PROPOSED ESKOM GROMIS-NAMA-AGGENEIS 400KV POWER LINE, NORTHERN CAPE PROVINCE

ENVIRONMENTAL SCREENING REPORT ECONOMIC ASSESSMENT

CES

ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES

PROPOSED ESKOM GROMIS-NAMA-AGGENEIS 400KV POWER LINE, NORTHERN CAPE PROVINCE

ENVIRONMENTAL SCREENING REPORT ECONOMIC ASSESSMENT

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REVISIONS TRACKING TABLE

CES Report Revision and Tracking Schedule

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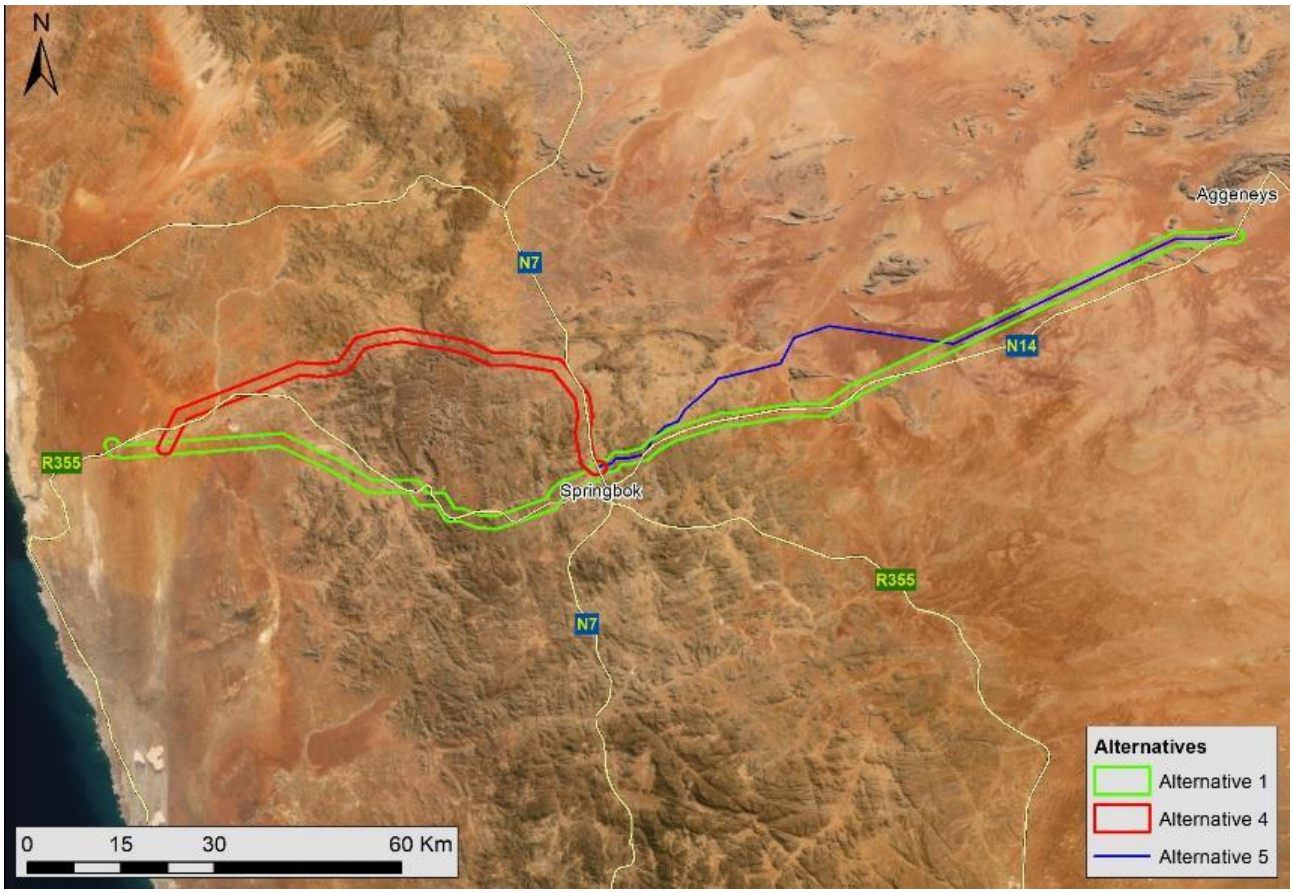
LIST OF ACRONYMS

BAR	Basic Assessment Report
BPEO	Best Practicable Environmental Option
CES	Coastal and Environmental Services
CSIR	Council for Scientific and Industrial Research
DM	District Municipality
DMR	Department of Mineral Resources
EGI	Electricity Grid Infrastructure
GDP	Gross Domestic Product
GVA	Gross Value Added
IDP	Integrated Development Plan
km	Kilometre
kV	Kilovolt
LM	Local Municipality
NDM	Namakwa District Municipality
NKLM	Nama Khoi Local Municipality
PGDP	Provincial Growth and Development Plan
PSDF	Provincial Spatial Development Framework
REDZ	Renewable Energy Development Zone
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SMME	Small, Medium and Micro Enterprises
SPLUMA	The Spatial Planning and Land Use Management Act

EXECUTIVE SUMMARY

INTRODUCTION

In order to ensure that the Namaqualand network is compliant and there is sufficient line capacity to accommodate potential Independent Power Producers (IPPs) within the Namaqualand area, the construction of the new Gromis-Nama-Aggeneis 400 kilovolt (kV) line and establishment of a 400/132 kV yard at Nama substation (located near Springbok) is proposed by Eskom. Various alternative route corridors were proposed after a Strategic Environmental Assessment (SEA) was undertaken by the Council for Scientific and Industrial Research (CSIR) in 2016. Enviroworks has been appointed by Eskom to undertake a Screening Process to determine the Best Practical Environmental Option not entailing Excessive Costs and pre-negotiated, to take this option then further to apply for a Basic Assessment. The outcomes of the Screening process (i.e. selection of the preferred alternative) will then be used by Eskom to enter into negotiations with the affected landowners. After negotiations with the landowners, Eskom will enter a next tender phase where the BAR will be followed to obtain an authorization from the competent authority, based on a pre-negotiated route. Enviroworks has appointed Coastal and Environmental Services (CES) to assess the potential economic impacts of the route alternatives under consideration, as depicted in the figure below.



This specialist economic assessment was mainly a desk top study that relied on existing primary data sources pertinent to the project and its study area (published policies, plans and frameworks for example developed by various tiers of government). This primary data was supplemented by secondary information sources such as existing literature on the study area and economy,

specifically the economic sectors discussed in this report and subject to assessment. In addition to this desk top review of existing information, additional data on local property markets, tourism and agricultural activities was sourced from key local informants such as estate agents, tourism business owners and farmers. An attempt at ascertaining whether any existing, or proposed, mining operations could potentially straddle the corridor alternatives under assessment has also been made.

KEY FINDINGS

The following anticipated economic impacts have been assessed in this report:

- Job creation and skills development;
- Direct and indirect economic impacts (including the subsequent enabling and development of IPP projects that the proposed powerline will facilitate);
- Mining (existing right holders/operations and exploration license holders);
- Economic impacts on agriculture;
- Economic impacts on tourism attractions or operations;
- Property value and land use impacts; and
- Resettlement and economic displacement impacts.

These impact categories were assessed for all corridor alternatives under review. The key findings of this report are:

- Alternative 1 (the westerly section between Gromis and Nama substations) is the least preferred from a potential tourism impact perspective;
- The same section is also the only alternative that stands to impact on agricultural activity in the construction phase, and could potentially impose a minimal level of impact in the operational phase of the powerline;
- Similarly, although physical resettlement is not a necessary requirement for the project and can be easily avoided in its entirety, this alterative holds the most potential to impact on residential or suburban areas and result in potential economic displacement (loss of income, temporary or permanent disturbances to their properties etc.) for landholders in this corridor. Alternative 5 also passes in close proximity to several residences and farmsteads as it turns northwards (to the east of Concordia) and is likely to result in construction phase disturbances to these residents and their agricultural activities. It will also be very visually imposing for these residents due to its proximity;
- Should the above considerations be borne in mind when selecting the preferred route alignment for further assessment it is unlikely that the powerline would lead to notable declines in property value. As stated previously, one of the potential cumulative impacts of the powerline form a property value perspective is that as more renewable energy projects come into development in the NKLM it is likely to spur an increase in the price of residential properties. It is also not unrealistic to expect agricultural land prices to escalate for those properties that are suited to renewable energy project development;
- All of the alternatives will have similar beneficial and direct economic implications for the regional GDP, however, those alternatives (such as Alternative 4) that can prioritise and optimise the wage and goods and services expenditure on the more remote economically marginalised communities along their respective routings will have a much more beneficial impact at this micro/local level;
- Alternative 4 is also assumed to be the least likely to impact on existing and future mining activities as per the information at CES' disposal, and Alternative 5 should be avoided as it is the most likely to do so in the future. However, this assumption must be tested for all

corridors going forward, especially the preferred route that will be subject to the BAR process required for environmental authorisation through the further interrogation of available data and requesting comments from prospecting rightsholders during the respective public participation stages of these respective processes; and

- Potential impacts on tourism attractions and operations, as well strategic development initiatives in this regard identified in the SDF and IDP documents, are likely to be minimal should the western section (the Kleinzee - Springbok leg only) be ruled out as a preferred option.

The need and desirability for the project is beyond question as it is apparent that future economic growth - both in the NKLM and at a regional level - and ensuring security of local electricity supply, urgently requires the construction thereof. While this high level economic impact assessment has identified issues and areas if concern as it relates to the various corridor alternatives under assessment, it is not apparent to the authors of this report that any of these permutations are fatally flawed from an economic perspective, but they will have varying levels of benefit or negative impact at the local level. The potential job creation and skills development potential of the project, while short lived (construction phase), will be of significant benefit to local economically marginalised communities if they are prioritised to receive and participate in these benefits.

The direct and indirect economic benefits arising from the project will also be notable, but mostly limited to the powerline's construction phase. However, the real benefits are likely to be cumulative in nature in that the powerline and substation network will enable the development of the energy sector projects planned for the study area, which in turn will stimulate the local economy whose GDP has been in decline for some time.

Impacts on existing and potential mining operations are likely to be relatively insignificant provided the eventual alignment follows existing powerline servitudes and road reserves as far as possible. Some impacts on current agricultural can be anticipated, however, these are also expected to be of low significance should due consideration be taken of these activities in the final design phase of the preferred and selected route.

Tourism impacts are likely to be of low significance at the regional level, but do stand the risk of impacting more significantly on a few individual establishments or operations. For this reason, and by applying the precautionary principle, the section of the corridor from Gromis to Nama substation along Alternative 1 should be avoided, despite the existence of a powerline and servitude along its entire length.

There is no reason why the project would require the physical resettlement of people or households, and the potential for economic displacement of landowners or users will be low provided that all income generating or economic activities occurring on affected land portions are noted in subsequent phases of the assessment process, and disruptions to these avoided or minimised. Land use impacts will be negligible provided the appropriate impact avoidance, mitigation and management principles are adhered to.

In summary, the project will have far more beneficial economic impacts for the residents of the NKLM and its economy that any anticipated negative ones, and where these do eventuate it will be in highly localised or individual situations where it is assumed that affected persons will have recourse for financial and or legal remedy to compensate for any losses that are demonstrated to be the result of the proposed project's activities.

CONCLUSION

The below combination of Alternatives 1 and 4 is the preferred route alignment from an economic impact perspective.

This conclusion is as a result of the following factors:

- Existing tourism operations will be the least affected by this route alignment;
- Current and planned mining areas less likely to be impacted by virtue of this route following the existing powerline servitudes and road reserves for the majority of the Springbok to Aggeneys section that in effect already precludes future development of these corridor areas for mining purposes;
- No cultivated agricultural land is likely to be disturbed, or stock farming operations significantly affected, in either the construction or operational phases of the powerline;
- No physical resettlement would be necessary and economic displacement is likely to be of minimal negative significance;
- More economically marginalised communities like Bulletrap and Nababeep, who by virtue of being in very close proximity to the preferred alternative, stand to benefit from potential employment and skills development initiatives should Eskom and their contractors prioritise these settlements for employment. It can be expected that some level of SMME development can be fostered over time as a result of their proximity to the potential renewable energy projects planned for the north of Springbok; and
- Any potential renewable energy projects located north of Springbok will have an easier (shorter and cheaper) connections to the grid if the preferred alternative is utilised. It is these

projects (and those already earmarked for the Kleinzee coastal corridor), and the electricity sector in general, that is expected to be a significant driver of future economic growth in the district.

