# SITE SENSITIVITY VERIFICATION REPORT
# THE PROPOSED DEVELOPMENT OF A LIQUIFIED PETROLEUM GAS (LPG)–TO–POWER FACILITY, OVERHEAD ELECTRICITY TRANSMISSION LINES AND ASSOCIATED PIPELINE INFRASTRUCTURE ACROSS VARIOUS FARM PORTIONS, SALDANHA

**INTRODUCTION AND SCOPE:**

The "Protocols for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes ("the Protocols") were promulgated in Government Notice No. 320, published in Government Gazette No. 43110 on 20 March 2020 and came into effect on 9 May 2020. The Protocols are allowed for in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA").

The Protocols must be complied with for every new application for Environmental Authorisation that is submitted after 9 May 2020. According to the Protocols, the EAP must verify the current use of the site in question and its environmental sensitivity as identified by the screening tool to determine the need for specialist inputs in relation to the themes included in the Protocols. This document serves as the Site Sensitivity Verification Report for the following unauthorised components of the Assegai Power, LPG to electricity project:

1) Generation of electricity on a site that is already authorised for LPG storage and transportation;
2) An inbound connection pipeline that would link to an existing bulk LPG pipeline to allow for transportation of gas from the port to the site;
3) An outbound connection pipeline that would lead from the LPG storage site to another bulk gas pipeline in order to supply LPG to other users (e.g. AMSA).
4) An electricity transmission line leading from the site to an off-site sub-station. Five route options are considered during the Scoping Phase.

The location of these development components is shown in the aerial image included as **Figure 1**. This site sensitivity verification relates to all four respective screening reports for the above-mentioned development elements that comprise the project and environmental application.

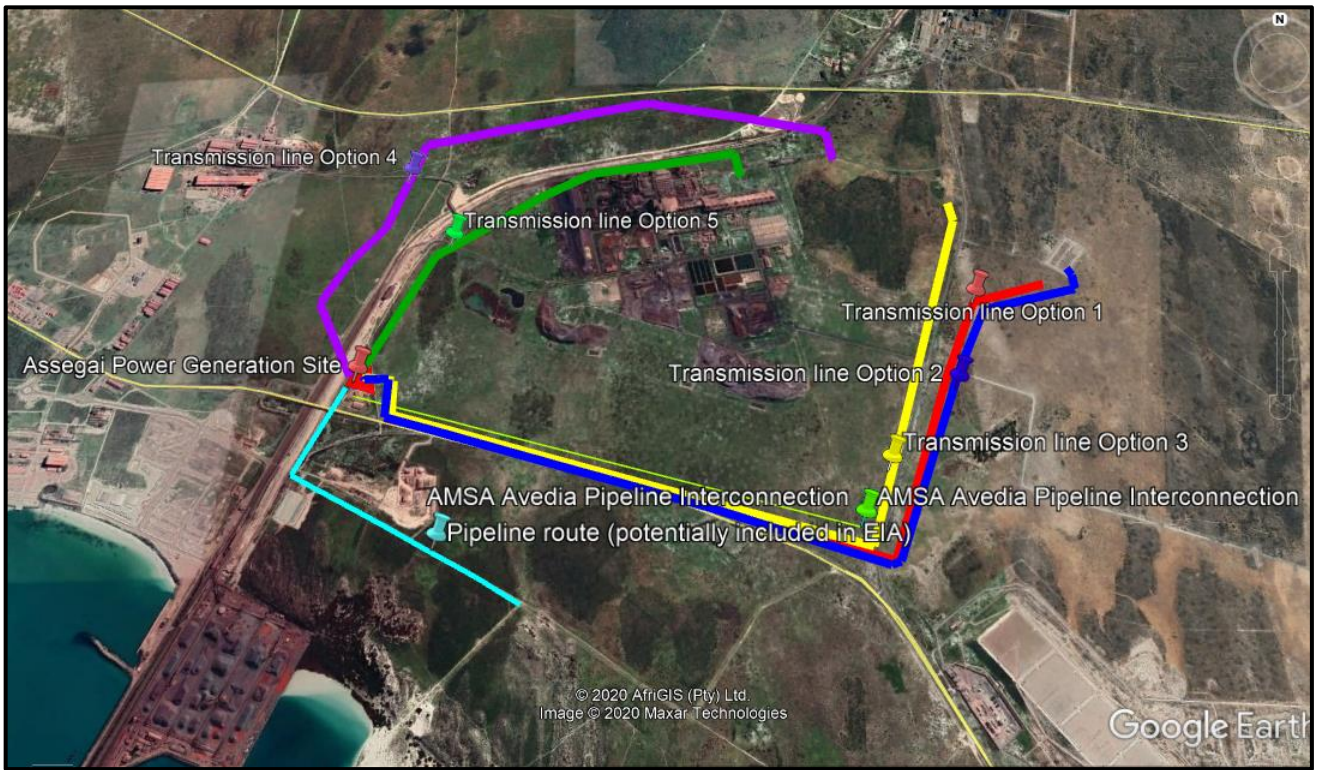


*Figure 1: Development elements under consideration (generated using Google Earth)*

