



**NALA**

**ENVIRONMENTAL**

CONSULTING FIRM

**PROPOSED CONSTRUCTION AND OPERATION OF THE  
ELECTRICAL GRID INFRASTRUCTURE TO SUPPORT THE  
SUTHERLAND, SUTHERLAND 2 AND RIETRUG WIND ENERGY  
FACILITIES (WEF'S), NORTHERN AND WESTERN CAPE  
PROVINCES  
ADDENDUM TO ENVIRONMENTAL MANAGEMENT PROGRAMME**

**JULY 2021**

## DOCUMENT DETAILS

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<b>Applicant</b>	:	South Africa Mainstream Renewable Energy Developments (Pty) Ltd
<b>Title</b>	:	Proposed construction and operation of the of electrical grid infrastructure to support the Sutherland, Sutherland 2 and Rietrug wind energy facilities (wef's), Northern and Western cape provinces: Addendum to the Environmental Management Programme
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<b>Specialists</b>	:	Dr. Jayson Orton (ASHA Consulting) John Almond (Natura Viva) Marine Pienaar (TerraAfrica) Gerhard Both (Nkurenkuru Ecology & Biodiversity)
<b>Purpose of Report</b>	:	Addendum to the EMPr for submission to DFFE for the Part 2 Amendment associated with the Relocation of the authorised Main Transmission Substation (MTS) and powerline co-ordinates for the electrical grid infrastructure to support the Sutherland, Sutherland 2 and Rietrug Wind Energy Facilities (WEF's).
<b>Date</b>	:	July 2021

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## DEFINITIONS AND TERMINOLOGY

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The following definitions and terminology may be applicable to this project and may occur in the report below:

**Alien species:** A species that is not indigenous to the area or out of its natural distribution range.

**Alternatives:** Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

**Ambient sound level:** The reading on an integrating impulse sound level meter taken at a measuring point in the absence of any alleged disturbing noise at the end of a total period of at least 10 minutes after such meter was put into operation.

**Assessment:** The process of collecting, organising, analysing, interpreting and communicating information which is relevant.

**Biological diversity:** The variables among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes they belong to.

**Commence:** The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

**Construction:** Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity as per the EIA Regulations. Construction begins with any activity which requires Environmental Authorisation.

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

**Decommissioning:** To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned. This usually occurs at the end of the life of a facility.

**Development area:** the identified area (located within the study area) where the supporting infrastructure is planned to be located.

**Development footprint:** the defined area (located within the development area) where the various supporting infrastructure is planned to be constructed. This is the actual footprint of the infrastructure, and the area which would be disturbed.

**Direct impacts:** Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g., noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation, or maintenance of an activity and are generally obvious and quantifiable.

**Disturbing noise:** A noise level that exceeds the ambient sound level measured continuously at the same measuring point by 7 dB or more.

**'Do nothing' alternative:** The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

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**Ecosystem:** A dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

**Endangered species:** Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

**Endemic:** An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

**Environment:** the surroundings within which humans exist and that is made up of:

- i. The land, water and atmosphere of the earth;
- ii. Micro-organisms, plant and animal life;
- iii. Any part or combination of (i) and (ii) and the interrelationships among and between them; and
- iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

**Environmental Authorisation (EA):** means the authorisation issued by a competent authority (Department of Environmental Affairs) of a listed activity or specified activity in terms of the National Environmental Management Act (No 107 of 1998) and the EIA Regulations promulgated under the Act.

**Environmental assessment practitioner (EAP):** An individual responsible for the planning, management and coordinating of environmental management plan or any other appropriate environmental instruments introduced by legislation.

**Environmental Control Officer (ECO):** An individual appointed by the Owner prior to the commencement of any authorised activities, responsible for monitoring, reviewing and verifying compliance by the EPC Contractor with the environmental specifications of the EMPr and the conditions of the Environmental Authorisation

**Environmental impact:** An action or series of actions that have an effect on the environment.

**Environmental impact assessment:** Environmental Impact Assessment, as defined in the NEMA EIA Regulations, is a systematic process of identifying, assessing and reporting environmental impacts associated with an activity.

**Environmental management:** Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

**Environmental Management Programme (EMPr):** A plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a project or facility and its ongoing maintenance after implementation.

**Environmental Officer (EO):** The Environmental Officer (EO), employed by the Contractor, is responsible for managing the day-to-day on-site implementation of this EMPr, and for the compilation of regular (usually weekly) Monitoring Reports. The EO must act as liaison and advisor on all environmental and related issues and ensure that any complaints received from the public are duly recorded and forwarded to the Site Manager and Contractor.

**Habitat:** The place in which a species or ecological community occurs naturally.

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**Hazardous waste:** Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

**Indigenous:** All biological organisms that occurred naturally within the study area prior to 1800.

**Incident:** An unplanned occurrence that has caused, or has the potential to cause, environmental damage.

**Indirect impacts:** Indirect or induced changes that may occur because of the activity (e.g., the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place because of the activity.

