List of Waste Management Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment. The proposed project does not constitute a Listed Activity requiring a Waste Management Licence (WML) as defined in GNR 921. However, the contents of this report will include reasonable measures for the prevention of pollution and good international industry practice (GIIP).
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) was promulgated in June 2004 within the framework of NEMA to provide for the management and conservation of national biodiversity. The NEMBA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEMBA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI). SANBI was established by the NEMBA with the primary purpose of reporting on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems. The Gauteng C-Plan (3.3) delineations indicate that a large patch of land in the far south of the proposed Igolide Grid Infrastructure area is designated CBA, and a small patch is designated ESA. Furthermore, large patches of land in the north of the N12 Highway are also delineated as ESA. **Refer to terrestrial biodiversity assessment in Appendix G.4.** The Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA) Regulations with regards to alien and invasive species have been superseded by the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) – Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014. Specific management measures for the control of alien and invasive plants have been included in the **Environmental Management Programme (EMPr)- Appendix H**.
National Environmental Management Protected Areas Act (No. 57 of 2003)	The purpose of the National Environmental Management Protected Areas Act (No. 57 of 2003) (NEMPAA) is to, inter alia, provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. To this end, it provides for the declaration and management

	of various types of protected areas. Section 50(5) of NEMPAA states that "no development, construction or farming may be permitted in a nature reserve or world heritage site without the prior written approval of the management authority." The Gauteng C-Plan (3.3) delineations indicate that a large patch of land in the far south of the proposed Igolide Grid Infrastructure area is designated 'Critical Biodiversity Area (CBA), and a small patch is designated 'Ecological Support Areas' (ESA). Furthermore, large patches of land in the north of the N12 Highway are also delineated as Ecological Support Areas (ESA). **Refer to terrestrial biodiversity assessment in Appendix G.4 of the draft BAR**.
The National Water Act (No. 36 Of 1998)	The National Water Act, 1998 (Act No. 36 of 1998) (NWA) provides the framework to protect water resources against over exploitation and to ensure that there is water for social and economic development, human needs and to meet the needs of the aquatic environment. The Act defines water source to include watercourses, surface water, estuary or aquifer. A watercourse is defined in the Act as a river or spring, a natural channel in which water flows regularly or intermittently, a wetland, lake or dam into which or from which water flows, and any collection of water that the Minister may declare a watercourse. Section 21 of the Act outlines a number of categories that require a water user to apply for a Water Use License (WUL) and Section 22 requires water users to apply for a General Authorisation (GA) with the Department of Water and Sanitation (DWS) if they are under certain thresholds or meet certain criteria. The list of water uses applicable to the proposed Project include: a) Taking water from a water resource; c) Impeding or diverting the flow of water in a watercourse; g) Disposing of waste in a manner which may detrimentally impact on a water resource; i) Altering the bed, banks, course or characteristics of a watercourse; The DWS will make the final decision on water uses that are applicable to the project through a pre-application meeting after which a Water Use Authorisation Application (WUA) as determined by the risk assessment will be undertaken in compliance with procedural regulations published by the DWS within General Notice 267 (GN267). These regulations specify required information per water use and the reporting structure of required supporting technical information.
The National Heritage Resources Act (No. 25 Of 1999)	The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the South African Heritage Resources Agency (SAHRA) and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development. Part 2 of the NHRA details specific activities that require a Heritage Impact Assessment (HIA) that will need to be approved by SAHRA. Parts of Section 35, 36 and 38 apply to the proposed project, principally: • Section 35 (4) - No person may, without a permit issued by the responsible heritage resources authority- - destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

	- destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite. • Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as- - any development or other activity which will change the character of a site— (i) exceeding 5 000 m^2 in extent, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed Igolide WEF, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668). A Heritage Report (**Appendix G.8 of the draft BAR**) has been carried out by a suitably qualified specialist, revealing: • The survey for this project resulted in the finding of a number of stone-walled archaeological sites. • The other main impact is on the cultural landscape. Given the existence of various mines and powerlines in the area this is not a significant consideration in terms of heritage impacts. The proposed project has been loaded onto the SAHRIS portal, and a case ID has been issued. This report will be uploaded on the SAHRIS portal for comment by SAHRA and PHRA-G.
Mineral and Petroleum Resources Development Act (No. 28 of 2002)	The aim of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA) is to make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources. Section 53(1) of the MPRDA provides that any person who intends to use the surface of any land in any way that may be contrary to any object of the MPRDA, or which is likely to impede any such object, must apply to the Minister of Mineral Resources (the Minister) for approval. Section 53 of the MPRDA provides a mechanism for ensuring that, inter alia, the mining of mineral resources is not detrimentally affected through the use of the surface of land and which may, for example, result in the sterilisation of a mineral resource. A Section 53 approval will be required due to the fact that the project is located on various mining right areas. The Amendment Regulations (GNR 420 of 27 March 2020) introduced a template for section 53 applications (Form Z) and the specific information that applicants will need to provide as part of a section 53 application.
Noise Control Regulations in terms of the Environmental Conservation, 1989 (Act 73 of 1989)	In South Africa, environmental noise control has been in place for three decades, beginning in the 1980s with codes of practice issued by the South African National Standards (formerly the South African Bureau of Standards, SABS) to address noise pollution in various sectors of the country. Under the previous generation of environmental legislation, specifically the Environmental Conservation Act 73 of 1989 (ECA), provisions were made to control noise from a National level in the form

	of the Noise Control Regulations (GNR 154 of January 1992). In later years, the ECA was replaced by the National Environmental Management Act 107 of 1998 (NEMA) as amended. The National Environmental Management: Air Quality Act 39 of 2004 (NEMAQA) was published in line with NEMA and contains noise control provisions under Section 34: *(1) The minister may prescribe essential national standards –* *(a) for the control of noise, either in general or by specific machinery or activities or in specified places or areas; or* *(b) for determining –* *(i) a definition of noise; and* *(ii) the maximum levels of noise.* *(2) When controlling noise, the provincial and local spheres of government are bound by any prescribed national standards.* Under NEMAQA, the Noise Control Regulations were updated and are to be applied to all provinces in South Africa. The Noise Control Regulations give all the responsibilities of enforcement to the Local Provincial Authority, where location specific by-laws can be created and applied to the locations with approval of Provincial Government. Where province-specific regulations have not been promulgated, acoustic impact assessments must follow the Noise Control Regulations. Furthermore, NEMAQA prescribes that the Minister must publish maximum allowable noise levels for different districts and national noise standards. These have not yet been accomplished and as a result all monitoring and assessments are done in accordance with the South African National Standards (SANS) 10103:2008 and 10328:2008.
National Environment Management Air Quality Act (No. 39 of 2004)	The National Environment Management: Air Quality Act (No. 39 of 2004) (NEMAQA) came into effect on 11 September 2005. Persons undertaking such activities listed under GNR 893, as amended, are required to possess an Atmospheric Emissions License (AEL). The National Dust Control Regulations (GNR 827) were promulgated in terms of Section 32 of NEMAQA, which aim at prescribing general measures for the control of dust in both residential and non-residential areas. Although no AEL will be required for the construction and operation of the proposed project, the dust control regulations will be applicable during construction.
Conservation of Agricultural Resources Act (No. 43 of 1983)	The Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) provides for the implementation of control measures for soil conservation works as well as alien and invasive plant species in and outside of urban areas. In terms of the amendments to the regulations under the CARA, landowners are legally responsible for the control of alien species on their properties. Various Acts administered by the DFFE and the DWS, as well as other laws (including local by-laws), spell out the fines, terms of imprisonment and other penalties for contravening the law. Although no fines have yet been placed against landowners who do not remove invasive species, the authorities may clear their land of invasive alien plants and other alien species entirely at the landowners' cost and risk. The CARA Regulations with regards to alien and invasive species have been superseded by NEMBA Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014.
Civil Aviation Act (No. 13 of	Civil aviation in South Africa is governed by the Civil Aviation Act (Act 13

2009)	of 2009). This Act provides for the establishment of a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by South African Civil Aviation Authority (SACAA) as an agency of the Department of Transport (DoT). SACAA achieves the objectives set out in the Act by complying with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organisation (ICAO), while considering the local context when issuing the South African Civil Aviation Regulations (SA CARs). As of the 1st of May 2021, Air Traffic and Navigation Services (ATNS) has been appointed as the new Obstacle application Service Provider for Windfarms and later Solar Plants. Their responsibility would pertain to the assessments, maintenance, and all other related matters in respect to Windfarms and in due time Power Plant assessments. The DFFE Screening Tool Report identified Civil Aviation as having high sensitivity for the proposed project, with a civil aviation aerodrome located within 8km and 15km of the site. ATNS and SACAA have been included on the project stakeholder database.
Occupational Health and Safety Act (No. 85 of 1993)	The National Occupational Health and Safety Act (No. 85 of 1993) (OHSA) and the relevant regulations under the Act are applicable to the proposed project. This includes the Construction Regulations promulgated in 2014 under Section 43 of the Act. Adherence to South Africa's OHSA and its relevant Regulations is essential.
National Energy Act (No. 34 of 2008)	The National Energy Act aims to ensure that diverse energy resources are available, in sustainable quantitates, and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors. The main objectives of the Act are to: • Ensure uninterrupted supply of energy to the Republic; • Promote diversity of supply of energy and its sources; • Facilitate effective management of energy demand and its conservation; • Promote energy research; • Promote appropriate standards and specifications for the equipment, systems and processes used for producing, supplying and consuming energy; • Ensure collection of data and information relating to energy supply, transportation and demand; • Provide for optimal supply, transformation, transportation, storage and demand of energy that are planned, organised and implemented in accordance with a balanced consideration of security of supply, economics, consumer protection and a sustainable development; • Provide for certain safety, health and environment matters that pertain to energy; • Facilitate energy access for improvement of the quality of life of the people of Republic; • Commercialise energy-related technologies; • Ensure effective planning for energy supply, transportation, and consumption; and • Contribute to sustainable development of South Africa's economy. In terms of the act, the Minister of Energy is mandated to develop and, on an annual basis, review and publish the Integrated Energy Plan (IEP) in the Government Gazette. The IEP analyses current energy consumption trends within different sectors of the economy (i.e. agriculture, commerce, industry, residential and transport) and uses this

	to project future energy requirements, based on different scenarios. The IEP and the Integrated Resource Plan are intended to be updated periodically to remain relevant. The framework is intended to create a balance between energy demand and resource availability so as to provide low-cost electricity for social and economic development, while taking into account health, safety and environmental parameters.
Electricity Regulation Act (No. 4 of 2006)	The Electricity Regulation Act (No. 4 of 2006) (ERA) aims to: • Achieve the efficient, effective, sustainable and orderly development and operation of electricity supply infrastructure in South Africa; • Ensure that the interests and needs of present and future electricity customers and end users are safeguarded and met, having regard to the governance, efficiency. effectiveness and long-term sustainability of the electricity supply industry within the broader context of economic energy regulation in the Republic: • Facilitate investment in the electricity supply industry; • Facilitate universal access to electricity; • Promote the use of diverse energy sources and energy efficiency; • Promote competitiveness and customer and end user choice; and • Facilitate a fair balance between the interests of customers and end users, licensees, investors in the electricity supply industry and the public. The Act establishes a National Energy Regulator as the custodian and enforcer of the National Electricity Regulatory Framework. The Act also provides for licenses and registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated.

3. ALTERNATIVES

A detailed outline of the Alterantives is included in Appendix I.6

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

The proposed alternatives were selected based on the specialist studies undertaken for the project, existing and authorised infrastructure and the landowner consents.

Provide a description of the alternatives considered

Alternative	Preferred	Comment
Site	The purpose of the proposed 132kV grid connection is to evacuate the combined generating	The purpose of the proposed 132kV grid connection is to

Alternative	Preferred	Comment
	capacity of the authorised Igolide WEF to the existing East Drie Five Substation. Therefore, the site has been selected due to the proximity to the Igolide WEF. The 132kV grid connection for the Igolide WEF is located on the following properties: ▪ Portion 20 of Farm Kraalkop 147IQ ▪ Portion 31 of Kraalkop 147 IQ ▪ Portion 45 of Kraalkop 147 IQ ▪ Portion 46 of Kraalkop 147 IQ ▪ Portion 53 of Kraalkop 147 IQ ▪ Portion 68 of Kraalkop 147 IQ ▪ Portion 11 of Leeuwpoort 356 IQ ▪ Portion 77 of Leeuwpoort 356 IQ	evacuate the combined generating capacity of the authorised Igolide WEF to the existing East Drie Five Substation. **As the powerline is located within the Central Strategic Transmission Corridor, only one Alternative is required to be assessed**. Therefore, the site has been selected due to the proximity to the Igolide WEF as well as the pre-negotiated route alignment.
Activity	Only one activity has been assessed (i.e. an overhead powerline and substation). Alternative activities for the current Project are not reasonable or feasible as the purpose of this is to transmit power generated by the authorised Igolide WEF to the existing East Drie Five Substation.	Power generated by the authorised Igolide WEF will be transmitted by the 132 kV grid connection to the existing East Drie Five Substation
Technology – Towers	Two types of tower structures have been considered for the OHPL: monopole towers or steel lattice towers.	There is no preferred tower technology, and either tower structure is acceptable.
Technology - Cabling	The 132kV grid connection for the Igolide WEF will utilise an OHPL to transmit the power generated from the authorised Igolide WEF to the existing East Drie Five Substation.	Motivation for the use of an OHPL includes: ▪ Underground cables are considerably more difficult and expensive to install and maintain, relative to overhead lines. ▪ The terrain of the site includes CBA and ESA areas and wetlands, therefore underground cables would require extensive trenching which would result in greater environmental impacts. An OHPL therefore considered preferred for the proposed project.
Layout Alternatives -	The OHPL is required to be located between the proposed back-to-back 132 kV substation at the approved Igolide WEF and the existing East Drie Five Substation (to be upgraded). After investigation and liaison with the land owners for the private properties, only the pre-negotiated route alternative was proposed for the project.	Only one powerline route has been proposed for the project and assessed by the specialists due to the following: ▪ As per the requirements of GN 145, a pre-negotiated gridline alignment The route will have minimal impact on the sensitivities identified in the study area; ▪ A 250m corridor along the

Alternative	Preferred	Comment
		powerline (125m either side of centreline) has been assessed as part of this BAR.

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

The powerline is located within the Central Strategic Transmission Corridor, therefore only one Alternative is required to be assessed.

4. PHYSICAL SIZE OF THE ACTIVITY

A detailed outline of the Project Description is included in Appendix I.5

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)***	6.5 ha (required for the switching station at the WEF and the termination works at the existing East Drie Five Substation)
Alternatives:	
Alternative 1 (if any)	[redacted]
Alternative 2 (if any)	
	Ha/ m^2

or, for linear activities:

	Length of the activity:
Proposed activity	4km (required for the overhead powerline)
Alternatives:	
Alternative 1 (if any)	[redacted]
Alternative 2 (if any)	
	m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	193 000m^2
Alternatives:	

Alternative 1 (if any)

Alternative 2 (if any)

[redacted]

Ha/m^2

5. SITE ACCESS

Proposal

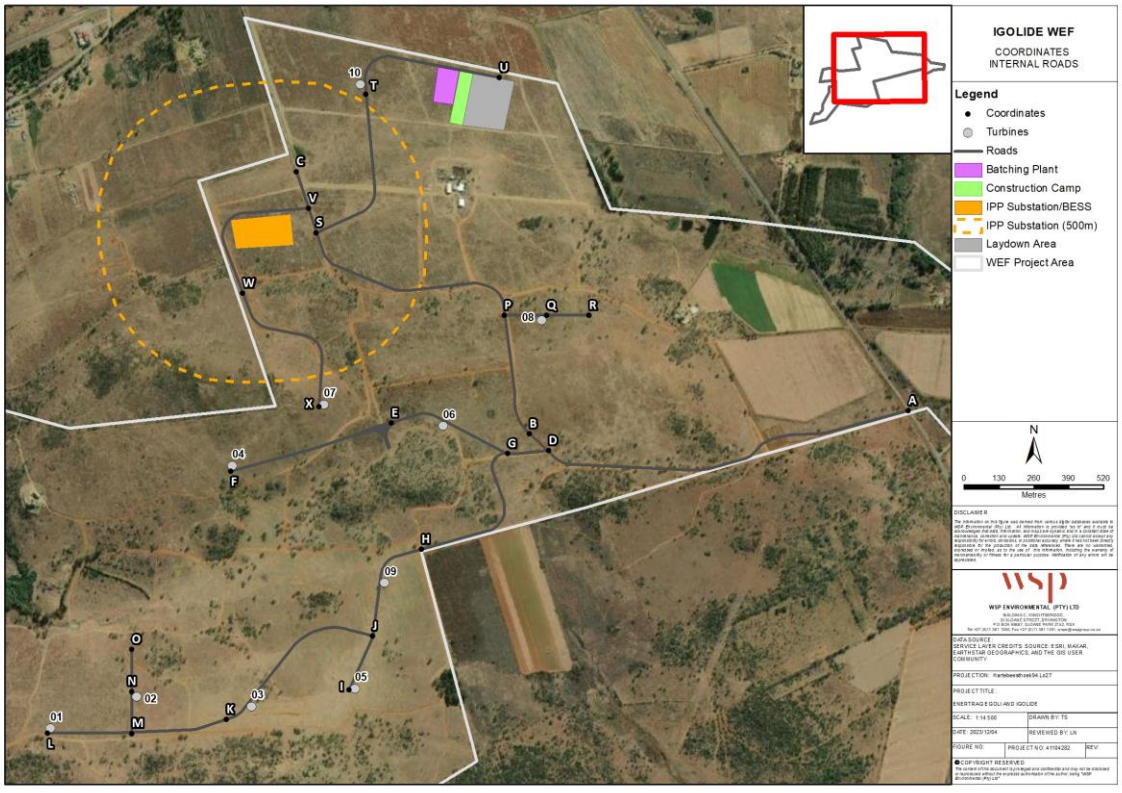
Does ready access to the site exist, or is access directly from an existing road?	YES	NO
	[redacted]	X
If NO, what is the distance over which a new access road will be built		4km

Describe the type of access road planned:

During construction, a permanent access road along the length of the powerline corridor, between 4 – 6m wide will be established to allow for large crane movement. This track will then be utilised for maintenance during operation.

Permanent access roads to and within the substation, up to 8m wide, will be established.

Access to the Switching station will be a road already authorised within the WEF EA. The road that will be used will follow route A-D-B-P-S-V as illustrated on the figure below.



Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?

[redacted]

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

?Describe the type of access road planned:

[redacted]

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?

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

?Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated | 1 | Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);
- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- s within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix**.** It should be supplemented with additional photographs of relevant features on the site, where applicable.

8. FACILITY ILLUSTRATION

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

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

A detailed outline of the Baseline Environment is included in Appendix I.7

The DFFE Screening Tool Report is included in Appendix I.2

The Site Sensitivity Verification Report is included in Appendix I.3

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route | **1** **(Powerline)** | times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives | **2** **(Switching Station and Termination Works at East Drie Five Substation)** | times | (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route	**1**	(complete only when appropriate for above)
Section B – Location/route Alternative No.	**2**	(complete only when appropriate for above)

1 - SECTION B FOR LINEAR ACTIVITY – IGOLIDE 132KV OVERHEAD POWERLINE

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	▪ Portion 20 of Kraalkop 147 IQ ▪ Portion 31 of Kraalkop 147 IQ ▪ Portion 45 of Kraalkop 147 IQ ▪ Portion 46 of Kraalkop 147 IQ ▪ Portion 53 of Kraalkop 147 IQ ▪ Portion 68 of Kraalkop 147 IQ ▪ Portion 11 of Leeuwpoort 356 IQ ▪ Portion 77 of Leeuwpoort 356 IQ

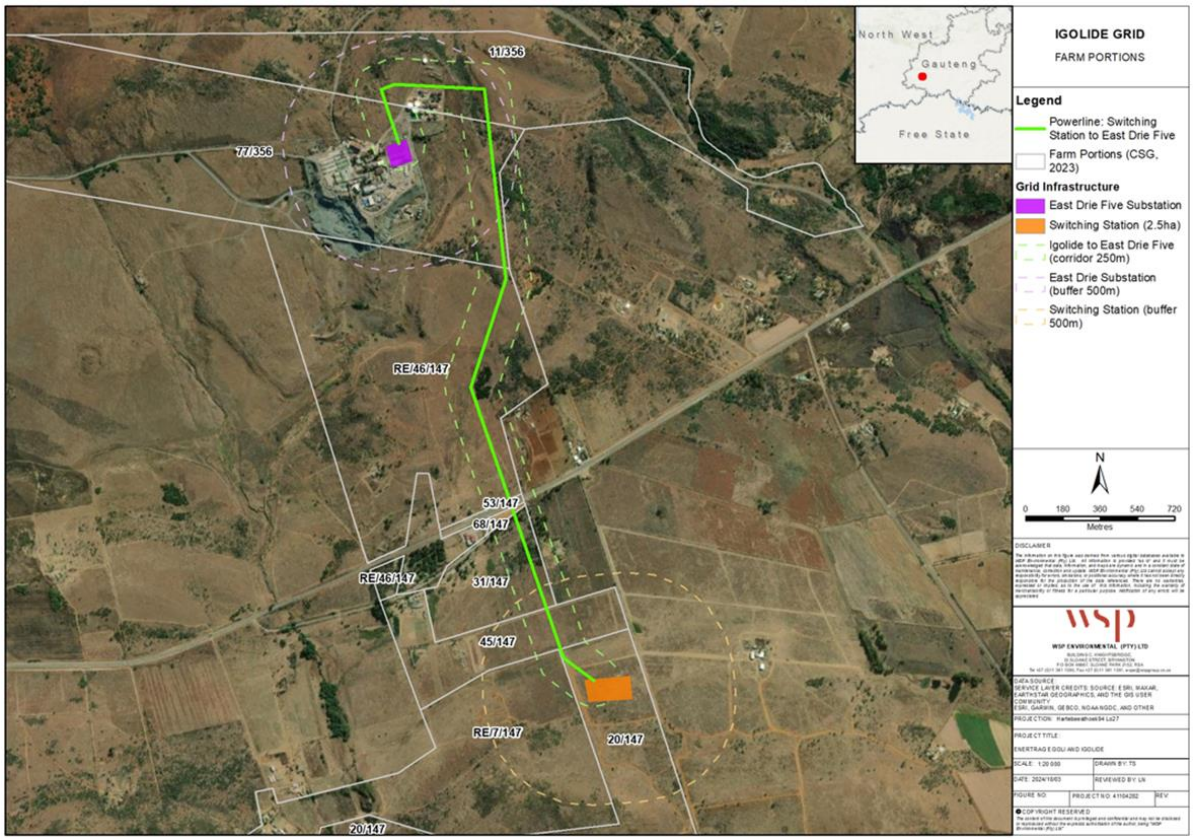


Figure 1: Boundary of the property or properties traversed by the proposed project

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

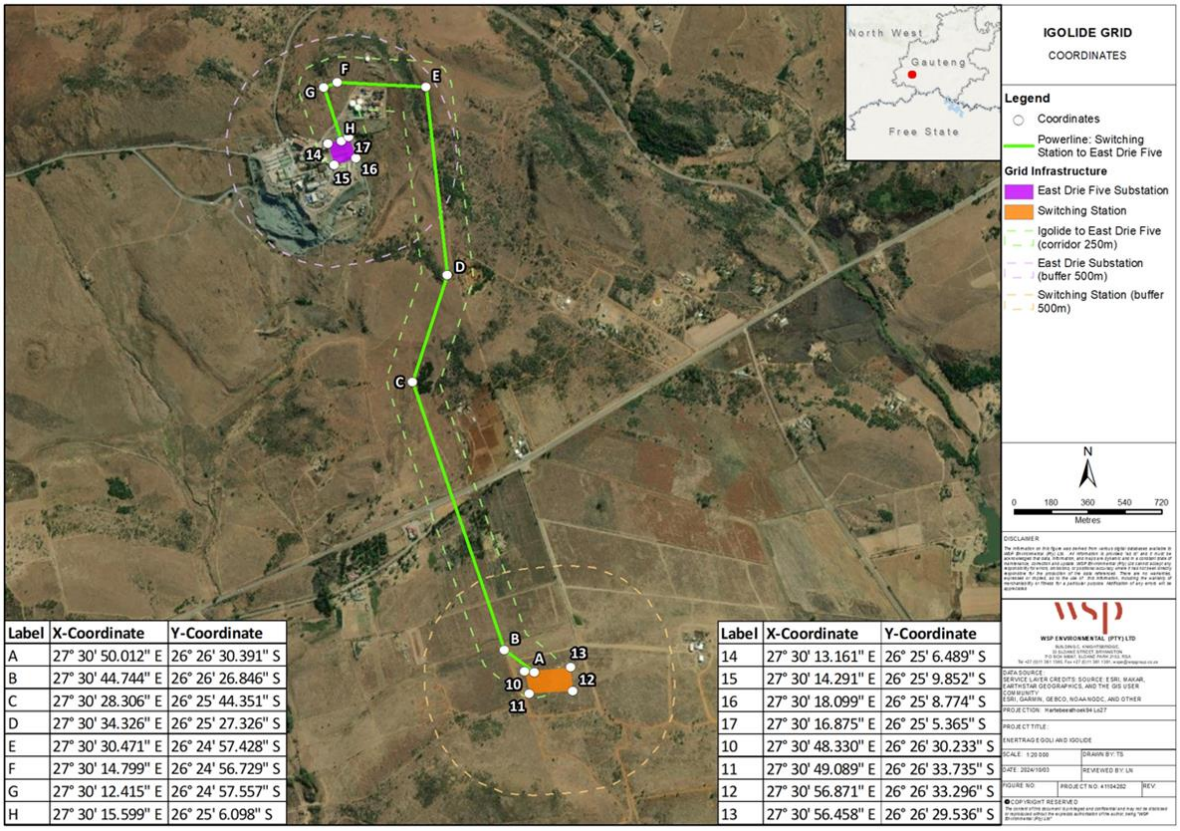
Alternative: **Latitude (S):** **Longitude (E):**

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	27° 30' 50.012" E	26° 26' 30.391" S
• Middle point of the activity	27° 30' 28.306" E	26° 25' 44.351" S
• End point of the activity	27° 30' 15.599" E	26° 25' 6.098" S

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Please see the layout map (Figure 2) and table of coordinates (Table 1) for the proposed project below.