The Alternative 1 section between Gromis and Nama substations should be deemed the least preferred, and only considered a possibility if other specialist inputs into this screening and impact assessment process consider Alternative 4 to be fatally flawed.

1 INTRODUCTION

1.1 BACKGROUND

In order to ensure that the Namaqualand network is compliant and there is sufficient line capacity to accommodate potential Independent Power Producers (IPPs) within the Namaqualand area, the construction of the new Gromis-Nama-Aggeneis 400 kilovolt (kV) line and establishment of a 400/132 kV yard at Nama substation (located near Springbok) is proposed by Eskom. Various alternative route corridors were proposed after a Strategic Environmental Assessment (SEA) was undertaken by the Council for Scientific and Industrial Research (CSIR) in 2016. Enviroworks has been appointed by Eskom to undertake a Screening Process to determine the Best Practical Environmental Option not entailing Excessive Costs and pre-negotiated, to take this option then further to apply for a Basic Assessment. The outcomes of the Screening process (i.e. selection of the preferred alternative) will then be used by Eskom to enter into negotiations with the affected landowners. After negotiations with the landowners, Eskom will enter a next tender phase where the BAR will be followed to obtain an authorization from the competent authority, based on a pre-negotiated route. Enviroworks has appointed Coastal and Environmental Services (CES) to assess the potential economic impacts of the route alternatives under consideration.

1.2 STUDY TERMS OF REFERENCE

1.2.1 General Objectives

The economic assessment has the following general objectives:

- Compilation of a Desktop study.
- Review of desktop study Report by Enviroworks and Client.
- Compilation of Final Report by Specialist.
- Description of the receiving environment from an economic perspective.
- Description and assessment of potential impacts on economy.
- Provision of mitigation measures to reduce the envisaged impacts.

The specific study objectives are detailed below.

1.2.2 Specific Objectives

This study has involved the following steps and deliverables:

- Conduct an assessment of all potentially significant economic impacts;
- Approach to include desktop study and collate information from a site to be undertaken by Enviroworks to understand the affected environment and to adequately investigate and evaluate significant issues. Indigenous knowledge (i.e. targeted consultation) should also be regarded as a potential information resource;
- Assess the impacts (direct, indirect and cumulative) in terms of their significance (using suitable evaluation criteria, as seen below) and suggest suitable mitigation measures. In accordance with the mitigation hierarchy, negative impacts should be avoided, minimised, rehabilitated (or reinstated) or compensated for (i.e. offsets), whereas positive impacts should be enhanced. A risk-averse and cautious approach should be

adopted under conditions of uncertainty;
- Consider time boundaries, including short to long-term implications of impacts for project life-cycle (i.e. pre-construction, construction, operation and decommissioning);
- Consider spatial boundaries, including:
  - Broad context of the proposed project (i.e. beyond the boundaries of the specific site);
  - Off-site impacts; and
  - Local, regional, national or global context.
- The provision of a statement of impact significance for each issue, which specifies whether or not a pre-determined threshold of significance (i.e. changes in effects to the environment, which would change a significance rating) has been exceeded, and whether or not the impact presents a potential fatal flaw or not. This statement of significance should be provided for anticipated project impacts both before and after application of impact management actions;
- Appraisal of alternatives (including the No-Go option) by identifying the Best Practicable Environmental Option (BPEO) with suitable justification;
- Present findings to the EAP project team, where key discussion points will include the evaluation of alternatives and recommended management measures;
- Information provided to the EAP needs to be signed off;
- The specialists must take into account the policy framework and legislation relevant to their particular studies; and
- Use the assessment criteria for impact assessment and assigning significance as provided by the Enviroworks.

The study approach utilised by CES is to meet the above objectives is detailed below.

1.3 Study Approach

This specialist economic assessment was mainly a desk top study that relied on existing primary data sources pertinent to the project and its study area (published policies, plans and frameworks for example developed by various tiers of government). This primary data was supplemented by secondary information sources such as existing literature on the study area and economy, specifically the economic sectors discussed in this report and subject to assessment. In addition to this desk top review of existing information, additional data on local property markets, tourism and agricultural activities was sourced from key local informants such as estate agents, tourism business owners and farmers. An attempt at ascertaining whether any existing, or proposed, mining operations could potentially straddle the corridor alternatives under assessment has also been made.

The methodology adopted for the assessment of the significance of anticipated economic impacts is the standard methodology applied by Enviroworks (refer to Appendix A).

1.4 Assumptions and Limitations

1.4.1 Assumptions

- All information sourced by CES from Eskom, Enviroworks and other open-source or third parties is true and correct.
- On the assumption that any potential project impacts on existing or potential mining

areas, involving physical resettlement or a significant amount of economic displacement or lead to significant impacts on tourism routes/operations and any associated heritage features are the most significant economic impacts relevant to this assessment. Accordingly, the powerline corridor alternatives (or sections of them) that potentially result in higher order impacts on these aspects were given a higher weighting by the authors during the significance rating process for the respective corridors.

1.4.2 Limitations

- This assessment is based on a desktop review of available information and the authors' prior knowledge of the study area. No on site verifications or information gathering was undertaken for this assessment, however, CES did rely on Enviroworks personnel to secure certain information during their field survey.
- There has been no financial modelling, or any other quantitative analysis exercises conducted for this assessment. Given the width of the corridors under assessment and a lack of detail on the final route alignment these kinds of studies would be both time consuming and expensive for a screening level assessment.
- Not all potential and existing mining rights or pending applications in this regard; that straddle the corridor alternatives under assessment have been identified by CES. This information was not freely available in shapefile (GIS) format from the Department of Mineral Resources (DMR) and those areas identified in this report cannot be considered as current or complete.
- The findings and conclusion drawn in this report are the normative judgments of the authors, as informed by similar projects and assessments of this nature.

1.5 Specialist Details

The following CES personnel were responsible for conducting this assessment: refer to Appendix D for their respective CV's.

Maura Talbot (Principal Consultant)

Maura is an experienced public facilitator, socio-economic and environmental consultant, researcher, and academic with over twenty years of experience working in South Africa and other African Countries. She has a Master of Arts Degree in Human Geography with distinction, and two BA Honours degrees, one in Human Geography and another in Economics. Her research has had a strong policy and applied character and covered the fields of land reform, history of land use change in rural areas, rural development, community based natural resources management, integrated conservation and development projects, parks and neighbours projects, afforestation and fisheries development projects, and environmental, climate change and water/catchment management policy. As a senior socio-economic and environmental consultant for EOH Coastal and Environmental Services (CES) and other clients for 20 years she worked on a number of assessment projects, including Strategic Environmental Assessments (SEAs) related to mining developments, conservation, forestry and municipal spatial planning; Environmental Impact Assessments (EIAs) for roads, mines, biofuel estates, golf courses, conservation, tourism, and residential developments, facilitated stakeholder engagement processes for various EIA and SEA projects; qualitative and quantitative socio-economic surveys and monitoring; Social Impact Assessments (SIA), Resettlement Action Plans (as per IFC guidelines) and Economic Impact Assessments. These were for projects in South Africa, Madagascar, Mozambique, Malawi, Sierra Leone and Egypt. More recently, Maura undertook policy related research around incentive schemes for the restoration of catchment areas in the Eastern Cape Province of SA. This work explored carbon

trading and water policies and the potential to use market mechanisms to facilitate social change. She also worked for five years as a lecturer in Environmental Science at Rhodes University and taught courses in Environmental Management, Socio-Ecological System Dynamics and Global Environmental Issues (including climate change science and policies).

Marc Hardy (Principal Consultant)

Marc holds a M. Phil (Environmental Management) from the Stellenbosch University's School of Public Management and Planning after completing his undergraduate degrees in development and environmental studies. He also holds an Institute of Environmental Management and Assessment (IEMA) certification in ISO 14001 Auditing. His professional interests include ESIA reporting for linear, energy and large infrastructure projects, strategic environmental reporting, Environmental and Social Due Diligence (ESDD) assessment for development financing institutions, social impact assessments (SIA) and resettlement planning, as well as environmental and social (E&S) performance monitoring. At CES, Marc has been responsible for the management of projects and specialist teams and support staff, the preparation and monitoring of project budgets in excess of $500 000, as well as being responsible for the management of the CES Maputo, Mozambique office. He manages the ESIA (and SIA) processes for large infrastructure, renewable energy, commercial agriculture and mining developments throughout Africa (mostly to World Bank and International Finance Corporation Performance Standards). He has also gained notable experience in the mining, agro-industry, forestry, biofuel and oil palm sectors in East and West Africa - in the ESIA, resettlement planning, ESDD and performance monitoring disciplines. During his professional career Marc has worked in Angola, Cameroon, Democratic Republic of Congo, Ghana, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mozambique, Namibia, Nigeria, Sierra Leone, Swaziland, Tanzania, Uganda, Zambia and South Africa. He recently completed an Environmental and Social Risk Management (ESRM) training programme in Johannesburg, South Africa that was coordinated by the IFC during 2018.

1.6 Report Structure

This report is structured as follows:

Chapter 1: provides the introduction to the project, assessment approach and methodology employed by CES, as well as a brief project description.

Chapter 2: details the policy and planning environment of the study area.

Chapter 3: provides and overview of the study area.

Chapter 4: describes the public consultation and stakeholder communications done by CES for this assessment.

Chapter 5: describes the key socio-economic issues and anticipated impacts relevant to the project.

Chapter 6: provides an impact assessment of the key issues and impacts identified by CES.

Chapter 7: provides a summary of the findings and a summary impact statement.

Chapter 8: concludes the report and puts forward recommendations to be considered by Eskom in the development and operation of the powerline and substation infrastructure.

1.7 PROJECT LOCATION AND DESCRIPTION

1.7.1 Locality

The proposed development area is located within the Namakwa District Municipality (NDM), Northern Cape Province. The NDM is one of the five (5) districts constituting the province. The Nama Khoi Local Municipality (NKLM) in which the proposed project falls is one of the six (6) Local Municipalities (LM) that comprise the NDM (Figure 1-1 below).

Figure 1-1: Location of the Nama Khoi Local Municipality (Source: NKLM SDF, 2014)

The capital city of the NDM is Springbok and the region is also known as Little Namaqualand.

1.7.2 Project Background Summary

The purpose of the CSIR SEA (2016) was to identify strategic Electricity Grid Infrastructure (EGI) Corridors to support electricity transmission up to 2040. The vision for the Strategic EGI was to expand in an environmentally responsible and efficient manner that effectively meets the country's economic and social development needs. The final EGI Power Corridors assessed as part of the 2016 SEA were gazetted for implementation on 16 February 2018 in Government Gazette 41445 (Government Notice R.113).

One of these corridors, was the Northern Corridor, a portion of which is the subject of this assessment.

1.7.3 Main Project Components

The main project components are as follows:

- Construction of a new 400 kV power line from Gromis substation (Kleinzee) via Nama substation (Springbok) towards Aggeneis substation in the Northern Cape Province; and
- The establishment of a 400/132 kV yard at Nama substation (Springbok).

The existing Nama substation is located immediately north of Springbok along the N7 national road to Steinkopf.

1.8 ALTERNATIVES

The purpose of the current Screening Assessment is to evaluate alternative routes within the Northern Corridor (Figures 1-2 and 1-3). As part of the Screening Assessment, a group of specialists evaluated the alternative routes according to potential sensitive environmental, social and economic issues. Initially there were five (5) route alternatives proposed by Eskom as informed by the CSIR SEA. Subsequent to the site inspection by Enviroworks and the specialist team, and after the review of their initial findings, two (2) of the proposed alternative corridors were discarded. Accordingly, only three (3) corridor alternatives were assessed in this report (see Figures 1-2 and 1-3), namely:

- Alternative 1
- Alternative 4
- Alternative 5

The findings of all the specialist studies will be integrated to make an informed decision on the best route alternative for the proposed powerline that will be subject to the forthcoming BAR process.

1.9 NEED FOR THE PROJECT

The EGI is required to provide grid access to electricity producers, in order to be able to distribute the electricity they generate to users. IPP's have rapidly become key electricity producers nationally – and within the study area specifically - and this has increased the demand for grid access and hence the need to construct more EGI.

The study area has been designated as a Renewable Energy Development Zone (REDZ) by government, with numerous wind and solar energy projects either in the planning, construction or operational phases currently.