**Interested and affected party:** Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups, and the public.

**Method Statement:** a written submission by the Contractor in response to the environmental specification or a request by the Site Manager, setting out the plant, materials, labour and method the Contractor proposes using to conduct an activity, in such detail that the Site Manager is able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications.

**Pre-construction:** The period prior to the commencement of construction, which may include activities which do not require Environmental Authorisation (e.g. geotechnical surveys).

**Pollution:** A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances).

**Rare species:** Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare."

**Red Data Species:** Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

**Significant impact:** An impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.

**Study area:** Portion 7 of Farm Hamelkraal 16

**Vulnerable species:** A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future.

**Waste:** as per the NEM: Waste Amendment Act, 2014 (Act No. 26 of 2014)

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- (a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3.
- (b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the *Gazette*,

but any waste or portion of waste, referred to in paragraph (a) and (b), ceases to be a waste –

- (i) once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered;
  - (ii) where approval is not required, once a waste is, or has been re-used, recycled or recovered;
  - (iii) where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or
  - (iv) where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.
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## ABBREVIATIONS

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The following abbreviations may be applicable to this project and may occur in the report below:

BGIS	Biodiversity Geographic Information System
BESS	Battery Energy Storage System
CDSM	Chief Directorate Surveys and Mapping
CEMP	Construction Environmental Management Plan
DEFF	Department of Environment, Forestry and Fisheries
NC DAERDLD	Northern Cape Department: Agriculture, Environmental Affairs, Rural Development and Land Reform
DMRE	Department of Mineral Resources and Energy
EAP	Environmental Assessment Practitioner
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
KOP	Key Observation Point
kV	Kilo Volt
LLRC	Low Level River Crossing
LUDS	Land Use Decision Support
LUPD	Land Use Planning Ordinance
MW	Mega Watt
NEMA	National Environmental Management Act
NEMAA	National Environmental Management Amendment Act
NEMBA	National Environmental Management: Biodiversity Act
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
PIA	Paleontological Impact Assessment
PM	Post Meridiem; "Afternoon"
SACAA	South African Civil Aviation Authority
SAHRA	South African National Heritage Resources Agency
SANBI	South Africa National Biodiversity Institute
SANS	South Africa National Standards
SDF	Spatial Development Framework
SMME	Small, Medium and Micro Enterprise
SAPD	South Africa Police Department

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## SECTION 1: BACKGROUND TO THE ENVIRONMENTAL AUTHORISATION

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South Africa Mainstream Renewable Power Developments (PTY) Ltd (herein-after referred to as Mainstream) received an Environmental Authorisation (DEA Ref.: 14/12/16/3/3/1/2077) dated (08/06/2020) for the development of a 132 kV powerline, a 400 kV powerline and a 400 kV Major Transmission Substation (MTS) near Sutherland in the Northern and Western Cape. The authorised powerlines will evacuate electricity generated by the authorised Rietrug Wind Energy Facility (WEF), Sutherland WEF and the Sutherland 2 WEF (herein-after referred to as WEFs) to the national grid. These WEFs received EAs dated 10 November 2016 (Department of Environmental Affairs (DEA) Reference Numbers: 12/12/20/1782/1; 12/12/20/1782/2; and 12/12/20/1782/3, respectively), from the National Department of Forestry, Fisheries and Environment (DFFE).

In this regard, South Africa Mainstream Renewable Power Development (Pty) Ltd (Mainstream) is considering the MTS previously assessed and authorised as per centre co-ordinates 31° 41'51.998"S 21°15'18.445"E be relocated further south within the authorised 500m 400kV grid corridor and an amendment to the start and end co-ordinates of the 132kV and 400kV powerlines that are related to this 400kV MTS. The current authorised location of the MTS has been deemed to be unsuitable as it is located upon a steep hill that would be unsuitable for construction, would require extreme amounts of earthworks and would hinder the connection of other renewable energy projects in the future. Mainstream is therefore requesting the DFFE to amend the Environmental Authorisation to reflect the new proposed location of the MTS and new start and end co-ordinates of the associated 132kV and 400kV powerlines.

### 1.1. Addendum to the Environmental Management Programme (EMPr)

This document forms an addendum to the Environmental Management Programme (prepared by CSIR Environmental Management Services) as submitted with the Final Basic Assessment Report (BA Report) in December 2019.

The stipulations herein must be read with Part C of the gazetted Generic EMPr in Section 7 of this EMPr (CSIR, 2019). It includes site specific impact management outcomes and impact management actions that are not included in the pre-approved generic EMPr. It is hereby submitted to the DFFE together with the Part 2 Amendment Application, for consideration of, and decision on, the Application Amendment to the EA. This section has been prepared by an Environmental Assessment Practitioner (EAP), with input from relevant specialists.