Label	X-Coordinate	Y-Coordinate
A	27° 30' 50.012" E	26° 26' 30.391" S
B	27° 30' 44.744" E	26° 26' 26.846" S
C	27° 30' 28.306" E	26° 25' 44.351" S
D	27° 30' 34.326" E	26° 25' 27.326" S
E	27° 30' 30.471" E	26° 24' 57.428" S
F	27° 30' 14.799" E	26° 24' 56.729" S
G	27° 30' 12.415" E	26° 24' 57.557" S
H	27° 30' 15.599" E	26° 25' 6.098" S

Label	X-Coordinate	Y-Coordinate
14	27° 30' 13.161" E	26° 25' 6.489" S
15	27° 30' 14.291" E	26° 25' 9.852" S
16	27° 30' 18.099" E	26° 25' 8.774" S
17	27° 30' 16.875" E	26° 25' 5.365" S
10	27° 30' 48.330" E	26° 26' 30.233" S
11	27° 30' 49.089" E	26° 26' 33.735" S
12	27° 30' 56.871" E	26° 26' 33.296" S
13	27° 30' 56.458" E	26° 26' 29.536" S

Figure 2: Locality map with coordinates for the proposed 132kV Grid Connection and associated infrastructure for the Igolide WEF

Table 1: Co-ordinates of the OHPL route

Point	Longitude	Latitude
A	27° 30' 50.012" E	26° 26' 30.391" S
B	27° 30' 44.744" E	26° 26' 26.846" S
C	27° 30' 28.306" E	26° 25' 44.351" S
D	27° 30' 34.326" E	26° 25' 27.326" S

Point	Longitude	Latitude
E	27° 30' 30.471" E	26° 24' 57.428" S
F	27° 30' 14.799" E	26° 24' 56.729" S
G	27° 30' 12.415" E	26° 24' 57.557" S
H	27° 30' 15.599" E	26° 25' 6.098" S

Addendum of route alternatives attached [redacted]

The 21 digit Surveyor General code of each cadastral land parcel

PORTION 20 OF FARM KRAALKOP 147IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	1	4	7	0	0	0	2	0
PORTION 31 OF KRAALKOP 147 IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	1	4	7	0	0	0	3	1
PORTION 45 OF KRAALKOP 147 IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	1	4	7	0	0	0	4	5
PORTION 46 OF KRAALKOP 147 IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	1	4	7	0	0	0	4	6
PORTION 53 OF KRAALKOP 147 IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	1	4	7	0	0	0	5	3
PORTION 68 OF KRAALKOP 147 IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	1	4	7	0	0	0	6	8
PORTION 11 OF LEEUWPOORT 356 IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	3	5	6	0	0	0	1	1
PORTION 77 OF LEEUWPOORT 356 IQ	T	0	I	Q	0	0	0	0		0	0	0	0	0	3	5	6	0	0	0	7	7
ALT. 1	[redacted]																					
ALT. 2																						

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
			X			

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front
					X	

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

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

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

	NO
	X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

	o	o

c) are any caves located within a 300m radius of the site(s)

	NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

	o	o

d) are any sinkholes located within a 300m radius of the site(s)

	NO X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

	o	o

If any of the answers to the above are “YES” or “unsure”, specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

	NO X

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % = 41	Natural veld with scattered aliens % =1	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =58
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % =	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

YES x	

If YES, specify and explain:

Flora

- Protected Flora Species Occurring and Potentially Occurring in the Study Area

Five flora species that are listed as Protected at a provincial level, according to the Gauteng Nature Conservation Ordinance (12 of 1983), were recorded during the 2024 field survey, including *Aloe verecunda*, *Cussonia paniculata*, *Crinum graminicola, Protea caffra* and *Scadoxus puniceus*.

During their field work, Ekotrust (2023) recorded one additional provincially Protected taxon *viz., Gladiolus permeabilis.* Reviewed literature indicates that several other provincially protected flora species may occur in the study area.

No flora species listed on the NEMBA ToPS (2007) List were recorded or potentially occur in the study area.

Fauna

- Mountain Reedbuck

The Mountain Reedbuck is listed as Endangered on the regional Red List. This medium-sized grazing antelope favours rolling grassy hillsides and mountain slopes above 1 500 m. Mountain Reedbuck are territorial and gregarious, and found in small herds ranging from 3 to 6 individuals. The estimated regional population size of Mountain Reedbuck is between 10 217 and 13 669 mature individuals, with purported densities in protected areas ranging from 10 to 1 150 individuals per 100 km^2. It is noted that no data are cited for private agriculture land. Moreover, no data are available on the EOO or AOO of this species. The primary threats to Mountain Reedbuck include poaching, increased natural predation, and disturbances from cattle herders and livestock. This species was reported by Ekotrust (2023) but was not observed during the current study.

- Black Wildebeest

The Black Wildebeest is a large antelope species that occurs in open grassland plains and arid shrubland. Historically, this species was hunted close to extinction, however it has recovered significantly over the last several decades, and recent population estimates indicate that its population size could be around 9 564 - 11 158 individuals. Accordingly, the Black Wildebeest is listed as Least Concern on the national mammal Red List, but it is listed as protected on the NEMBA ToPS (2007) List. Black Wildebeest was reported by Ekotrust (2023). It is expected that local populations are part of actively farmed herds and are not free roaming.

- Maquassie Musk Shrew

Maquassie Musk Shrew (Vulnerable) is a rare shrew species. The EOO is estimated at 284 735 km^2; however, it is thought to be patchily distributed and, based on its preference for wetland habitats, its AOO is inferred at between 40 496 to 47 246 km^2 and 1 790-2 089 km^2 (based on a 500 and 32 m buffer around wetland habitat, respectively). The population size of Maquassie Musk Shrew is estimated at 179 000 individuals. This species appears to favour moist grassland habitats in savanna and grassland ecosystems. Limited suitable and undisturbed habitat is present in the study area. It is therefore considered unlikely that Maquassie Musk Shrew is present.

- Spotted-necked Otter

Spotted-necked Otter is listed as Vulnerable on the regional Red List. This species has a widespread distribution, but is restricted to areas of permanent, large open-water bodies. The estimated range of Spotted-necked Otter totals 31 407 km of river, resulting in an estimated population size (taking into account both undisturbed and disturbed river habitats), of 17 117 individuals. There is no suitable habitat for Spotted-necked Otter in the study area, and therefore it is unlikely that this species is present.

	YES	
Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	x	

If YES, specify and explain:

1. Red List Flora Species Occurring and Potentially Occurring in the Study Area

Several suspected *Adromischus umbraticola* subsp*. umbraticola* plants were recorded in an area of *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland in the study area. *Adromischus umbraticola* subsp*. umbraticola* is listed as Near Threatened on the national Red List and is a South African endemic, where it is restricted to Gauteng and North West provinces. This species has an EOO of 14 600 km^2 and is known from 14 locations. It grows in rock crevices on south-facing slope ridges. Note: Positive identification of *Adromischus umbraticola* subsp*. umbraticola* requires examination of its flowers, which are typically emergent between September and January. As a precautionary measure, it is crucial to manage and conserve these plants as if they are *Adromischus umbraticola* subsp*. umbraticola* until definitive identification is achieved. This approach aligns with the precautionary principle, ensuring potential harm is minimized while awaiting conclusive evidence of identification.

Are there any special or sensitive habitats or other natural features present on the site?	YES	NO

If YES, specify and explain:

The Gauteng C-Plan (3.3) delineations indicate that a large patch of land in the far south of the proposed Igolide Grid Infrastructure area is designated 'Critical Biodiversity Area (CBA), and a small patch is designated 'Ecological Support Areas' (ESA). Furthermore, large patches of land in the north of the N12 Highway are also delineated as Ecological Support Areas (ESA). **Refer to terrestrial biodiversity assessment in Appendix G.4 of the draft BAR.**

Was a specialist consulted to assist with completing this section	YES	NO

If yes complete specialist details

Name of the specialist:	Andrew Zinn (Hawkhead Consulting (Pty) Ltd)		
Qualification(s) of the specialist:	MSc. Resource Conservation Biology SACNASP		
Postal address:	43 Waterbuck Cresent, River Club Estate, Jhb		
Postal code:			
Telephone:		Cell:	0833610373
E-mail:	andrew@hawkhead.co.za	Fax:	

Are any further specialist studies recommended by the specialist?	YES	NO
If YES, specify:		
If YES, is such a report(s) attached?	YES	NO

If YES list the specialist reports attached below

Signature of specialist:

The Terrestrial Biodiversity, Plant Species and Animal Species Assessment are attached as Appendix G.4, Appendix G.5 and Appendix G.6

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

1, 34	**1, 34**	**1,10**	**1, 2**	**1, 34**
1, 34	**32, 2**	**32, 2**	**1, 34**	**1, 2**
1, 7, 34	**1, 7, 2, 34**		**1, 28, 7**	**1, 7, 34**
1, 7, 34	**1, 7, 2, 34**	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**
1, 7, 34	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**

WEST

EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "[A]" and with an "[N]" respectively.

Have specialist reports been attached	YES
If yes indicate the type of reports below	

The following specialist studies have been undertaken – and are appended in Appendix G

- Agriculture – Appendix G.1
- Geotechnical – Appendix G.2
- Aquatic Ecology – Appendix G.3
- Terrestrial Ecology – Appendix G.4
- Plant Species Assessments - – Appendix G.5
- Animal Species Assessments – Appendix G.6
- Avifauna – Appendix G.7
- Heritage – Appendix G.8
- Palaeontology – Appendix G.9
- Visual – Appendix G.10
- Socio-economic assessment – Appendix G.11.

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

1. Demographic overview:

2. Population

Based on Census 2022 Gauteng had a population of 15 099 422. Of the five municipalities, Johannesburg MM has the largest population (32%), followed by Ekurhuleni MM and Tshwane (~27%). The population of the WRDM was 998 466 which made up 6.6% of the total population. The population of the MCLM was 225 476 in 2022, ~ 23% of the population of the WRDM. In terms of age structure 24.2% were under the age of 15, 70.9% fell within the economically active age group of 15-64 and the remaining 4.8% were older than 65. Based on this data the dependency ratio was 41, which is higher than the ratio in 2011, namely 37.9%. A higher dependency ratio implies more people are dependent on a smaller economically active population, which in turn reduces the number of people that can afford rates and taxes.

Most of the population were Black African (84%), followed by Whites (15%) and Coloureds (1.2%). Setswana (25%), followed by IsiXhosa (23%) and Sesotho (19%) were the main languages spoken in the MCLM. Based on the information from the 2022 Census there were a total of 77 599 households in the MCLM, with an average household size of 2.9 persons. Most of the households reside in formal houses (91.6%). This figure is significantly higher than the figure from the 2016 Community Household Survey of 81.3%. Based on the information from the 2016 Community Household Survey 29.2% of the households in the MCLM were headed by females. The figure for MCLM was lower than the District and Provincial figures of 31.7% and 35.9% respectively.

3. Household income

Based on the data from the 2011 Census, 16% of the population of the MCLM had no formal income, 4% earned less than R 4 800, 5.9% earned between R 5 000 and R 10 000 per annum, 11.1% between R 10 000 and R 20 000 per annum, and 14.9% between R 20 000 and 40 000 per annum. This indicates that almost half of the population earns less than R 40 000 per annum. Around 26.4% of the population earns between R 40 000 and R 75 000, which represents the largest income bracket for the region. Just under 20% of the population earns between R75 000 and R 1 200 000.

The poverty gap indicator produced by the World Bank Development Research Group measures poverty using information from household per capita income/consumption. This indicator illustrates the average shortfall of the total population from the poverty line. This measurement is used to reflect the intensity of poverty, which is based on living on less than R3 200 per month for an average sized household (~ R40 000 per annum). Based on this measure, in the region of 43% of the households in the MCLM live close to or below the poverty line. This figure is lower than the provincial level of 53.8%.

The low-income levels are a major concern given that an increasing number of individuals and households are likely to be dependent on social grants. The low-income levels also result in reduced spending in the local economy and less tax and rates revenue for the MCLM. This in turn impacts on the ability of the MCLM to maintain and provide services. Household income levels are likely to have been impacted by the COVID-19 pandemic. The number of households in the MCLM that live close to or below the poverty line is likely to have increased over the last 18 months. This, coupled with the high dependency ratio, is a major cause of concern for the area.

4. Employment

The official unemployment figure in 2011 for the MCLM was 17.4%. The figures also indicate that a large portion of the population are not economically active, namely 32.7%. These figures are similar to the official unemployment rate for the Gauteng Province (18.1%) and West Rand District (17.8%). The lower unemployment rate seen in the MCLM has been linked to both job opportunities in mining related activities as well as high municipality out-migration rates. The MCLM IDP notes that this migration was due to the low quality of life and low economic growth in the region. This means that individuals who are unable to find work within the MCLM tend to migrate to other parts of the country rather than remain within the district.

Unemployment Rate in South Africa averaged 54.21% from 2013 until 2021, reaching an all-time high of 64.40 % in the second quarter of 2021. The current rates in the MCLM are therefore likely to be significantly higher than the 2011 rates. These rates will also have been exacerbated by the impact of COVID-19 pandemic.

5. Education

Based on Community Household Survey of 2016, 4.2% of persons 20 years and older had no education, while 31.3% had a matric and 5.7% had a higher level of education.

2. MUNICIPAL SERVICES

6. Electricity

Based on the 2022 Census, 98.1% of households in the MCLM had access to electricity and used it for lighting.

7. Access to water

Based on the 2022 Census, 81.9% of households had piped water inside their dwelling.

8. Sanitation

Based on the 2022 Census, 94.1% of households have flush toilets connected to sewerage systems.

9. Refuse collection

Based on the 2022 Census, 81.4% of households have their refuse collected on a weekly basis.

3. ECONOMIC OVERVIEW

10. Mining

Despite mining sector contributing only 3.3% of Gauteng's GDP, mining sits at the core of the WRDM and contributes over 50% of Gross Value Add. This is prevalent in MCLM, as not only does one in four people in the region rely on mining for employment, but mining sector also contributes to 29.1% GDP locally. Gold and uranium are the primary materials mined in the region.

11. Manufacturing

Around 40% of South Africa's manufacturing is done in Gauteng, and the manufacturing sector contributes over 16% to the overall GDP of the province. Locally, despite sectoral employment only contributing 7.2% the MCLM manufacturing sector has grown significantly since 2011 and contributed 20.8% to local GDP in 2016.

12. Finance, Real Estate, and Business Services

The finance and business sector is growing steadily and contributed 13.8% to MCLM GDP in 2016. This has resulted in the decline in the number of people employed in the mining sector since 2011 being offset by the growth in employment in this sector as well as the trade sector during this time

13. Renewable energy

The Merafong Growth and Development Strategy offers an outline for the future development of the area, and both the Green Economy and Industrial Beneficiation have been identified as significant drivers to revitalise the economy and mining towns of West Rand. The Merafong Solar Farm Cluster Concept and Bio-energy farm proposes a Solar Farm Cluster and Bio- energy farm in Merafong City, in order to develop a renewable energy sector and reindustrialise and create opportunities in local downstream sectors like manufacturing industries and reduce electricity costs and carbon footprint in both private and public sectors.

The Social Impact Assessment is attached as Appendix G.11

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	YES x	

If YES, explain:

- Archaeological features:
  - Older Iron Age landscape: This is an archaeological feature and relates to the very large number of Iron Age sites that occur in the wider area.
- Palaeontological features:
  - The palaeontological sensitivity of the EGI route under consideration are presented in Figure 2. The southern section of the route is on moderately fossiliferous Hekpoort Formation (green on SAHRIS and orange in the DFFE map) and the northern section is on the highly fossiliferous Timeball Hill Formation (SAHRIS orange; DFFE dark orange).
  - The North West Province Palaeotechnical Report indicates that the Silverton Formation is highly sensitive as there are stromatolites, but no evidence has been supplied and the

geological records do not support this conclusion. Stromatolites and microbial mats are usually formed in shallow, low energy environments.

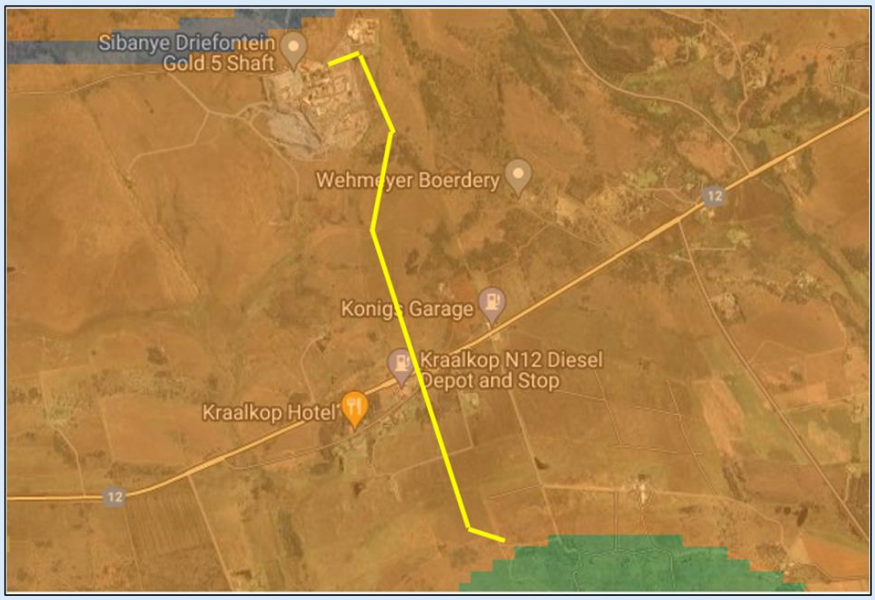


Figure 3: SAHRIS palaeosensitivity map for the site for the proposed Igolide WEF EGI route indicated by the yellow line

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

- **HERITAGE**

The Anglo-Boer War – or Second South African War – was an important aspect of local history in many parts of South Africa. In the vicinity of the present study area there were a few skirmishes. Most notably, in 1900, Boer military leader Daniel Theron was killed in action near present day Fochville. In present day Hillshaven, east of Fochville, a small battle was waged on the farm Modderfontein at the end of January 1901. Boer General Smuts defeated a small British force posted at Modderfontein. A few days later General Cunninghame arrived with his force and was unable to dislodge the Boers from their defensive position. On the 4th of February, however, he was successful, and the Boers retreated southwards (Conan Doyle 1901 in AngloBoerWar.com 2023).

Fochville was initially laid out on farms Kraalkop and Leeuspruit during World War I but was only formally proclaimed as a town on 15 November 1920. The town is named after the commander-in-Chief of the Allied Forces in France during World War I, Ferdinand Foch (Raper 2004). East Village is a mining town developed after 1968. Aerial photography shows it to have been fully developed prior to 1991.

The site visit showed that Late Iron Aage (LIA) settlements were present in the study area. Three of them were found, one on a hill in the far north, one at the foot of the steep slope in the northeast, and another just overlapping into the eastern edge of the corridor midway along its length. These sites consisted only of stone-walled enclosures. Further details regarding potential deposit and the presence of artefacts such as pottery could not be determined due to the dense grass and generally overgrown nature of the areas in which these sites occurred. Also found were three elongated stone walls, one running west to east in the far northwest of the study area and another running north to south in the northeast of the corridor and immediately adjacent to a LIA settlement and a third which had a gentle curve was located in a grassy area in the central part of the corridor. The purpose and age of these walls is unknown, but they are probably LIA. Two isolated circular enclosures were seen on aerial photography to the west of the corridor. They were not visited.

Also found were some small historical stone ruins in the central part of the corridor. They were very poorly preserved and, due to the presence of cement on some stones and only modern rubbish, they are assumed to not be very old.

It should be noted that many more archaeological sites were located in the area at the southern end of the corridor. These have been reported on in Orton and Van der Walt (2023) and, because none are affected by

the present project, these are not discussed further here. The nearest is about 120 m south of the onsite substation.

A single historical house was seen just outside the eastern edge of the corridor in the south at waypoint 4304. Although the original dwelling pre-dates 1938 (as is evident from aerial photography; it has been added to many times over the years and has lost almost all of its heritage value. The western wall is of modern facebrick, as is the veranda, and a modern stone wall has been built at the western end of the veranda.

Aerial view showing the existence of the house at waypoint 4304 in 1938

Figure 4: Aerial view showing the many additions to the house at waypoint 4304

Other historical structures were noted from aerial photography to occur in the area but they are 280 m east (house) and 440 m west (Kraalkop Hotel) of the edge of the proposed grid corridor and will not be affected.

- Graves

No graves were seen. None are expected, although it is possible that still born children may have been buried within the Iron Age settlements. These remains would likely never be found due to their obvious

fragility which would prevent preservation.

- Cultural landscapes and scenic routes

Cultural landscapes are the product of the interactions between humans and nature in a particular area. Sauer (1925) defined them thus: “The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural area is the medium, the cultural landscape the result”. Cultural landscapes are thus areas containing multiple ‘sites’ and which have been shaped by the interaction of natural processes and anthropogenic activities such as construction and agriculture. Scenic routes are well-travelled roads that pass through natural or cultural landscapes with aesthetic value and that often have iconic or visually attractive views.

The landscape has several different land uses. The land use at the southern end of the corridor is agriculture and livestock/game grazing, while the remaining land further north may be used for occasional grazing but this was not obviously the case at the time of the site inspection. This land is, nonetheless, rural in character. The other main land use is the mine in the north which provides an industrial layer to the landscape. Other gold mines as well as the towns of Fochville (to the south) and East Village (to the north) also occur within a few kilometers of the corridor. Existing high voltage (HV) powerlines occur in the area as does the substation to which the project would connect. These other land uses alter the overall sense of place of the rural environment.

Historical aerial photography from 1938 shows that the amount of ploughed land has remained fairly consistent with the land north of the N12 generally having never been ploughed aside from a small area just east of the corridor. Several farmsteads and/or buildings were present in 1938, as was the N12 (although following a different alignment past the Kraalkop Hotel to the west of the corridor). The various gold mines and associated slimes dams scattered around the wider area have appeared in more recent decades, adding an industrial layer to the landscape. These observations show a continually evolving cultural landscape with modern industrial uses (i.e. mining) becoming visually prominent on the landscape.

Another aspect of the cultural landscape is the older Iron Age landscape. This is an archaeological feature and relates to the very large number of Iron Age sites that occur in the wider area.

- PALAEONTOLOGY

The palaeontological sensitivity of the EGI route under consideration are presented in the figure below. The southern section of the route is on moderately fossiliferous Hekpoort Formation (green on SAHRIS and orange in the DFFE map) and the northern section is on the highly fossiliferous Timeball Hill Formation (SAHRIS orange; DFFE dark orange).

The North West Province Palaeotechnical Report indicates that the Silverton Formation is highly sensitive as there are stromatolites, but no evidence has been supplied and the geological records do not support this conclusion. Stromatolites and microbial mats are usually formed in shallow, low energy environments.

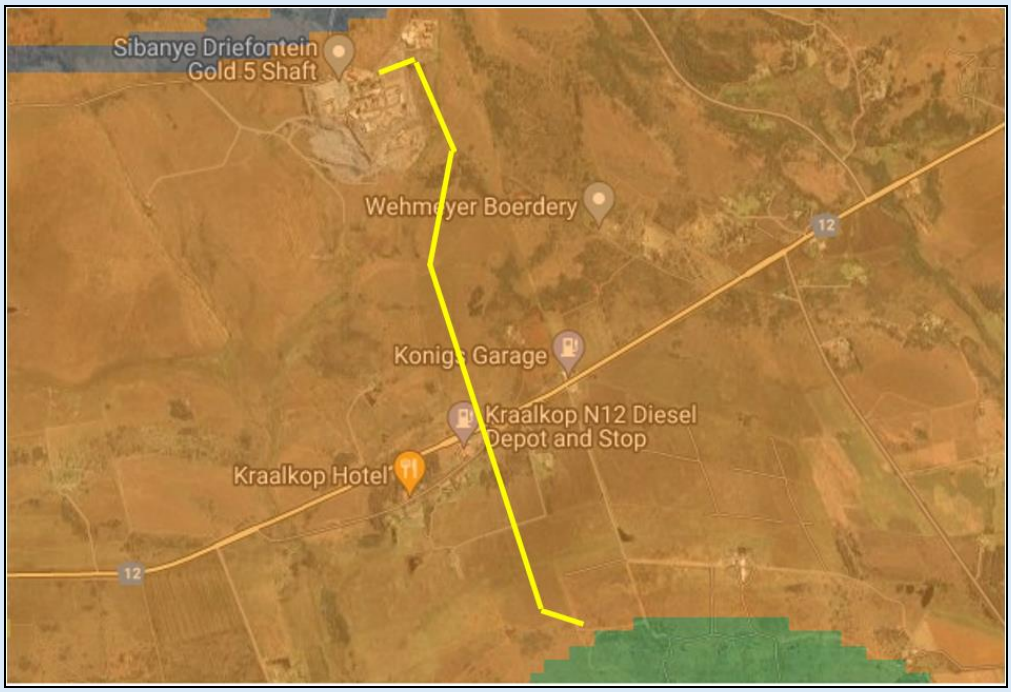


Figure 5: SAHRIS palaeosensitivity map for the site for the proposed Igolide WEF EGI route indicated by the yellow line

Background colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero.