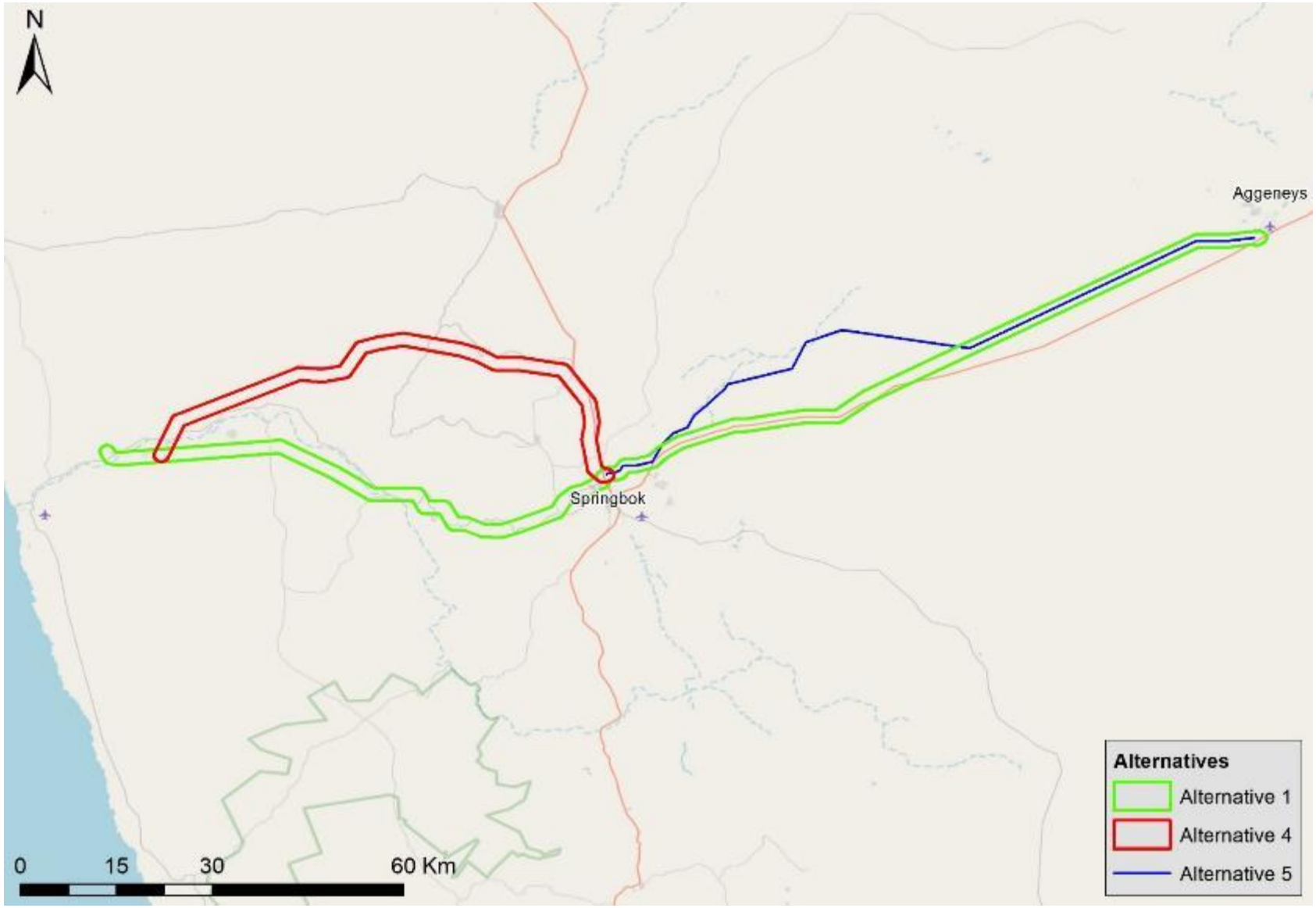


Figure 1-2: The powerline corridor alternatives subject to the screening assessment

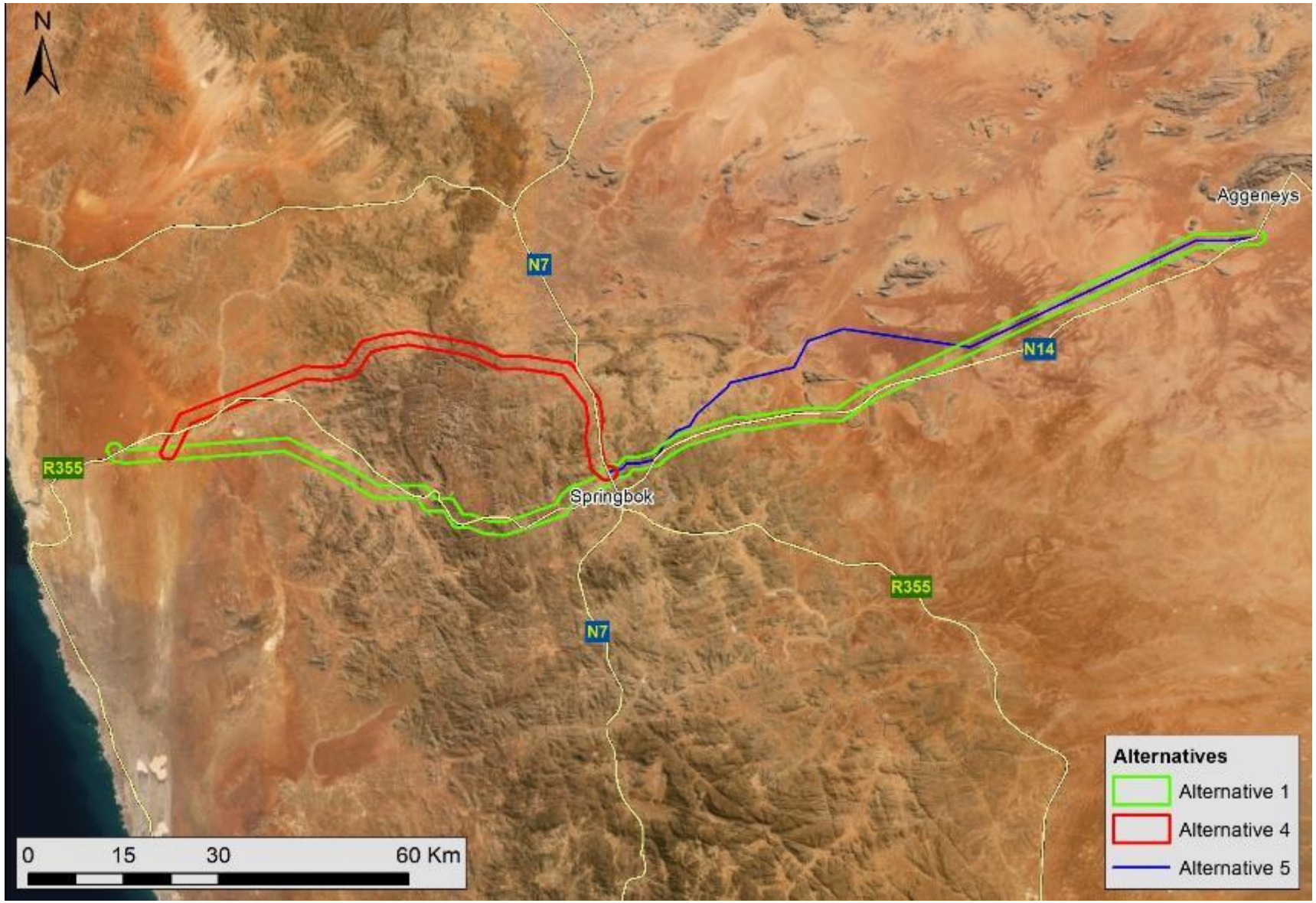


Figure 1-3: Areal imagery of the powerline corridor alternatives

2 POLICY AND PLANNING ENVIRONMENT

2.1 INTRODUCTION

The following key documents and plans are applicable to the study area:

- Northern Cape Provincial Growth and Development Plan (PGDP) 2019
- Northern Cape Provincial Spatial Development Framework (PSDF) 2019
- Namakwa District Municipality Integrated Development Plan Revision 2017 - 2022
- Nama Khoi Local Municipality SDF 2014
- Nama Khoi Local Municipality Draft Integrated Development Plan 2018/2019.

These are the strategic frameworks and planning documents that guide spatial and economic development at both the district and local municipalities. They are summarised in the sections that follow.

2.2 SUMMARY OF REVIEWED DOCUMENTS

2.2.1 Northern Cape Provincial Growth and Development Plan (PGDP)

As noted in the PGDP, its purpose is to provide the strategic framework and sectoral strategies that will place the province and its people on a trajectory of growth and prosperity. It addresses issues of economic growth, social development, environmental protection, employment creation, poverty eradication and good governance. It intends to provide the strategic framework, sectoral strategies and programmes aimed at a rapid improvement in the quality of life for the poorest people of the Province.

The plan sets out quantified and sequenced targets in the areas of economic growth, employment creation, poverty eradication and income redistribution until 2040. It recognises the fact that inherent spatial and historical disparities lead to the unequal distribution of wealth and social amenities, as well as environmental vulnerability. It emphasises the need to create economic opportunities for the marginalised; the rural, the poor, women and the youth.

The PGDP should therefore be viewed in concurrence with the PSDF, not only for socio-economic development, but also in terms of the spatial dimension, ensuring spatial development occurs within a focused and coordinated framework. Therefore, the interventions and the projects detailed in the PGDP must be undertaken within the context of the PSDF to find feasible solutions to ensure increased spatial and subsequent economic equity.

2.2.2 Northern Cape Provincial Spatial Development Framework (PSDF)

The PSDF expresses the core values, principles and strategies in terms of which the above described challenges will be addressed in the long-term. The PSDF is effectively a spatial expression of the wishes and aspirations of the people of the Northern Cape as presented through the development drivers of the PGDP. Approval of the PSDF in terms of Sections 15 and 16 of the Spatial Planning and Land Use Management Act (or SPLUMA) and Regulations (Act 16 of 2013) means that the PSDF has statutory status as the common spatial vision and

strategy around which to align the future development and management of the province. Compliance with the PSDF in this regard is therefore mandatory. Accordingly, the PSDF serves as a mechanism towards enhancing the future of the province and its people by ensuring that:

- *All land-uses enable people to have sustainable livelihoods and enhance the integrity of the environment; through effective resource management;*
- *Innovative management skills and technologies are employed to bring human demands for resources into balance with the carrying capacity of the environment. In this regard the PSDF is premised on the principle that shared resources can only be sustainable if the ethic of environmental care applies at all the applicable levels, ranging from the international to the local; and*
- *To capitalise on the comparative and competitive advantages, in a sustainable manner, which the Northern Cape holds over its bordering provinces and the neighbouring countries abutting the Northern Cape.*

This means that organs of state and officials must take account of, and apply relevant provisions of the PSDF, when making decisions that affect the use of land within the province.

2.2.3 Namakwa District Municipality IDP Revision 2017 - 2022

The NDM IDP (2016) is in its third year of implementation and has the following development planning objectives for the district:

- *Effective use of scarce resources;*
- *Attract funding from external sources;*
- *Strengthen democracy through the active participation of all stakeholders;*
- *Contribute to overcoming past spatial inefficiencies, integrating rural and urban areas and to extend services wider; and*
- *promotes co-ordination between the three spheres of government and seeks to focus and speed up service delivery.*

Challenges to inclusive economic development within the NDM IDP are noted as being:

- *Economic and fiscal constraints (low growth in equitable share);*
- *Rising unemployment and increasing inequality; (Closure of mining houses, middle class and poor);*
- *Growing consumer indebtedness and inability to pay for services; growing indigency and Free Basic Services Bill (Some municipalities are averaging in excess of 80% e.g. Kamiesberg and Khaima);*
- *Increasing debt owed to and by municipalities; (Eskom and Sedibeng, government, business and residents);*
- *Low revenue base for municipalities and increasing demand for maintenance (old infrastructure – mining towns);*
- *Climate change – drought, heat waves and shortages of water; and*
- *Energy pressures and bulk provision demands (paying constantly penalties to Eskom for exceeding demand).*

The NKLM SDF discussed below, further details the strategic objectives and various sectoral plans for the district. Those of relevance to the project are further discussed in Chapters 3 and 5 respectively

2.2.4 Nama Khoi Local Municipality SDF 2014

The NKLM SDF (2014) notes *"...a Spatial Development Framework is a core component of a Municipality's economic, sectoral, spatial, social, institutional, environmental vision. It is therefore considered as a strategic tool to achieve the desired spatial form and development of the Municipality and should provide strategic direction for future public and private investment in the local municipal area. The SDF is therefore a long-term development path that addresses past imbalances, securing ecological preservation, social justice and economic efficiency to ultimately ensure the sustainable development of settlement areas"*.