### 1.2. Expertise of Environmental Assessment Practitioners

This Addendum to the EMPr was compiled by Nala Environmental (Pty) Ltd to include new location of the Main Transmission Substation (MTS) and updated powerline co-ordinates within the authorised grid connection corridor associated with the electrical grid infrastructure to support the Sutherland, Sutherland 2 and Rietrug Wind Energy Facilities (WEF's), Northern and Western Cape Provinces.

Nala Environmental is an environmental consultancy firm established in December 2020. The main line of business is the compilation of environmental impact assessments for a variety of industries. The Nala Environmental management team has a broad client base from both the private and government sectors which has developed over the past 10 years. Nala Environmental has experience in undertaking environmental impact assessments spans across South Africa, with significant experience in the Northern Cape, Western Cape, Eastern Cape, Mpumalanga and Kwa-Zulu Natal Provinces. The Environmental Assessment Practitioner (EAP) for this project is Arlene Singh who is registered with the Environmental Assessment Practitioner's Association of South Africa (EAPASA) and the South African Council for Natural Scientific Professions (SACNASP). Refer to Appendix A for a Company Profile and condensed Curriculum Vitae of the EAP.

### 1.3. Relocation of the authorised MTS and Powerline Co-ordinates

The MTS previously assessed and authorised as per centre co-ordinates 31° 41'51.998"S 21°15'18.445"E be relocated further south within the authorised 500m 400kV grid corridor and an amendment to the start and end co-ordinates of the 132kV and 400kV powerlines that are related to this 400kV MTS. The current authorised location of the MTS has been deemed to be unsuitable as it is located upon a steep hill that would be unsuitable for construction, would require extreme amounts of earthworks and would hinder the connection of other renewable energy projects in the future. Mainstream is therefore requesting the DFFE to amend the Environmental Authorisation to reflect the new proposed location of the MTS and new start and end co-ordinates of the associated 132kV and 400kV powerlines.

A Part 2 EA Amendment application was undertaken, and it was determined that new location of the MTS within the originally authorised grid corridor should be authorised (as per the map below). This Addendum to the Environmental Management Programme (EMPr) provides mitigation measures to minimise the impact the relocation of the MTS could have on the environment and should be read together with the EMPr as submitted with the Final Basic Assessment Report, dated December 2019. The report and EMPr was compiled by the CSIR: Environmental Management Services.

The following amendments are applicable:

- a) It is requested that the co-ordinates of the MTS specifications on page 7 of the Environmental Authorisation be amended *from*:

400kV Major Transmission Substation (MTS)	Latitude (S)	Longitude (E)
Centre Co-ordinates	31°41'.51.998"S	21°15'.18.445"E

*To*

400kV Main Transmission Substation (MTS)- Corner Co-ordinates	Latitude	Longitude
Corner 1	32°42'36.88"S	21°15'24.18"E
Corner 2	32°42'35.60"S	21°15'43.50"E
Corner 3	32°42'50.34"S	21°15'46.79"E
Corner 4	32°42'52.48"S	21°15'25.49"E

- b) It is requested that the start and end co-ordinates of the 132kV and 400kV powerline that terminate and start at the MTS on page 7 of the Environmental Authorisation be amended *from*:

132kV Power line	Latitude (S)	Longitude (E)
Starting point of activity	32°38'41.115"S	20°55'2.470"E
Middle point of activity	32°37'52.510"S	21°08'0.841"E
End point of activity	32°41'54.652"S	21°15'23.209"E
400kV Powerline	Latitude (S)	Longitude (E)
Starting point of activity	32°41'54.625"S	21°15'23.209"E
End point of activity	32°44'4.970"S	21°15'41.530"E

*To*

<b>132kV Power line</b>	<b>Latitude (S)</b>	<b>Longitude (E)</b>
Starting point of activity	32°38'41.115"S	20°55'2.470"E
Middle point of activity	32°37'52.510"S	21°08'0.841"E
End point of activity	32°42'44.67"S	21°15'34.25"E
<b>400kV Powerline</b>	<b>Latitude (S)</b>	<b>Longitude (E)</b>
Starting point of activity	32°42'45.09"S	21°15'34.52"E
End point of activity	32°44'4.970"S	21°15'41.530"E

The amendment to the authorised MTS location and powerline co-ordinates specifications in itself not a listed activity and will not trigger any new listed activities, as the MTS will remain within the authorised grid connection corridor and grid corridor for powerline remains unchanged and fall within the originally authorised grid corridor footprint of the facility presented within the BA.