**SENSITIVITY VERIFICATION METHODOLOGY:**
The site sensitivity verification statement was compiled by the EAPs, Ingrid Eggert (Pr. EAP.) and Claudette Muller, and is based on:

- A site visit undertaken on 28 September 2020;
- A desktop investigation using biodiversity and land use mapping tools (BGIS, Cape Farm Mapper, Saldanha Municipality Web-Maps etc.); and
- Information recorded in Scoping Reports and Environmental Impact Reports for other projects within the site area (Chand, 2016, ERM, 2012, MHR, 2016).

**SITE SENSITIVITY VERIFICATION:**
The table below, supporting photographs and maps serve to:

- Verify land use and sensitivities identified in the screening report; and
- Confirm / refute the need for the various specialist inputs called for in terms of the screening tool report.

| SENSITIVITY AND SPECIALIST INPUT IDENTIFIED IN TERMS OF THE DEFF SCREENING TOOL | VERIFICATION OF SITE-SPECIFIC SENSITIVITY AND MOTIVATION ON THE NEED FOR SPECIALIST INVESTIGATION |
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| **Agricultural theme**<br>Medium sensitivity for all development component areas<br><br>Necessitating an agricultural impact assessment (in accordance with the protocol prescribed in GNR 320). | A zoning map provided by the local municipality, shows some portions of land (across which the proposed transmission lines and pipelines would be constructed) zoned for agricultural purposes (refer to Figure 2).<br><br>The electricity generation site is however zoned for industrial use and is already transformed by the LPG storage facility (EA Reference number E12/2/4/2/F4/16/3001/12). It no longer holds any agricultural potential.<br><br>It is further noted that the linear development components fall largely within areas already identified as urban development zones in the Saldanha Bay Spatial Development Framework (SBSDF). The SBSDF further shows that the area in question are excluded from any of the identified agricultural development zones contemplated in the Environmental Management Zones for the municipal area (refer to Figure 3).<br><br>Furthermore, the pipelines and overhead transmission lines constitute linear activities that would not preclude agricultural development, if this was indeed desirable in the study area.<br><br>In light of the above, it is submitted that the medium agricultural sensitivity rating is not aligned with the forward spatial planning for the area and has no bearing on the development proposal. Hence, there are no agricultural sensitivity to consider, and it warrants no further specialist assessment.<br><br>Should the DEFF indicate a different view / opinion, the necessary specialist inputs will be obtained for inclusion into the environmental Impact Assessment Phase. |
| **Animal Species theme**<br>Medium sensitivity for all development component areas | The electricity generation site is already transformed and houses the LPG storage facility. No natural habitat remains intact to support faunal species.<br><br>A large portion of the inbound pipeline route has been partially excavated (see Figure 4) in line with the Environmental Authorisation |