The SDF therefore reflects the desired land use patterns in terms of transportation routes, future development areas, areas where infrastructure investment is required and priority areas for conservation etc. The NKLM SDF forms *"…part of a 'package of plans' with a common vision of sustainability and based on the principle that the Northern Cape should be managed as an integral part of South Africa and the global biosphere in terms of a holistic integrated structure of plans. The National Spatial Planning Perspectives is considered to be the highest order of such package of plans, followed by the Provincial SDFs, the District SDFs and Local Municipal SDFs".*

The NKLM SDF has highlighted the renewable energy sector as a key economic driver for the area going forward, as has been identified in the PSDF/PGDP and NDM IDP. These and other proposed development "corridors" are reflected in Figure 2-1 below. Of specific relevance to the tourism sector in the NKLM, the SDF identifies the following priorities:

- *To protect the unique and threatened Strandveld Coastal Zone by the eradication of alien vegetation along the coastal region of the municipality, and also by protecting these sensitive areas from development as far as possible.*
- *To rehabilitate the coastline areas at Kleinzee which have been severely transformed as a result of the alluvial diamond mining activities undertaken by De Beers Namakwaland. Where private sector initiatives are presented to do rehabilitation through specific projects, such as the initiative in Kleinzee to cultivate plants on the dunes for biodiesel such projects should be seriously considered and supported, subject to the necessary impact studies.*
- *To develop specific guidelines for development, farming and tourism activities (including four-by-four routes) along the coastline to ensure the conservation of this sensitive zone (coastal dunes).*

The above is discussed in more detail in Chapter 3.

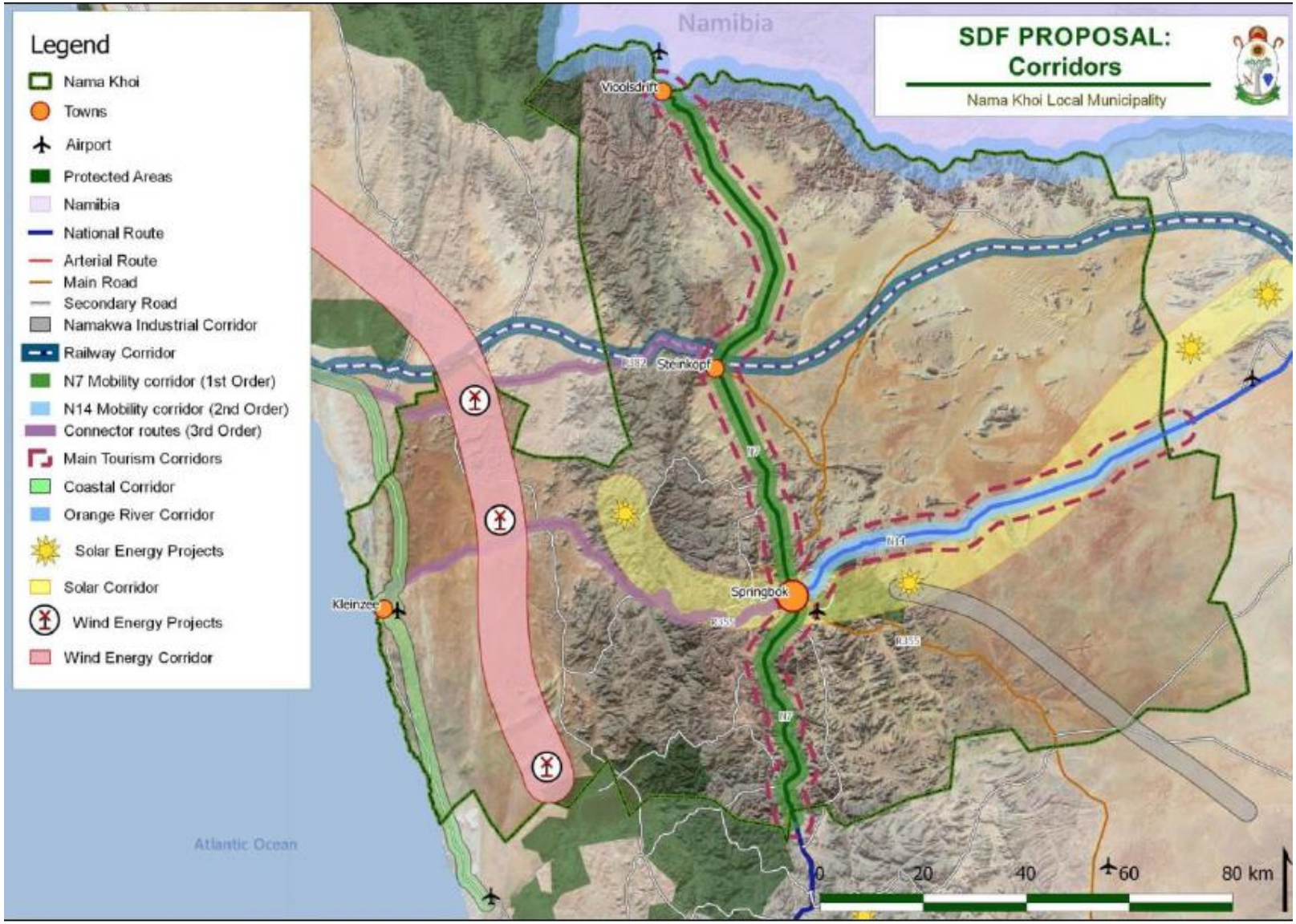


Figure 2-1: Nama Khoi Local Municipality Development Corridors (Source: NKLM SDF, 2014)

2.2.5 Nama Khoi Local Municipality Draft IDP 2018/2019

The NKLM IDP (2017) is the over-arching strategic plan for the municipal area. The plan attempts to guide development within the area in order to achieve sustainable development. It looks at existing conditions and facilities, at the problems and needs and finally at the resources available for development. There are six main reasons why a municipality should have an IDP. These are to (*ibid*):

- *Make good use of scarce resources;*
- *Help speed up delivery of services to poor areas;*
- *Attract additional funds (government departments and private investors are more willing to invest their money where municipalities have an IDP);*
- *Strengthen democracy;*
- *Overcome the inequalities and discrimination of the apartheid system; and*
- *Promote coordination between local, provincial and national government*.

The IDP relies heavily on the NKLM SDF for direction and the subsequent determination of the five (5) Spatial Objectives contained in the IDP, namely (*ibid*):

- *Spatial Objective 1: To improve connectivity and linkages to the region as a whole and to specific areas of economic importance, in order to promote accessibility to opportunities and services;*
- *Spatial Objective 2: To develop sustainable human settlements in contained and functional growth areas, with a clear hierarchy of nodes;*
- *Spatial Objective 3: To develop sustainable and diverse local economies by the utilisation of opportunities in the different spatial categories;*
- *Spatial Objective 4: To protect the pristine and unique natural environment with its four distinct bio-geographical regions by means of effective management and managed use; and*
- *Spatial Objective 5: To address social decay in the urban areas by providing adequate and sufficient infrastructure, buildings and community services, efficient public administration, and appropriate education and skills development.*

The IDP further defines the development framework and objectives for the NKLM's constituents' towns and settlements. A more detailed discussion on the above implications for the powerline project, and the project's implications for the above defined objectives, is presented in Chapters 3 and 5 respectively.

3 OVERVIEW OF THE STUDY AREA

3.1 PROVINCIAL OVERVIEW

The Northern Cape is South Africa's largest province and is located on the western side of the country. The study area consists of five (5) District Municipalities, namely John Taolo Gaetsewe District Municipality, Namakwa District Municipality, Pixley Ka Seme District Municipality, Siyanda District Municipality and Frances Baard District Municipality. The PGDP (2019) notes that *"The province is unique in several aspects, both domestically and globally. Some of the competitive and comparative advantages of the province include its abundance of primary agricultural and mineral resources, a well-maintained transport network, some of the highest solar radiation levels in the world, well-established government and public administration systems, as well as beautiful coast and arid landscapes that are paired with world-class tourism facilities. From a natural resource perspective, the province is among the most abundant in terms of its mineral resources while making a significant contribution to South Africa's agricultural output."*

The Northern Cape agricultural sector is one of the key sectors that drive the economy of the province, however, the provincial government notes that *"… for the province to have a productive, sustainable, and healthy agricultural sector it needs to contribute to job creation, social welfare, as well as ensure sustainability of natural resources*" (PGDP, 2019). Large parts of the province - including the project study area - are dry or arid leaving it largely unsuitable for agriculture without the use of irrigation. Despite this limitation the sector is a significant contributor to provincial Gross Domestic Product (GDP).

Mining has historically played an important role in the province and will continue to do so in the foreseeable future. The provincial contribution to national mining output has, however, displayed a downward trend over the 2007 - 2016 period (*ibid*). The provincial resource profile includes:

- 13% of global lead exports, 80% of global manganese resources, 43% of national zinc production and 18% of national copper production.
- Oil and gas potential.
- Limestone, lead, uranium, nickel and other metal and mineral deposits of varying quantities and grades.
- An array of semi-precious stones including Tigers Eye (which is largely unique to the province and represents significant opportunities for processing.

The Northern Cape holds the following key tourism offerings (*ibid*):

- Two world heritage sites (declared by UNESCO) – Richtersveld & Khomani Cultural Landscape.
- Six national parks including two Transfrontier national parks – Ai/Ais-Richtersveld and Kgalagadi.
- Six provincial nature reserves.
- Three desert-like landscapes (arid areas) – Kalahari, Richtersveld & Karoo.
- Two largest rivers in South Africa – the Vaal River and Orange River.

- The second largest dam in South Africa - Vanderkloof Dam.
- Fantastic star-gazing opportunities.
- An array of unique cultural identities including three groups of San (Khomani, !Xu and Khwe), Griqua and Nama.
- The Namaqualand flower and other botanical treasures
- The cradle and heritage of the world's diamond mining industry (Kimberley, Coastal Zone)
- Nine active tourist routes.
- More than sixty-five signature events including extreme sports.

The ten (10) most visited tourist attractions in the province are indicted in the figure below.

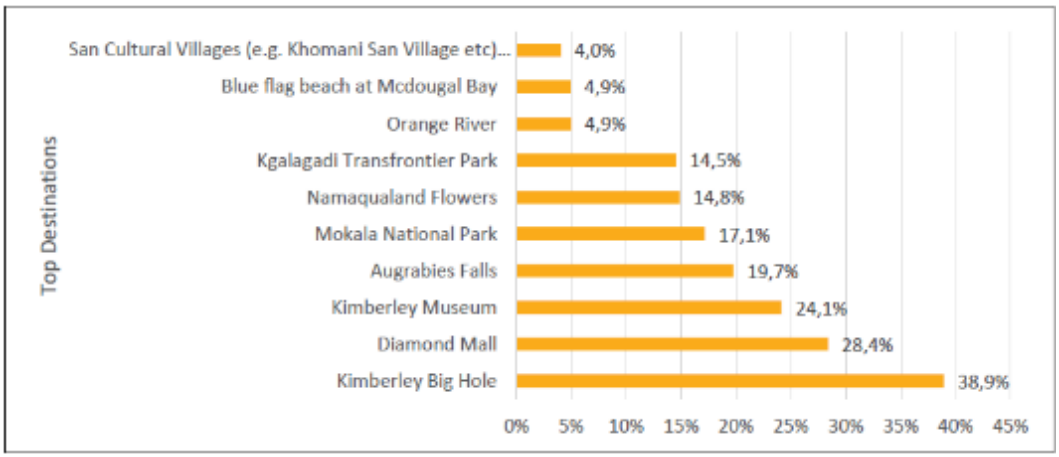


Figure 3-1: Top 10 Tourist Attractions in the Northern Cape (Source: PGDP, 2019)

Despite the above, the Northern Cape is reported to attract the least number of foreign arrivals when compared to other provinces within the country (*ibid*). The number of domestic or local trips taken to the province increased from 275 000 in 2015 to reach a high of 992 000 in 2017, with most other provinces experiencing a decrease over the same period (*ibid*).

The province's comparative advantage in energy resources, lies in the renewable energy sectors - specifically solar and wind. The abundance of these renewable energy sources, coupled with the province's large surface area, sparsely populated tracks of land, and limited agricultural potential makes it particularly suitable for electrical power generation from solar (PGDP, 2019). Aside from the coastal areas already targeted by IPP's, the province also holds high wind energy potential inland, with the southern escarpments of both the Namakwa and Pixley ka Seme DM's in particular are deemed attractive from a wind energy perspective (*ibid*).