#### 1.4. Project Description

##### PROJECT COMPONENTS

- 400kV Main Transmission Substation (25ha MTS) including an O&M Building and Laydown area) as well as associated infrastructure in order to facilitate connection to the national grid.
- 132kV powerline (end point at the MTS)
- 400kV powerline (start point from MTS)

The Main Transmission Substation (MTS) will be relocated further south of the authorised location within the authorised 500m grid corridor. Due the relocation of the MTS the end co-ordinates of the authorised adjoining 132kV powerline and 400kV powerlines will need to be updated accordingly. The routing of the 132kV and 400kV powerline remains unchanged and will remain within the grid corridor as originally authorised.

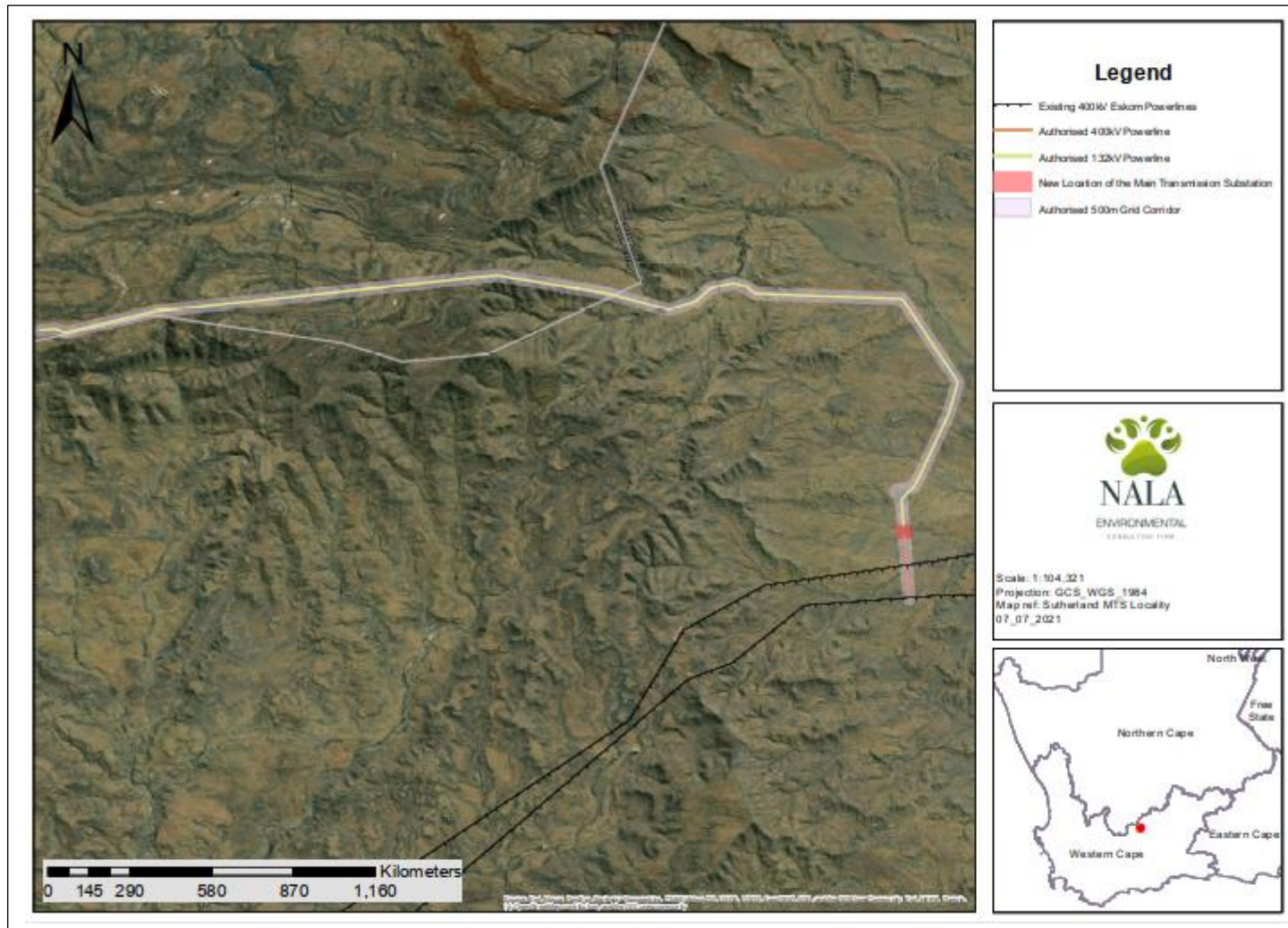


Figure 1. Layout Map of the updated MTS location and 132kv and 400kv Powerlines within the authorised 500m corridor

## SECTION 2: MITIGATION FOR INCLUSION WITHIN THE EMPR

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### 2.1. Specialist Studies: No Additional Mitigation Required

As per the specialist studies undertaken as part of the Part 2 Amendment process for the relocation of the MTS (July 2021), it was clear that no further input would be required in terms of the following:

- Palaeontology: No additional mitigation measures were identified for the relocation of the MTS that differ from the original findings of the palaeontological assessment.
- Surface Water: No additional mitigation measures were identified for the relocation of the MTS other than the recommended 100m buffer around the freshwater resource feature to the north-west and north of the new footprint, this buffer should be applied strictly, apart from the small section of buffer area that extends into the north-western corner of the new MTS footprint. The exclusion of this small section from the buffer area is regarded as acceptable.
- Terrestrial Ecology: No additional mitigation measures were identified for the relocation of the MTS that differ from the original findings of the Terrestrial Ecology assessment.