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| Necessitating an animal species assessment | (E12/2/4/2/F4/16/3001/12) now lapsed for this pipeline route. Note that the excavation occurred when the authorisation was still valid. The remainder of this route is within a cleared jeep track (refer to Figure 5 and Figure 6).<br><br>The other development components will require the clearance of some indigenous vegetation that has been subject to varying degrees of human interference (installation of fence lines, roadways etc.) and presence of invasive alien species (refer to Figure 7, Figure 8 and Figure 9)<br><br>The significance of the site for faunal species will be determined by the appointed terrestrial biodiversity specialist. Key faunal species that may utilise the site will be noted by the specialist. This will to a large extent depend on the condition of the remaining habitat.<br><br>Reporting will meet the requirements for this biophysical theme, as prescribed in the Protocol of GNR 320. |
| **Aquatic biodiversity theme**<br>Very high sensitivity for all development component areas<br><br>Necessitating an aquatic biodiversity impact assessment (in accordance with the protocol prescribed in GNR 320). | The site and surrounds demonstrate no aquatic biodiversity sensitivity. Waterbodies in the area are limited to artificially created stormwater ponds and 'slag' dams. The 'very high' sensitivity assigned by the screening tool for this theme is therefore refuted.<br><br>A freshwater specialist was however appointed to do a formal screening in this regard and to confirm potential applicability of water use activities contemplated in Section 21 of the National Water Act.<br><br>Reporting will either confirm no aquatic biodiversity sensitivity or meet the requirements of the protocol (GNR320), should the specialist find any freshwater resources in the area. |
| **Archaeological and cultural heritage theme**<br>*Inbound pipeline:* High sensitivity<br><br>No sensitivity indicated for other development component areas<br><br>Necessitating archaeological, cultural heritage and palaeontological impact assessments | It is acknowledged that the site may have archaeological, cultural, heritage or paleontological significance. A Heritage Practitioner and Palaeontologist was contracted to:<br>- Screen the site and determine the level of sensitivity;<br>- Identify the need for inputs from an archaeologist and visual impact specialist;<br>- Determine whether any further impact assessments are required;<br>- Prepare and submit a Notice of Intent to Develop to the relevant Heritage authorities.<br><br>Feedback from the Heritage authorities will ultimately confirm the need for any further specialist studies in relation to heritage, archaeological, palaeontological and visual aspects associated with the site and development proposal.<br><br>Should further studies be required, the reporting will meet the requirements of Appendix 6 of the 2014 EIA Regulations. |
| **Civil aviation theme**<br>High sensitivity for all development component areas<br><br>The need for a civil aviation assessment (in accordance with the protocol prescribed | The screening report notes that the site is located within 8km of a civil aviation aerodrome and that the airspace is dangerous and restricted.<br><br>It is submitted that the development proposal will not impact on the safety or operations of the aerodrome or have any effect on the airspace. The EAP recognises that the pylons and transmission lines will be new infrastructure in the landscape and occupy some |

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| in GNR 320) for the transmission line component | airspace, however, the height of these are such that they will not affect the airspace available for movement of aeroplanes or impact on the safety of civil aviation in any way.<br><br>As such, there is no civil aviation sensitivity attached to this development proposal, and no specialist assessment will be undertaken. |
| **Plant species theme**<br>*Transmission line options:* High sensitivity<br><br>Medium sensitivity for all other development component areas<br><br>Necessitating a plant species assessment. | While certain areas of the total development area have been subject to partial or total transformation, the site also extends into natural areas and supports indigenous plant species.<br><br>As such, a terrestrial biodiversity specialist was appointed to screen the site, and report on its sensitivity in line with the requirements of the Protocol of GNR320. Accordingly, a verified low sensitivity rating would result in the specialist compiling a Compliance Statement and sensitivity ratings of medium or higher will necessitate a full Terrestrial Biodiversity Impact Assessment. Plant species present on site will be specifically noted. |
| **Defence theme**<br>Medium sensitivity for all development component areas | The screening reports identify the site area as a 'defence site', but no further details area required in this respect. The medium sensitivity for this theme is presumably due to the site falling within a 12 km radius of the SA Special Forces military base in Langebaan and the Air Force Base in Langebaanweg.<br><br>None of the components comprising the development proposal will compromise the ability of the defence force to defend the area against any unrest / threats on security. The development as proposed therefore presents no defence sensitivity and therefore, no specialist investigations are deemed necessary. |
| **Terrestrial biodiversity theme**<br>Very high sensitivity for all development component areas<br><br>Necessitating a terrestrial biodiversity impact assessment and a plant species assessment | While certain areas of the total development area have been subject to partial or total transformation, the site also extends into natural areas. As such, a terrestrial biodiversity specialist was appointed to screen the site, and report on its sensitivity in line with the requirements of the Protocol of GNR320.<br><br>Accordingly, a verified low sensitivity rating would result in the specialist compiling a Compliance Statement and sensitivity ratings of medium or higher will necessitate a full Terrestrial Biodiversity Impact Assessment. |
| **Additional specialist studies called for by the Screening Report** | |
| The need for a **hydrological assessment** in terms of the pipeline components | An opinion on hydrogeological conditions was obtained from a specialist who has existing knowledge of the area (MEGA, 2020).<br><br>Based on groundwater monitoring of wells in the area, the specialist concluded that the depth to groundwater of the development site is likely to be in the region of 4 to 5m below grade. Given that the pipeline would be buried at a depth of 1 to 1.5 m below grade, it was concluded that the possibility of the pipeline encountering any groundwater and impacting on groundwater resources is low (MEGA, 2020).<br><br>No further study will be made in this regard. |