The province's electrical power is supplied by radial lines which are associated with low development costs and are therefore widely used in sparsely populated areas. However, any short-circuit, power failure, or downed power lines. result in the interruption of the entire line, with the network also having limited spare capacity for additional connections (*ibid*). In order to inform and expedite investment in future grid infrastructure development by Eskom, as well as to streamline approvals, licensing, and permitting, five (5) Strategic Transmission Corridors were developed and gazetted together with the REDZ (*ibid*). The province is traversed by the Northern and Western Corridors, which also coincide with the location of two (2) REDZ as indicated in the figure below.

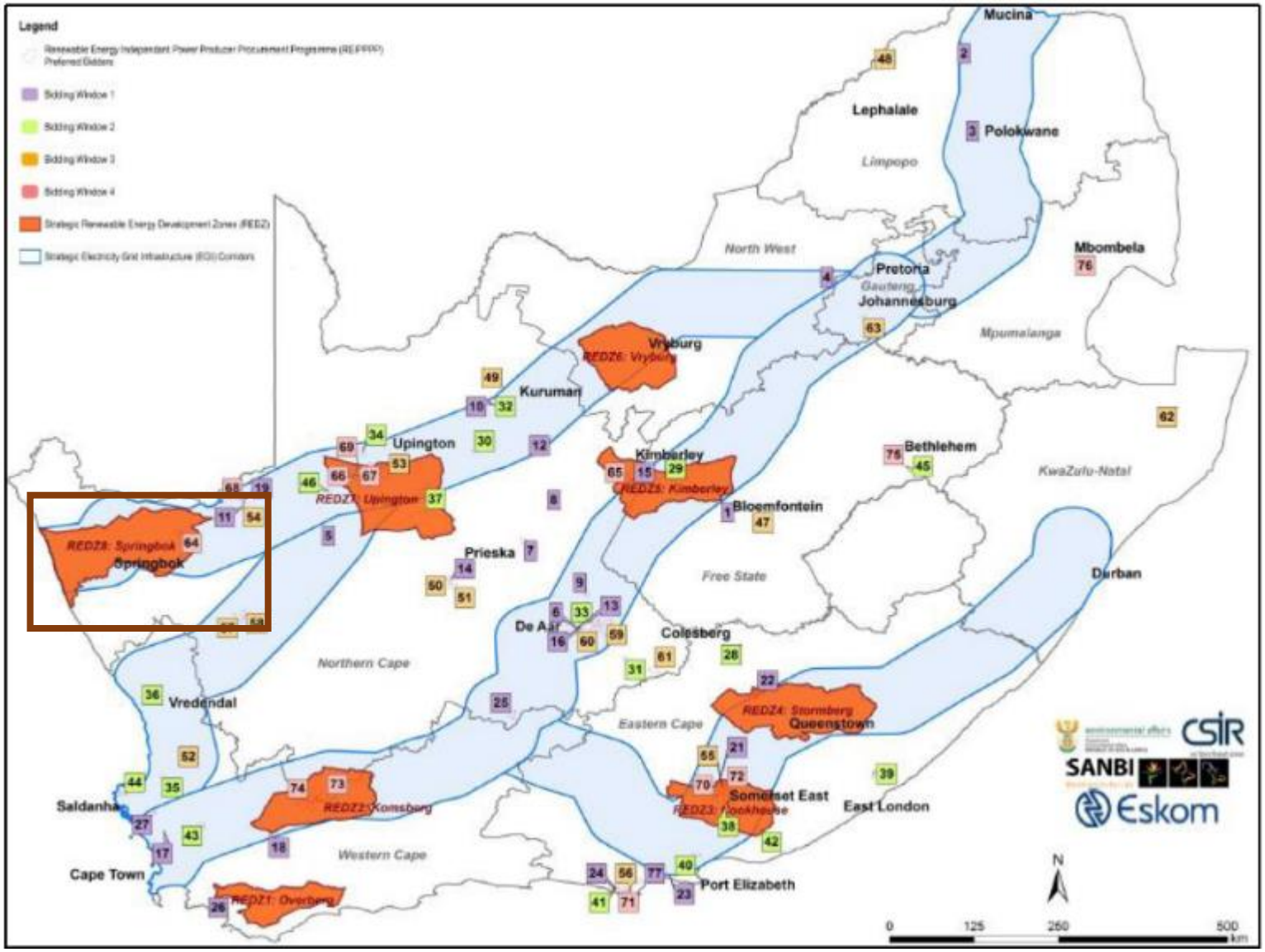


Figure 3-2: EGI Corridor (Northern) and REDZ (red rectangle) applicable to the study area (Source: CSIR, 2016)

In terms of manufacturing, the PGDP (2019) indicates that the manufacturing industry in the province has seen low growth between 2008 and 2016, at 0.7% per annum over that period. As indicated in the figure below, the largest contributor of real Gross Value Added (GVA) to the industry was the food, beverages and tobacco sub-sector, which contributed about 31.9% (R642 million) to the industry in 2016, followed by the metals, metal products, machinery and equipment sub-sector, which contributed about 17% (R343 million).

MANUFACTURING SUB-SECTORS	2008	2016	GROWTH P.A.
Food, beverages and tobacco [QSIC 30]	617	642	0,67%
Textiles, clothing and leather goods [QSIC 31]	24	31	4,90%
Wood and paper; publishing and printing [QSIC 32]	66	73	1,88%
Petroleum products, chemicals, rubber and plastic [QSIC 33]	191	260	5,24%
Other non-metal mineral products [QSIC 34]	295	275	-1,15%
Metals, metal products, machinery and equipment [QSIC 35]	392	343	-2,22%
Electrical machinery and apparatus [QSIC 36]	12	19	8,22%
Radio, TV, instruments, watches and clocks [QSIC 37]	9	15	8,30%
Transport equipment [QSIC 38]	52	58	1,90%
Furniture; other manufacturing [QSIC 39]	247	298	3,17%

Figure 3-3: Provincial manufacturing sector growth 2008 - 2016 (Source: PGDP, 2018)

The sub-sector with the highest growth in the industry was the radio, tv, instruments, watches and clocks sub-sector, which had a significant growth of 8.30% per annum between 2008 and 2016, even though it only contributed 0.75% to the manufacturing industry in 2016 (*ibid*).

The province was a net importer with respect to manufactured goods for several years between 2008 and 2016. However, export levels have improved significantly over the period with a growth rate of 32.42% per annum from 2008 to 2016. The province was a net exporter in 2015 and 2016, which indicates that production and exportation of goods in the manufacturing industry improved significantly over the period (*ibid*).

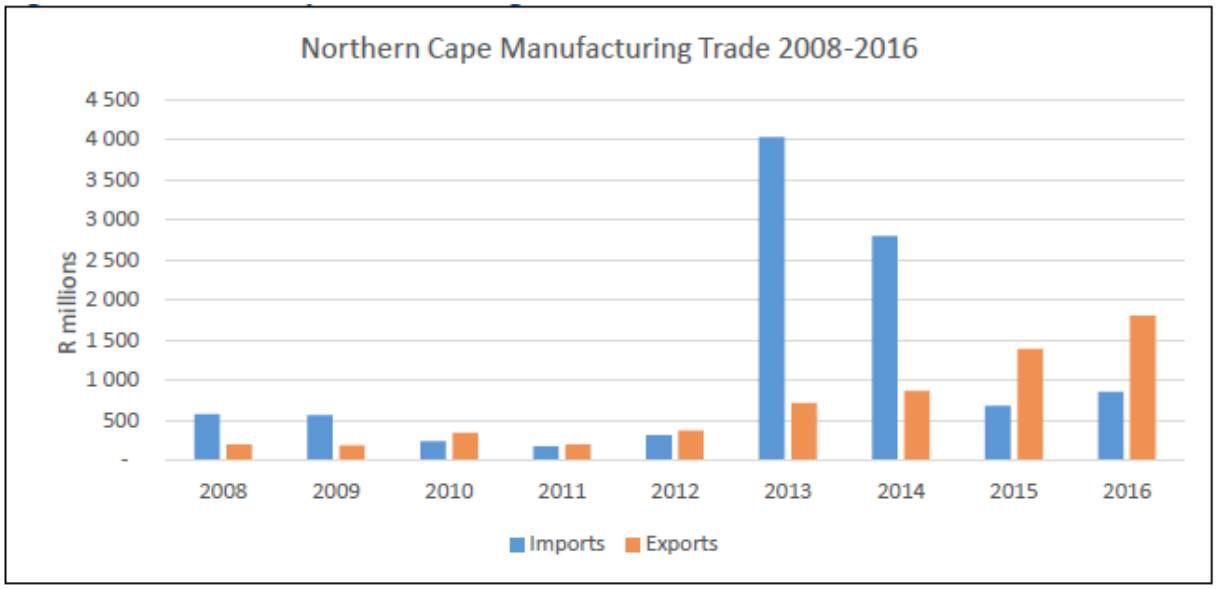


Figure 3-4: Provincial trade imports and exports 2008 - 2016 (Source: PGDP, 2018)

Imports in the manufacturing industry in province tend to feature, inter alia, high levels for the metals, metal products, machinery and equipment sub-sector, as well as the petroleum products, chemicals, rubber and plastic sub-sector. These sub-sectors were the largest

contributors to high import levels in 2013 and 2014. Import levels in these sub-sectors had decreased considerably in 2015 and 2016 (*ibid*).

The manufacturing sub-sectors that tends to dominate provincial exports are the food, beverages and tobacco sub-sector, followed by the metals, metal products, machinery and equipment sub-sector and the transport equipment sub-sector. The export levels of the food, beverages and tobacco sub-sector increased from about R 160 million in 2008 to over R1 billion in 2016 with a 26.51% annual growth rate over this period (*ibid*).

The PGDP (2019) notes that the marine economy represents a largely untapped development opportunity for the province. Government's main support initiative has been Operation Phakisa, which has designated the following sectors as potential economic and development drivers:

- Marine transport
- Offshore oil and gas exploration
- Aquaculture
- Small harbours & coastal development
- Marine protection services & governance
- Coastal and Marine tourism

Further discussion on the above is provided in the municipal level overview sections below.

3.2 MUNICIPAL LEVEL OVERVIEW

3.2.1 Namakwa District Municipality (NDM)

The study area is located within the Nama Khoi Local Municipality (NKLM) which falls under the Namakwa District Municipality (NDM). The NDM is an arid region receiving some of the lowest average rainfall per annum in the country, with water scarcity and soil salinity representing the main challenges to the agricultural sector in the NDM. Most of the high-value crops in the district are irrigated with water from the Orange River. Groundwater is also widely used for agricultural, municipal and industrial land use (NDM, 2017).

The Namakwa District can be divided into a few agricultural types. Isolated cultivated land is located along the Orange River with reference to Henkries, Onseekpans, Coboop and Pella were dates and a verity of fruits are produced. Most parts of the southern and eastern areas focuses on sheep and wool farming. The main agricultural commodities produced in the NDM include small stock, lucerne, vegetables, and grapes (PGDP, 2019). Sheep farming is practised on a small scale in NDM from which wool and mutton products are produced. Opportunities for agro-processing have been identified in the form of high-value aquaculture (such as abalone) by the Northern Cape government (*ibid*). The agricultural sector is one of the most important sub-sectors in the District and the second largest employer (NDM, 2017). of labour.

Operation Phakisa has identified three (3) harbours in the NDM that require investment and upgrading to stimulate the small harbours and marine transport sectors, namely: Port Nolloth, Boegoe Bay and Hondeklip Bay (*ibid*).

Springbok and its surrounds have a long history of copper mining, specifically Okiep and Concordia, but more recently in more significant deposits in the Aggeneys area. Additional minerals mined at the Aggeneys deposits include zinc, lead and silver in the Gamsberg inselberg area that is a significant and high quality deposit mined by Black Mountain Mining (a subsidiary of Vedanta Zinc International). It is anticipated that more high quality deposits that are yet to be proven exist in the surrounding area. Granite quarrying also occurs in the Concordia area. The Richtersveld LM is the location of the majority of diamond production in the district. The mining industry in the district is, however, dominated the NKLM, which accounted for 58.1% of the industry in 2014. All the local municipalities recorded negative growth in mining output in 2014 (NDM, 2017).

The NKLM continues to be the largest contributor to the district economy overall, contributing 44.1% in 2004 and 35.8% in 2014 (*ibid*). The NKLM, along with the Hantam LM, are dominant in the manufacturing, together accounting for more than 60% of the total manufacturing output (*ibid*). The NDM has an undiversified economy with heavy reliance on the primary sectors of mining for sectoral contribution and GGP and both mining and agriculture to employment. The key strengths of the NDM's economy are agriculture, hunting and fishing followed by mining and quarrying.