Final Basic Assessment report and EMP's undertaken by CSIR in December 2019.

- Visual: The power line route as presented in this document was assessed and no further mitigation measures are required.
- Socio-Economic: The power line route as presented in this document was assessed and no further mitigation measures are required.
- Heritage: The power line route as presented in this document was assessed and no further mitigation measures are required.

Table I: Environmental Features and Sensitive Areas that were identified by the Specialists

Specialist Study	Key Environmental Features and Sensitive Areas
<p>Heritage (Palaeontology, Archaeology and Cultural Landscape) (Appendix F of the Motivation Report)</p>	<p><u>Palaeontology:</u></p> <ul style="list-style-type: none"> <li>▪ The PIA explains that the authorised and amended MTS sites are both underlain at depth by potentially fossiliferous sedimentary rocks of the Abrahamskraal Formation, Lower Beaufort Group (Karoo Supergroup) which are of Middle Permian age. However, only one highly-sensitive “no-go” area was identified within the study area, however it lies outside of the proposed development footprint. This specifically includes an extensive surface scatter of petrified wood blocks, some of which are well-preserved, and occasional bone fragments, which was found on Farm Hamelkraal 16 on either side of a farm track. This fossil scatter is located approximately 500 m southwest of the 132 kV power line route. A 30 m wide peripheral buffer zone is required around the fossil scatter.</li> <li>▪ The majority of the amended site is occupied by low relief terrain mantled by alluvial and downwasted surface gravels as well as finer-grained deposits of low palaeosensitivity, with very little fresh bedrock exposure. The overall palaeontological sensitivity of the Electrical Grid Infrastructure study area is rated as low.</li> <li>▪ No new fossil sites were recorded within the amended site during the recent one-day site visit.</li> <li>▪ To the east and shortly outside the amended substation project area new fossil sites comprising downwasted large tetrapod bones, moulds of plant stems within channel sandstones and locally abundant (but equivocal) trace fossils have been recorded.</li> <li>▪ None of these new sites would require mitigation as a result of the MTS or associated 132 kV and 400 kV grid connection developments.</li> </ul> <p><u>Archaeology:</u></p> <ul style="list-style-type: none"> <li>▪ The Heritage Impact Assessment explains the most important within the study area are a number of engravings that are all assumed to be historical. None of them seems represent recognisable imagery and the markings at waypoint 497 may even simply be chop marks from somebody using the rock to chop firewood on.</li> <li>▪ Some stone features were also found. A set of rocks on a level area of alluvium and that appear to form two conjoined semi-circular shapes. They have no obvious function and there were no artefacts in the area.</li> <li>▪ A number of archaeological finds were made on a small raised rocky area just outside the eastern edge of the study area. List of sites and features recorded during the survey inside the study area: <ul style="list-style-type: none"> <li>» <u>Waypoint 497</u> - Rock engraving on a koffiekliip boulder on a small rise in the middle of the western half of the study area. The engraving consists of two converging lines of pecked marks. Recorded by Orton (2019) as waypoint 1783.</li> <li>» <u>Waypoint 498</u> - Rock engraving on koffiekliip in a cluster of boulders on a small rise, close to 499 and 500. The engraving consists of scratched lines which partly cross over each other and pecked marks within three rounded shapes.</li> <li>» <u>Waypoint 499</u> - Rock engraving on koffiekliip in a cluster of boulders on a small rise, close to 498 and 500. The engraving consists of a scratched irregular triangle with a line through the middle.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>» <u>Waypoint 500</u> - Rock engraving on koffieklip in a cluster of boulders on a small rise, close to 498 and 499. The engraving consists of 2 sets of roughly parallel lines of peck marks which diverge slightly.