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| The need for a **noise impact assessment** in terms of the electricity generation component | Due to the scale of the project and the noise levels that could be generated by the gas turbine units, a noise impact assessment will be undertaken, and a specialist has been appointed in this regard.<br><br>The site is however situated in an area with an industrial focus and hence, it is expected that there will be very few sensitive noise receptors. |
| The need for an **ambient air assessment** and **air quality impact assessment** in terms of the electricity generation component | The LPG to power generation facility will be associated with emissions to air. An Air Quality specialist has been appointed to conduct the air quality impact assessment, which will include determination of the ambient air quality as the baseline conditions to inform the identification and assessment of impacts associated with the proposed development.<br><br>The specialist will be responsible for the application for an Air Emissions Licence in terms of the NEM:AQAA and this will be undertaken in parallel to the EIA process. Reporting will meet the requirements of the Air Emission Licence application as well as the requirements of Appendix 6 of the EIA Regulations. |
| The need for an **RFI assessment** in terms of the transmission line component | A voltage of 132kV is considered for the transmission lines under investigation. At this voltage, there are no concerns with Radio Frequency Interference (RFI). RFI is typically associated with voltages of 400kV and more. In such instances, it is standard design practice to consider elements such as corona, RFI, audible noise and EMF. The standard Eskom towers, hardware configurations and conductor bundle configuration that will be used for the 132kV voltage towers and lines will not require further assessment of the mentioned elements, given that these concepts would have been considered during the original design and approval of the tower top geometry.<br><br>A generic report on the impacts of electric and magnetic fields around powerlines is available and will be drawn on in the environmental reporting. The generic report, titled "Electric and Magnetic Fields from Overhead Power Lines - A Summary of Technical and Biological Aspects", was compiled in 2006 by a lead expert on electric and magnetic fields (Dr PH Pretorius), for Eskom Holdings Limited. Should the Scoping study identify the further need for inputs on this specific case or impact on radio frequency, the expert will be contacted for comment or an investigation. |
| The need for a **health assessment** in terms of the electricity generation component | The Air Quality Impact Assessment, Noise Impact Assessment and the information on the electric and magnetic fields around powerlines consider health impacts on receptors. No additional specific health assessment is warranted in this instance, unless there remains unknowns or uncertainties following the conclusion of the mentioned studies. |
| The need for **landscape / visual impact assessment** in terms of the transmission line component | It is acknowledged that the pylons and transmission lines will present a change in the visual landscape in the area. This aspect will be considered by the heritage practitioner and the heritage authorities (Heritage Western Cape) when determining and deciding on the need for further studies, including the need for a specific Visual Impact Assessment.<br><br>Such a study will be commissioned, should the heritage practitioner and/or the heritage authorities deem this necessary. |
| The need for a **geotechnical assessment** in terms of the | Geotechnical investigations are being undertaken and will be included in the Scoping and EIA reporting. |

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| two pipeline and the transmission line components | |
| The need for a **socio-economic impact assessment** in terms of the two pipeline and the electricity generation development components | A portion of the site already supports the LPG handling facility. The remainder of the development area under investigation is either partially transformed through roadways, fence lines or firebreaks, or remains in near natural condition. There are no sensitive or other socio-economic receptors to take into consideration in terms of the site context or the nature of the development proposal.<br><br>The general socio-economic impacts associated with gas-to-energy projects are well known, and the EAP will record these in the Scoping Report and assessed the impacts in the EIR. No further specialist inputs will be undertaken. |
| The need for a **seismicity assessment** in terms of the two pipeline components | The newly proposed pipelines will be designed and implemented with the exact same parameters of the other existing gas pipelines in the area. It will therefore function at the same operational and emergency capacity.<br><br>Should the geotechnical study however reveal that founding conditions in the pipeline routes are such that additional measures are required to protect the infrastructure from seismic events, such recommendations will be taken into account in the design and construction of the pipelines. This will be covered in the Scoping and EIA reporting.<br><br>No specific specialist study is deemed necessary at this point. |
| The need for an **avian assessment** in terms of the transmission line component | The Terrestrial biodiversity specialist will consider the importance of the site for avian species and indicate whether a specific avifaunal study would be warranted for the transmission line component. It is acknowledged that the pylons and transmission lines will present new structures that avian species would need to navigate around, however this is the case for all other transmission lines in the area. Unlike wind turbines, the static nature of these transmission lines means that fatal or other injuries to birds due to collision is unlikely. The impact on avian habitat and movement corridors will be determined by the associated sensitivity of the site and its airspace.<br><br>Unless otherwise indicated by the terrestrial biodiversity specialist, no avifaunal study will be undertaken. |
| **Additional studies that will be undertaken but that is not called for by the Screening Report** | |
| **Major Hazard Installation (MHI) risk assessment** | Given the safety risks associated with gas storage and handling, the MHI assessment (MHR Consultants, 2012) for the LPG transportation and storage project, will be updated to take account of the actions of the current development proposal. This update will be undertaken in accordance with the requirements of the MHI Regulations.<br><br>The findings and recommendations from this study will be included in the environmental reporting. |