The Namakwa District Municipality is geographically the largest district in the country (NDM, 2017). The natural landscape ranges from an untapped coastal strip in the west to semidesert areas in the north-east; and the open fields of the Boesmanland span the east. Tourism in the district is strengthened by several government owned projects, such as the Namakwa National Park; the Richtersveld National Park and the Tankwa Karoo National Park (*ibid*). The NDM hosts two (2) well known nature conservation areas of high tourism value, namely the Goegap Nature Reserve and Namaqua National Park as indicated in Figure 3-5 below.

Only the Goegap Nature Reserve is of relevance to this assessment. Tourism development opportunities that can be linked to the diamond coast include (PGDP, 2019):

- Namakwa Flower Season
- Hiking and 4x4 trail
- Nomadic Nama culture
- Diamond Mining Tours
- Shipwreck Trails
- Orange River Mouth
- Cape Fur Seal Tours
- Angling (Rock Lobster Recreational Fishing in Port Nolloth)
- Namaqua Coastal Route
- Richtersveld Route
- Cape-Namibia Route
- Historical Walking Trail in Sutherland and Fraserberg
- Namaqua 4x4 Trail
- Namaqua Bike Camino
- Star Gazing

The Namaqua Coastal Route initiative is applicable to the study area and is discussed in more detail in Section 3.2.2 that follows.

Figure 3-5: Location of National Parks and Provincial Reserves within the NDM (Source: https://www.roomsforafrica.com)

The tourism contribution profile has changed remarkably over the review period. In 2004, 42.6% of tourism bed nights were in NKLM, while Karoo Hoogland LM and Hantam LM accounted for 21.6% and 12.3% respectively. The NKLM and Karoo Hoogland LM have gradually lost their dominance over time to the Hantam LM which has increased its contribution from 12.3% in 2004 to 50.3% in 2013. The NKLM's share has declined by more than 20% over the same period (NDM, 2017).

3.2.2 Nama Khoi Local Municipality (NKLM)

The municipality includes the communities of Springbok, Steinkopf, Okiep, Rooiwinkel, Concordia, Komaggas, Buffelsrivier, Nababeep, Bulletrap, Vioolsdrift, Goodhouse, Kleinzee and Carolusberg. It is noted in the NKLM Integrated Development Plan (IDP, 2018) that the District population is growing at a diminishing rate (1.2% in 2004 and 0.2% in 2014). This decrease in population growth is a result if a number of factors which include an increase in the death rate, a decrease in childbirth and the migration of people out of the NDM. The NKLM

has experienced an even sharper decline - from 1.5% to 0% over the same period. It is predominantly rural in nature, and faces several serious challenges (NKLM, 2014):

- A low level of economic growth;
- A lack of economic diversification
- A dual economy and associated economic, social and spatial inequalities inherited from the colonial and apartheid pasts;
- High unemployment, especially amongst the youth; and
- Poverty (the socio-economic and income profile of the area suggests that poverty is widespread throughout the municipal area, with relatively low weighted average household income patterns (NDM SDF, 2014).

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Agriculture is limited in the NKLM owing to it being an arid region with low rainfall. The dominant activities are livestock rearing (sheep and goats) of which 57.3% of households engaging in agriculture activities practice, followed by poultry production (22.9%) and 8.7% growing vegetables (http://www.statssa.gov.za).

As stated previously, there is a concentration of minerals around the Springbok area, as well as in a broad band along the south of the Orange River. As per the figure below, the Gross Value Added (GVA) per capita for the NKLM is some of the highest for the province.

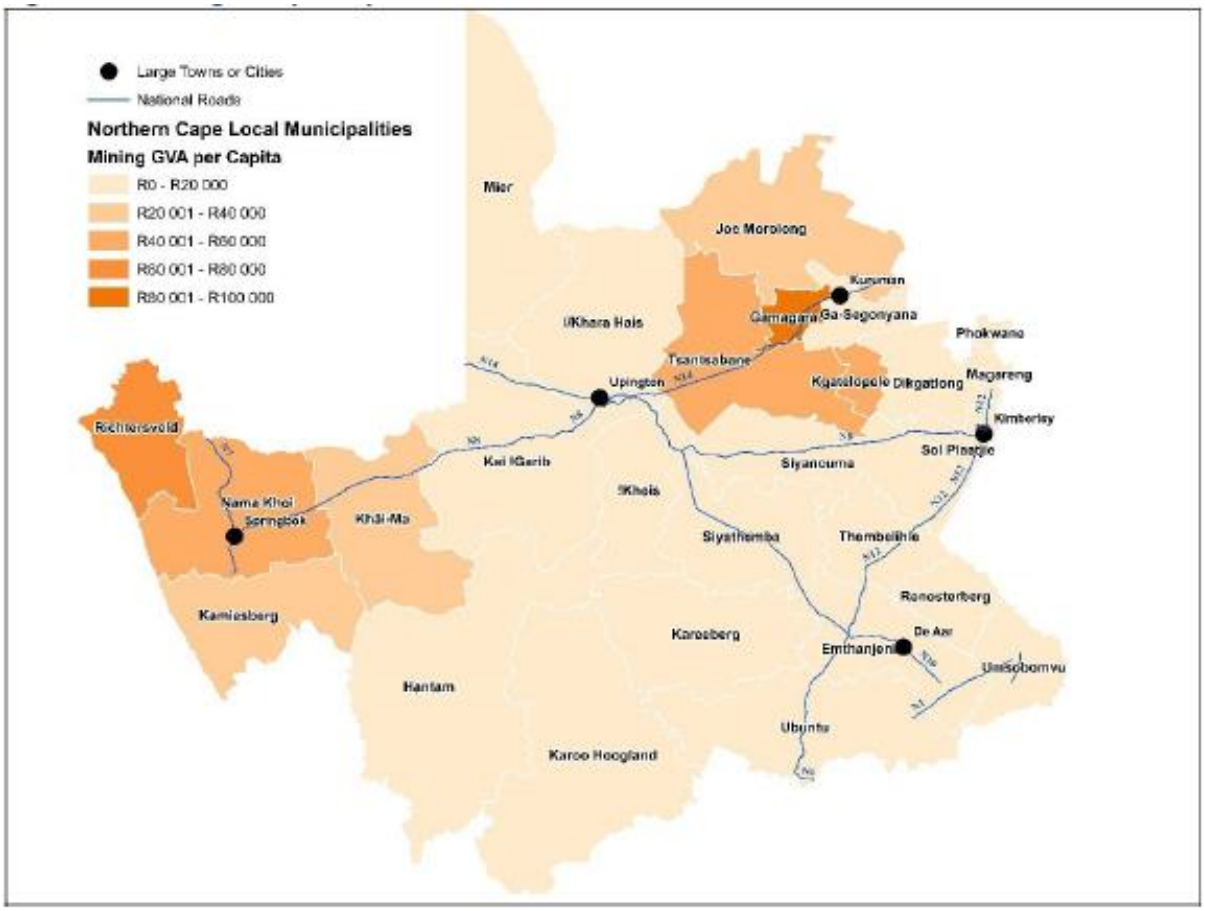

Figure 3-6: Mining Gross Value Added per Capita by Local Municipality (Source: PGDP, 2019)

Although many of these sources have been depleted, there are still plenty occurrences that can be exploited, and this should be considered for small scale mining (NKLM SDF, 2014). However, the mining industry appears to be in decline locally. Despite this the NKLM economy remains heavily reliant on mining as a contributor to local GDP.

The NKLM and Hantam LM are dominate the manufacturing sector, together accounting for more than 60 % of the total manufacturing output (NDM, 2017 – refer to Figure 3-7).

The NKLM, Karoo Hoogland LM and Hantam LM were the biggest contributors to the economy, together accounting for 76.2 % of economic activity in 2014 (*ibid*).

Unsurprisingly, the mining sector is the most significant employer in the NKLM (30% of the workforce), followed by community services (government employees) at approximately 21%.

The trade, finance, agriculture and construction sectors are the next most significant employers of NKLM residents.

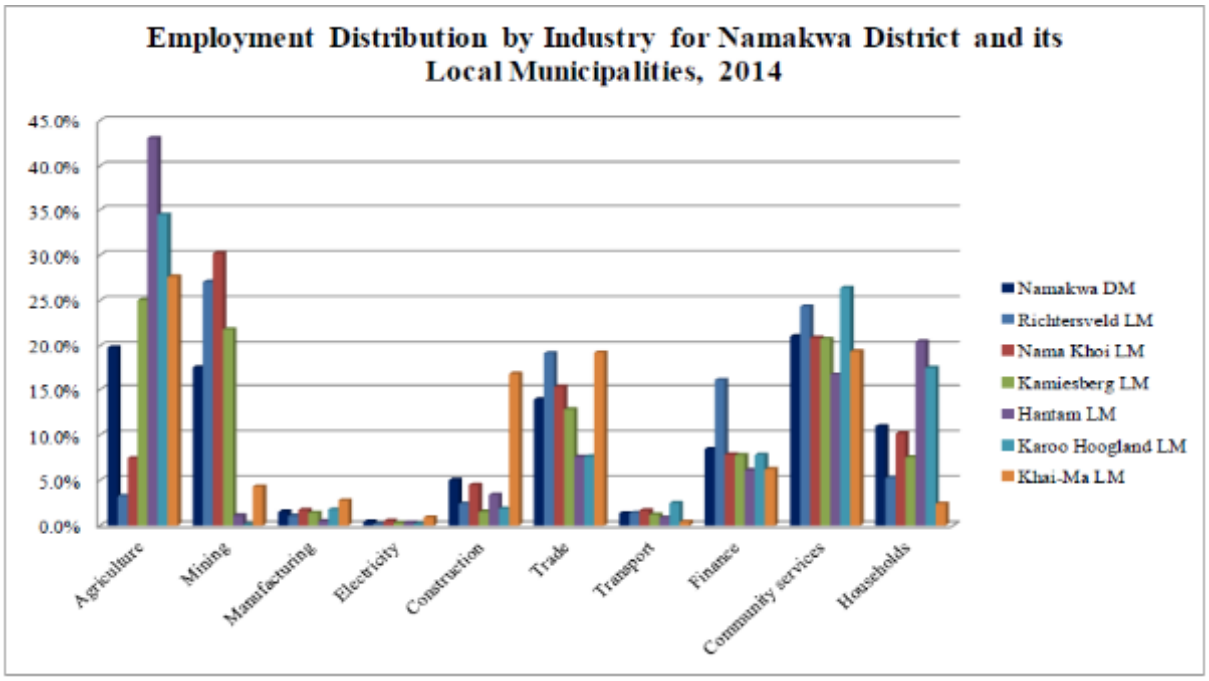

Figure 3-7: Employment Distribution by Industry (Source: NKLM, 2018)

Approximately 66% of mining sector jobs in the NDM are located within the NKLM as reflected in the Figure 3-8 below. It is also observed that its residents are the largest proportion of employees within the other economic sectors with the exception of agriculture. Overall, the NKLM is home to 38% of the NDM's workforce and 36% of the District's households.

It is anticipated that the electricity (or energy) sector will be a substantially greater contributor to employment and local GDP going forward with many pending and planned projects already located within the wind and solar energy development corridors identified in the respective planning documents reviewed for this assessment. It can be also be expected that these energy projects and investments will offset the downturn in mining activity as a contributor to the NKLM GDP over the past decade. It is also likely to substantially boost formal employment opportunities within the municipality, particularly the towns surrounding Springbok (Bulletrap,

Buffelsrivier, Nigramoep etc.) that are economically margnilised and offer little in the way of formal work opportunities.