</li> <li>» <u>Waypoint 501</u> - Rock engraving on koffieklip in a different cluster of boulders on the same small rise as 497 to 500. The engraving consists of a scratched diamond shape. The outline of three of the four sides is made up of multiple lines rather than a single outline. Recorded by Orton (2019) as waypoint 1784.</li> <li>» <u>Waypoint 502</u> - Rock engraving on a koffieklip boulder at the eastern extremity of the small rise with the previous engravings. The engraving consists of scratched lines, a scratched circle and pecked marks within a semi-circular shape. Recorded by Orton (2019) as waypoint 1785.</li> <li>» <u>Waypoint 503</u> - Stone feature of koffieklip boulders, approximately 40cm x 70cm, situated within the sandstone and koffieklip gravels on the alluvium in the low-lying area close to the southern boundary of the study area. This could possibly indicate a burial. No artefacts in association with it.</li> <li>» <u>Waypoint 504</u> - Irregularly spaced arrangement of koffieklip boulders in two adjoining semicircles on the alluvium in the south-eastern corner of the study area. Each semi-circle is approximately 1.5 x 2m. No artefacts were seen in association with them.</li> <li>» <u>Waypoint 505</u> - Isolated flaked quartzite cobble.</li> <li>» <u>Waypoint 506</u> - Rock engraving situated in the western-most cluster of koffieklip boulders on the higher rocky area between the eastern boundary of the study area and the gravel road. It lies just within the study area. The engraving is obviously of colonial age as it consists of scratched letters – WICKUS DE WEE...</li> </ul> <ul style="list-style-type: none"> <li>▪ Most of these were spatially related (waypoints 507 to 512). In this area there were many stone artefacts dating from both the MSA and LSA, but with the former strongly dominating. Blades and points (pr fragments of these types) were quite common. The slightly elevated position of this area was obviously a favoured spot.</li> <li>▪ Aside from the engravings, no historical archaeological materials were found in the study area.</li> <li>▪ No graves were found, but one pile of stones seemed suggestive of a possible burial cairn. It is undoubtedly an anthropogenic feature but, although unlikely to be a grave, this cannot be ruled out.</li> <li>▪ All but one of the previously proposed points for inclusion in the Environmental Management Program (EMPr) are still valid. The one that needs to change is that dealing with the engraving at waypoint 1785 (the 4th bullet in Orton 2019). Note that this engraving is now listed under waypoint 502 in this report. The engraving can no longer be protected and will require mitigation, along with others on the same outcrop. This point should be substituted with the following two points:             <ul style="list-style-type: none"> <li>» The engravings at waypoints 497 to 502 and at waypoint 506 in Western Cape will require recording prior to construction. The developer or ECO should ensure that this has occurred well in advance of construction and that final approval of the mitigation work has been issued by HWC prior to construction.</li> <li>» The area to the east of the MTS footprint and centred on waypoints 508 and 510 should be declared a no go area and monitored periodically by the ECO to ensure compliance.</li> <li>» Fencing of the other known sites in the corridor is not necessary since, with the exception of the painted rock art site, none are very close to the route. The rock art is not easily discernible by a non-specialist and it is better not to draw attention to it. However, no entry signs should be placed at regular intervals around the two historical complexes in Western Cape.</li> </ul> </li> </ul>
<p>Surface Water (Appendix E of Motivation Report)</p>	<ul style="list-style-type: none"> <li>▪ A 100m buffer must be applied around the freshwater resource feature to the north-west and north of the new footprint, this buffer should be applied strictly, apart from the small section of buffer area the extends into the north-western corner of the new MTS footprint. The exclusion of this small section from the buffer area is regarded as acceptable.</li> </ul>