**Special note:**
The above discussion highlights the specialist studies that will be undertaken as part of the Scoping and EIA process and motivates why certain studies are not warranted in the opinion of the EAPs. However, this may change if the DEFF or other commenting authorities / interest groups / parties raise valid reasons why any specific studies should be undertaken.

**Supporting images / maps:**

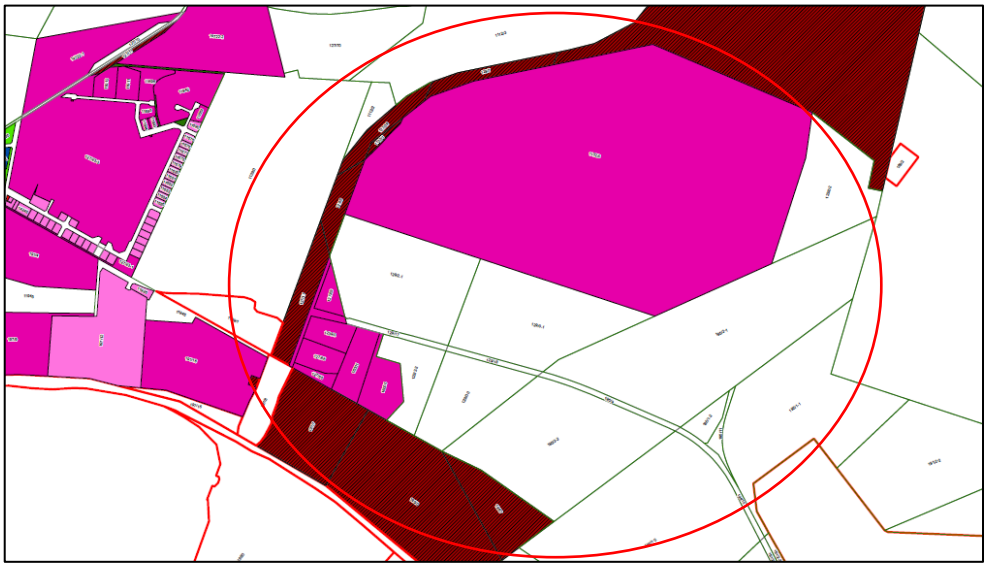

*Figure 2: Zoning Map – red outline shows applicable properties. White areas with green borders show land parcels zoned for agriculture*