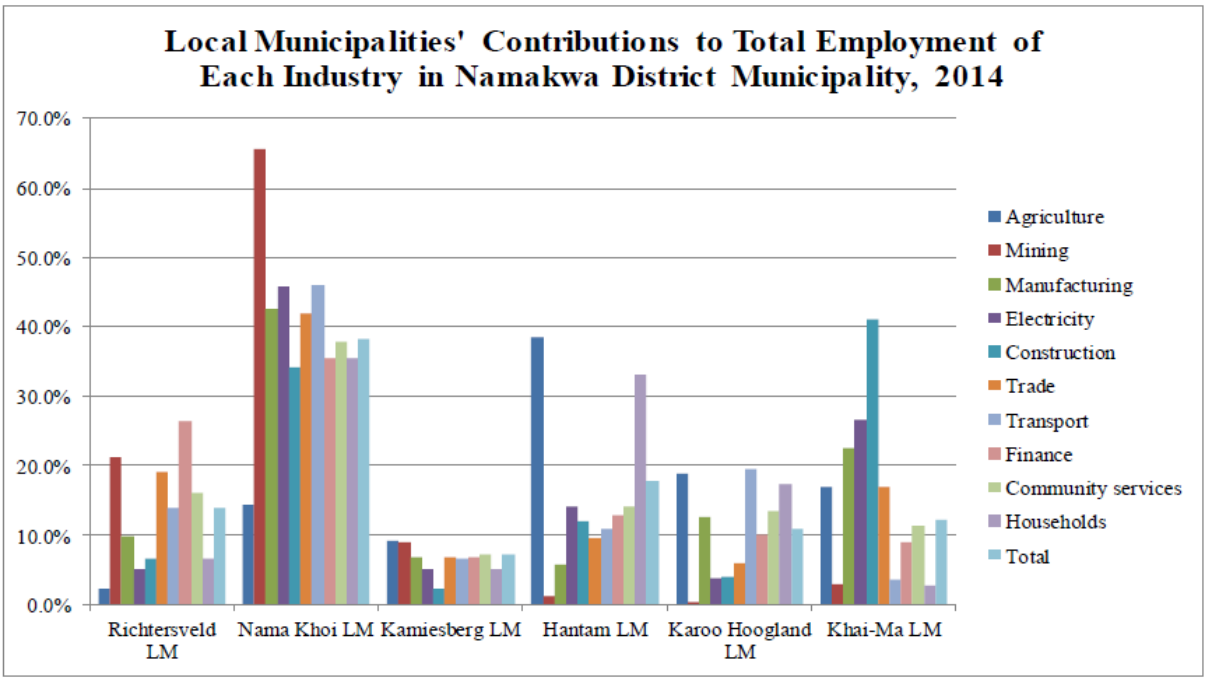

Figure 3-8: Local Municipalities Contributions to Total Employment by Sector (Source: NKLM, 2018)

Figures 3-9 and 3-10 indicate that the NDM's GDP growth rate has been minimal, with majority of the LM's experiencing negative growth - as mentioned previously the NKLM experienced a -3.5% reduction over a decade. The downturn in local GDP contributions is a result of a decrease in mining activity and/or production in the NKLM over the 2004 - 2014 period.

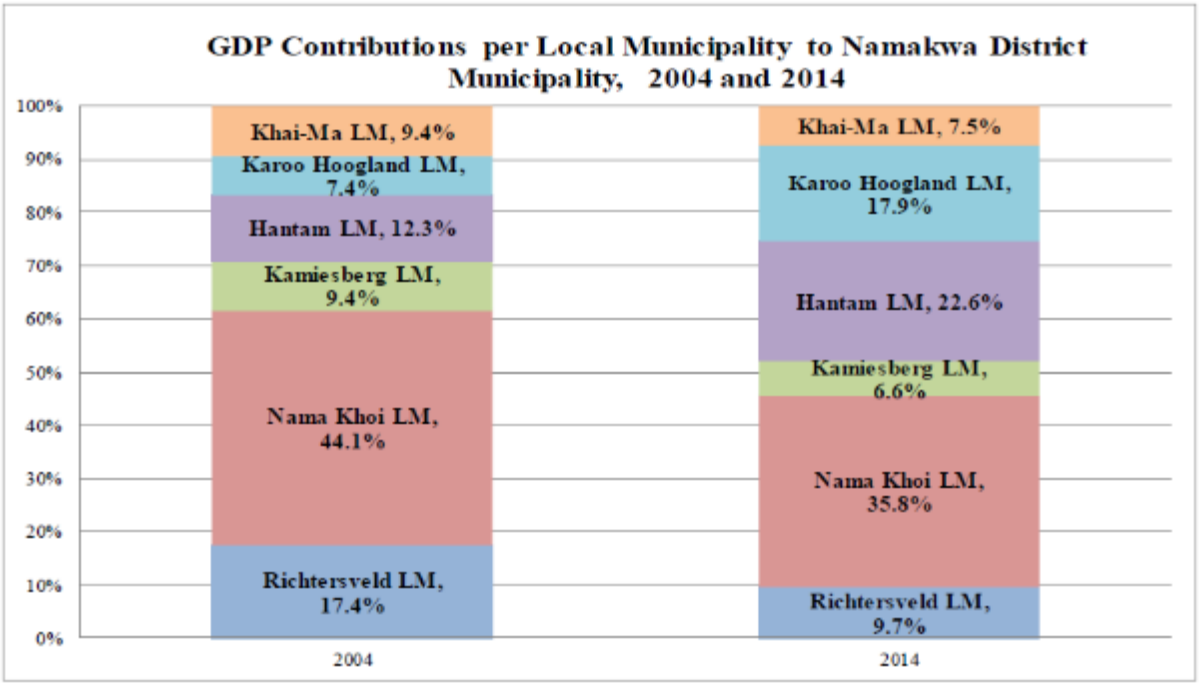

Figure 3-9: Average GDP Contribution by Local Municipality 2004-2014 (Source: NKLM, 2018)

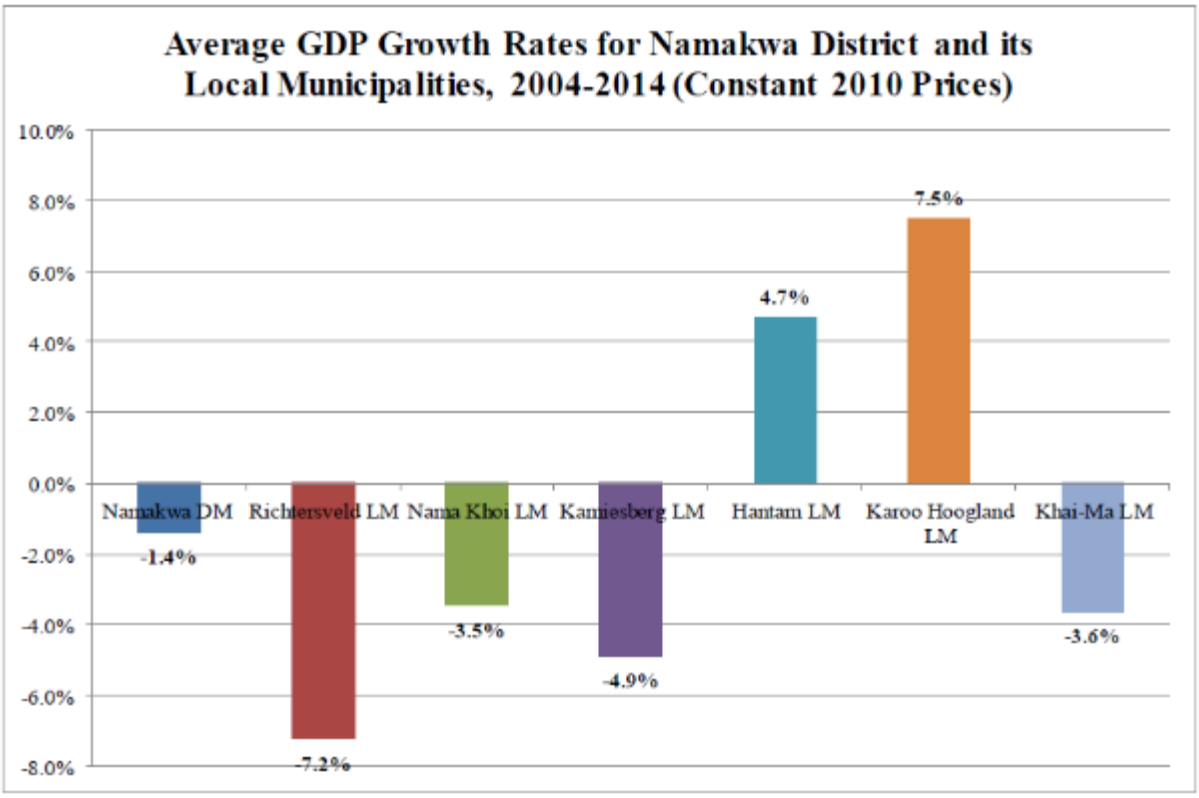

Figure 3-10: Average GDP Growth Rates 2004-2014 (Source: NKLM, 2018)

Two (2) well established tourist routes are located within the Namaqualand region, the Richtersveld and Namaqua Coastal Routes (Figure 3-11). These both have the national and provincial parks as their core features or attractions, along with surrounding coastal and inland attractions. The spring flower season is a major tourist drawcard for both of these routes.

Despite not being reflected as an individual economic sector in the preceding economic data analysis, the NKLM IDP notes that tourism has become an increasingly important sector locally. Aside from the annual flower season there are notable historic attractions like the Blue Mine (second oldest commercial mine in South Africa) and the Van der Stel Mine Shaft (national monument) located in Carolusberg.

The Goegap Nature Reserve hosts about 600 indigenous flower species, 45 mammal species (including springbok, gemsbok and Hartmann's mountain zebra), 94 bird species and several species of reptile and amphibian. The reserve also includes the unique Hester Malan wild-flower garden, which showcases many Namakwa succulents and a rock garden. Other attractions in the NKLM include:

- *Klara – the steam engine at the Nababeep museum*
- *Orbicule Hill – national monument in Concordia*
- *Namakwa Festival – annual musical and cultural event held during December*
- *Anglican Church in Springbok (probably the oldest building in town)*
- *Rondavels (Nama-matjieshuise) near Steinkopf*
- *Well-known Nama-dance*

Figure 3-11: Tourism Routes within the Namaqualand Region (Source: https://www.experiencenortherncape.com)

The NKLM SDF (2014) has identified the following tourism sector development initiatives:

- Improve the accessibility to major tourist areas (nature areas and tourist attractions) through clearly defined and quality roads and public transport. The tourist economy is a strong pillar of the NKLM economy and an economy which is not fully exploited. This is largely due to bad roads and poor accessibility to major tourist areas.
- To strengthen and market the conservation areas and natural heritage wonders in the municipal area in order to create a unique 'Sense of Place' for the Nama Khoi Local Municipality.
- The Kamiesberg Mountain range forms a notable escarpment from north to south in the municipal area, and is an important catchment area with abundant natural wonders that should be exploited for tourism purposes.
- The possible expansion of the three statutory protected conservation areas in the municipal area, i.e. Goegap Provincial Nature Reserve, Namakwa National Park (to extend northwards into Nama Khoi LM) and Nababiep Nature Reserve should be supported and must play a more aggressive role in the economic environment. Tourist resorts and accommodation should be promoted and encouraged in these areas.

- The Orange River Corridor provides ample opportunities for tourism development including eco-tourism, and there must be a focussed effort to attract uses related to the tourism and hospitality industry to this corridor.
- The Tourism Corridor from Pofadder to Port Nolloth via Steinkopf must be prioritised for tourism development. This route could play a significant role in edu-tourism, providing information on the natural environment, culture & conservation of the region and communities. A Tourism development strategy is proposed for the R382 Tourism corridor.
- The West Coast Tourism route and linkages to the north and south must be strengthened and supported.

It is noted in the NMLM SDF that the gravel road that connects Kleinzee and Port Nolloth will have to be resurface to bitumen standard to improve transport linkages between these towns, and by extension foster tourist and visitor numbers to the area and the Coastal Tourism Corridor in particular. The latter extends from Hondeklip Bay to Port Nolloth as reflected in Figure 3-12 below.