## 2.2. SITE SPECIFIC IMPACT AND MITIGATION TABLE

### HERITAGE: ARCHAEOLOGY, PALAEOLOGY AND CULTURAL LANDSCAPE

Impact Management Outcome: To minimise the impact on and risk to heritage features.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
DESIGN PHASE						
The MTS site should be included within the preconstruction survey for the already authorised powerlines in order to check for any further significant resources, especially engravings;	Project Developer	Project Developer to appoint a qualified archaeologist and palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	ECD	Once-off	Archaeologist and palaeontologist appointed, report compiled and submitted to SAHRA.
The engravings should be photographed and traced as necessary to produce a clear record. This should include moving the stones in order to achieve the best light for photography	Project Developer	Project Developer to appoint a qualified archaeologist and palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	ECD	Once-off	Archaeologist and palaeontologist appointed, report compiled and submitted to SAHRA.
The potential grave cairn should be unpacked, and the ground tested to determine the status of the feature	Project Developer	Project Developer to appoint a qualified archaeologist and palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	ECD	Once-off	Archaeologist and palaeontologist appointed, report compiled and submitted to SAHRA.



The engravings at waypoints 497 to 502 and at waypoint 506 in Western Cape will require recording prior to construction. The developer or ECO should ensure that this has occurred well in advance of construction and that final approval of the mitigation work has been issued by HWC prior to construction.	Project Developer	Project Developer to appoint a qualified archaeologist and palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	ECO	Once-off	Archaeologist and palaeontologist appointed, report compiled and submitted to SAHRA.
The area to the east of the MTS footprint and centred on waypoints 508 and 510 should be declared a no-go area and monitored periodically by the ECO to ensure compliance	Project Developer	Project Developer to appoint a qualified archaeologist and palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	ECO	Once-off	Archaeologist and palaeontologist appointed, report compiled and submitted to SAHRA.
Fencing of the other known sites in the corridor is not necessary since, with the exception of the painted rock art site, none are very close to the route. The rock art is not easily discernible by a non-specialist, and it is better not to draw attention to it. However, no entry signs should be placed at regular intervals around the two historical complexes in Western Cape.	Project Developer	Project Developer to appoint a qualified archaeologist and palaeontologist to do a pre-construction survey.	During the design phase, prior to the commencement of construction	ECO	Once-off	Archaeologist and palaeontologist appointed, report compiled and submitted to SAHRA.

Impact Management Outcome: To minimise the impact on and risk to heritage features.						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
CONSTRUCTION AND DECOMMISSIONING PHASES						

The cluster of Stone Age materials located just outside the eastern edge of the site should be avoided and protected from harm throughout the construction phase; and	Project Developer	<ul style="list-style-type: none"> <li>Ensure that the ECO receives adequate training from a professional specialist to be able to identify fossils during excavations.</li> <li>A Chance Fossil Finds Procedure is recommended.</li> </ul>	During the construction phase (and as applicable during the decommissioning phase)	ECO	During excavation work during the construction phase (and as applicable during the decommissioning phase)	Undertake inspections and record all findings and document the inspection process.
If any fossils, 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.	Project Developer	<ul style="list-style-type: none"> <li>Ensure that the ECO receives adequate training from a professional specialist to be able to identify archaeological sites or remains and fossils during excavations.</li> </ul>	During the construction phase (and as applicable during the decommissioning phase)	ECO	During excavation work during the construction phase (and as applicable during the decommissioning phase)	Undertake inspections and record all findings and document the inspection process.
Implementation of the Chance Fossil Finds Procedure	Project Developer	<ul style="list-style-type: none"> <li>Ensure that the ECO receives adequate training from a professional specialist to be able to identify fossils during excavations.</li> <li>A Chance Fossil Finds Procedure is recommended.</li> </ul>	During the construction phase (and as applicable during the decommissioning phase)	ECO	During excavation work during the construction phase (and as applicable during the decommissioning phase)	Undertake inspections and record all findings and document the inspection process.

## SOIL AND AGRICULTURAL POTENTIAL

Impact Management Outcome: To avoid or reduce impact as a result of soil pollution						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
CONSTRUCTION PHASE						

<ul style="list-style-type: none"> <li>▪ Prevention of petroleum hydrocarbon (present in oil and diesel) spills by machinery and vehicles during earthworks and the removal of vegetation as part of site preparation.</li> <li>▪ Prevention of spills from vehicles transporting workers, equipment, and construction material to and from the construction site.</li> <li>▪ Prevention of accidental spills from temporary chemical toilets used by construction workers.</li> <li>▪ Minimisation of domestic waste generation by construction workers.</li> <li>▪ Removal of construction material remaining within the construction area once construction is completed.</li> </ul>	ECO	<ul style="list-style-type: none"> <li>▪ Maintenance must be undertaken regularly on all vehicles and construction/maintenance machinery to prevent hydrocarbon spills;</li> <li>▪ Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams</li> <li>▪ Any left-over construction materials must be removed from site.</li> </ul>	During construction phase	ECO	Monthly	<ul style="list-style-type: none"> <li>▪ No visible signs of waste and spills within the project site.</li> <li>▪ No accumulation of contaminants in the soils of the project site.</li> </ul>
Impact Management Outcome: To avoid or reduce impact as a result of soil pollution						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
OPERATIONAL PHASE						
<ul style="list-style-type: none"> <li>▪ Prevention of petroleum hydrocarbon (present in oil and diesel) spills by machinery and vehicles during earthworks and the removal of vegetation as part of site preparation.</li> <li>▪ Prevention of spills from vehicles transporting workers, equipment, and construction material to and from the construction site.</li> <li>▪ Prevention of accidental spills from temporary chemical toilets used by construction workers.</li> <li>▪ Minimisation of domestic waste generation by construction workers.</li> <li>▪ Removal of construction material remaining within the construction area once construction is completed.</li> </ul>	ECO	<ul style="list-style-type: none"> <li>▪ Maintenance must be undertaken regularly on all vehicles and construction/maintenance machinery to prevent hydrocarbon spills;</li> <li>▪ Any waste generated during construction, must be stored into designated containers and removed from the site by the construction teams</li> </ul>	During operational phase	ECO	Monthly	<ul style="list-style-type: none"> <li>▪ No visible signs of waste and spills within the project site.</li> <li>▪ No accumulation of contaminants in the soils of the project site.</li> </ul>