The Hekpoort Formation is predominantly composed of basaltic andesite and pyroclastic rocks and this type of rock does not preserve fossils. This is noted in the Palaeotechnical Report but they advise that caves or solution cavities could occur and these might have fossils. No fossiliferous caves are known from this area and for geological and engineering reasons, it is unlikely that the electrical grid infrastructure would be placed over cave sites.

Although the Hekpoort Formation is indicated as moderately sensitive in the Gauteng Palaeotechnical Report this is based on "no fossils recorded". The paleosol in a road cutting near Waterval Onder contains urn-shaped microfossils measuring 1 x 0.2mm. He named the putative fossils Diskagma buttoni. Lenhardt et al. (2020) are very sceptical about the "fossils" and the reconstruction of the fossils from the thin-sections are extremely fanciful.

Will any building or structure older than 60 years be affected in any way?	YES	[redacted]
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	[redacted]	NO
If yes, please attached the comments from SAHRA in the appropriate Appendix		

The Heritage and Palaeontological Assessments are attached as Appendix G.8 and Appendix G.9

The Draft Basic Assessment Report was uploaded onto the SAHRIS portal for SAHRA's comment. The comments provided will be attached to the Final Basic Assessment Report.

2 - SECTION B FOR LOCATION – IGOLIDE SWITCHING STATION (located within the Igolide WEF)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	▪ Portion 20 of Kraalkop 147 IQ

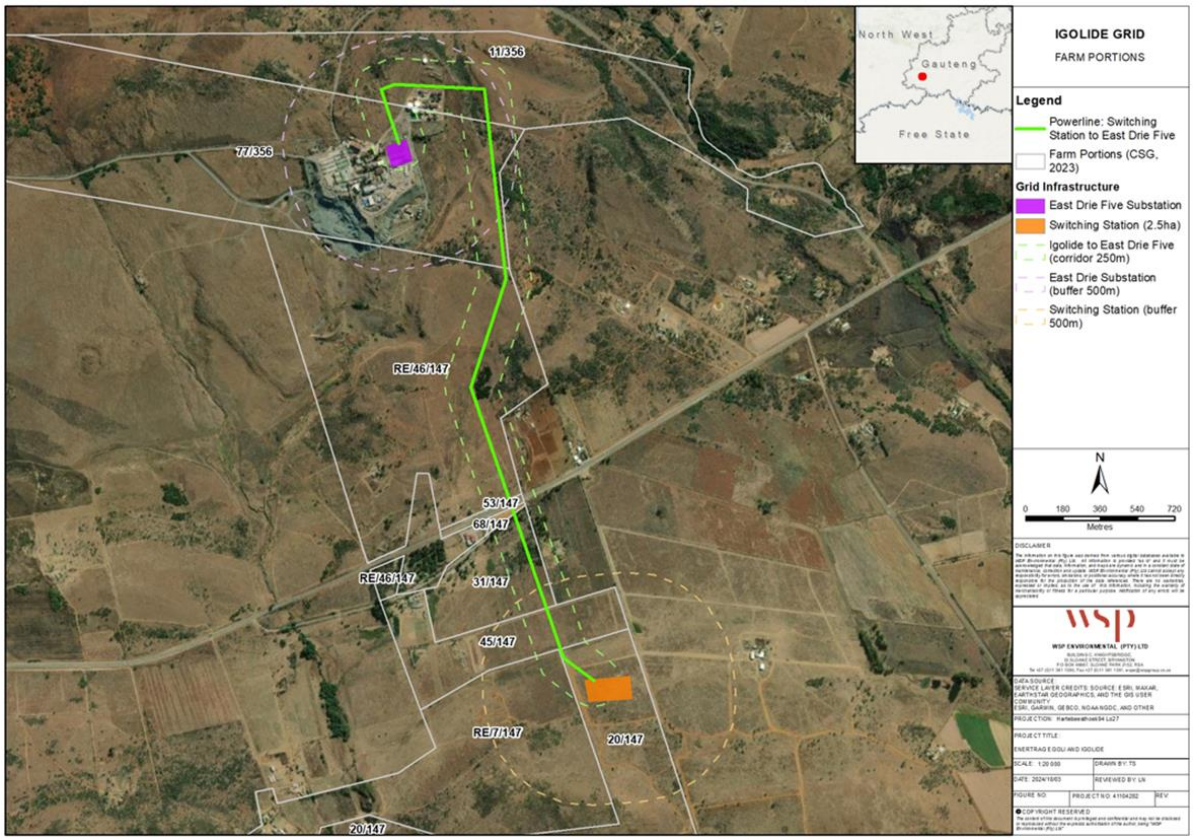


Figure 6: Boundary of the property or properties traversed by the proposed project

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:	**Latitude (S):**	**Longitude (E):**
	26°26'31.82"S	27°30'52.54"E

In the case of linear activities:

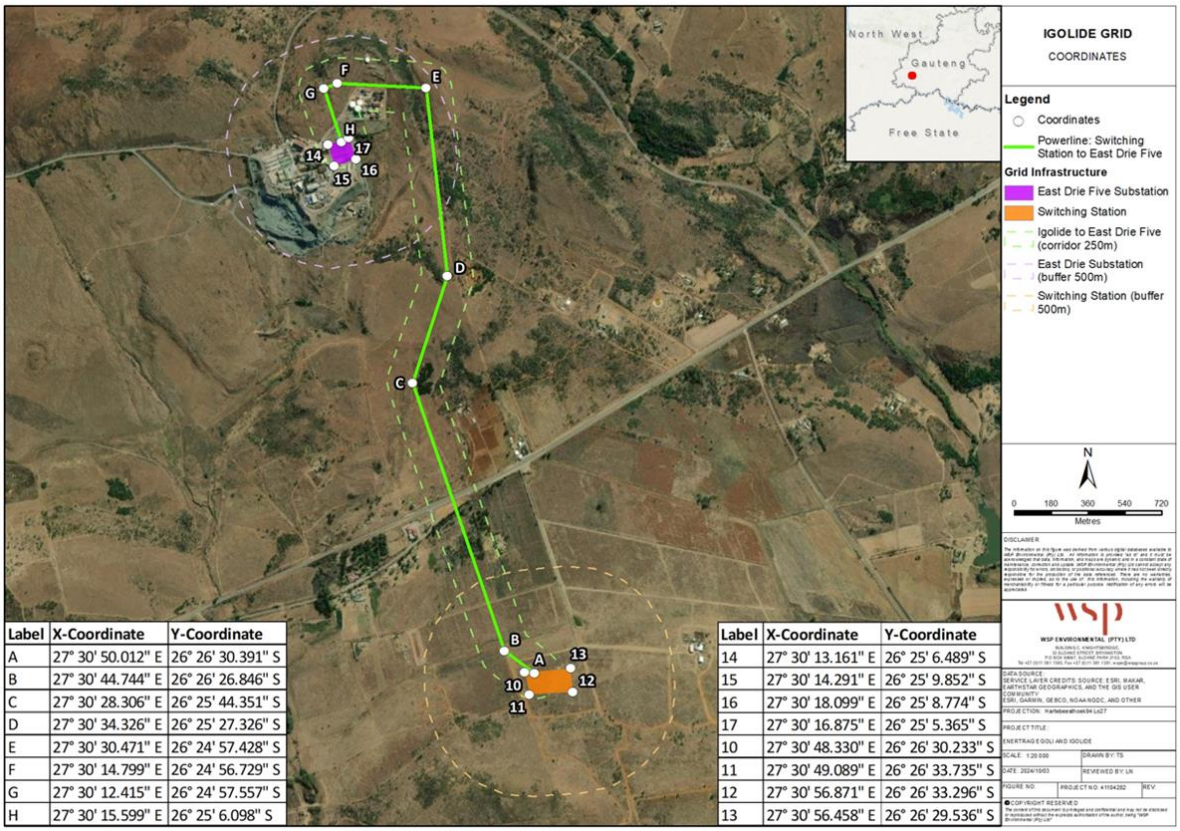
Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity		

- Middle point of the activity
- End point of the activity

[redacted]

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Please see the layout map (Figure 2) and table of coordinates (Table 1) for the proposed project below.



Label	X-Coordinate	Y-Coordinate
A	27° 30' 50.012" E	26° 26' 30.391" S
B	27° 30' 44.744" E	26° 26' 26.846" S
C	27° 30' 28.306" E	26° 25' 44.351" S
D	27° 30' 34.326" E	26° 25' 27.326" S
E	27° 30' 30.471" E	26° 24' 57.428" S
F	27° 30' 14.799" E	26° 24' 56.729" S
G	27° 30' 12.415" E	26° 24' 57.557" S
H	27° 30' 15.599" E	26° 25' 6.098" S

Label	X-Coordinate	Y-Coordinate
14	27° 30' 13.161" E	26° 25' 6.489" S
15	27° 30' 14.291" E	26° 25' 9.852" S
16	27° 30' 18.099" E	26° 25' 8.774" S
17	27° 30' 16.875" E	26° 25' 5.365" S
10	27° 30' 48.330" E	26° 26' 30.233" S
11	27° 30' 49.089" E	26° 26' 33.735" S
12	27° 30' 56.871" E	26° 26' 33.296" S
13	27° 30' 56.458" E	26° 26' 29.536" S

Figure 7: Locality map with coordinates for the proposed 132kV Grid Connection and associated infrastructure for the Igolide WEF

Table 2: Co-ordinates of the Switching Station within the Igolide WEF

Point	Longitude	Latitude
10	27° 30' 48.330" E	26° 26' 30.233" S
11	27° 30' 49.089" E	26° 26' 33.735" S
12	27° 30' 56.871" E	26° 26' 33.296" S
13	27° 30' 56.458" E	26° 26' 29.536" S

Addendum of route alternatives attached [redacted]

The 21 digit Surveyor General code of each cadastral land parcel

PORTION 20 OF FARM	T	0	I	Q	0	0	0	0		0	0	0	0	0	1	4	7	0	0	0	2	0

KRAALKOP 147IQ																				
ALT. 1																				
ALT. 2																				

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

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

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

	NO
	X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

°	°

c) are any caves located within a 300m radius of the site(s)

	NO
	X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

°	°

d) are any sinkholes located within a 300m radius of the site(s)

	NO
	X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

°	°

If any of the answers to the above are “YES” or “unsure”, specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

	NO
	X

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % = 41	Natural veld with scattered aliens % =1	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =58
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % =	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site	YES	
	x	

If YES, specify and explain:

Flora

- Protected Flora Species Occurring and Potentially Occurring in the Study Area

Five flora species that are listed as Protected at a provincial level, according to the Gauteng Nature Conservation Ordinance (12 of 1983), were recorded during the 2024 field survey, including *Aloe verecunda*, *Cussonia paniculata*, *Crinum graminicola, Protea caffra* and *Scadoxus puniceus*.

During their field work, Ekotrust (2023) recorded one additional provincially Protected taxon *viz., Gladiolus permeabilis.* Reviewed literature indicates that several other provincially protected flora species may occur in the study area.

No flora species listed on the NEMBA ToPS (2007) List were recorded or potentially occur in the study area.

Fauna

- Mountain Reedbuck

The Mountain Reedbuck is listed as Endangered on the regional Red List. This medium-sized grazing antelope favours rolling grassy hillsides and mountain slopes above 1 500 m. Mountain Reedbuck are territorial and gregarious, and found in small herds ranging from 3 to 6 individuals. The estimated regional population size of Mountain Reedbuck is between 10 217 and 13 669 mature individuals, with purported densities in protected areas ranging from 10 to 1 150 individuals per 100 km^2. It is noted that no data are cited for private agriculture land. Moreover, no data are available on the EOO or AOO of this species. The primary threats to Mountain Reedbuck include poaching, increased natural predation, and disturbances from cattle herders and livestock. This species was reported by Ekotrust (2023) but was not observed during the current study.

- Black Wildebeest

The Black Wildebeest is a large antelope species that occurs in open grassland plains and arid shrubland. Historically, this species was hunted close to extinction, however it has recovered significantly over the last several decades, and recent population estimates indicate that its population size could be around 9 564 - 11 158 individuals. Accordingly, the Black Wildebeest is listed as Least Concern on the national mammal Red List, but it is listed as protected on the NEMBA ToPS (2007) List. Black Wildebeest was reported by Ekotrust (2023). It is expected that local populations are part of actively farmed herds and are not free roaming.

- Maquassie Musk Shrew

Maquassie Musk Shrew (Vulnerable) is a rare shrew species. The EOO is estimated at 284 735 km^2; however, it is thought to be patchily distributed and, based on its preference for wetland habitats, its AOO is inferred at between 40 496 to 47 246 km^2 and 1 790-2 089 km^2 (based on a 500 and 32 m buffer around wetland habitat, respectively). The population size of Maquassie Musk Shrew is estimated at 179 000 individuals. This species appears to favour moist grassland habitats in savanna and grassland ecosystems. Limited suitable and undisturbed habitat is present in the study area. It is therefore considered unlikely that Maquassie Musk Shrew is present.

- Spotted-necked Otter

Spotted-necked Otter is listed as Vulnerable on the regional Red List. This species has a widespread distribution, but is restricted to areas of permanent, large open-water bodies. The estimated range of Spotted-necked Otter totals 31 407 km of river, resulting in an estimated population size (taking into account both undisturbed and disturbed river habitats), of 17 117 individuals. There is no suitable habitat for Spotted-necked Otter in the study area, and therefore it is unlikely that this species is present.

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	YES	[redacted]
	x	

If YES, specify and explain:

14. Red List Flora Species Occurring and Potentially Occurring in the Study Area

Several suspected *Adromischus umbraticola* subsp*. umbraticola* plants were recorded in an area of *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland in the study area. *Adromischus umbraticola* subsp*. umbraticola* is listed as Near Threatened on the national Red List and is a South African endemic, where it is restricted to Gauteng and North West provinces. This species has an EOO of 14 600 km^2 and is known from 14 locations. It grows in rock crevices on south-facing slope ridges. Note: Positive identification of *Adromischus umbraticola* subsp*. umbraticola* requires examination of its flowers, which are typically emergent between September and January. As a precautionary measure, it is crucial to manage and conserve these plants as if they are *Adromischus umbraticola* subsp*. umbraticola* until definitive identification is achieved. This approach aligns with the precautionary principle, ensuring potential harm is minimized while awaiting conclusive evidence of identification.

Are there any special or sensitive habitats or other natural features present on the site?	YES	NO

If YES, specify and explain:

The Gauteng C-Plan (3.3) delineations indicate that a large patch of land in the far south of the proposed Igolide Grid Infrastructure area is designated 'Critical Biodiversity Area (CBA), and a small patch is designated 'Ecological Support Areas' (ESA). Furthermore, large patches of land in the north of the N12 Highway are also delineated as Ecological Support Areas (ESA). **Refer to terrestrial biodiversity assessment in Appendix G.4 of the draft BAR.**

Was a specialist consulted to assist with completing this section	YES	NO

If yes complete specialist details

Name of the specialist:	Andrew Zinn (Hawkhead Consulting (Pty) Ltd)		
Qualification(s) of the specialist:	MSc. Resource Conservation Biology SACNASP		
Postal address:	43 Waterbuck Cresent, River Club Estate, Jhb		
Postal code:			
Telephone:	[redacted]	Cell:	0833610373
E-mail:	andrew@hawkhead.co.za	Fax:	[redacted]

Are any further specialist studies recommended by the specialist?	YES	NO
If YES, specify:	[redacted]	
If YES, is such a report(s) attached?	YES	NO

If YES list the specialist reports attached below

[redacted]

Signature of specialist: [redacted]

The Terrestrial Biodiversity, Plant Species and Animal Species Assessment are attached as Appendix G.4, Appendix G.5 and Appendix G.6

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

1, 7, 34	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**
1, 7, 34	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**
1, 7, 34	**1, 7, 34**		**1, 7, 34**	**1, 7, 34**
1, 7, 34	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**
1, 7, 34	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**	**1, 7, 34**

WEST EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

Have specialist reports been attached	YES

If yes indicate the type of reports below

The following specialist studies have been undertaken – and are appended in Appendix G

- Agriculture – Appendix G.1
- Geotechnical – Appendix G.2
- Aquatic Ecology – Appendix G.3
- Terrestrial Ecology – Appendix G.4
- Plant Species Assessments - – Appendix G.5
- Animal Species Assessments – Appendix G.6
- Avifauna – Appendix G.7
- Heritage – Appendix G.8
- Palaeontology – Appendix G.9
- Visual – Appendix G.10
- Socio-economic assessment – Appendix G.11.

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

4. Demographic overview:

15. Population

Based on Census 2022 Gauteng had a population of 15 099 422. Of the five municipalities, Johannesburg MM has the largest population (32%), followed by Ekurhuleni MM and Tshwane (~27%). The population of the WRDM was 998 466 which made up 6.6% of the total population. The population of the MCLM was 225 476 in 2022, ~ 23% of the population of the WRDM. In terms of age structure 24.2% were under the age of 15, 70.9% fell within the economically active age group of 15-64 and the remaining 4.8% were older than 65. Based on this data the dependency ratio was 41, which is higher than the ratio in 2011, namely 37.9%. A higher dependency ratio implies more people are dependent on a smaller economically active population, which in turn reduces the number of people that can afford rates and taxes.

Most of the population were Black African (84%), followed by Whites (15%) and Coloureds (1.2%). Setswana (25%), followed by IsiXhosa (23%) and Sesotho (19%) were the main languages spoken in the MCLM. Based on the information from the 2022 Census there were a total of 77 599 households in the MCLM, with an average household size of 2.9 persons. Most of the households reside in formal houses (91.6%). This figure is significantly higher than the figure from the 2016 Community Household Survey of 81.3%. Based on the information from the 2016 Community Household Survey 29.2% of the households in the MCLM were headed by females. The figure for MCLM was lower than the District and Provincial figures of 31.7% and 35.9% respectively.

16. Household income

Based on the data from the 2011 Census, 16% of the population of the MCLM had no formal income, 4% earned less than R 4 800, 5.9% earned between R 5 000 and R 10 000 per annum, 11.1% between R 10 000 and R 20 000 per annum, and 14.9% between R 20 000 and 40 000 per annum. This indicates that almost half of the population earns less than R 40 000 per annum. Around 26.4% of the population earns between R 40 000 and R 75 000, which represents the largest income bracket for the region. Just under 20% of the population earns between R75 000 and R 1 200 000.

The poverty gap indicator produced by the World Bank Development Research Group measures poverty using information from household per capita income/consumption. This indicator illustrates the average shortfall of the total population from the poverty line. This measurement is used to reflect the intensity of poverty, which is based on living on less than R3 200 per month for an average sized household (~ R40 000 per annum). Based on this measure, in the region of 43% of the households in the MCLM live close to or below the poverty line. This figure is lower than the provincial level of 53.8%.

The low-income levels are a major concern given that an increasing number of individuals and households are likely to be dependent on social grants. The low-income levels also result in reduced spending in the local economy and less tax and rates revenue for the MCLM. This in turn impacts on the ability of the MCLM to maintain and provide services. Household income levels are likely to have been impacted by the COVID-19 pandemic. The number of households in the MCLM that live close to or below the poverty line is likely to have increased over the last 18 months. This, coupled with the high dependency ratio, is a major cause of concern for the area.

17. Employment

The official unemployment figure in 2011 for the MCLM was 17.4%. The figures also indicate that a large portion of the population are not economically active, namely 32.7%. These figures are similar to the official unemployment rate for the Gauteng Province (18.1%) and West Rand District (17.8%). The lower unemployment rate seen in the MCLM has been linked to both job opportunities in mining related activities as well as high municipality out-migration rates. The MCLM IDP notes that this migration was due to the low quality of life and low economic growth in the region. This means that individuals who are unable to find work within the MCLM tend to migrate to other parts of the country rather than remain within the district.

Unemployment Rate in South Africa averaged 54.21% from 2013 until 2021, reaching an all-time high of 64.40 % in the second quarter of 2021. The current rates in the MCLM are therefore likely to be significantly higher than the 2011 rates. These rates will also have been exacerbated by the impact of COVID-19 pandemic.

18. Education

Based on Community Household Survey of 2016, 4.2% of persons 20 years and older had no education, while 31.3% had a matric and 5.7% had a higher level of education.

5. MUNICIPAL SERVICES

19. Electricity

Based on the 2022 Census, 98.1% of households in the MCLM had access to electricity and used it for lighting.

20. Access to water

Based on the 2022 Census, 81.9% of households had piped water inside their dwelling.

21. Sanitation

Based on the 2022 Census, 94.1% of households have flush toilets connected to sewerage systems.

22. Refuse collection

Based on the 2022 Census, 81.4% of households have their refuse collected on a weekly basis.

6. ECONOMIC OVERVIEW

23. Mining

Despite mining sector contributing only 3.3% of Gauteng's GDP, mining sits at the core of the WRDM and contributes over 50% of Gross Value Add. This is prevalent in MCLM, as not only does one in four people in the region rely on mining for employment, but mining sector also contributes to 29.1% GDP locally. Gold and uranium are the primary materials mined in the region.

24. Manufacturing

Around 40% of South Africa's manufacturing is done in Gauteng, and the manufacturing sector contributes over 16% to the overall GDP of the province. Locally, despite sectoral employment only contributing 7.2% the MCLM manufacturing sector has grown significantly since 2011 and contributed 20.8% to local GDP in

2016.

25. Finance, Real Estate, and Business Services

The finance and business sector is growing steadily and contributed 13.8% to MCLM GDP in 2016. This has resulted in the decline in the number of people employed in the mining sector since 2011 being offset by the growth in employment in this sector as well as the trade sector during this time

26. Renewable energy

The Merafong Growth and Development Strategy offers an outline for the future development of the area, and both the Green Economy and Industrial Beneficiation have been identified as significant drivers to revitalise the economy and mining towns of West Rand. The Merafong Solar Farm Cluster Concept and Bio-energy farm proposes a Solar Farm Cluster and Bio- energy farm in Merafong City, in order to develop a renewable energy sector and reindustrialise and create opportunities in local downstream sectors like manufacturing industries and reduce electricity costs and carbon footprint in both private and public sectors.

The Social Impact Assessment is attached as Appendix G.11

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	YES x	

If YES, explain:

- Archaeological features:
  - Older Iron Age landscape: This is an archaeological feature and relates to the very large number of Iron Age sites that occur in the wider area.
- Palaeontological features:

- The palaeontological sensitivity of the EGI route under consideration are presented in Figure 2. The southern section of the route is on moderately fossiliferous Hekpoort Formation (green on SAHRIS and orange in the DFFE map) and the northern section is on the highly fossiliferous Timeball Hill Formation (SAHRIS orange; DFFE dark orange).

- The North West Province Palaeotechnical Report indicates that the Silverton Formation is highly sensitive as there are stromatolites, but no evidence has been supplied and the geological records do not support this conclusion. Stromatolites and microbial mats are usually formed in shallow, low energy environments.

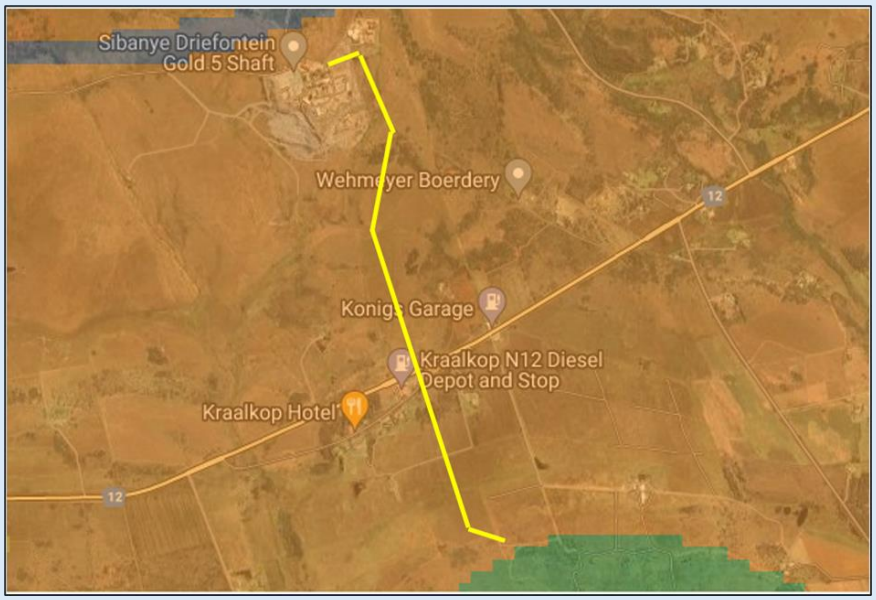


Figure 8: SAHRIS palaeosensitivity map for the site for the proposed Igolide WEF EGI route indicated by the yellow line – the switching station is located on the southern end of the powerline within he Igolide WEF

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

- **HERITAGE**

The Anglo-Boer War – or Second South African War – was an important aspect of local history in many parts of South Africa. In the vicinity of the present study area there were a few skirmishes. Most notably, in 1900, Boer military leader Daniel Theron was killed in action near present day Fochville. In present day Hillshaven, east of Fochville, a small battle was waged on the farm Modderfontein at the end of January 1901. Boer General Smuts defeated a small British force posted at Modderfontein. A few days later General Cunninghame arrived with his force and was unable to dislodge the Boers from their defensive position. On the 4th of February, however, he was successful, and the Boers retreated southwards (Conan Doyle 1901 in AngloBoerWar.com 2023).

Fochville was initially laid out on farms Kraalkop and Leeuspruit during World War I but was only formally proclaimed as a town on 15 November 1920. The town is named after the commander-in-Chief of the Allied Forces in France during World War I, Ferdinand Foch (Raper 2004). East Village is a mining town developed after 1968. Aerial photography shows it to have been fully developed prior to 1991.