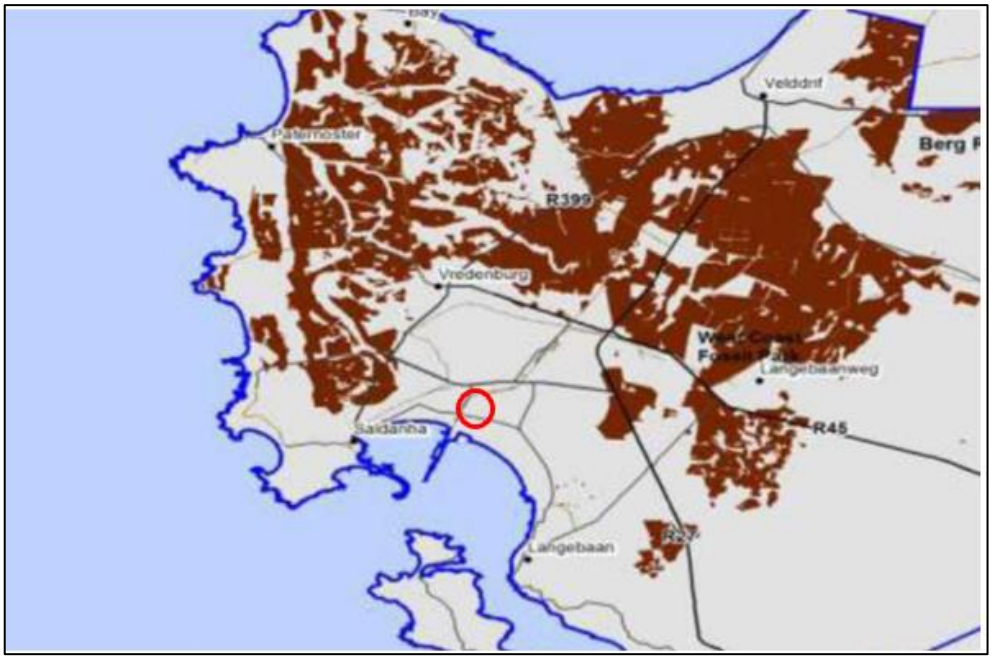


*Figure 3: Excerpt from SBSDF Environmental Management Zones - Agricultural Development Areas in brown, study area in red polygon*

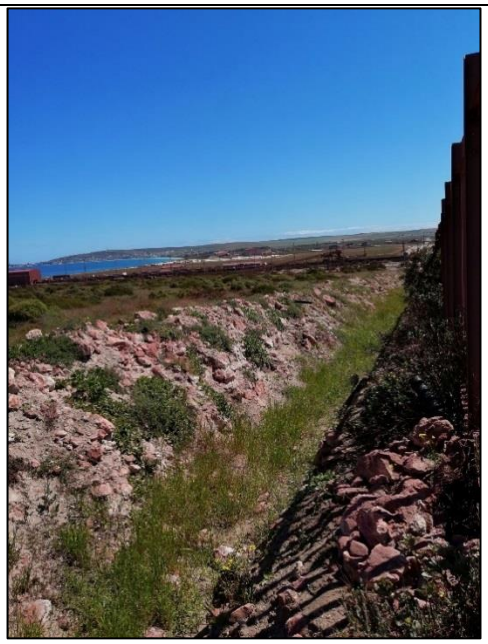

*Figure 4: Excavated conditions of a portion of the inbound pipeline route*

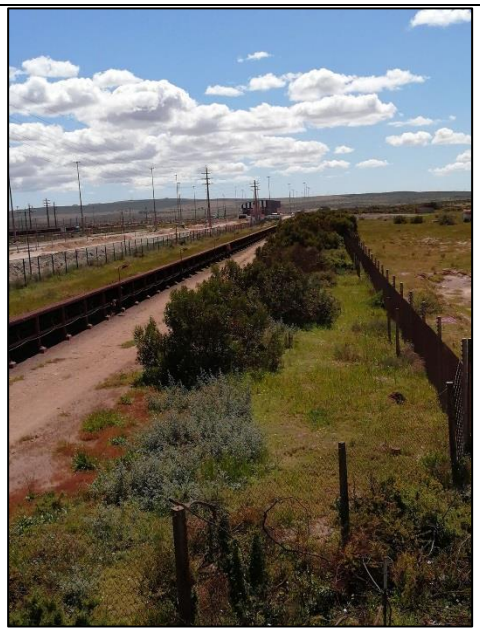

*Figure 5: Jeep track along western boundary of existing LPG facility*

*Figure 6: Jeep track facing east, where excavations end*

*Figure 7: Proposed route for transmission line option 1, 2 & 3 and outbound pipeline. Image shows disturbed areas from fence and road construction with mostly grasses and alien invasive species remaining*

*Figure 8: Proposed route for transmission line O1and 2 on the opposite side of the roadway. Image shows disturbed areas from fence construction with mostly grasses and alien invasive species remaining intact*

*Figure 9: Area for the transmission line Option 4. While more indigenous vegetation intact here, the area is not pristine and unlikely provides suitable habitat to conservation-worthy faunal species*

**References:**

Chand Environmental Consultants (2012), Final Scoping Report for the proposed Liquefied Petroleum Gas (LPG) Handling Facility on Portion 13 of farm 127, Yzervarkensrug, Saldanha. Prepared for Avedia Energy – September 2012.

ERM (2016), Environmental Impact Assessment for a Gas-fired Independent Power Plant to Support Saldanha Steel and Other Industries in Saldanha Bay. Prepared for ArcelorMittal September 2016.

MHR Consultants (2012), Risk Assessment in terms of the Major Hazard Installation Regulations on portion 127/13, Saldanha Bay, Draft 1.1. Prepared for Avedia Energy – May 2012.

Morris Environmental & Groundwater Alliance (MEGA) (2020) Preliminary comments on the hydrogeology at the proposed Saldanha Assegai Power Site – Prepared for Chand Environmental Consultants – October 2020