		<ul style="list-style-type: none"> <li>Any left-over construction materials must be removed from site.</li> </ul>				
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## SURFACE WATER

Impact Management Outcome: To avoid or reduce impact on sensitive surface water bodies						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
<b>CONSTRUCTION PHASE</b>						
<ul style="list-style-type: none"> <li>Avoid encroachment within 100m buffer around the freshwater resource feature to the north-west and north of the new footprint, this buffer should be applied strictly, apart from the small section of buffer area the extends into the north-western corner of the new MTS footprint.</li> </ul>	ECO	<ul style="list-style-type: none"> <li>The ECO must ensure that the 100m buffer must be demarcated prior to commencement of construction with the exception of the small portion of the MTS footprint that will encroach within this buffer.</li> <li>The ECO must ensure that construction workers and vehicle access is prohibited within the 100m buffers around the freshwater resources and</li> </ul>	During construction phase	ECO	Weekly	Undertake inspections and record all findings and document the inspection process.

		featured identified to the north-west and north of the MTS footprint.				
Impact Management Outcome: To avoid or reduce impact on sensitive surface water bodies						
Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
OPERATIONAL PHASE						
<ul style="list-style-type: none"> <li>Avoid encroachment within 100m buffer around the freshwater resource feature to the north-west and north of the new footprint, this buffer should be applied strictly, apart from the small section of buffer area the extends into the north-western corner of the new MTS footprint.</li> </ul>	ECO	<ul style="list-style-type: none"> <li>No access to the 100m buffer to be permitted during the operational phase of the MTS</li> </ul>	During operational phase	ECO	On-going during operational phase	<ul style="list-style-type: none"> <li>Undertake inspections and record all findings and document the inspection process.</li> </ul>

## SECTION 3: REQUIREMENTS

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### 3.1 SAHRA Requirements

The following requirements are made in terms of section 3(4) of the NEMA Regulations and section 38(8) of the National Heritage Resources Act, Act No 25 of 1999 (NHRA):

- 38(4)b – The recommendations of the specialists must be adhered to.
- 38(4)c(i) – If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(l)e of the NHRA and item 5 of the Schedule.
- 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(l)e of the NHRA and item 5 of the Schedule.
- 38(4)e – The following condition apply with regards to the appointment of specialists:
  - » If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.

### 3.2. Water Use Authorisation Requirements

Regulations requiring that a water user be registered, GN R.1352 (1999). Regulations requiring the registration of water users were promulgated by the Minister of Water Affairs in terms of provision made in Section 26(1)(c), read together with Section 69 of the National Water Act, 1998. Section 26(1)(c) of the Act allows for registration of all water uses including existing lawful water use in terms of Section 34(2). Section 29(1)(b)(vi) also states that in the case of a GA, the responsible authority may attach a condition requiring the registration of such water use. The Regulations (Art. 3) oblige any water user as defined under Section 21 of the Act to register such use with the responsible authority and effectively to apply for a Registration Certificate as contemplated under Art.7(l) of the Regulations. GA in terms of Section. 39 of the NWA.

According to the preamble to Part 6 of the NWA, 1998, "This Part established a procedure to enable a responsible authority, after public consultation, to permit the use of water by publishing general authorisations in the Gazette..." and further states that "The use of water under a general authorisation does not require a licence until the general authorisation is revoked, in which case licensing will be necessary..." The GAs for Section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA have recently been revised (Government Notice R509 of 2016). The proposed works within or adjacent to the wetland areas and river channels are likely to change the characteristics of the associated freshwater ecosystems and may therefore require authorization. Determining if a water use licence is required for these water uses is now associated with the risk of degrading the ecological status of a watercourse. A low risk of impact could be authorised in terms of a GA. A risk assessment has been undertaken for the proposed project under Section 5.7 of the Basic Assessment report (CSIR, 2019). The risk assessment determined that the proposed electrical grid infrastructure poses a low risk of impacting aquatic habitat, water flow and water quality. With these findings of the risk assessment, the water use activities associated with the proposed project could potentially be authorised by means of the general authorisations for the Section 21(c) and (i) water uses.

## SECTION 4 : CONCLUSION

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The mitigation and permit/license requirements as mentioned in this document include all recommendations made by the specialists appointed for the EA amendment application as made for the electrical grid infrastructure to support the Sutherland, Sutherland 2 and Rietrug Wind Energy Facilities (WEF's), Northern and Western Cape Provinces. Recommendations and stipulations received during the public participation process have also been included in this document. The EAP is confident that this addendum to the 2019 EMPr addresses all identified impacts to acceptable levels and that this document should be accepted as an addendum to the existing (2019) EMPr.

APPENDIX A  
CV OF THE EAP