The site visit showed that Late Iron Aage (LIA) settlements were present in the study area. Three of them were found, one on a hill in the far north, one at the foot of the steep slope in the northeast, and another just overlapping into the eastern edge of the corridor midway along its length. These sites consisted only of stone-walled enclosures. Further details regarding potential deposit and the presence of artefacts such as pottery could not be determined due to the dense grass and generally overgrown nature of the areas in which these sites occurred. Also found were three elongated stone walls, one running west to east in the far northwest of the study area and another running north to south in the northeast of the corridor and immediately adjacent to a LIA settlement and a third which had a gentle curve was located in a grassy area in the central part of the

corridor. The purpose and age of these walls is unknown, but they are probably LIA. Two isolated circular enclosures were seen on aerial photography to the west of the corridor. They were not visited.

Also found were some small historical stone ruins in the central part of the corridor. They were very poorly preserved and, due to the presence of cement on some stones and only modern rubbish, they are assumed to not be very old.

It should be noted that many more archaeological sites were located in the area at the southern end of the corridor. These have been reported on in Orton and Van der Walt (2023) and, because none are affected by the present project, these are not discussed further here. The nearest is about 120 m south of the onsite substation.

A single historical house was seen just outside the eastern edge of the corridor in the south at waypoint 4304. Although the original dwelling pre-dates 1938 (as is evident from aerial photography; it has been added to many times over the years and has lost almost all of its heritage value. The western wall is of modern facebrick, as is the veranda, and a modern stone wall has been built at the western end of the veranda.

Other historical structures were noted from aerial photography to occur in the area but they are 280 m east (house) and 440 m west (Kraalkop Hotel) of the edge of the proposed grid corridor and will not be affected.

- Graves

No graves were seen. None are expected, although it is possible that still born children may have been buried within the Iron Age settlements. These remains would likely never be found due to their obvious fragility which would prevent preservation.

- Cultural landscapes and scenic routes

Cultural landscapes are the product of the interactions between humans and nature in a particular area. Sauer (1925) defined them thus: “The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural area is the medium, the cultural landscape the result”. Cultural landscapes are thus areas containing multiple ‘sites’ and which have been shaped by the interaction of natural processes and anthropogenic activities such as construction and agriculture. Scenic routes are well-travelled roads that pass through natural or cultural landscapes with aesthetic value and that often have iconic or visually attractive views.

The landscape has several different land uses. The land use at the southern end of the corridor is agriculture and livestock/game grazing, while the remaining land further north may be used for occasional grazing but this was not obviously the case at the time of the site inspection. This land is, nonetheless, rural in character. The other main land use is the mine in the north which provides an industrial layer to the landscape. Other gold mines as well as the towns of Fochville (to the south) and East Village (to the north) also occur within a few kilometers of the corridor. Existing high voltage (HV) powerlines occur in the area as does the substation to which the project would connect. These other land uses alter the overall sense of place of the rural environment.

Historical aerial photography from 1938 shows that the amount of ploughed land has remained fairly consistent with the land north of the N12 generally having never been ploughed aside from a small area just east of the corridor. Several farmsteads and/or buildings were present in 1938, as was the N12 (although following a different alignment past the Kraalkop Hotel to the west of the corridor). The various gold mines and associated slimes dams scattered around the wider area have appeared in more recent decades, adding an industrial layer to the landscape. These observations show a continually evolving cultural landscape with modern industrial uses (i.e. mining) becoming visually prominent on the landscape.

Another aspect of the cultural landscape is the older Iron Age landscape. This is an archaeological feature and relates to the very large number of Iron Age sites that occur in the wider area.

- PALAEONTOLOGY

The palaeontological sensitivity of the EGI route under consideration are presented in the figure below. The southern section of the route is on moderately fossiliferous Hekpoort Formation (green on SAHRIS and orange in the DFFE map) and the northern section is on the highly fossiliferous Timeball Hill Formation (SAHRIS orange; DFFE dark orange).

The North West Province Palaeotechnical Report indicates that the Silverton Formation is highly sensitive as there are stromatolites, but no evidence has been supplied and the geological records do not support this conclusion. Stromatolites and microbial mats are usually formed in shallow, low energy environments.

The Hekpoort Formation is predominantly composed of basaltic andesite and pyroclastic rocks and this type

of rock does not preserve fossils. This is noted in the Palaeotechnical Report but they advise that caves or solution cavities could occur and these might have fossils. No fossiliferous caves are known from this area and for geological and engineering reasons, it is unlikely that the electrical grid infrastructure would be placed over cave sites.

Although the Hekpoort Formation is indicated as moderately sensitive in the Gauteng Palaeotechnical Report this is based on “no fossils recorded”. The paleosol in a road cutting near Waterval Onder contains urn-shaped microfossils measuring 1 x 0.2mm. He named the putative fossils Diskagma buttoni. Lenhardt et al. (2020) are very sceptical about the “fossils” and the reconstruction of the fossils from the thin-sections are extremely fanciful.

Will any building or structure older than 60 years be affected in any way?	YES	[redacted]
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	[redacted]	NO
If yes, please attached the comments from SAHRA in the appropriate Appendix		

The Heritage and Palaeontological Assessments are attached as Appendix G.8 and Appendix G.9

The Draft Basic Assessment Report was uploaded onto the SAHRIS portal for SAHRA’s comment. The comments provided will be attached to the Final Basic Assessment Report.

3 - SECTION B FOR LOCATION ACTIVITY – TERMINATION WORKS AT THE EAST DRIE FIVE SUBSTATION

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	▪ Portion 77 of Leeuwpoort 356 IQ

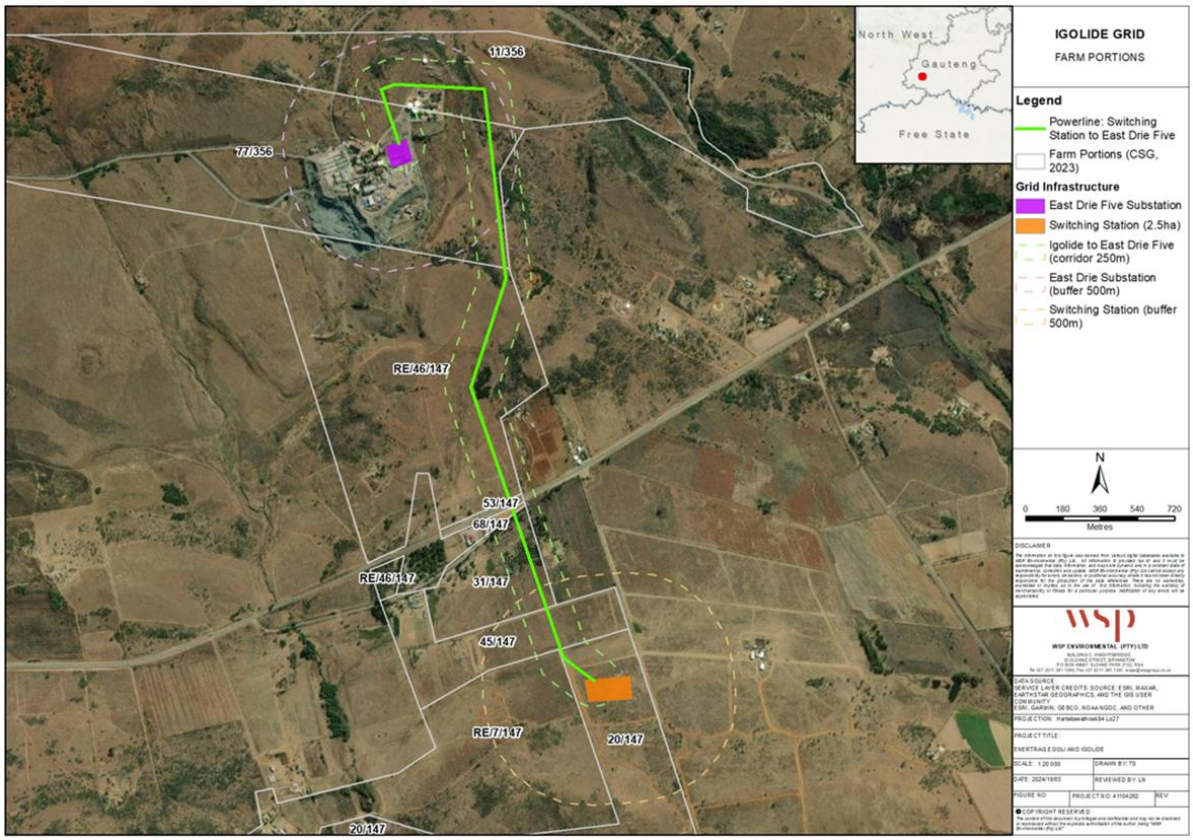


Figure 9: Boundary of the property or properties traversed by the proposed project

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:	**Latitude (S):**	**Longitude (E):**
	26°25'7.39"S	27°30'15.40"E

In the case of linear activities:

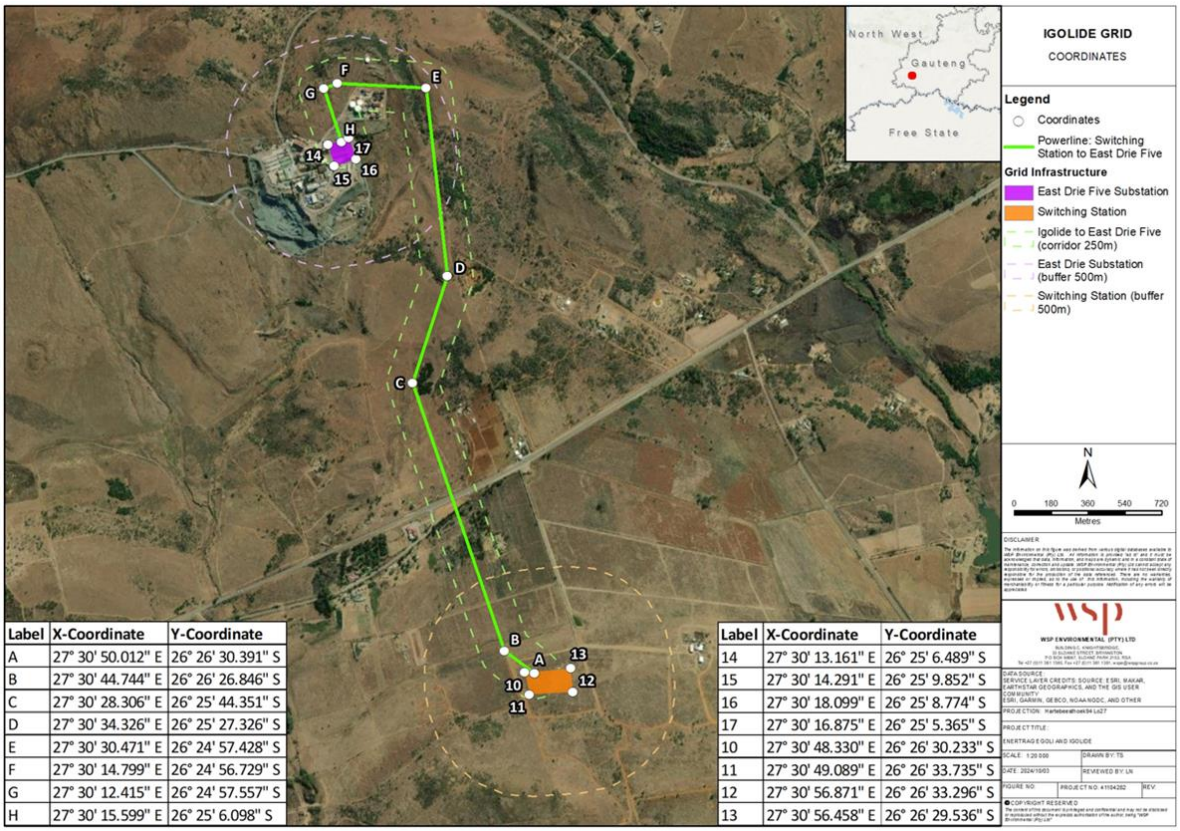
Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity		

- Middle point of the activity
- End point of the activity

[redacted]

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Please see the layout map (Figure 2) and table of coordinates (Table 1) for the proposed project below.



Label	X-Coordinate	Y-Coordinate
A	27° 30' 50.012" E	26° 26' 30.391" S
B	27° 30' 44.744" E	26° 26' 26.846" S
C	27° 30' 28.306" E	26° 25' 44.351" S
D	27° 30' 34.326" E	26° 25' 27.326" S
E	27° 30' 30.471" E	26° 24' 57.428" S
F	27° 30' 14.799" E	26° 24' 56.729" S
G	27° 30' 12.415" E	26° 24' 57.557" S
H	27° 30' 15.599" E	26° 25' 6.098" S

Label	X-Coordinate	Y-Coordinate
14	27° 30' 13.161" E	26° 25' 6.489" S
15	27° 30' 14.291" E	26° 25' 9.852" S
16	27° 30' 18.099" E	26° 25' 8.774" S
17	27° 30' 16.875" E	26° 25' 5.365" S
10	27° 30' 48.330" E	26° 26' 30.233" S
11	27° 30' 49.089" E	26° 26' 33.735" S
12	27° 30' 56.871" E	26° 26' 33.296" S
13	27° 30' 56.458" E	26° 26' 29.536" S

Figure 10: Locality map with coordinates for the proposed 132kV Grid Connection and associated infrastructure for the Igolide WEF

Table 3: Co-ordinates of the Termination Works at the East Drie Five Substation

Point	Longitude	Latitude
14	27° 30' 13.161" E	26° 25' 6.489" S
15	27° 30' 14.291" E	26° 25' 9.852" S
16	27° 30' 18.099" E	26° 25' 8.774" S
17	27° 30' 16.875" E	26° 25' 5.365" S

Addendum of route alternatives attached [redacted]

The 21 digit Surveyor General code of each cadastral land parcel

PORTION 77 OF	T	0	I	Q	0	0	0	0		0	0	0	0	0	3	5	6	0	0	0	7	7

LEEUWPOORT 356 IQ																				
ALT. 1																				
ALT. 2																				

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

4. LOCATION IN LANDSCAPE

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

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

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

	NO
	X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

°	°

c) are any caves located within a 300m radius of the site(s)

	NO
	X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

°	°

d) are any sinkholes located within a 300m radius of the site(s)

	NO
	X

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S): **Longitude (E):**

°	°

If any of the answers to the above are “YES” or “unsure”, specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

	NO
	X

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % =	Veld dominated by alien species % =	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % = 70%	Building or other structure % = 30%	Bare soil % =

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site		NO x

If YES, specify and explain:

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.		NO x

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on the site?	YES	NO

If YES, specify and explain:

Was a specialist consulted to assist with completing this section	YES	NO

If yes complete specialist details

Name of the specialist:	Andrew Zinn (Hawkhead Consulting (Pty) Ltd)		
Qualification(s) of the specialist:	MSc. Resource Conservation Biology SACNASP		
Postal address:	43 Waterbuck Cresent, River Club Estate, Jhb		
Postal code:			
Telephone:		Cell:	0833610373
E-mail:	andrew@hawkhead.co.za	Fax:	

Are any further specialist studies recommended by the specialist?	YES	NO
If YES, specify:		
If YES, is such a report(s) attached?	YES	NO

If YES list the specialist reports attached below

Signature of specialist:

The Terrestrial Biodiversity, Plant Species and Animal Species Assessment are attached as Appendix G.4, Appendix G.5 and Appendix G.6

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

1, 34	**1, 34**	**1, 34**	**1, 34**	**1, 34**
1, 34	**1, 34**	**1, 34**	**1, 34, 32, 16**	**1, 34**
32, 16	**32, 16**		**1, 34**	**1, 34**
32, 16	**32, 16**	**32, 16**	**1, 34**	**1, 34**
32, 16	**32, 16**	**32, 16**	**1, 34**	**1, 34**

WEST EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "[A]" and with an "[N]" respectively.

Have specialist reports been attached	YES

If yes indicate the type of reports below

The following specialist studies have been undertaken – and are appended in Appendix G

- Agriculture – Appendix G.1
- Geotechnical – Appendix G.2
- Aquatic Ecology – Appendix G.3
- Terrestrial Ecology – Appendix G.4
- Plant Species Assessments - – Appendix G.5
- Animal Species Assessments – Appendix G.6
- Avifauna – Appendix G.7
- Heritage – Appendix G.8
- Palaeontology – Appendix G.9
- Visual – Appendix G.10
- Socio-economic assessment – Appendix G.11.

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

7. Demographic overview:

27. Population

Based on Census 2022 Gauteng had a population of 15 099 422. Of the five municipalities, Johannesburg MM has the largest population (32%), followed by Ekurhuleni MM and Tshwane (~27%). The population of the WRDM was 998 466 which made up 6.6% of the total population. The population of the MCLM was 225 476 in 2022, ~ 23% of the population of the WRDM. In terms of age structure 24.2% were under the age of 15, 70.9% fell within the economically active age group of 15-64 and the remaining 4.8% were older than 65. Based on this data the dependency ratio was 41, which is higher than the ratio in 2011, namely 37.9%. A higher dependency ratio implies more people are dependent on a smaller economically active population, which in turn reduces the number of people that can afford rates and taxes.

Most of the population were Black African (84%), followed by Whites (15%) and Coloureds (1.2%). Setswana (25%), followed by IsiXhosa (23%) and Sesotho (19%) were the main languages spoken in the MCLM. Based on the information from the 2022 Census there were a total of 77 599 households in the MCLM, with an average household size of 2.9 persons. Most of the households reside in formal houses (91.6%). This figure is significantly higher than the figure from the 2016 Community Household Survey of 81.3%. Based on the information from the 2016 Community Household Survey 29.2% of the households in the MCLM were headed by females. The figure for MCLM was lower than the District and Provincial figures of 31.7% and 35.9% respectively.

28. Household income

Based on the data from the 2011 Census, 16% of the population of the MCLM had no formal income, 4% earned less than R 4 800, 5.9% earned between R 5 000 and R 10 000 per annum, 11.1% between R 10 000 and R 20 000 per annum, and 14.9% between R 20 000 and 40 000 per annum. This indicates that almost half of the population earns less than R 40 000 per annum. Around 26.4% of the population earns between R 40 000 and R 75 000, which represents the largest income bracket for the region. Just under 20% of the population earns between R75 000 and R 1 200 000.

The poverty gap indicator produced by the World Bank Development Research Group measures poverty using information from household per capita income/consumption. This indicator illustrates the average shortfall of the total population from the poverty line. This measurement is used to reflect the intensity of poverty, which is based on living on less than R3 200 per month for an average sized household (~ R40 000 per annum). Based on this measure, in the region of 43% of the households in the MCLM live close to or below the poverty line. This figure is lower than the provincial level of 53.8%.

The low-income levels are a major concern given that an increasing number of individuals and households are likely to be dependent on social grants. The low-income levels also result in reduced spending in the local economy and less tax and rates revenue for the MCLM. This in turn impacts on the ability of the MCLM to maintain and provide services. Household income levels are likely to have been impacted by the COVID-19 pandemic. The number of households in the MCLM that live close to or below the poverty line is likely to have increased over the last 18 months. This, coupled with the high dependency ratio, is a major cause of concern for the area.

29. Employment

The official unemployment figure in 2011 for the MCLM was 17.4%. The figures also indicate that a large portion of the population are not economically active, namely 32.7%. These figures are similar to the official unemployment rate for the Gauteng Province (18.1%) and West Rand District (17.8%). The lower unemployment rate seen in the MCLM has been linked to both job opportunities in mining related activities as well as high municipality out-migration rates. The MCLM IDP notes that this migration was due to the low quality of life and low economic growth in the region. This means that individuals who are unable to find work within the MCLM tend to migrate to other parts of the country rather than remain within the district.

Unemployment Rate in South Africa averaged 54.21% from 2013 until 2021, reaching an all-time high of 64.40 % in the second quarter of 2021. The current rates in the MCLM are therefore likely to be significantly higher than the 2011 rates. These rates will also have been exacerbated by the impact of COVID-19 pandemic.

30. Education

Based on Community Household Survey of 2016, 4.2% of persons 20 years and older had no education, while 31.3% had a matric and 5.7% had a higher level of education.

8. MUNICIPAL SERVICES

31. Electricity

Based on the 2022 Census, 98.1% of households in the MCLM had access to electricity and used it for lighting.

32. Access to water

Based on the 2022 Census, 81.9% of households had piped water inside their dwelling.

33. Sanitation

Based on the 2022 Census, 94.1% of households have flush toilets connected to sewerage systems.

34. Refuse collection

Based on the 2022 Census, 81.4% of households have their refuse collected on a weekly basis.

9. ECONOMIC OVERVIEW

35. Mining

Despite mining sector contributing only 3.3% of Gauteng's GDP, mining sits at the core of the WRDM and contributes over 50% of Gross Value Add. This is prevalent in MCLM, as not only does one in four people in the region rely on mining for employment, but mining sector also contributes to 29.1% GDP locally. Gold and uranium are the primary materials mined in the region.

36. Manufacturing

Around 40% of South Africa's manufacturing is done in Gauteng, and the manufacturing sector contributes over 16% to the overall GDP of the province. Locally, despite sectoral employment only contributing 7.2% the MCLM manufacturing sector has grown significantly since 2011 and contributed 20.8% to local GDP in 2016.

37. Finance, Real Estate, and Business Services

The finance and business sector is growing steadily and contributed 13.8% to MCLM GDP in 2016. This has resulted in the decline in the number of people employed in the mining sector since 2011 being offset by the growth in employment in this sector as well as the trade sector during this time

38. Renewable energy

The Merafong Growth and Development Strategy offers an outline for the future development of the area, and both the Green Economy and Industrial Beneficiation have been identified as significant drivers to revitalise the economy and mining towns of West Rand. The Merafong Solar Farm Cluster Concept and Bio-energy farm proposes a Solar Farm Cluster and Bio- energy farm in Merafong City, in order to develop a renewable energy sector and reindustrialise and create opportunities in local downstream sectors like manufacturing industries and reduce electricity costs and carbon footprint in both private and public sectors.

The Social Impact Assessment is attached as Appendix G.11

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

	YES	
Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	x	

If YES, explain:

- Archaeological features:
  - Older Iron Age landscape: This is an archaeological feature and relates to the very large number of Iron Age sites that occur in the wider area.
- Palaeontological features:
  - The palaeontological sensitivity of the EGI route under consideration are presented in Figure 2. The southern section of the route is on moderately fossiliferous Hekpoort Formation (green on SAHRIS and orange in the DFFE map) and the northern section is on the highly fossiliferous Timeball Hill Formation (SAHRIS orange; DFFE dark orange).
  - The North West Province Palaeotechnical Report indicates that the Silverton Formation is highly sensitive as there are stromatolites, but no evidence has been supplied and the

geological records do not support this conclusion. Stromatolites and microbial mats are usually formed in shallow, low energy environments.

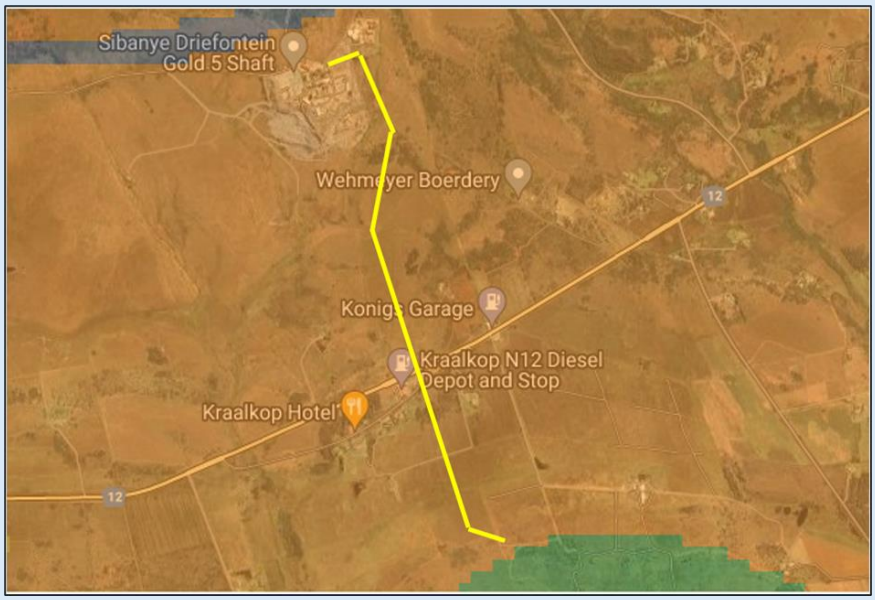


Figure 11: SAHRIS palaeosensitivity map for the site for the proposed Igolide WEF EGI route indicated by the yellow line – the Termination work are located at the East Drie Five Substation situated on the northern End of the Powerline

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

- **HERITAGE**

The Anglo-Boer War – or Second South African War – was an important aspect of local history in many parts of South Africa. In the vicinity of the present study area there were a few skirmishes. Most notably, in 1900, Boer military leader Daniel Theron was killed in action near present day Fochville. In present day Hillshaven, east of Fochville, a small battle was waged on the farm Modderfontein at the end of January 1901. Boer General Smuts defeated a small British force posted at Modderfontein. A few days later General Cunninghame arrived with his force and was unable to dislodge the Boers from their defensive position. On the 4th of February, however, he was successful, and the Boers retreated southwards (Conan Doyle 1901 in AngloBoerWar.com 2023).

Fochville was initially laid out on farms Kraalkop and Leeuspruit during World War I but was only formally proclaimed as a town on 15 November 1920. The town is named after the commander-in-Chief of the Allied Forces in France during World War I, Ferdinand Foch (Raper 2004). East Village is a mining town developed after 1968. Aerial photography shows it to have been fully developed prior to 1991.

The site visit showed that Late Iron Aage (LIA) settlements were present in the study area. Three of them were found, one on a hill in the far north, one at the foot of the steep slope in the northeast, and another just overlapping into the eastern edge of the corridor midway along its length. These sites consisted only of stone-walled enclosures. Further details regarding potential deposit and the presence of artefacts such as pottery could not be determined due to the dense grass and generally overgrown nature of the areas in which these sites occurred. Also found were three elongated stone walls, one running west to east in the far northwest of the study area and another running north to south in the northeast of the corridor and immediately adjacent to a LIA settlement and a third which had a gentle curve was located in a grassy area in the central part of the corridor. The purpose and age of these walls is unknown, but they are probably LIA. Two isolated circular enclosures were seen on aerial photography to the west of the corridor. They were not visited.

Also found were some small historical stone ruins in the central part of the corridor. They were very poorly preserved and, due to the presence of cement on some stones and only modern rubbish, they are assumed to not be very old.

It should be noted that many more archaeological sites were located in the area at the southern end of the corridor. These have been reported on in Orton and Van der Walt (2023) and, because none are affected by the present project, these are not discussed further here. The nearest is about 120 m south of the onsite substation.

A single historical house was seen just outside the eastern edge of the corridor in the south at waypoint 4304. Although the original dwelling pre-dates 1938 (as is evident from aerial photography; it has been added to many times over the years and has lost almost all of its heritage value. The western wall is of modern facebrick, as is the veranda, and a modern stone wall has been built at the western end of the veranda.

Other historical structures were noted from aerial photography to occur in the area but they are 280 m east (house) and 440 m west (Kraalkop Hotel) of the edge of the proposed grid corridor and will not be affected.

- Graves

No graves were seen. None are expected, although it is possible that still born children may have been buried within the Iron Age settlements. These remains would likely never be found due to their obvious fragility which would prevent preservation.

- Cultural landscapes and scenic routes

Cultural landscapes are the product of the interactions between humans and nature in a particular area. Sauer (1925) defined them thus: “The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural area is the medium, the cultural landscape the result”. Cultural landscapes are thus areas containing multiple ‘sites’ and which have been shaped by the interaction of natural processes and anthropogenic activities such as construction and agriculture. Scenic routes are well-travelled roads that pass through natural or cultural landscapes with aesthetic value and that often have iconic or visually attractive views.

The landscape has several different land uses. The land use at the southern end of the corridor is agriculture and livestock/game grazing, while the remaining land further north may be used for occasional grazing but this was not obviously the case at the time of the site inspection. This land is, nonetheless, rural in character. The other main land use is the mine in the north which provides an industrial layer to the landscape. Other gold mines as well as the towns of Fochville (to the south) and East Village (to the north) also occur within a few kilometers of the corridor. Existing high voltage (HV) powerlines occur in the area as does the substation to which the project would connect. These other land uses alter the overall sense of place of the rural environment.

Historical aerial photography from 1938 shows that the amount of ploughed land has remained fairly consistent with the land north of the N12 generally having never been ploughed aside from a small area just east of the corridor. Several farmsteads and/or buildings were present in 1938, as was the N12 (although following a different alignment past the Kraalkop Hotel to the west of the corridor). The various gold mines and associated slimes dams scattered around the wider area have appeared in more recent decades, adding an industrial layer to the landscape. These observations show a continually evolving cultural landscape with modern industrial uses (i.e. mining) becoming visually prominent on the landscape.

Another aspect of the cultural landscape is the older Iron Age landscape. This is an archaeological feature and relates to the very large number of Iron Age sites that occur in the wider area.

- PALAEONTOLOGY

The palaeontological sensitivity of the EGI route under consideration are presented in the figure below. The southern section of the route is on moderately fossiliferous Hekpoort Formation (green on SAHRIS and orange in the DFFE map) and the northern section is on the highly fossiliferous Timeball Hill Formation (SAHRIS orange; DFFE dark orange).

The North West Province Palaeotechnical Report indicates that the Silverton Formation is highly sensitive as there are stromatolites, but no evidence has been supplied and the geological records do not support this conclusion. Stromatolites and microbial mats are usually formed in shallow, low energy environments.

The Hekpoort Formation is predominantly composed of basaltic andesite and pyroclastic rocks and this type of rock does not preserve fossils. This is noted in the Palaeotechnical Report but they advise that caves or solution cavities could occur and these might have fossils. No fossiliferous caves are known from this area and for geological and engineering reasons, it is unlikely that the electrical grid infrastructure would be placed over cave sites.

Although the Hekpoort Formation is indicated as moderately sensitive in the Gauteng Palaeotechnical Report this is based on “no fossils recorded”. The paleosol in a road cutting near Waterval Onder contains urn-

shaped microfossils measuring 1 x 0.2mm. He named the putative fossils Diskagma buttoni. Lenhardt et al. (2020) are very sceptical about the “fossils” and the reconstruction of the fossils from the thin-sections are extremely fanciful.

Will any building or structure older than 60 years be affected in any way?	YES	
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		NO
If yes, please attached the comments from SAHRA in the appropriate Appendix		

The Heritage and Palaeontological Assessments are attached as Appendix G.8 and Appendix G.9

The Draft Basic Assessment Report was uploaded onto the SAHRIS portal for SAHRA’s comment. The comments provided will be attached to the Final Basic Assessment Report.

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?	YES [redacted]
If yes, has any comments been received from the local authority?	[redacted] NO

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

[redacted]

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

The draft BAR is currently in the Public Participation Phase, and therefore has been submitted for 30-day public review. The public review period is between 15 November 2024 to 06 January 2025 (the public review dates considers the 15 December 2024 to 05 January 2025 departmental shutdown). Comments from state departments are still being received and will be responded to in the Comments and Responses Report, which will be submitted with the Final BAR..

3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	[redacted] NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

[redacted]

If "NO" briefly explain why no comments have been received

The draft BAR is currently in the Public Participation Phase, and therefore has been submitted for 30-day public review. The public review period is between 15 November 2024 to 06 January 2025 (the public review dates considers the 15 December 2024 to 05 January 2025 departmental shutdown). Comments from state departments are still being received and will be responded to in the Comments and Responses Report, which will be submitted with the Final BAR.

4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

5. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed

4) Each alterative needs to be clearly indicated in the box below

5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives | **1** | times (complete only when appropriate)

Section D Alternative No. [redacted] (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES [redacted]
If yes, what estimated quantity will be produced per month?	5 m^3
How will the construction solid waste be disposed of (describe)?	

The proposed activity may result in the generation of solid construction waste. However, it is not envisaged that the waste volumes generated would trigger the thresholds as prescribed in terms of the NEM: WA. Waste resulting from construction activities will be collected and disposed of at a registered landfill site as per regulatory requirements.

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

Waste resulting from construction activities will be collected and disposed of at a registered landfill site as per regulatory requirements. However, the registered landfill site is still to be confirmed.

Will the activity produce solid waste during its operational phase?	[redacted] NO
If yes, what estimated quantity will be produced per month?	`m^3
How will the solid waste be disposed of (describe)?	

[redacted]

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity? YES NO

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

Waste resulting from construction activities will be collected and disposed of at the closest registered municipal landfill site as per regulatory requirements.

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

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? NO

If yes, inform the competent authority and request a change to an application for scoping and EIA.

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

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

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

The project entails the construction of a powerline and switching station as well as the expansion of a substation. None of the materials required for the construction of the project components will be recycled or reused.

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? NO

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

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?

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

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

If yes describe the nature of the effluent and how it will be disposed.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility? NO

If yes, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:

Postal code:	
Telephone:	
E-mail:	

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

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	YES
If yes, what estimated quantity will be produced per month?	2 m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	YES

Will the activity produce any effluent that will be treated and/or disposed of on site?	NO

If yes describe how it will be treated and disposed off.

Domestic sewage will only be generated during the construction phase. During which time portal ablutions facilities will be provided for construction workers. Sewage will be collected by registered sewage collection contractors and disposed of at the closest municipal sewage treatment facility.

No domestic sewage will be generated during the operational phase.

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	NO
If yes, is it controlled by any legislation of any sphere of government?	

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

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

2. WATER USE

Indicate the source(s) of water that will be used for the activity

municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?

If yes, list the permits required

If yes, have you applied for the water use permit(s)?

If yes, have you received approval(s)? (attached in appropriate appendix)

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

The project entails the construction of a powerline and switching station as well as the expansion of a substation. The components of the project will not utilise power, they will merely transmit / distribute electricity from the Igolide Wind Energy Facility to the National Grid.

If power supply is not available, where will power be sourced from?

4. ENERGY EFFICIENCY

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

The nature of the development is such that energy efficiency is not applicable.

The project entails the construction of a powerline and switching station as well as the expansion of a substation. The components of the project will not utilise power, they will merely transmit / distribute electricity from the Igolide Wind Energy Facility to the National Grid.

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

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

The draft BAR is currently in the Public Participation Phase, and therefore has been submitted for 30-day public review. The public review period is between 15 November 2024 to 06 January 2025 (the public review dates considers the 15 December 2024 to 05 January 2025 departmental shutdown). Comments from state departments are still being received and will be responded to in the Comments and Responses Report, which will be submitted with the Final BAR.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)

(A full response must be provided in the Comments and Response Report that must be attached to this report):

The draft BAR is currently in the Public Participation Phase, and therefore has been submitted for 30-day public review. The public review period is between 15 November 2024 to 06 January 2025 (the public review dates considers the 15 December 2024 to 05 January 2025 departmental shutdown). Comments from state departments are still being received and will be responded to in the Comments and Responses Report, which will be submitted with the Final BAR.

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

A standard risk assessment methodology is used for the ranking of the identified environmental impacts pre-and post-mitigation (i.e. residual impact). The significance of environmental aspects is determined and ranked by considering the criteria presented in the tables below.

Table 4: Impact Assessment Criterion and Scoring System

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
Impact Magnitude (M) The degree of alteration of the affected environmental receptor	Very low: No impact on processes	Low: Slight impact on processes	Medium: Processes continue but in a modified way	High: Processes temporarily cease	Very High: Permanent cessation of processes
Impact Extent (E) The geographical extent of the impact on a given environmental receptor	Site: Site only	Local: Inside activity area	Regional: Outside activity area	National: National scope or level	International: Across borders or boundaries
Impact Reversibility (R) The ability of	Reversible: Recovery without rehabilitation		Recoverable: Recovery with rehabilitation		Irreversible: Not possible despite action

Criteria	Score 1	Score 2	Score 3	Score 4	Score 5
the environmental receptor to rehabilitate or restore after the activity has caused environmental change					
Impact Duration (D) The length of permanence of the impact on the environmental receptor	Immediate: On impact	Short term: 0-5 years	Medium term: 5-15 years	Long term: Project life	Permanent: Indefinite
Probability of Occurrence (P) The likelihood of an impact occurring in the absence of pertinent environmental management measures or mitigation	Improbable	Low Probability	Probable	Highly Probability	Definite
Significance (S) is determined by combining the above criteria in the following formula:	$[S = (E + D + R + M) \times P]$ $Significance = (Extent + Duration + Reversibility + Magnitude) \times Probability$				
Impact Significance Rating					
Total Score	**4 to 15**	**16 to 30**	**31 to 60**	**61 to 80**	**81 to 100**
Environmental Significance Rating (Negative (-))	**Very low**	**Low**	**Moderate**	**High**	**Very High**
Environmental Significance Rating (Positive (+))	**Very low**	**Low**	**Moderate**	**High**	**Very High**

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Preferred Alternative: Construction Phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Soil Erosion	Negative	• Rehabilitate affected areas (such as revegetation); • Use temporary berms and drainage channels to divert surface water; • Limit excavations to what is necessary; • Where possible, use existing road network and access track; • Ensure correct engineering design and construction of gravel roads and water crossings; and • Ensure adequate control of stormwater flow.	12 Very low	Low
Oil spillage	Negative	• Contamination of ground and surface water resources from heavy plant leading to quality deterioration of the water resources.	12 Very Low	Low
Disturbance of fauna and flora	Negative	• Limit excavations to what is necessary.	12 Very Low	Low
Slope stability	Negative	• Avoid steep slope areas; and • Design cut slopes according to detailed geotechnical analysis.	14 Very Low	Low
Seismic activity	Negative	• Design all infrastructure according to SANS 10160-4 to ensure the proposed development meets the minimum requirements for infrastructure in a seismic zone.	30 Low	Low
Loss of wetland habitat	Negative	• Areas of undisturbed, natural grassland and wetland habitat should be avoided. Areas of direct loss that cannot be avoided must be addressed via additional conservation actions/offsets as required. • A loss/disturbance buffer zone of at least 100 m should be maintained between the maximum extent of construction works and the outer boundary of the wetland. • To prevent loss of natural habitat in wetlands beyond the direct disturbance footprint, prior to any vegetation clearing, the development footprints should be clearly marked out with flagging tape/posts in the field.	27 Low	Low
Changes in wetland health/functioning	Negative	• Areas of undisturbed, natural grassland and wetland habitat should be avoided. Areas of	24 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		direct loss that cannot be avoided must be addressed via additional conservation actions/offsets as required. • A loss/disturbance buffer zone of at least 100 m should be maintained between the maximum extent of construction works and the outer boundary of the wetland. • To prevent loss of natural habitat in wetlands beyond the direct disturbance footprint, prior to any vegetation clearing, the development footprints should be clearly marked out with flagging tape/posts in the field.		
Freshwater: soil erosion	Negative	• Areas of undisturbed, natural grassland and wetland habitat should be avoided. Areas of direct loss that cannot be avoided must be addressed via additional conservation actions/offsets as required. • A loss/disturbance buffer zone of at least 100 m should be maintained between the maximum extent of construction works and the outer boundary of the wetland. • To prevent loss of natural habitat in wetlands beyond the direct disturbance footprint, prior to any vegetation clearing, the development footprints should be clearly marked out with flagging tape/posts in the field.	24 Low	Low
Freshwater: Spread of Alien invasive species	Negative	• Areas of undisturbed, natural grassland and wetland habitat should be avoided. Areas of direct loss that cannot be avoided must be addressed via additional conservation actions/offsets as required. • A loss/disturbance buffer zone of at least 100 m should be maintained between the maximum extent of construction works and the outer boundary of the wetland. • To prevent loss of natural habitat in wetlands beyond the direct disturbance footprint, prior to any vegetation clearing, the development footprints should be clearly marked out with flagging	12 Very Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		tape/posts in the field.		

Direct loss and disturbance of natural habitat	Negative	• Avoidance
		  • As much of the proposed Project infrastructure as possible should be located in disturbed/modified habitat units, such as *Hyparrhenia hirta – Eragrostis chloromelas* Grassland, Alien Tree Plantations, and Transformed and Degraded Areas) and localised disturbed sites;
		  • As far as practical, access roads should be aligned with existing farm roads and access tracks, and if feasible, no permanent access roads should be constructed in Mixed Rocky Ridge Bushveld and *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland;
		  • A pre-construction micro-siting walkdown of the approved development footprints should be conducted during the wet/growing season.
		• Minimisation
		  • All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no clearing permitted outside of these areas;
		  • The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas;
		  • No heavy vehicles should travel beyond the marked works zone;
		  • Temporary facilities associated with construction, such as portable toilets, storage and laydown areas, should be located on land that is modified.
		• Rehabilitation:
		  • A rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by
			22
			Low
				Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		construction. The protocol should include: - Stockpiling of topsoil from development footprints during site preparation; - Post-construction, the land form should be correctly contoured to limit potential erosion and compacted soils should be ripped and loosened to facilitate vegetation establishment; - Topsoil removed during construction should be applied to all non-operational sites that were disturbed during construction and require revegetation; and - Grass species used during rehabilitation should be indigenous and locally-occurring perennial species, and include a mixture of pioneer, sub-climax and climax species.		

Habitat fragmentation impacting habitat connectivity and integrity	Negative	• Avoidance
		  • As much of the proposed Project infrastructure as possible should be located in disturbed/modified habitat units, such as *Hyparrhenia hirta – Eragrostis chloromelas* Grassland, Alien Tree Plantations, and Transformed and Degraded Areas) and localised disturbed sites;
		  • As far as practical, access roads should be aligned with existing farm roads and access tracks, and if feasible, no permanent access roads should be constructed in Mixed Rocky Ridge Bushveld and *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland;
		  • A pre-construction micro-siting walkdown of the approved development footprints should be conducted during the wet/growing season.
		• Minimisation
		  • All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no
			24
			Low
				Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		clearing permitted outside of these areas; • The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas; • No heavy vehicles should travel beyond the marked works zone; • Temporary facilities associated with construction, such as portable toilets, storage and laydown areas, should be located on land that is modified. • Rehabilitation: • A rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction. The protocol should include: - Stockpiling of topsoil from development footprints during site preparation; - Post-construction, the land form should be correctly contoured to limit potential erosion and compacted soils should be ripped and loosened to facilitate vegetation establishment; - Topsoil removed during construction should be applied to all non-operational sites that were disturbed during construction and require revegetation; and - Grass species used during rehabilitation should be indigenous and locally-occurring perennial species, and include a mixture of pioneer, sub-climax and climax species.		
Terrestrial biodiversity: Establishment and spread of AIS	Negative	• An AIS control and eradication plan must be developed for the Project that focuses on controlling and eradicating AIS in, and immediately adjacent to, the construction footprints. The plan must include:	16 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		- Identification of AIS management units - Prioritisation of sites and species requiring control; - Targets and indicators of success; - Scheduling of AIS control; - Species-specific control methods, using a combined approach of both chemical and mechanical control methods; and - Provision for follow-up treatments, as informed by regular AIS monitoring.		
Terrestrial biodiversity: soil erosion and sedimentation	Negative	• All sites disturbed by construction activities should be stabilised and actively revegetated, as per the rehabilitation/ landscaping protocol; and • Erosion prevention and control measures (e.g., brush-packing, gabions, silt-traps) should be implemented at any sites of erosion.	16 Low	Low

Plant species:
 	
Direct loss and disturbance of natural habitat
	Negative	• Avoidance
		  • As much of the proposed Project infrastructure as possible should be located in disturbed/modified habitat units, such as *Hyparrhenia hirta – Eragrostis chloromelas* Grassland, Alien Tree Plantations, and Transformed and Degraded Areas) and localised disturbed sites;
		  • As far as practical, access roads should be aligned with existing farm roads and access tracks, and if feasible, no permanent access roads should be constructed in Mixed Rocky Ridge Bushveld and *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland;
		  • A pre-construction micro-siting walkdown of the approved development footprints should be conducted during the wet/growing season.
		• Minimisation
		  - All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no
			22
			
			Low
				Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		clearing permitted outside of these areas; - The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas; - No heavy vehicles should travel beyond the marked works zone; - Temporary facilities associated with construction, such as portable toilets, storage and laydown areas, should be located on land that is modified. • Rehabilitation: • A rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction. The protocol should include: - Stockpiling of topsoil from development footprints during site preparation; - Post-construction, the land form should be correctly contoured to limit potential erosion and compacted soils should be ripped and loosened to facilitate vegetation establishment; - Topsoil removed during construction should be applied to all non-operational sites that were disturbed during construction and require revegetation; and - Grass species used during rehabilitation should be indigenous and locally-occurring perennial species, and include a mixture of pioneer, sub-climax and climax species.		
Plant species: Habitat fragmentation impacting habitat connectivity and integrity	Negative	• Avoidance • As much of the proposed Project infrastructure as possible should be located in disturbed/modified habitat units, such as *Hyparrhenia hirta – Eragrostis chloromelas*	24 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		Grassland, Alien Tree Plantations, and Transformed and Degraded Areas) and localised disturbed sites; • As far as practical, access roads should be aligned with existing farm roads and access tracks, and if feasible, no permanent access roads should be constructed in Mixed Rocky Ridge Bushveld and *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland; • A pre-construction micro-siting walkdown of the approved development footprints should be conducted during the wet/growing season. • Minimisation • All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no clearing permitted outside of these areas; • The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas; • No heavy vehicles should travel beyond the marked works zone; • Temporary facilities associated with construction, such as portable toilets, storage and laydown areas, should be located on land that is modified. • Rehabilitation: • A rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction. The protocol should include: – Stockpiling of topsoil from development footprints during site preparation; – Post-construction, the		

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		land form should be correctly contoured to limit potential erosion and compacted soils should be ripped and loosened to facilitate vegetation establishment; – Topsoil removed during construction should be applied to all non-operational sites that were disturbed during construction and require revegetation; and – Grass species used during rehabilitation should be indigenous and locally-occurring perennial species, and include a mixture of pioneer, sub-climax and climax species.		

Plant species:
 	
Loss of flora of conservation concern
	Negative	• Avoidance
		  • As much of the proposed Project infrastructure as possible should be located in disturbed/modified habitat units, such as *Hyparrhenia hirta – Eragrostis chloromelas* Grassland, Alien Tree Plantations, and Transformed and Degraded Areas) and localised disturbed sites;
		  • As far as practical, access roads should be aligned with existing farm roads and access tracks, and if feasible, no permanent access roads should be constructed in Mixed Rocky Ridge Bushveld and *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland;
		  • A pre-construction micro-siting walkdown of the approved development footprints should be conducted during the wet/growing season.
		• Minimisation
		  • All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no
			24
			
			Low
				Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		clearing permitted outside of these areas; • The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas; • No heavy vehicles should travel beyond the marked works zone; • Temporary facilities associated with construction, such as portable toilets, storage and laydown areas, should be located on land that is modified. • Rehabilitation: • A rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction. The protocol should include: – Stockpiling of topsoil from development footprints during site preparation; – Post-construction, the land form should be correctly contoured to limit potential erosion and compacted soils should be ripped and loosened to facilitate vegetation establishment; – Topsoil removed during construction should be applied to all non-operational sites that were disturbed during construction and require revegetation; and – Grass species used during rehabilitation should be indigenous and locally-occurring perennial species, and include a mixture of pioneer, sub-climax and climax species.		

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Plant species: Spread of AIS	Negative	• An AIS control and eradication plan must be developed for the Project that focuses on controlling and eradicating AIS in, and immediately adjacent to, the construction footprints. The plan must include: - Identification of AIS management units - Prioritisation of sites and species requiring control; - Targets and indicators of success; - Scheduling of AIS control; - Species-specific control methods, using a combined approach of both chemical and mechanical control methods; and - Provision for follow-up treatments, as informed by regular AIS monitoring.	16 Low	Low
Animal species: Direct loss and disturbance of natural habitat	Negative	• Avoidance • As much of the proposed Project infrastructure as possible should be located in disturbed/modified habitat units, such as *Hyparrhenia hirta – Eragrostis chloromelas* Grassland, Alien Tree Plantations, and Transformed and Degraded Areas) and localised disturbed sites; • As far as practical, access roads should be aligned with existing farm roads and access tracks, and if feasible, no permanent access roads should be constructed in Mixed Rocky Ridge Bushveld and *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland; • A pre-construction micro-siting walkdown of the approved development footprints should be conducted during the wet/growing season. • Minimisation • All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no clearing permitted outside of these areas;	22 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		• The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas; • No heavy vehicles should travel beyond the marked works zone; • Temporary facilities associated with construction, such as portable toilets, storage and laydown areas, should be located on land that is modified. • Rehabilitation: • A rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction. The protocol should include: – Stockpiling of topsoil from development footprints during site preparation; – Post-construction, the land form should be correctly contoured to limit potential erosion and compacted soils should be ripped and loosened to facilitate vegetation establishment; – Topsoil removed during construction should be applied to all non-operational sites that were disturbed during construction and require revegetation; and – Grass species used during rehabilitation should be indigenous and locally-occurring perennial species, and include a mixture of pioneer, sub-climax and climax species.		
Animal species: Habitat fragmentation	Negative	• Avoidance • As much of the proposed	24	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
impacting habitat connectivity and integrity		Project infrastructure as possible should be located in disturbed/modified habitat units, such as *Hyparrhenia hirta – Eragrostis chloromelas* Grassland, Alien Tree Plantations, and Transformed and Degraded Areas) and localised disturbed sites; • As far as practical, access roads should be aligned with existing farm roads and access tracks, and if feasible, no permanent access roads should be constructed in Mixed Rocky Ridge Bushveld and *Lopholaena corifolia* Rocky Ridge/Outcrop Grassland; • A pre-construction micro-siting walkdown of the approved development footprints should be conducted during the wet/growing season. • Minimisation • All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no clearing permitted outside of these areas; • The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas; • No heavy vehicles should travel beyond the marked works zone; • Temporary facilities associated with construction, such as portable toilets, storage and laydown areas, should be located on land that is modified. • Rehabilitation: • A rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction. The protocol should include:	Low	

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		– Stockpiling of topsoil from development footprints during site preparation; – Post-construction, the land form should be correctly contoured to limit potential erosion and compacted soils should be ripped and loosened to facilitate vegetation establishment; – Topsoil removed during construction should be applied to all non-operational sites that were disturbed during construction and require revegetation; and – Grass species used during rehabilitation should be indigenous and locally-occurring perennial species, and include a mixture of pioneer, sub-climax and climax species.		
Animal species: Injury, mortality and disturbance of fauna	Negative	• Avoidance and minimisation - An Environmental Control Officer (ECO) should be on-site during vegetation clearing to monitor and manage any wildlife-human interactions; - As appropriate, barriers should be erected around construction trenches and excavations to prevent fauna being trapped in these features; - Any fauna species trapped in construction areas, should be safely and correctly relocated to an adjacent area of natural habitat; - A low-speed limit (recommended 20-40 km/h) should be enforced on site to reduce wildlife collisions; - The handling, poisoning and killing of on-site fauna by contractors must be strictly prohibited; - General noise abatement equipment should be fitted to	24 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		construction machinery and vehicles; - Dust suppression using water bowsers should be undertaken on all roads and other sites where dust entrainment occurs; - The rules and regulations concerning fauna should be communicated to contractors through on-site signage and awareness training; and - An incidence register should be maintained throughout all phases of the Project detailing any fauna mortalities/injuries caused by on-site activities. The register should be used to identify additional biodiversity management requirements. - Refer to the Avifauna Specialist Assessment for mitigation and management measures concerning birds.		
Animal species: Loss of flora of conservation concern	Negative	• Avoidance and minimisation Refer to mitigation measures for: - Direct loss and disturbance of natural habitat; and - Injury, mortality and disturbance of fauna.	20 Low	Low
Avifauna: Displacement of EGI sensitive species from breeding/feeding/roosting areas	Negative	• Restrict construction to the immediate infrastructural footprint. Access to remaining areas should be strictly controlled to minimise disturbance of EGI sensitive species. • Minimise removal of natural vegetation and rehabilitate natural vegetation post-construction where possible. • Prioritise upgrading existing roads (where the requisite roads authority permission has been issued) over constructing new roads. • Apply noise and dust control measures according to best practice in the industry. • Strictly implement the recommendations of ecological and botanical specialists to reduce the level of habitat loss.	32 Moderate	Low
Damage to or destruction of grave sites	Negative	• Should any evidence of archaeological sites or remains (e.g. remnants of stone-made structures,	12 Very low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources be found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted. • If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist must be contracted as soon as possible to inspect the findings. A Phase 2 rescue excavation operation may be required subject to permits issued by SAHRA.		
Cultural landscape	Negative	• Ensure disturbance is kept to a minimum and does not exceed project requirements. Avoid construction on very steep slopes. Rehabilitate areas not needed during operation.	30 Low	Low
Creation of local employment, training, and business opportunities	Positive	Employment: ▪ Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. However, due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area. ▪ Where feasible, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. ▪ Before the construction phase commences the proponent should meet with representatives from the LLM to establish the existence of a skills database for the area. If such as database exists, it should	28 Moderate	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		be made available to the contractors appointed for the construction phase. ▪ The local authorities, community representatives, and organisations on the interested and affected party database should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project. ▪ Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the construction phase. ▪ The recruitment selection process should seek to promote gender equality and the employment of qualified women wherever possible. Business: ▪ The proponent should liaise with the LM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction service providers. These companies should be notified of the tender process and invited to bid for project-related work. *Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase*		
Presence of construction workers in the area on local communities	•	• Where possible, the proponent should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically for semi and low-skilled job categories. • The proponent and the contractor(s) should develop a code of conduct for the	8 Very low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		construction phase. The code should identify which types of behaviour and activities are not acceptable. Construction workers in breach of the code should be subject to appropriate disciplinary action and/or dismissed. All dismissals must comply with the South African labour legislation. • The proponent and the contractor should implement an HIV/AIDS awareness programme for all construction workers at the outset of the construction phase. • The contractor should provide transport for workers to and from the site on a daily basis. This will enable the contactor to effectively manage and monitor the movement of construction workers to an extent on and off the site. • The contractor must ensure that all construction workers from outside the area are transported back to their place of residence within 2 days from their contract coming to an end. • No construction workers, with the exception of security personnel, should be permitted to stay over-night on the site.		
Risk to safety, livestock, and damage to farm infrastructure	Negative	• The developer should compensate the directly affected landowners for impact during the construction phase. • The proponent should enter into an agreement with the directly affected farmers whereby damages to farm property etc as a direct result of the construction phase will be compensated for. The agreement should be signed before the construction phase commences. • All farm gates must be closed after passing through. • Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site. • The proponent should consider the option of establishing a (Monitoring Forum) MF (see above) that includes local farmers and develop a Code of Conduct for construction workers. This committee should be established prior to	24 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		commencement of the construction phase. The Code of Conduct should be signed by the proponent and the contractors before the contractors move onto site. • The proponent should hold contractors liable for compensating farmers and communities in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors, and neighbouring landowners. The agreement should also cover loses and costs associated with fires caused by construction workers or construction related activities (see below). • The Environmental Management Plan (EMP) must outline procedures for managing and storing waste on site, specifically plastic waste that poses a threat to livestock if ingested. • Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. • Contractors appointed by the proponent must ensure that construction workers who are found guilty of stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation. • It is recommended that no construction workers, with the exception of security personnel, should be permitted to stay over-night on the site		
Increased risk of grass fires	Negative	• The proponent should enter into an agreement with the directly affected farmers whereby damages to farm property etc., as a direct result of the construction phase will be compensated for. The agreement should be signed before the construction phase commences. • Contractor should ensure that	16 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		open fires on the site for cooking or heating are not allowed except in designated areas. • Smoking on site should be confined to designated areas. • Contractor should ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy summer months. • Contractor should provide adequate fire-fighting equipment on-site, including a fire fighting vehicle. • Contractor should provide fire-fighting training to selected construction staff. • No construction staff, with the exception of security staff, to be accommodated on site overnight. • As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities.		
Social: Construction related activities	Negative	• Timing of construction activities should be planned to avoid/ minimise impact on key farming activities, including planting and harvesting operations. • Repair private roads at the end of construction period where required. • Dust suppression measures must be implemented on un-surfaced roads, such as wetting on a regular basis and ensuring that vehicles used to transport building materials are fitted with tarpaulins or covers. • All vehicles must be roadworthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict	12 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		speed limits.		
Direct Visual Impacts during construction	Negative	• Carefully plan to minimise the construction period and avoid construction delays. • Inform receptors within 500m of the proposed powerline and / or switching station of the construction programme and schedules. • Maintain a neat construction site by removing rubble, litter and waste materials regularly. • Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. • Position storage / stockpile areas in unobtrusive positions in the landscape, where possible. • Make use of existing gravel access roads where possible. • Limit the number of vehicles and trucks travelling to and from the construction site, where possible. • Ensure that dust suppression techniques are implemented: - on all access roads; - in all areas where vegetation clearing has taken place; - on all soil stockpiles.	18 Low	Low

Preferred Alternative - Operational phase:

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Soil Erosion	Negative	• Where possible, use existing road network and access tracks; • Use temporary berms and drainage channels to divert surface water; • Minimize earthworks and demolish footprints; • Rehabilitate affected areas (such as revegetation); • Reinstate channelized drainage features; and • Strip, stockpile and re-spread topsoil.	4 Very low	Low
Oil spillage	Negative	• Vehicle repairs to be undertaken in designated areas.	7 Very Low	Low
Seismic activity	Negative	• An alien and invasive species management plan should be developed for the Project, which includes details of strategies and procedures that must be implemented on site to control the spread of alien and invasive species. A combined approach using both chemical and mechanical control methods, with periodic follow-up treatments informed by regular monitoring, is recommended.	30 Low	Low
Freshwater: Spread of AIS	Negative	• An alien and invasive species management plan should be developed for the Project, which includes details of strategies and procedures that must be implemented on site to control the spread of alien and invasive species. A combined approach using both chemical and mechanical control methods, with periodic follow-up treatments informed by regular monitoring, is recommended.	10 Very low	Low
Wetland soil erosion	Negative	• All sites disturbed by construction activities should be stabilised and actively revegetated, as per the rehabilitation/ landscaping protocol; and • Erosion prevention and control measures (e.g., brush-packing, gabions, silt-traps) should be implemented at any sites of erosion.	16 Low	Low
Terrestrial biodiversity:	Negative	• Active alien invasive species control should continue during the decommissioning phase and	16 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Spread of AIS		annual follow up control should be carried out for a five- year period following decommissioning.		
Plant Species: Spread of AIS	Negative	• Active alien invasive species control should continue during the decommissioning phase and annual follow up control should be carried out for a five- year period following decommissioning.	16 Low	Low
Animal species: Injury, mortality and disturbance of fauna	Negative	• Avoidance and minimisation - No off-road driving is permitted for vehicles and mobile machinery used during operations and for maintenance purposes. - A low-speed limit (recommended 20-40 km/h) should be enforced on site to reduce wildlife collisions; - The handling, poisoning and killing of on-site fauna by maintenance personnel must be strictly prohibited; - The rules and regulations concerning fauna should be communicated to maintenance personnel through on-site signage and awareness training. - Refer to the Avifauna Specialist Assessment for mitigation and management measures concerning birds.	9 Very low	Low
Avifauna: Displacement of EGI sensitive species from breeding/feeding/roosting areas	Negative	• Restrict construction to the immediate infrastructural footprint where possible. Access to remaining areas should be strictly controlled to minimise disturbance of EGI sensitive species. Rehabilitate natural vegetation post-construction where possible. • Once operational, vehicle and pedestrian access to the site should be controlled and restricted to the facility footprint as much as possible to prevent unnecessary destruction of vegetation.	44 Moderate	Low
Avifauna: Population reduction of EGI sensitive species	Negative	• A vulture-friendly pole design should be used, with appropriate mitigation measures for complicated pole structures (e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformer), as recommended	26 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		by the Avifaunal Specialist. • Apply insulation reactively in the substation if significant electrocutions of avifauna are recorded.		
Avifauna: Population reduction of EGI sensitive species through collisions with 132kV power line	Negative	• A vulture-friendly pole design should be used, with appropriate mitigation measures for complicated pole structures (e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformer), as recommended by the Avifaunal Specialist. • Apply insulation reactively in the substation if significant electrocutions of avifauna are recorded. • The entire 132kV power line should be marked with Bird Flight Diverters according to the applicable Eskom Standard	26 Low	Low
Cultural landscape	Negative	• Ensure that all maintenance vehicles and operational activities stay within designated areas. • Paint buildings in earthy colours to reduce contrast. Make use of motion detectors and downlighting to reduce night-time light pollution.	40 Moderate	Low
Improving energy security and support renewable sector	Positive	• Maximise the number of employment opportunities for local community members. • Maximise opportunities for local content and procurement.	40 Moderate	Low
Creation of employment opportunities	Positive	• Appoint a local service provider to undertake maintenance and repairs.	32 Moderate	Low
Generate income for affected landowners	Positive	• Implement agreements with affected landowners. • The loss of high-quality agricultural land should be avoided and or minimised. The recommendations of the agricultural / soil assessment should be implemented.	32 Moderate	Low
Visual impact and impact on sense of place	Negative	• The recommendations contained in the VIA should also be implemented.	24 Low	Low
Risk to farming operations and damage to farm infrastructure	Negative	• Affected property owners should be notified in advance of the timing and duration of maintenance activities. • Maintenance teams must ensure that all farm gates must be	15 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		closed after passing through. • Property owners should be compensated for damage to farm property and or loss of livestock or game associated maintenance related activities. • Movement of traffic and maintenance related activities should be strictly contained within designated areas associated with transmission lines and substations. • Strict traffic speed limits must be enforced on the farm. • No maintenance workers should be allowed to stay over-night on the affected properties.		
Impact on tourism	Negative	• Potential impact on current rural sense of place and future tourism opportunities in the area.	12 Low	Low
Direct Visual Impacts during Operation	Negative	• Where possible, limit the number of maintenance vehicles using access roads. • Ensure that dust suppression techniques are implemented on all gravel access roads. • As far as possible, limit the amount of security and operational lighting present on the switching station site. • Where feasible, light fittings for security at night should reflect the light toward the ground to reduce light spill. • Lighting fixtures should make use of minimum lumen or wattage. • Mounting heights of lighting fixtures should be limited, or alternatively foot-light or bollard level lights should be used. • If possible, make use of motion detectors on security lighting. • The buildings on the substation site should not be illuminated at night and should be painted in natural tones that fit with the surrounding environment. • Non-reflective surfaces should be used where possible.	24 Low	Low

Alternative 1	*(REPEAT THIS TABLE FOR EACH ALTERNATIVE)*			
Potential impacts:	**Significance rating of**	**Proposed mitigation:**	**Significanc e rating of**	**Risk of the impact** and

	impacts (positive or negative):		**impacts after mitigation:**	**mitigation not being implemented**

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**

No Go				
Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Specialist Studies attached as Appendices:

Appendix G.1 Soil, Land Use and Land Capability and Agricultural Potential Assessment

Appendix G.2 Geotechnical Desktop Assessment

Appendix G.3 Freshwater Ecological Assessment

Appendix G.4 Terrestrial Biodiversity

Appendix G.5 Plant Species Assessment

Appendix G.6 Animal Species Assessment

Appendix G.7 Avifaunal Assessment

Appendix G.8 Heritage Assessment

Appendix G.9 Palaeontological Assessment

Appendix G.10 Visual Assessment

Appendix G.11 Social Impact Assessment

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

1. GENERAL ASSUMPTIONS AND LIMITATIONS:

    - The EAP hereby confirms that they have undertaken to obtain project information from the client that is deemed to be accurate and representative of the project;
    - Site visits have been undertaken to better understand the project and ensure that the information provided by the client is correct, based on site conditions observed;
    - The EAP hereby confirms their independence and understands the responsibility they hold in ensuring all comments received are accurately replicated and responded to within the EIA documentation;
    - The comments received in response to the public participation process, will be representative of comments from the broader community; and
    - Based on the Pre-Application meeting and subsequent minutes, the CA would not require additional specialist input, in order to make a decision regarding the application.

2. AGRICULTURAL POTENTIAL ASSESSMENT

    There are no specific assumptions, uncertainties or gaps in knowledge or data that affect the findings of this study.

3. AQUATIC ASSESSMENT

    - This report was prepared on the basis of the site sensitivity verification process undertaken in response to the national web-based screening report. The site sensitivity verification was completed via desktop analysis of the existing baseline knowledge of riparian or wetlands systems in the study area, supplemented by the findings of the field survey conducted in April 2024.
    - A wetland mapped by the NWM5 (2018) database located in towards the northern section of the study area within the Sibanye Driefontein Gold 5 Shaft could not be confirmed during the time of the field survey due to access restrictions.

4. TERRESTRIAL IMPACT ASSESSMENT

    - Field work was conducted over a one-day period in April 2024. The timing of the field survey coincided with the late wet-season. Sufficient rain had fallen during the preceding wet season to allow for a productive vegetation community. During this period, fauna presence and activity are also generally still high;
    - Pursuant to the above, the conditions during which the field work for the current study was conducted are not considered significantly limiting with respects to the findings presented in this report. Notwithstanding this, it is possible that certain small or cryptic flora taxa (e.g., annuals and geophytes) that are most readily visible or distinguishable at other periods during the wet/growing season, may not have been detected during the field survey;
    - The absence or non-recording of a specific fauna species, at a particular time, does not necessarily indicate that 1) the species does not occur there; 2) the species does not utilise resources in that area; or 3) the area does not play an ecological support role in the ecology of that species.

5. PLANT SPECIES ASSESSMENT

- Field work was conducted over a one-day period in April 2024. The timing of the field survey coincided with the late wet-season. Sufficient rain had fallen during the preceding wet season to allow for a productive vegetation community, and this was conducive to assessing flora condition and composition. Pursuant to this, the conditions during which the field work for the current study was conducted are not considered significantly limiting with respects to the findings presented in this report; and
- Notwithstanding the above, it is possible that certain small or cryptic taxa (e.g., annuals and geophytes) that are most readily visible or distinguishable (e.g., when in flowering) at other periods during the wet/growing season, may not have been detected during the field survey.

6. ANIMAL SPECIES ASSESSMENT

- Field work was conducted over a one-day period in April 2024. The timing of the field survey coincided with the late wet-season. During this period, fauna presence and activity are generally still high, and seasonality is therefore not considered a limiting factor. This notwithstanding, considering the short duration and nature of field work, it is possible that certain rare, cryptic, migrating, hibernating or transient fauna species may not have been present and/or observed during the field survey;
- The absence or non-recording of a specific fauna species, at a particular time, does not necessarily indicate that 1) the species does not occur there; 2) the species does not utilise resources in that area; or 3) the area does not play an ecological support role in the ecology of that species; and
- Given the difficulty of fully sampling and characterising the abundance and distribution of fauna species in the study area during the short period of time allocated to field work, the baseline descriptions were qualitative.
- ling and characterising the abundance and distribution of fauna species in the study area during the short period of time allocated to field work, the baseline descriptions were qualitative.

7. AVIFAUNAL IMPACT ASSESSMENT

- The SABAP2 data are regarded as an adequate indicator of the avifauna which could occur at the PAOI, and it was further supplemented by data collected during the on-site surveys.
- The focus of the study was on the potential impacts of the proposed EGI on EGI sensitive species.
- EGI sensitive species were defined as follows: Species which could potentially be impacted by power line collisions or electrocutions (power line or substation yard), based on specific morphological and/or behavioural characteristics. Species classes which fall under these categories are raptors, large terrestrial birds, waterbirds, crows, and certain ground nesting birds (vulnerable to displacement due to disturbance/habitat loss.
- Despite the growing body of peer reviewed literature investigating the collision risks of birds with overhead power lines in South Africa, relevant information for many individual species remains limited. The precautionary principle was therefore applied throughout. The World Charter for Nature, which was adopted by the UN General Assembly in 1982, was the first international endorsement of the precautionary principle. The principle was implemented in an international treaty as early as the 1987 Montreal Protocol and, among other international treaties and declarations, is reflected in the 1992 Rio Declaration on Environment and Development. Principle 15 of the 1992 Rio Declaration states that: “to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall be not used as a reason for postponing cost-effective measures to prevent environmental degradation.”
- The assessment of impacts is based on the baseline environment as it currently exists at the PAOI.
- Conclusions drawn in this study are based on experience of the specialists on the species found on site and similar species in different parts of South Africa. Bird behaviour can never be entirely reduced to formulas that will be valid under all circumstances.
- The Broader Area is defined as the area encompassed by the four pentads where the project is located.
- The Project Area of Impact (PAOI) is defined as the area within a 2km radius of the EGI where the primary impacts on avifauna are expected.
- The Project Site is the where the actual development will be located, i.e., the footprint containing the EGI.

8. SOCIAL IMPACT ASSESSMENT

- Technical suitability
- It is assumed that the development site represents a technically suitable site for the establishment of the proposed development.
- Strategic importance of the project
- The strategic importance of promoting renewable energy and the associated infrastructure is supported by national and provincial energy policies.
- Fit with planning and policy requirements
- Legislation and policies reflect societal norms and values. The legislative and policy context therefore plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard, a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, if the findings of the study indicate that the proposed development in its current format does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported.
- Site visit and interviews
- The site visit to the area was undertaken in 2023 as part of the SIA for the Igolide WEF. Interviews for the grid connection were undertaken telephonically. Based on the authors experience this does not have a material bearing on the findings of the SIA.

9. HERITAGE IMPACT ASSESSMENT

- The field study was carried out at the surface only and hence any completely buried archaeological sites would not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface. Due to the extensive grass cover which inhibited study of the substrate, the survey attempted to (1) identify all obvious heritage resources, (2) focus on areas where heritage was most likely to occur, and (3) determine the relationship between heritage resources and landscape features. It is assumed that the findings would be indicative of the overall pattern on the landscape. It is assumed that the information provided for the assessment is an accurate reflection of the development proposal.

10. PALAEONTOLOGICAL IMPACT ASSESSMENT

- Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the dolomites, sandstones, shales and sands are typical for the country and only some contain trace fossils such as stromatolites or microbialites. The overlying soils and sands of the Quaternary period would not preserve fossils.

11. VISUAL IMPACT ASSESSMENT

- This visual study has been undertaken based on the updated project description dated January 2024 as provided by the Proponent and the Environmental Assessment Practitioner.
- Given the nature of the receiving environment and the height of the various components of the proposed grid infrastructure, the study area or visual assessment zone is assumed to encompass a zone of 5 km from the outer boundary of the combined grid assessment corridor. This limit on the visual assessment zone relates to the fact that visual impact decreases exponentially over distance. Thus, although the proposed development may still be visible beyond 5 km, the degree of visual impact will diminish considerably. As such, the need to assess the impact on potential receptors beyond this distance would not be warranted.
- The identification of visual receptors involved a combination of desktop assessment as well as field-based observation. Initially Google Earth imagery was used to identify potential receptors within the study area. Where possible, these receptor locations were verified and assessed in the early stages of the project by way of a site visit which was undertaken between the 9th and 10th of February 2022. Due to the extent of the study area however and the number of receptors that could potentially be sensitive to the proposed development, it was not possible to visit or verify every potentially sensitive visual receptor location. As such, several broad assumptions have been made in terms of the likely sensitivity of the receptors to the proposed development.

- It should be noted that not all receptor locations would necessarily perceive the proposed development in a negative way. This is usually dependent on the use of the facility, the economic dependency of the occupants on the scenic quality of views from the facility and on people's perceptions of the value of "Green Energy". Sensitive receptor locations typically include sites such as tourism facilities and scenic locations within natural settings which are likely to be adversely affected by the visual intrusion of the proposed development. Thus, the presence of a receptor in an area potentially affected by the proposed development does not necessarily mean that any visual impact will be experienced.
- The potential visual impact at each visual receptor location was assessed using a matrix developed for this purpose. The matrix is based on three main parameters relating to visual impact and, although relatively simplistic, it provides a reasonably accurate indicative assessment of the degree of visual impact likely to be experienced at each receptor location as a result of the proposed development. It is however important to note the limitations of quantitatively assessing a largely subjective or qualitative type of impact and as such the matrix should be seen merely as a representation of the likely visual impact at a receptor location.
- The exact status of all the receptors could not be verified during the field investigation and as such the receptor impact rating was largely undertaken via desktop means.
- Receptors that were assumed to be farmsteads were still regarded as being potentially sensitive to the visual impacts associated with the proposed development and were thus assessed as part of the VIA.
- Based on information provided by the project developer, all analysis for this VIA is based on a worst-case scenario where the height of the proposed pylons is assumed to be 40 m and other buildings and structures associated with the grid connection are assumed to be less than 40 m in height.
- Due to the varying scales and sources of information; maps may have minor inaccuracies. Terrain data for this area, derived from the National Geo-Spatial Information (NGI)'s 25m Digital Elevation Model (DEM), is fairly coarse and somewhat inconsistent and as such, localised topographic variations in the landscape may not be reflected on the DEM used to generate the viewshed and visibility analysis conducted in respect of the proposed development.
- In addition, the viewshed / visibility analysis does not consider any existing vegetation cover or built infrastructure which may screen views of the proposed development. This analysis should therefore be seen as a conceptual representation or a worst-case scenario.
- No feedback regarding the visual environment has been received from the public participation process to date. Any feedback from the public during the review period of the Draft Basic Assessment Report (BAR) for the EGI will however be incorporated into further drafts of this report, if relevant.
- This study includes a broad assessment of the potential cumulative impacts of other renewable energy developments on the existing landscape character and on the identified sensitive receptors.
- The site visit was undertaken in early February 2022, during mid-summer, which is characterised by higher levels of rainfall and increased vegetation cover. In these conditions, slightly reduced levels of visual impact will be experienced from receptor locations in the surrounding area. Accordingly, Google Earth Street View has been used in some instances to provide an indication of views during the drier season when vegetation cover provides less screening.
- In clear weather conditions, pylons, switching station and associated infrastructure would present a greater contrast with the surrounding environment than they would on an overcast day. The field investigation was conducted during clear to partly cloudy weather conditions.

3. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Preferred Alternative - Decommissioning phase:

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Soil Erosion	Negative	• Where possible, use existing road network and access tracks; • Use temporary berms and drainage channels to divert surface water; • Minimize earthworks and demolish footprints; • Rehabilitate affected areas (such as revegetation); • Reinstate channelized drainage features; and • Strip, stockpile and re-spread topsoil.	12 Very Low	Low
Oil spillage	Negative	• Vehicle repairs to be undertaken in designated areas.	14 Very Low	Low
Disturbance to flora and fauna	Negative	• Limit excavations to what is necessary	12 Very Low	Low
Slope stability	Negative	• Avoid steep slopes areas; and • Design cut slopes according to detailed geotechnical analysis.	14 Very Low	Low
Geotechnical: Spread of AIS	Negative	• An alien and invasive species management plan should be developed for the Project, which includes details of strategies and procedures that must be implemented on site to control the spread of alien and invasive species. A combined approach using both chemical and mechanical control methods, with periodic follow-up treatments informed by regular monitoring, is recommended.	12 Very low	Low
Wetland soil erosion	Negative	• Install erosion prevention measures as part of the stormwater management plan, prior to the onset of construction activities. Measures should include energy dissipating measures such as sandbags, Ecology, or low berms on approach and departure slopes to crossings to prevent flow concentration. Sediment barriers such as silt fences or the placement of hay bales around the lower edge of bare soil areas, and active re-vegetation of disturbed areas as soon as possible.	12 Very Low	Low
Terrestrial biodiversity: Spread of AIS	Negative	• Active alien invasive species control should continue during the decommissioning phase and annual follow up control should be carried	16 Low	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		out for a five- year period following decommissioning.		
Terrestrial biodiversity: soil erosion	Negative	• To limit the potential for AIS encroachment, soil erosion and dust generation, all Project footprints and sites that were disturbed during decommissioning, should be actively rehabilitated using local occurring indigenous flora species.	16 Low	Low
Plant species: establishment and spread of AIS	Negative	• To limit the potential for AIS encroachment, soil erosion and dust generation, all Project footprints and sites that were disturbed during decommissioning, should be actively rehabilitated using local occurring indigenous flora species.	16 Low	Low
Animal species: Injury, mortality and disturbance of fauna	Negative	• Avoidance and minimisation - No off-road driving is permitted for vehicles and mobile machinery used during operations and for maintenance purposes. - A low-speed limit (recommended 20-40 km/h) should be enforced on site to reduce wildlife collisions; - The handling, poisoning and killing of on-site fauna by maintenance personnel must be strictly prohibited; - The rules and regulations concerning fauna should be communicated to maintenance personnel through on-site signage and awareness training. - Refer to the Avifauna Specialist Assessment for mitigation and management measures concerning birds.	18 Very low	Low
Avifauna: Population reduction of EGI sensitive species	Negative	• Restrict dismantling to the immediate infrastructural footprint where possible. Access to remaining areas should be strictly controlled to minimise disturbance of EGI sensitive species. • Apply noise and dust control measures according to best practice in the industry. • Prioritise the use of existing access roads during the decommissioning phase and avoid construction of new roads where feasible. • The recommendations of the ecological and botanical specialist studies must be strictly implemented, especially as far as	32 Moderate	Low

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
		limitation of the activity footprint is concerned.		
Cultural landscape	Negative	• Ensure all areas are rehabilitated following specialist rehabilitation plan.	30 Low	Low
Palaeontology	Negative	• The impact on the palaeontological heritage can be reduced greatly by a palaeontologist conducting a pre-construction site visit when the final layout is known to look for fossils and removing any scientifically important fossils with the relevant SAHRA permit.	10 Very low	Low
Direct Visual Impacts during Decommissioning	Negative	• All infrastructure that is not required for post-decommissioning use should be removed. • Carefully plan to minimize the decommissioning period and avoid delays. • Maintain a neat decommissioning site by removing rubble and waste materials regularly. • Position storage / stockpile areas in unobtrusive positions in the landscape, where possible. • Ensure that dust suppression procedures are maintained on all gravel access roads throughout the decommissioning phase. • Impose speed limits on gravel access roads to reduce dust emissions. • All cleared areas should be rehabilitated as soon as possible.	18 Low	Low

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Specialist Studies attached as Appendices:

Appendix G.1 Soil, Land Use and Land Capability and Agricultural Potential Assessment

Appendix G.2 Geotechnical Desktop Assessment

Appendix G.3 Freshwater Ecological Assessment

Appendix G.4 Terrestrial Biodiversity

Appendix G.5 Plant Species Assessment

Appendix G.6 Animal Species Assessment

Appendix G.7 Avifaunal Assessment

Appendix G.8 Heritage Assessment

Appendix G.9 Palaeontological Assessment

Appendix G.10 Visual Assessment

Appendix G.11 Social Impact Assessment

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

There are no plans at this stage to decommission the facility. Should the facility be decommissioned in the future the costs will lie with the applicant.

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

Although the BA process is essential to assessing and managing the environmental and social impacts of individual projects, it often may be insufficient for identifying and managing incremental impacts on areas or resources used or directly affected by a given development from other existing, planned, or reasonably defined developments at the time the risks and impacts are identified.

IFC PS 1 recognizes that, in some instances, cumulative effects need to be considered in the identification and management of environmental and social impacts and risks. For private sector management of cumulative impacts, IFC considers good practice to be two pronged:

- effective application of and adherence to the mitigation hierarchy in environmental and social management of the specific contributions by the project to the expected cumulative impacts; and
- best efforts to engage in, enhance, and/or contribute to a multi-stakeholder, collaborative approach to implementing management actions that are beyond the capacity of an individual project proponent.

Even though Performance Standard 1 does not expressly require, or put the sole onus on, private sector clients to undertake a cumulative impact assessment (CIA), in paragraph 11 it states that the impact and risk identification process "will take into account the findings and conclusions of related and applicable plans, studies, or assessments prepared by relevant government authorities or other parties that are directly related to the project and its area of influence" including "master economic development plans, country or regional plans, feasibility studies, alternatives analyses, and cumulative, regional, sectoral, or strategic environmental assessments where relevant."

Cumulative impacts are those that result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones. For practical reasons, the identification and management of cumulative impacts are limited to those effects generally recognized as important on the basis of scientific concerns and/or concerns of affected communities (IFC GPH).

Evaluation of potential cumulative impacts is an integral element of an impact assessment. In reference to the scope for an impact assessment, IFC's Performance Standards specify that "Risks and impacts will be analysed in the context of the project's area of influence. This area of influence encompasses…areas potentially impacted by cumulative impacts from further planned development of the project, any existing project or condition, and other project-related developments that are realistically defined at the time the Social and Environmental Assessment is undertaken; and (iv) areas potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location." (IFC 2006).

A cumulative impact assessment is the process of (a) analysing the potential impacts and risks of proposed developments in the context of the potential effects of other human activities and natural environmental and social external drivers on the chosen Valued Environmental and Social Components (VECs) over time, and (b) proposing concrete measures to avoid, reduce, or mitigate such cumulative impacts and risk to the extent possible (IFC GPH).

Cumulative impacts with existing and planned facilities may occur during construction and operation of the proposed OHPL. While one project may not have a significant negative impact on sensitive resources or receptors, the collective impact of the projects may increase the severity of the potential impacts.

Potential cumulative impacts identified are summarised below. Other planned or existing projects that can interact with the Project will be identified during stakeholder engagement and finalisation of the BA process.

Renewable energy developments within the surrounding area which have submitted applications for environmental authorisation have been included in this cumulative impact assessment. It is important to note that the existence of an approved EA does not directly equate to actual development of the project. According to the South African Renewable Energy EIA Application Database from DFFE

(REEA_OR_2023_Q3), the following renewable energy projects are located within 30km of the proposed project area:

- The Proposed Carmel Solar 1 Photovoltaic Solar Energy Facility and Grid Connection Infrastructure near Carletonville Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2310);
- The Proposed Carmel Solar 2 Photovoltaic Solar Energy Facility and Grid Connection Infrastructure near Carletonville Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2311);
- The Proposed Varkenslaagte Solar Photovoltaic Solar Energy Facility and Grid Connection Infrastructure Near Carletonville Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2312);
- The Proposed Carmel Solar 3 Photovoltaic Solar Energy Facility and Grid Connection Infrastructure Near Carletonville Gauteng and North West Provinces (DFFE Ref: 14/12/16/3/3/2/2313);
- The Proposed Turffontein Solar 1 Photovoltaic Solar Energy Facility and Grid Connection Infrastructure near Carletonville Gauteng and North West Provinces (DFFE Ref: 14/12/16/3/3/2/2314);
- Proposed construction of the 200 MW Photovoltaic Energy Facility for Sibanye Gold Limited on Portion 1, 2, 4, 5 and 6 of the Farm Uitval 280 within the Westonaria Local Municipality in the Gauteng Province DFFE Ref: 14/12/16/3/3/2/919);
- The proposed Bonsmara Solar Power Plant near Carletonville, Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2352);
- The proposed Tuli Solar Power Plant near Carletonville, Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2353);
- The proposed Simbra Solar Power Plant near Carletonville, Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2354);
- The proposed Renewable Energy Generation Project (Mopane Solar PV 2) on Portion 12 of the Farm Blaauwbank 125 IQ, Merafong City Local Municipality, West Rand District Municipality, Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2293);
- The proposed Renewable Energy Generation Project (Mopane Solar PV 3) on Portion 2 of the Farm Blaauwbank 125 IQ, Merafong City Local Municipality, West Rand District Municipality, Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2294);
- The Proposed Seelo Charlie 140MW Solar Photovoltaic (PV) & Battery Energy Storage Systems (BESS) Project near the town of Carletonville, North West Province (DFFE Ref: 14/12/16/3/3/2/2341);
- The Proposed Seelo Beta 240 MW Solar Photovoltaic (PV) & Battery Energy Storage Systems (BESS) Project near the town of Carletonville, North West Province (DFFE Ref: 14/12/16/3/3/2/2342);
- The Proposed Seelo Alpha 240 MW Solar Photovoltaic (PV) & Battery Energy Storage Systems (BESS) Project near the town of Carletonville, North West Province (DFFE Ref: 14/12/16/3/3/2/2343); and
- The proposed Angus Solar Power Plant near Carletonville, Gauteng Province (DFFE Ref: 14/12/16/3/3/2/2351).

The known renewable energy projects within 30km of the proposed project are included in the figure below

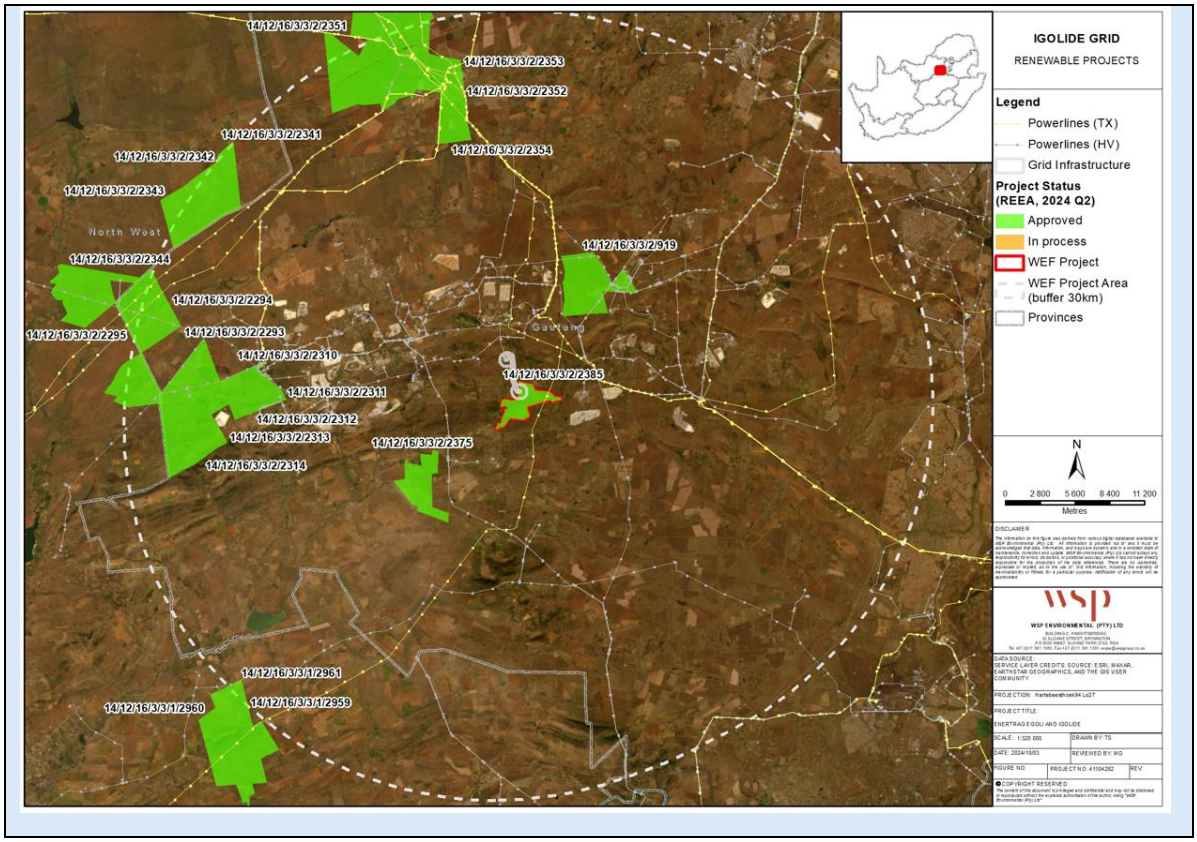


Table 5: Cumulative Impact Summary

Aspect	Impact Description	Character	Without Mitigation	With Mitigation
Geotechnical	Erosion	(-)	**Moderate**	**Very Low**
	Oil Spillages	(-)	**Moderate**	**Very Low**
	Disturbance of Fauna and Flora	(-)	**Low**	**Very Low**
	Slope stability	(-)	**Low**	**Very Low**
	Seismic Activity	(-)	**Low**	**Very Low**
Terrestrial Biodiversity	Loss, disturbance and fragmentation of natural habitat	(-)	**High**	**Low**
Plant Species	Loss, disturbance and fragmentation of natural habitat	(-)	**High**	**Low**
	injury, mortality and disturbance	(-)	**Moderate**	**Low**
Social	Social Impacts	(-)	**Low**	**Low**
Heritage	Impact on heritage resources	(-)	**Moderate**	**Moderate**
Visual	Visual Impacts	(-)	**High**	**Moderate**

5. ENVIRONMENTAL IMPACT STATEMENT

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

Preferred Alternative:

SPECIALIST FINDINGS AND RECOMMENDATIONS

A summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report.

Recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

- DESKTOP GEOTECHNICAL STUDY

A detailed intrusive site investigation is recommended to further characterize site conditions, to better understand the key geotechnical risks characteristics prior to the design and the construction phase of the proposed project.

Based on the current lack of previous geotechnical investigation data, the primary objectives of the proposed intrusive investigation must include:

  - Determination of the founding conditions for all structures. The scope of the intrusive investigation should comprise the excavation of test pits with an excavator and possibly the drilling of a representative number of boreholes.
  - Laboratory testing to determine the behavioural characteristics of the in-situ materials.
  - Investigation of subgrade conditions for service roads.
  - Investigation of materials to be used during construction.
  - Non-intrusive investigation techniques, such as geophysical surveys including thermal and electrical resistivity for ground earthing requirement.

- SOIL, LAND USE AND LAND CAPABILITY ASSESSMENT

  - Micro-siting

The agricultural protocol requires confirmation that all reasonable measures have been taken through micro-siting to minimize fragmentation and disturbance of agricultural activities. The micro-siting of the power line within the corridor will make no material difference to agricultural impacts and disturbance. The choice of the switching station has already avoided viable cropland. Further micro-siting will make no material difference to agricultural impacts and disturbance.

  - Confirmation of linear activity exclusion

If linear infrastructure has been given exclusion from complying with certain requirements of the agricultural protocol because of its linear nature, the protocol requires confirmation that the land impacted by that linear infrastructure can be returned to the current state within two years of completion of the construction phase. The overhead power line is the only linear component of the project, to which this provision is applicable. It is hereby confirmed that the land under the overhead power line, where it is not occupied by other facility infrastructure, can be returned to the current state of agricultural production potential within two years of construction, with the obvious disclaimer that the pylons will continue to be present for the duration of the operational lifetime of the power line.

- AQUATIC ASSESSMENT

- Monitoring of wetland health to be conducted within one year of completion of construction, to measure any changes to the baseline status and ensure that recommended mitigation measures are sufficient to address any significant impacts.

- TERRESTRIAL BIODIVERSITY ASSESSMENT

The loss, disturbance and fragmentation of natural habitat from vegetation clearing during construction is the primary impact of concern. Vegetation clearing coupled with earth works are also likely to be accompanied by other indirect impacts, such as AIS colonisation and erosion.

Several management measures have been recommended in this report to mitigate these, and other identified impacts. The successful implementation of these management measures can effectively mitigate the identified impacts, resulting in 'Low' residual impact scores. It is therefore recommended that all mitigation and management measures should be incorporated into the proposed Project's environmental management plan (EMP).

- PLANT SPECIES ASSESSMENT

It is contended that a routing of the powerline to avoid a 100 m buffer around the rocky outcrop in which the *Adromischus umbraticola subsp. umbraticola* plants were observed, coupled with the careful micro-siting of pylon/tower and access road footprints in the 250 m wide assessment corridor, and the strict implementation of additional management and monitoring measures, will act as effective mitigation against any negative impacts on the *Adromischus umbraticola subsp. umbraticola* plants. It is therefore contended that the 500 m buffer recommended for A2 Red List plants under GDARD Biodiversity (2018), is not required.

With respects to the flora SCC highlighted by the National Web Based Screening Tool as potential sensitive receptors for the study area, *Khadia beswickii* favours open shallow soils, over rocks in grassland, and Sensitive species 1248 occurs in open woodland and steep rocky hills in shady situations. These habitats are present in the study area (Rocky Ridge/Outcrop Grassland and Mixed Rocky Ridge Bushveld), and it is therefore possible that both taxa may be present.

With regards to the Plant Species Theme sensitivity rating for the study area, the Rocky Ridge/Outcrop Grassland and Mixed Rocky Ridge Bushveld units are rated as having 'High' sensitivity, with the remainder of the study area regarded as 'Medium' sensitivity.

The proposed Project will require vegetation clearing and earth works, which will result in some habitat loss and potential impacts to flora SCC. Several management measures have been recommended in this report to mitigate these, and other identified impacts. The successful implementation of these management measures can effectively mitigate the identified impacts, resulting in 'Low' residual impact scores. It is therefore recommended that all mitigation and management measures should be incorporated into the proposed Project's environmental management plan (EMP).

- ANIMAL BIODIVERSITY IMPACT ASSESSMENT

The loss, disturbance and fragmentation of natural fauna habitat can be mitigated by the implementation of the recommended management measures, which include 1) micro-siting as much of the proposed Project infrastructure in areas of modified habitat, 2) clearing only the minimum areas required for construction activities, and 3) actively rehabilitating all disturbance footprints.

Direct impacts on individual fauna can also be mitigated through the appointment of an ECO on-site during the construction phase to manage any human-fauna interactions, and through the implementation of several responsible land use practices, such as inter alia, enforcing a speed limit for construction vehicles, banning hunting/snaring by on-site workers, and implementing dust suppression.

It is contended that the proactive implementation of the management measures outlined in this report, will provide effective mitigation and ensure minimal impacts on fauna SCC as a result of the proposed Project. It is therefore recommended that all mitigation measures are included in the proposed Project's environmental management plan (EMP).

- AVIFAUNA IMPACT ASSESSMENT

The development is supported, provided the mitigation measures listed in are strictly applied and adhered to.

- HERITAGE IMPACT ASSESSMENT

It is recommended that the proposed powerline be authorised, but subject to the following recommendations which should be included as conditions of authorisation:

- The final alignment of the powerline and service track must be evaluated by an archaeologist relative to the known heritage sites in the area. The results of this evaluation must be reported to SAHRA with any required mitigation actions noted;
- The powerline should preferably avoid the steep slope in the northeast with the ridge immediately to its west being favoured for use;
- No stones may be removed from any archaeological sites;
- The Fossil Chance Finds Procedure must be included in the project EMPr;
- If any archaeological material or human burials are uncovered during the course of development, then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

- PALAEONTOLOGY IMPACT ASSESSMENT

Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the overlying sands and soils of the Quaternary. There is a very small chance that trace fossils may occur in the below ground dolomites of the Timeball Hill Formation so a Fossil Chance Find Protocol should be added to the EMPr. If fossils are found by the contractor, environmental officer or other responsible person once excavations for foundations and infrastructure have commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample.

- SOCIAL IMPACT ASSESSMENT

The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented.

- VISUAL IMPACT ASSESSMENT

A preliminary assessment of overall impacts revealed that impacts associated with the proposed Igolide EGI (post mitigation) are of Low significance during the construction, operational and decommissioning phases of the project with relatively few mitigation / management measures available to reduce the visual impact. Considering the presence of existing mining and associated industrial activity and proposals for other renewable energy facilities in the broader area, the introduction of new renewable energy facilities and their associated EGI in the area will result in further change in the visual character of the area and alteration of the inherent sense of place, extending an increasingly industrial character into the broader area, and resulting in significant cumulative impacts. It is however anticipated that these impacts could be mitigated / managed to acceptable levels with the implementation of the recommended mitigation measures. Considering this, cumulative impacts have been rated as Moderate.

SPECIALIST CONCLUSIONS

- AGRICULTURAL POTENTIAL
  - The overall conclusion of this assessment is that the proposed development is acceptable because it can provide benefits to agriculture but leads to no loss of potential cropland and therefore minimal loss of future agricultural production potential.
  - This assessment disputes the high sensitivity classification of the switching station by the screening tool and rates it as being of medium agricultural sensitivity with a maximum land capability of 7 because of its assessed agricultural production potential and current agricultural land use.
  - Although cropping occurs in the area (on better soils that are off the ridge line), and occurred on the site many years ago, the cropping potential of the site is constrained predominantly by shallow, rocky soils that dominate the higher lying land on the ridge line where the switching station and turbines are situated. Because of these constraints, the site is unsuitable for viable rainfed crop production and its viable agricultural use is limited to grazing.
  - An agricultural impact is a change to the future agricultural production potential of land. This is

primarily caused by the exclusion of agriculture from the footprint of the development. In this case, the entire switching station footprint is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations that make it unsuitable as viable cropland. The use of this land for non-agricultural purposes will result in minimal loss of agricultural production potential in terms of national food security. The proposed overhead power line has negligible agricultural impact, regardless of its route and design and the agricultural potential and sensitivity of the land it crosses.

- Due to the facts that the switching station will exclude only a small area of land from agricultural production, will not occupy scarce, viable cropland, and that its negative impact is offset by economic benefits to farming from the associated wind energy facility, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.
- From an agricultural impact point of view, it is recommended that the proposed development be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.

- GEOTECHNICAL INPUT
  - The desktop assessment of the geotechnical conditions at the proposed development site for the proposed project has shown the site to be generally suitable for the proposed development.
  - A “negative low to moderate” impact was assessed, from a geotechnical perspective, for the pre-mitigation situation. Post-mitigation, the assessed impact decreases to “negative very low to low”.
  - A geotechnical site investigation must be undertaken to provide detailed and site-specific geotechnical information prior to the design and construction phase of the proposed structures and roads.
  - The proposed development should, from a geotechnical impact perspective, be authorized. The most significant geotechnical condition that will affect the development is the possibility of hard excavation conditions as shallow rock is anticipated in some areas.
  - The statements presented in this document are intended to advise you of what your realistic expectations of this report should be, and to present you with recommendations on how to minimize the risks associated with the groundworks for this project. The document is not intended to reduce the level of responsibility accepted by WSP, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.
- TERRESTRIAL BIODIVERSITY
  - In accordance with the outcomes of the impact assessment, and taking cognisance of the baseline conditions and impact management measures presented herein, the proposed Project is not deemed to present significant negative ecological issues or impacts, and it should thus be authorised.
- PLANT SPECIES
  - In accordance with the outcomes of the impact assessment, and taking cognisance of the baseline conditions presented herein, as well as the impact management measures, the proposed Project, is not deemed to present significant negative ecological issues or impacts on terrestrial plant species, and it should thus be authorised.
- ANIMAL SPECIES
  - In accordance with the outcomes of the impact assessment, and taking cognisance of the baseline conditions presented herein, as well as the impact management measures, the proposed Project, is not deemed to present significant negative ecological issues or impacts, and it should thus be authorised.
- AVIFAUNA
  - The proposed Igolide WEF Electrical Grid Infrastructure will have medium and high impacts on avifauna which, in most instances, could be reduced to a low impact through the appropriate mitigation measures. No fatal flaws were discovered. The development is supported, provided the mitigation measures listed in this report are strictly applied and adhered to.
- AQUATIC
  - The proposed Project powerline traverses a seep wetland of approximately 6.51 ha in size. The seep wetland was considered to be in a Moderately modified (PES C) state, as a result of existing impacts such as access roads cutting through the wetland, impoundment of flow at a dam upstream, and alien invasive plant species colonising the edges of the wetland, particularly along road crossings. The wetland was also assessed as having a Low/Marginal ecological importance and sensitivity, performing some functions such as hydrological importance (i.e., sediment trapping, phosphate assimilation, and erosion control), as well as some direct human benefits including tourism and recreation activities practiced in the game farm. Similarly, the ecosystem services supplied by or demanded from the seep wetlands were considered Low.
  - The Environmental Screening Tool rates the aquatic biodiversity theme as ‘Very High Sensitivity’

due to the presence of wetland features and areas mapped as wetland CBA and FEPA sub-catchment in the study area. Based on the findings of this study, the Project area was considered as having 'High Sensitivity' instead of 'Very High Sensitivity' due to the size and moderately modified present ecological state of the wetland as well as the Low/Marginal ecological importance and sensitivity of the wetland – the main reason for retaining the High sensitivity rating is the conservation status of the wetlands, i.e. wetland CBA, located within a FEPA sub-catchment.

- The earthworks and activities involved during the construction phase of the Project can exert negative impacts on sensitive ecosystems including loss and disturbance of wetland habitat, changes in wetland health/functioning, formation of soil erosion and establishment and spread of alien invasive species. Without mitigation, these impacts could be of moderate-high significance on wetlands; however, with the application of recommended mitigation measures such as limiting disturbance to the Project footprint and keeping out of wetland habitat as far as possible, these impacts can be reduced to a low/very low impact significance. If not successfully mitigated, these impacts can progress into the operation and decommissioning phase of the project, which could lead to a change in the wetlands PES score. Avoidance of placement of pylons within wetlands is recommended to ensure that no significant impacts on wetland habitat are sustained as a result of the proposed Project.

- HERITAGE
  - Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), "cultural significance" means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. The reasons that a place may have cultural significance are outlined in Section 3(3) of the NHRA.
  - The archaeological resources are deemed to have up to medium cultural significance at the local level for their scientific value and can be graded up to GPA. The historical house is heavily altered and is of very low cultural significance for its historical, social and architectural values. The cultural landscape is largely a rural landscape but with pockets of industrialisation (mines) and development (Fochville and East Village). It does still retain aesthetic value but is not an uncommon landscape type and has been compromised by industrialisation. It is thus of low cultural significance.
  - Given that impacts on archaeology should be easily avoided and that the cultural landscape already has an industrial layer to it, it is the opinion of the heritage specialist that this project may be authorised.
- PALAEONTOLOGICAL
  - The impact on the palaeontological heritage would be low, therefore as far as the palaeontology is concerned the Project should be authorised. There is no alternative route and there is no no-go area.
- SOCIAL
  - The energy security benefits associated with the proposed Igolide WEF are dependent upon it being able to connect to the national grid via the establishment of grid connection infrastructure. The construction and operational phase will also create employment and business opportunities which will benefit the MCLM. The findings of the SIA also indicate that the significance of the potential negative social impacts for both the construction and operational phase of the proposed 132 kV Igolide overhead power line and associated infrastructure are Low Negative with mitigation. The establishment of proposed 132 kV Igolide overhead power line and associated infrastructure is supported by the findings of the SIA.
- VISUAL
  - It is SLR Consulting's opinion that the potential visual impacts associated with the proposed Igolide EGI are negative and of moderate significance. Given the absence of sensitive receptors and the significant level of human transformation and landscape degradation in areas near the proposed Igolide EGI, the project is deemed acceptable from a visual perspective and the EA should be granted. SLR Consulting is of the opinion that the impacts associated with the construction, operation and decommissioning phases can be mitigated to acceptable levels provided the recommended mitigation measures are implemented.

AUTHORISATION OPINION

The overall objective of the BA is to provide sufficient information to enable informed decision-making by the authorities. This was undertaken through consideration of the proposed Project components, identification of the aspects and sources of potential impacts and subsequent provision of mitigation measures.

It is the opinion of WSP that the information contained in this document (read in conjunction the EMPr) is sufficient for GDARD to make an informed decision for the environmental authorisation being applied for in respect of this Project.

applied for in respect of this Project.

Mitigation measures have been developed, where applicable, for the above aspects and are presented within the EMPr (**Appendix H**). It is imperative that all impact mitigation recommendations contained in the EMPr,

of which the environmental impact assessment took cognisance, are legally enforced.
Considering the findings of the respective studies, no fatal flaws were identified for the proposed Project. Should the avoidance and mitigation measures prescribed be implemented, the significance of the considered impacts for all negative aspects pertaining to the environmental aspects is expected to be low. It is thus the opinion of the EAP that the Project can proceed, and that all the prescribed mitigation measures and recommendations are considered by the issuing authority.

EA AUTHORISATION PERIOD
Appendix 1(3)(1)(q) of the NEMA EIA Regulations 2014, as amended requires "where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised" must be included in the BA Report.
The EA is required to be valid for a period of ten (10) years from the date of issuance of the EA. This is considered a reasonable period to allow the Applicant time to conduct relevant internal processes which can only begin after issuance of the EA. The grid connection will be constructed during and for the WEF and therefore will coincide with the WEF construction period, i.e., 10 years.

CUMULATIVE IMPACT STATEMENT
Section Error! Reference source not found. of this draft BAR outlines the comprehensive cumulative impact assessment provided by all specialists for the proposed project. Based on the outcomes of the Cumulative Impact Assessment, the proposed project may proceed.

GRID ASSESSMENT AND SUBSTATIONS CORRIDORS
A grid connection corridor including substation infrastructure has been identified and assessed for the placement of ALL grid connection infrastructure contemplated in this application, comprising 250 m (i.e., 125 m on either side of centre line of the OHPL) and 500m around the outer extent of the specified substation and termination works upgrade substation. As detailed above, the entire assessment corridor for both powerline and substations are proposed for authorisation, within which the proposed infrastructure may be located. The footprint of any of the infrastructure and associated with the grid connection infrastructure will be kept to a minimum within any undisturbed, natural grasslands and especially areas in a moderate to good condition.

ASPECTS TO BE INCLUDED AS CONDITIONS IN THE EA
The following aspects are requested to be included as conditions in the EA:

- The EA is required to be valid for a period of ten (10) years from the date of issuance of the EA;
- The EMPr mitigation measures must be adhered to;
- Recommendations for the layout as provided by the relevant specialists must be implemented as far as possible;
- Approval and authorisation of the entire grid connection corridor for the substations and powerline, within which the proposed infrastructure may be located;
- The final EMPr must form part of all contractual documents with contractors during construction and operational phases of the project.
- A dedicated Environmental Control Officer (ECO) must be appointed to ensure compliance to all EA conditions and EMPr commitments throughout the construction phase;
- Applications for all relevant and required permits must be submitted prior to construction; and
- Where required, water use authorisation under the NWA is to be obtained from the Department of Water and Sanitation prior to construction.
    - Necessary permits for important plant species must be obtained from prior to commencement from the Gauteng Department of Agriculture, Rural Development and Environment.
- An alien invasive plant programme must be established an incorporated in the EMPr at the inception of the project. It must be implemented throughout the project lifecycle. In addition, Section 7.1 of the EMPr includes an Alien Invasive Management Plan.

The footprint of any proposed infrastructure should be kept to a minimum within any undisturbed natural grasslands, especially those in a moderate to good condition

Alternative 1

[redacted]

Alternative 2

[redacted]

No-go (compulsory)

The no-go option will mean the status quo remains. Both the potential positive and negative impacts from the proposed OHPL will not occur. In addition, the associated up to 100MW of Wind Energy Facility will be unable to connect to the national grid and therefore the production of this facility will not be available to the nation.

The no-go option would represent a lost opportunity for South Africa to improve energy security and supplement its current energy needs with renewable energy given that energy security benefits associated with the proposed Igolide WEF and associated infrastructure are dependent upon it being able to connect to the national grid via the establishment of grid connection infrastructure. Considering South Africa's current energy security challenges and its position as one of the highest per capita producers of carbon emissions in the world, this would represent a significant socio-economic cost. Accordingly, the no-go option is not deemed viable.

Specialists have considered the no-go alternative, and the following has been concluded:

- Agriculture:
  - The no-go alternative considers impacts that will occur to the agricultural environment in the absence of the proposed development. There are no agricultural impacts of the no-go alternative, but this is not significantly different from the very low impact of the development, and so from an agricultural impact perspective, there is no preferred alternative between the no-go and the development. However, the no-go option would prevent the proposed development plus the dependent renewable energy development, which cannot operate without a grid connection, from contributing to the environmental, social, and economic benefits associated with the development of renewable energy in South Africa.
- Terrestrial Biodiversity:
  - If the proposed Project does not proceed, it is anticipated that the current land use status quo will continue into the future. The tracts of grassland and savanna habitat in the study area will continue to be used for livestock and game farming, which may lead to incidences of overgrazing, which may drive the homogenisation of habitats and reduce both fauna and flora diversity.
  - It is also likely that overtime, AIS growing in the study area (such as *Acacia mearnsii* and *Solanum mauritianum*) will continue to expand their current distribution. This may compromise habitat integrity and negatively impact both fauna and flora diversity, and potentially the persistence of Species of Conservation Concern (SCC).
- Animal Species
  - If the proposed Project does not proceed, it is anticipated that the current land use status quo will continue into the future. The tracts of grassland and savanna habitat in the study area will continue to be used for livestock and game farming, which may lead to incidences of overgrazing, which may drive local changes in flora species composition and the ability of the land to carry livestock. Overgrazing is also likely to drive the homogenisation of habitats, which may reduce the diversity of fauna species occupying the site, including SCC.
  - It is also likely that overtime, AIS growing in the study area (such as *Acacia mearnsii* and *Solanum mauritianum*) will continue to expand their current distribution. This may compromise habitat integrity and negatively impact fauna diversity and SCC.
- Plant Species
  - If the proposed Project does not proceed, it is anticipated that the current land use status quo will continue into the future. The tracts of grassland and savanna habitat in the study area will continue to be used for livestock and game farming, which may lead to incidences of overgrazing, which may drive local changes in flora species composition. It is also likely that overtime, AIS growing in the study area (such as *Acacia mearnsii* and *Solanum mauritianum*) will continue to expand their current distribution. This may compromise habitat integrity and flora diversity, including the

persistence of flora SCC.

- Aquatic Biodiversity
  - In the no-go scenario, the Project would not be developed and the existing status quo would likely be maintained, that being that the Moderately Modified PES as described to all assessed wetlands would persist, with long-term habitat degradation as a result of existing impacts, including impoundment of water at dams, alien invasive species colonisation at road crossings and development of preferential flow paths along animal tracks, likely to take place at the current rate of degradation.
- Heritage and palaeontology
  - If the project were not implemented, then the site would stay as it currently is (impact significance of neutral). Although the heritage impacts with implementation could potentially be greater than the existing impacts, the loss of socio-economic benefits (i.e. new electricity generation) is more significant and suggests that the No-Go option is less desirable in heritage terms.
- Social Impact
  - The No-Development option would represent a lost opportunity for South Africa to improve energy security and supplement is current energy needs with renewable energy. Given South Africa's current energy security challenges and its position as one of the highest per capita producers of carbon emissions in the world, this would represent a negative social cost.
  - Visual

    The 'no-go' alternative is the option of not undertaking the proposed project. Hence, if the 'no-go' option is implemented, there would be no development. The area would thus retain its visual character and sense of place, and no visual impacts would be experienced by any locally occurring receptors.

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

Proposed project (Preferred Alternative) – Construction, Operational and Decommissioning Phases

Aspect	Impact Description	Phase	Without Mitigation		With Mitigation	
			Significance	Status	Significance	Status
Geotechnical	Soil Erosion	Construction	Moderate	(-)	Very Low	(-)
	Oil Spillages	Construction	Moderate	(-)	Very Low	(-)
	Disturbance of fauna and flora	Construction	Low	(-)	Very Low	(-)
	Slope stability	Construction	Low	(-)	Very Low	(-)
	Seismic activity	Construction	Moderate	(-)	Low	(-)
	Soil Erosion	Operational	Low	(-)	Very Low	(-)
	Oil Spillages	Operational	Moderate	(-)	Very Low	(-)
	Seismic activity	Operational	Moderate	(-)	Low	(-)
	Soil Erosion	Decommissioning	Moderate	(-)	Very Low	(-)
	Oil Spillages	Decommissioning	Moderate	(-)	Very Low	(-)

Aspect	Impact Description	Phase	Without Mitigation		With Mitigation	
			Significance	Status	Significance	Status
	Disturbance of fauna and flora	Decommissioning	Low	(-)	Very Low	(-)
	Slope stability	Decommissioning	Low	(-)	Very Low	(-)
Aquatic	Loss of wetland habitat	Construction	High	(-)	Low	(-)
	Changes in wetland health/functioning	Construction	Moderate	(-)	Low	(-)
	Soil Erosion	Construction	Moderate	(-)	Low	(-)
	Spread of AIS	Construction	Moderate	(-)	Very Low	(-)
	Spread of AIS	Operational	Moderate	(-)	Very Low	(-)
	Soil Erosion	Operational	Moderate	(-)	Low	(-)
	Spread of AIS	Decommissioning	Moderate	(-)	Very Low	(-)
	Soil Erosion	Decommissioning	Moderate	(-)	Very Low	(-)
Terrestrial Biodiversity	Direct loss and disturbance of natural habitat	Construction	High	(-)	Moderate	(-)
	Habitat fragmentation impacting habitat connectivity and integrity	Construction	Moderate	(-)	Low	(-)
	Spread of AIS	Construction	Moderate	(-)	Low	(-)
	Soil erosion and sedimentation	Construction	Moderate	(-)	Low	(-)
	Spread of AIS	Operational	Moderate	(-)	Low	(-)
	Spread of AIS	Decommissioning	Moderate	(-)	Low	(-)
	Soil erosion and sedimentation	Decommissioning	Moderate	(-)	Low	(-)
Terrestrial Plant Species	Direct loss and disturbance of natural habitat	Construction	High	(-)	Low	(-)
	Habitat fragmentation	Construction	Moderate	(-)	Low	(-)
	Loss of flora of conservation concern	Construction	High	(-)	Low	(-)
	Establish and spread of alien invasive species	Construction	Moderate	(-)	Low	(-)
	Establish and spread of alien invasive species	Operational	Moderate	(-)	Low	(-)

Aspect	Impact Description	Phase	Without Mitigation		With Mitigation	
			Significance	Status	Significance	Status
	Establish and spread of alien invasive species	Decommissioning	Moderate	(-)	Low	(-)
Terrestrial Animal Species	Loss and disturbance of fauna habitat	Construction	High	(-)	Low	(-)
	Habitat fragmentation	Construction	Moderate	(-)	Low	(-)
	Injury, mortality and disturbance of fauna	Construction	Moderate	(-)	Low	(-)
	Loss of fauna species of conservation concern	Construction	Moderate	(-)	Low	(-)
	Injury, mortality and disturbance of fauna	Operational	Low	(-)	Very Low	(-)
	Injury, mortality and disturbance of fauna	Decommissioning	Moderate	(-)	Low	(-)
Avifauna	Displacement due to disturbance	Construction	Moderate	(-)	Moderate	(-)
	Displacement due to habitat transformation	Operational	Moderate	(-)	Moderate	(-)
	Electrocution of EGI sensitive species with OHPL	Operational	High	(-)	Low	(-)
	Collision of EGI sensitive species with OHPL	Operational	High	(-)	Low	(-)
	Population reduction of EGI sensitive species	Decommissioning	Moderate	(-)	Moderate	(-)
Heritage	Damage to Heritage Resources	Construction	Moderate	(-)	Very Low	(-)
	Cultural landscape	Construction	Moderate	(-)	Low	(-)
	Cultural landscape	Operational	Moderate	(-)	Low	(-)
	Cultural landscape	Decommissioning	Moderate	(-)	Low	(-)
Palaeontology	Cultural landscape	Construction	Low	(-)	Very Low	(-)
Socio-economic	Creation of employment and business opportunities during the construction phase	Construction	Low	(+)	Moderate	(+)

Aspect	Impact Description	Phase	Without Mitigation		With Mitigation	
			Significance	Status	Significance	Status
	Potential impacts on construction workers on local communities	Construction	Very Low	(-)	Very Low	(-)
	Potential risk to safety of farmers and farm workers, livestock and damage to farm infrastructure associated with the presence of construction workers on site	Construction	Moderate	(-)	Low	(-)
	Increased risk of grass fires	Construction	Moderate	(-)	Low	(-)
	Nuisance impacts associated with construction related activities	Construction	Moderate	(-)	Low	(-)
	Improve energy security and support the renewable energy sector	Operational	Moderate	(+)	Moderate	(+)
	Creation of employment, skills development and business opportunities associated with the operational phase	Operational	Low	(+)	Moderate	(+)
	Generate income for affected landowners	Operational	Low	(+)	Moderate	(+)
	Visual impacts associated with the proposed facility and associated impact on property values	Operational	Low	(-)	Low	(-)
	Impact on farming operations during maintenance	Operational	Low	(-)	Low	(-)
	Tourism	Operational	Low	(-)	Low	(-)
Visual	Visual Landscape	Construction	Low	(-)	Low	(-)
	Visual Landscape	Operational	Low	(-)	Low	(-)
	Visual Landscape	Decommissioning	Low	(-)	Low	(-)

For alternative:

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

Summary of the Preferred Site Alternatives

Alternative	Preferred	Comment
Site	• The purpose of the proposed 132kV grid connection is to evacuate the combined generating capacity of the authorised Igolide WEF to the existing East Drie Five Substation. Therefore, the site has been selected due to the proximity to the Igolide WEF. • The 132kV grid connection for the Igolide WEF is located on the following properties: - Portion 20 of Farm Kraalkop 147IQ - Portion 31 of Kraalkop 147 IQ - Portion 45 of Kraalkop 147 IQ - Portion 46 of Kraalkop 147 IQ - Portion 53 of Kraalkop 147 IQ - Portion 68 of Kraalkop 147 IQ - Portion 11 of Leeuwpoort 356 IQ - Portion 77 of Leeuwpoort 356 IQ	The purpose of the proposed 132kV grid connection is to evacuate the combined generating capacity of the authorised Igolide WEF to the existing East Drie Five Substation. Therefore, the site has been selected due to the proximity to the Igolide WEF as well as the pre-negotiated route alignment.
Activity	Only one activity has been assessed (i.e. an overhead powerline and substation). Alternative activities for the current Project are not reasonable or feasible as the purpose of this is to transmit power generated by the authorised Igolide WEF to the existing East Drie Five Substation.	Power generated by the authorised Igolide WEF will be transmitted by the 132 kV grid connection to the existing East Drie Five Substation
Technology – Towers	Two types of tower structures have been considered for the OHPL: monopole towers or steel lattice towers.	There is no preferred tower technology, and either tower structure is acceptable.
Technology - Cabling	The 132kV grid connection for the Igolide WEF will utilise an OHPL to transmit the power generated from the authorised Igolide WEF to the existing East Drie Five Substation.	Motivation for the use of an OHPL includes: • Underground cables are considerably more difficult and expensive to install and maintain, relative to overhead lines. • The terrain of the site includes CBA and ESA areas and wetlands, therefore underground cables would require extensive trenching which would result in greater environmental impacts. An OHPL therefore considered preferred for the proposed project.

Alternative	Preferred	Comment
Layout Alternatives -	The OHPL is required to be located between the proposed back-to-back 132 kV substation at the approved Igolide WEF and the existing East Drie Five Substation (to be upgraded). After investigation and liaison with the land owners for the private properties, only the pre-negotiated route alternative was proposed for the project.	Only one powerline route has been proposed for the project and assessed by the specialists due to the following: • As per the requirements of GN 145, a pre-negotiated gridline alignment The route will have minimal impact on the sensitivities identified in the study area: • A 250m corridor along the powerline (125m either side of centreline) has been assessed as part of this BAR.

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (GNR 320, 20 March 2020 and GNR 1150, 30 October 2020)	The protocols provide the criteria for specialist assessment and minimum report content requirements for impacts for various environmental themes for activities requiring environmental authorisation. The protocols replace the requirements of Appendix 6 of the EIA Regulations, 2014, as amended. The assessment and reporting requirements of the protocols are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The following environmental themes were applicable to the proposed project: ▪ Agricultural Theme ▪ Animal Species Theme ▪ Aquatic Biodiversity Theme ▪ Archaeological and Cultural Heritage Theme ▪ Civil Aviation Theme ▪ Defence Theme ▪ Palaeontology Theme ▪ Plant Species Theme ▪ Terrestrial Biodiversity Theme
Renewable Energy Development Zones and Strategic Transmission Corridors	On 16 February 2018, the DFFE gazetted the Renewable Energy Development Zones (REDZs) and Strategic Transmission Corridors and Procedures for the Assessment of Large-scale Wind and Solar Photovoltaic Energy Development Activities (GN 114) and Grid Infrastructure (GN 113). Subsequently, on 26 February 2021 a further three REDZ were gazetted (GN 142). The procedure allows for wind and solar PV activities within the eight REDZs and electricity grid development within the five power corridors to be subjected to a BA and not a full S&EIA process. In addition, the timeframes associated with the decision on the application is reduced from 107 days to 57 days. **The Igolide 132kV Grid Connection is located within the Central Strategic Corridor.**

Identification of Procedures to be followed when applying for or deciding on an Environmental Authorisation Application for the Development of Electricity Transmission and Distribution Infrastructure when occurring in Energy Development Zones (GN 145)	Regulation 3 of GN 145 states: The scope of this Notice applies to an application for an amendment to an environmental authorisation contemplated in Part 2 of Chapter 5 of the Environmental Impact Assessment Regulations, 2014, as amended, and for an application for an environmental authorisation when triggering the following activities related to the development of electricity transmission and distribution infrastructure, including any associated activities necessary for the realisation of such infrastructure, where the greater part of the facility is undertaken within a Renewable Energy Development Zone contemplated in paragraph 1 or 2 of this Schedule. Regulation 3 of GN145 is therefore applicable to the Igolide EGI Corridor, which is therefore subject to a BA process. **As required by Regulation 5 of GNR 145, the BAR outlines and assesses the corridor within which the pre-negotiated route will occur.**
Adoption Of The Standard For The Development And Expansion Of Power Lines And Substations Within Identified Geographical Areas And The Exclusion Of This Infrastructure From The Requirement To Obtain An Environmental Authorisation (GNR 2313 dated 27 July 2022)	The Standard for the Development and Expansion of Power Lines and Substations within Identified Geographical Areas Revision 2 June 2022, and based on compliance with this Standard, exclude, in terms of section 24(2)(d) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) the activities, as set out in the Schedule, including listed or specified activities necessary for the realisation of the development or expansion of power line and substation infrastructure, from the requirement to obtain environmental authorisation. The standard will only apply to powerlines and their associated infrastructure where a site sensitivity verification has been undertaken and has verified that all sensitivities on site are medium or low. **In the case of the Igolide 132kV Grid Connection the norm does not apply as Terrestrial biodiversity was verified as Very High Sensitivity and Aquatic Biodiversity and Avifauna were both verified to be of high sensitivity.**

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).

YES	[redacted]

If “NO”, indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

[redacted]

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

CONCLUSION AND AUTHORISATION OPINION

The overall objective of the BA is to provide sufficient information to enable informed decision-making by the authorities. This was undertaken through consideration of the proposed Project components, identification of the aspects and sources of potential impacts and subsequent provision of mitigation measures.

It is the opinion of WSP that the information contained in this document (read in conjunction the EMPr) is sufficient for GDARD to make an informed decision for the environmental authorisation being applied for in respect of this Project.

Mitigation measures have been developed, where applicable, for the above aspects and are presented

within the EMPr (Appendix H). It is imperative that all impact mitigation recommendations contained in the EMPr, of which the environmental impact assessment took cognisance, are legally enforced.

Considering the findings of the respective studies, no fatal flaws were identified for the proposed Project. Should the avoidance and mitigation measures prescribed be implemented, the significance of the considered impacts for all negative aspects pertaining to the environmental aspects is expected to be low. It is thus the opinion of the EAP that the Project can proceed, and that all the prescribed mitigation measures and recommendations are considered by the issuing authority.

EA AUTHORISATION PERIOD

Appendix 1(3)(1)(q) of the NEMA EIA Regulations 2014, as amended requires "where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised" must be included in the BA Report.

The EA is required to be valid for a period of ten (10) years from the date of issuance of the EA. This is considered a reasonable period to allow the Applicant time to conduct relevant internal processes which can only begin after issuance of the EA. The grid connection will be constructed during and for the WEF and therefore will coincide with the WEF construction period, i.e., 10 years.

GRID ASSESSMENT AND SUBSTATIONS CORRIDORS

A grid connection corridor including substation infrastructure has been identified and assessed for the placement of ALL grid connection infrastructure contemplated in this application, comprising 250 m (i.e., 125 m on either side of centre line of the OHPL) and 500m around the outer extent of the specified substation and termination works upgrade substation. As detailed above, the entire assessment corridor for both powerline and substations are proposed for authorisation, within which the proposed infrastructure may be located. The footprint of any of the infrastructure and associated with the grid connection infrastructure will be kept to a minimum within any undisturbed, natural grasslands and especially areas in a moderate to good condition.

ASPECTS TO BE INCLUDED AS CONDITIONS IN THE EA

The following aspects are requested to be included as conditions in the EA:

- The EA is required to be valid for a period of ten (10) years from the date of issuance of the EA;
- The EMPr (Appendix H) mitigation measures must be adhered to;
- Recommendations for the layout as provided by the relevant specialists must be implemented as far as possible;
- Approval and authorisation of the entire grid connection corridor for the substations and powerline, within which the proposed infrastructure may be located;
- The final EMPr must form part of all contractual documents with contractors during construction and operational phases of the project.
- A dedicated Environmental Control Officer (ECO) must be appointed to ensure compliance to all EA conditions and EMPr commitments throughout the construction phase;
- Applications for all relevant and required permits must be submitted prior to construction; and
- Where required, water use authorisation under the NWA is to be obtained from the Department of Water and Sanitation prior to construction.
- Necessary permits for important plant species must be obtained from prior to commencement from the Gauteng Department of Agriculture, Rural Development and Environment.
- An alien invasive plant programme must be established an incorporated in the EMPr at the inception of the project. It must be implemented throughout the project lifecycle. In addition, Section 7.1 of the EMPr includes an Alien Invasive Management Plan.

The footprint of any proposed infrastructure should be kept to a minimum within any undisturbed natural grasslands, especially those in a moderate to good condition

9. THE NEEDS AND DESIRABILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

The DEA&DP Guideline (2013) states that the essential aim of need and desirability is to determine the suitability (i.e. is the activity proposed in the right location for the suggested land-use/activity) and timing (i.e. is it the right time to develop a given activity) of the development. Therefore, need and desirability addresses whether the development is being proposed at the right time and in the right place. Similarly, the 'Best Practicable Environmental Option' (BPEO) as defined in NEMA is "the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term."

The development of renewable energy and the associated energy infrastructure is strongly supported at a national, provincial, and local level. The development of, and investment in, renewable energy and associated energy distribution infrastructure is supported by the National Development Plan, New Growth Path Framework and National Infrastructure Plan, which all highlight the importance of energy security and investment in energy infrastructure. The development of the proposed power line is therefore supported by key policy and planning documents and is in line with South Africa's strategic energy planning context.

The energy security benefits associated with the proposed Igolide WEF is dependent upon it being able to connect to the national grid via the establishment of grid connection infrastructure. The proposed OHPL is therefore essential supporting infrastructure to the wind energy facility development, which, once developed, will generate power from renewable energy resources.

No physical or economic displacement will be required along the proposed route. Furthermore, negative environmental impacts associated with the activity will be mitigated to acceptable levels in accordance with the EMPr (Appendix H). Refer to the Cumulative Impact Assessment and the Environmental Impact Assessment and recommended mitigation measures.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED *(CONSIDER WHEN THE ACITIVTY IS EXPECTED TO BE CONCLUDED)*

EA AUTHORISATION PERIOD

Appendix 1(3)(1)(q) of the NEMA EIA Regulations 2014, as amended requires "where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised" must be included in the BA Report.

The EA is required to be valid for a period of ten (10) years from the date of issuance of the EA. This is considered a reasonable period to allow the Applicant time to conduct relevant internal processes which can only begin after issuance of the EA. The grid connection will be constructed during and for the WEF and therefore will coincide with the WEF construction period, i.e., 10 years.

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached	Yes

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.

Appendix A: Site plan(s) – (must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix G.1 Soil, Land Use and Land Capability and Agricultural Potential Assessment

Appendix G.2 Geotechnical Desktop Assessment

Appendix G.3 Freshwater Ecological Assessment

Appendix G.4 Terrestrial Biodiversity

Appendix G.5 Plant Species Assessment

Appendix G.6 Animal Species Assessment

Appendix G.7 Avifaunal Assessment

Appendix G.8 Heritage Assessment

Appendix G.9 Palaeontological Assessment

Appendix G.10 Visual Assessment

Appendix G.11 Social Impact Assessment

Appendix H: EMPr

Appendix I: Other information

Appendix I.1: Specialist CV and Declarations

Appendix I.2: DFFE Screening Tool Report

Appendix I.3: Site Sensitivity Verification Report

Appendix I.4: Pre-Application Meeting minutes

Appendix I.5: Detailed Project Description

Appendix I.6: Project Alternatives

Appendix I.7: Baseline Environment