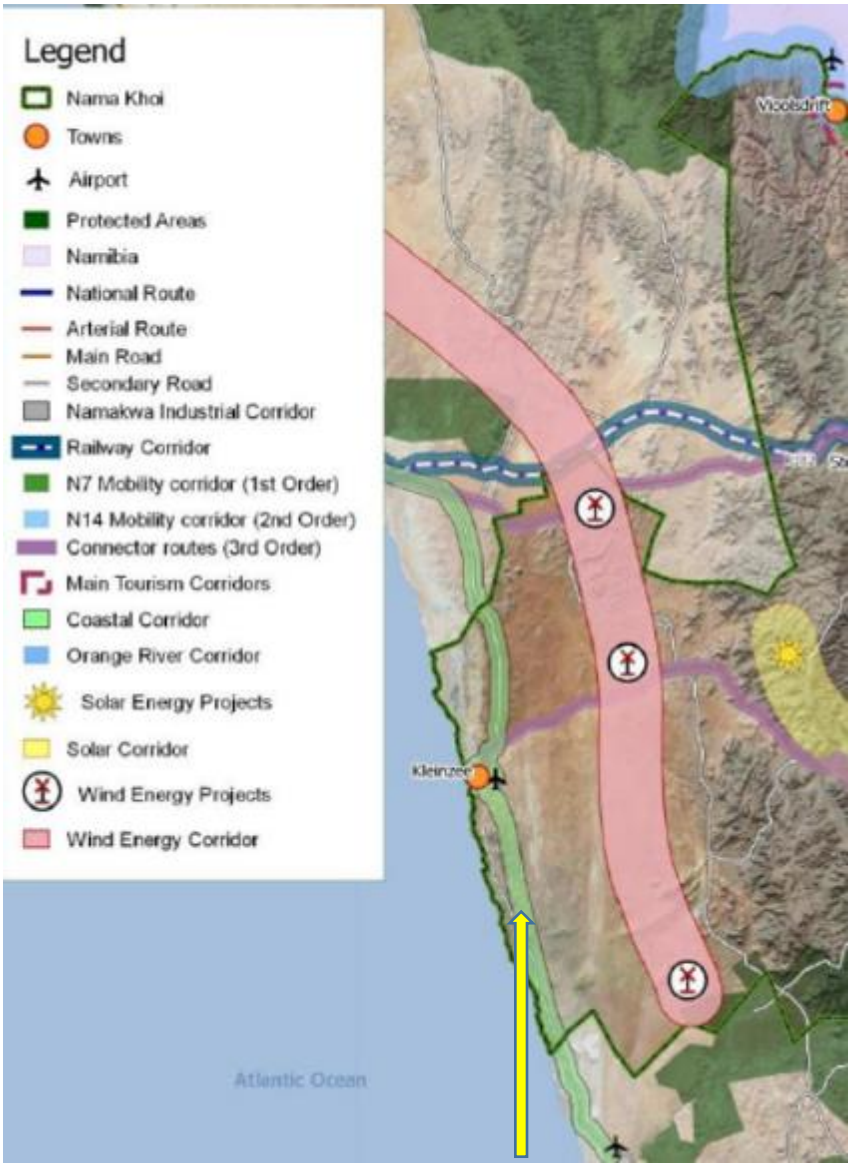

Figure 3-12: The Coastal Tourism Corridor (Source: NKLM SDF, 2014)

It is not an unrealistic expectation that the construction and operation of pending and proposed renewable (wind) energy projects in the coastal zone area will prioritise or promote the need for this soon. The provision of a surfaced road would also provide a potential “circular” bitumen surface route between Springbok-Steinkopf-Port Nolloth-Kleinzee and back to Springbok in its entirety, alternatively also stimulate tourism in the southern part of the Coastal Tourism Corridor (Kleinzee to Hondeklip Bay. This could promote more traffic, and by extension tourists, through these areas. Depending on what a given individuals’ personal perceptions of wind power facilities and their visual intrusion on the landscape area, it could also be argued that these wind energy facilities may even become a tourism drawcard.

Aside from the Coastal Tourism Corridor, there are the existing tourism and accommodation businesses located along the R355 road from Springbok to Kleinzee (Figure 3-14). The Naries Namakwa Retreat (pictured below) is an upmarket establishment located on the edge of the Spektakelberg mountains between Springbok and Kleinzee that offers a range of tours and activities in the immediate area. Its peak season coincides with the spring flower season where accommodation and meals cost R2,700 p/p/p/night. The surrounding area is reported to be a prime flower viewing location in season. The Spektakelberg mountain vistas in this area are largely unspoilt by development and is a major feature of the establishment, with additional accommodation units being built to capitalise on these views.

Figure 3-13: The Naries Namakwa Retreat (Source: https://www.naries.co.za)

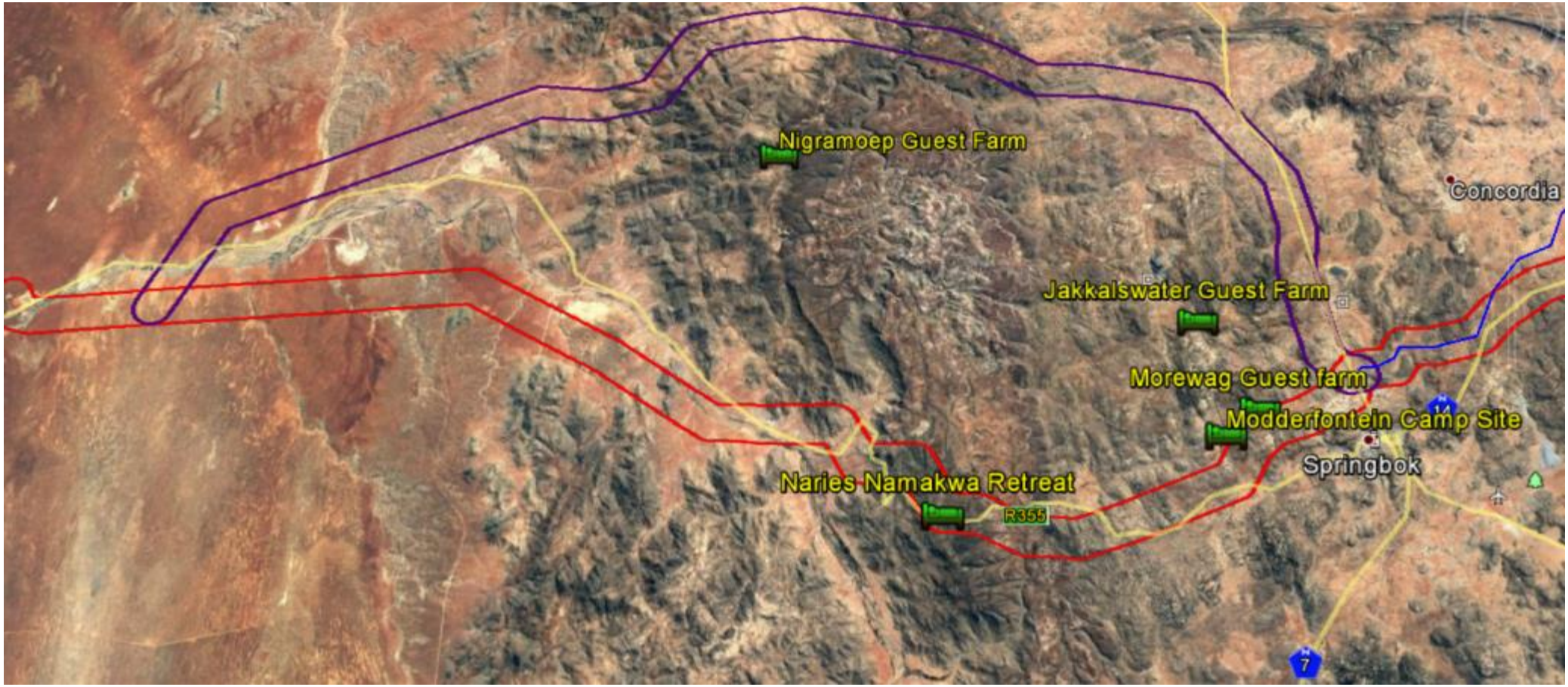

Figure 3-14: Accommodation establishments between Kleinzee and Springbok (Source: Google Earth)

There are numerous accommodation establishments located in the old De Beers diamond mining town of Kleinzee. While all the proposed powerline corridor alternatives will be visible on the approach to Kleinzee regardless of the final preferred alternative, the linkage into Gromis substation will not be visible from the town itself.

As the Alternative 1 corridor approaches Springbok from the west there are more accommodation and camping venues (guest farms/B&Bs) on the outskirts thereof that rely on their rural setting as a marketing measure to attract tourists. It is these businesses (along with the Naries Namakwa Retreat) that potentially stand to be most affected by the project.

The northernmost alternative corridor (Alternative 4) passes in proximity to the Nigramoep Guest Farm, however, given the distance from the corridor to the establishment (6-8km) and the intervening topography, the powerline is unlikely to visually detract from the rural nature of this tourism establishment. No other establishments of note were identified in proximity to Alternative 4.

Between Springbok and Aggeneys there is only one accommodation establishment (Appollis Cottage) that is directly affected by Alternatives 1 and 4 as indicated in the figure below.

Figure 3-15: Appollis Cottage is located between Springbok and Aggeneys on the N14 (Source: Google Earth)

As for the majority of the Namaqualand, it has its peak season during the annual flower bloom and is in close proximity to the Goegap Nature Reserve. The latter being a major attraction in flower season for both domestic and international tourists. The reserve is located 15km south east of Springbok (Figure 3-16) and it falls within the Succulent-Karoo Biome which consists mainly of a coastal belt of approximately 100km to 150km wide (http://www.northern-cape.gov.za). This is the only nature reserve that is potentially affected by the powerline.

Figure 3-16: Goegap Nature Reserve (Source: Google Maps)

Ecologically the reserve is important as it is an example of the two components of the Succulent-Karoo biome, each geographically and floristically different.

Figure 3-17: Goegap Nature Reserve
(Source: http://www.northern-cape.gov.za/denc/index.php/nature-reserves/goegap)

Socio-economically the reserve plays an important role during the tourist season, providing activities and accommodation to visitors to the region. Approximately 13 000 people visit the reserve during the annual flower season, ranging from 3 weeks to 3 months (*ibid*).

Given that the topography in and surrounding the reserve shields the pristine natural areas depicted in the figure above, and the existing N14 road and powerline servitudes are not visible from these sections of the reserve, it is not anticipated that the proposed project will have any visual or economic impact implications for this attraction.

4 CONSULTATION PROCESS

Consultation with stakeholders for this assessment was limited to email correspondences soliciting information from representatives of mining companies in the NKLM seeking to clarify what existing and proposed mining areas the respective companies are responsible for.

The Springbok office of the Department of Mineral Resources (DMR) was approached by Enviroworks personnel with a request to provide any spatial (GIS) information that could indicate what existing mines with the necessary permits, as well as any proposed (prospecting right) mining activities within the study area. At the time of drafting this report DMR had supplied a list of Farms Names and Farm Portions that are subject to prospecting right applications or those already issued with no associated GIS shapefiles provided by them. Given the time and budgetary resources available to CES at this level of assessment these portions have not been digitised and mapped for the purposes of this report- only the active prospecting right applications that are in close proximity to existing mines in the study area that are potentially affected by the corridor alternatives.

5 KEY SOCIO-ECONOMIC ISSUES

The following socio-economic issues are considered to be of relevance to the project.

5.1 JOB CREATION AND SKILLS DEVELOPMENT

As noted in Chapter 3, economic growth in the NMLM has been negative for some time, largely to a downturn in the mining industry. With the development of the identified renewable energy corridors being designated a strategic economic driver for the NKLM going forward, it is anticipated that job creation in the electricity sector will be significant relative to other existing industries going forward. There are numerous wind and solar energy projects planned for these corridors in various phases of implementation in accordance with its national designation as a REDZ (Figure 5-1). The Aggeneys area and its more distant surrounds are almost "wall to wall" renewable energy projects under various phases of development. The proposed powerline is therefore essential in ensuring that these proposed projects can be connected to an electrical grid that has both sufficient capacity and integrity. Accordingly, it is assumed that the majority of unskilled and semi-skilled labour can be drawn from towns and settlements in the study area, along with artisans and other related skills if they are prioritised for employment by the powerline construction contractor. It is anticipated that some level of skills development will also be imparted to the labour sourced from the study area for the construction if the powerline, albeit limited. These are direct impacts associated with the powerline project specifically; however, the indirect and cumulative beneficial impacts of the powerline will also materialise in the medium to long term as potential work opportunities increase through the development these projects. As part of the IPP contractual obligations project developers are required to demonstrate local employment and SMME service provider allocations and expenditure, the cumulative nature of which will be very significant once these projects are developed over time.

5.2 DIRECT AND INDIRECT ECONOMIC IMPACTS

Cumulatively, and over time, the powerline project will have substantial direct and indirect economic benefits for the NKLM. As noted above, the project is essential to ensure that proposed renewable's projects can proceed and more be developed (i.e. ensuring EGI capacity and security in the region and the economic benefits associated with their development), but the short-term direct and beneficial impacts are anticipated to be of more benefit in the project's construction phase (employment, increased goods and services provision by local industries, potential stimulation of local SMME's, increased money circulation through more rural and economically marginalised settlements in the study area etc.). The proposed powerline will also ensure the reliability of electricity supply in the region going forward, and this assurance also stands to benefit existing industry and businesses by preventing any potential future economic losses arising from supply interruptions that can affect their productivity or sales. The potentially negative economic impacts that project affected persons, companies/business entities or landowners may be exposed to are discussed in more detail in Sections 5.3 - 5.7 that follow.

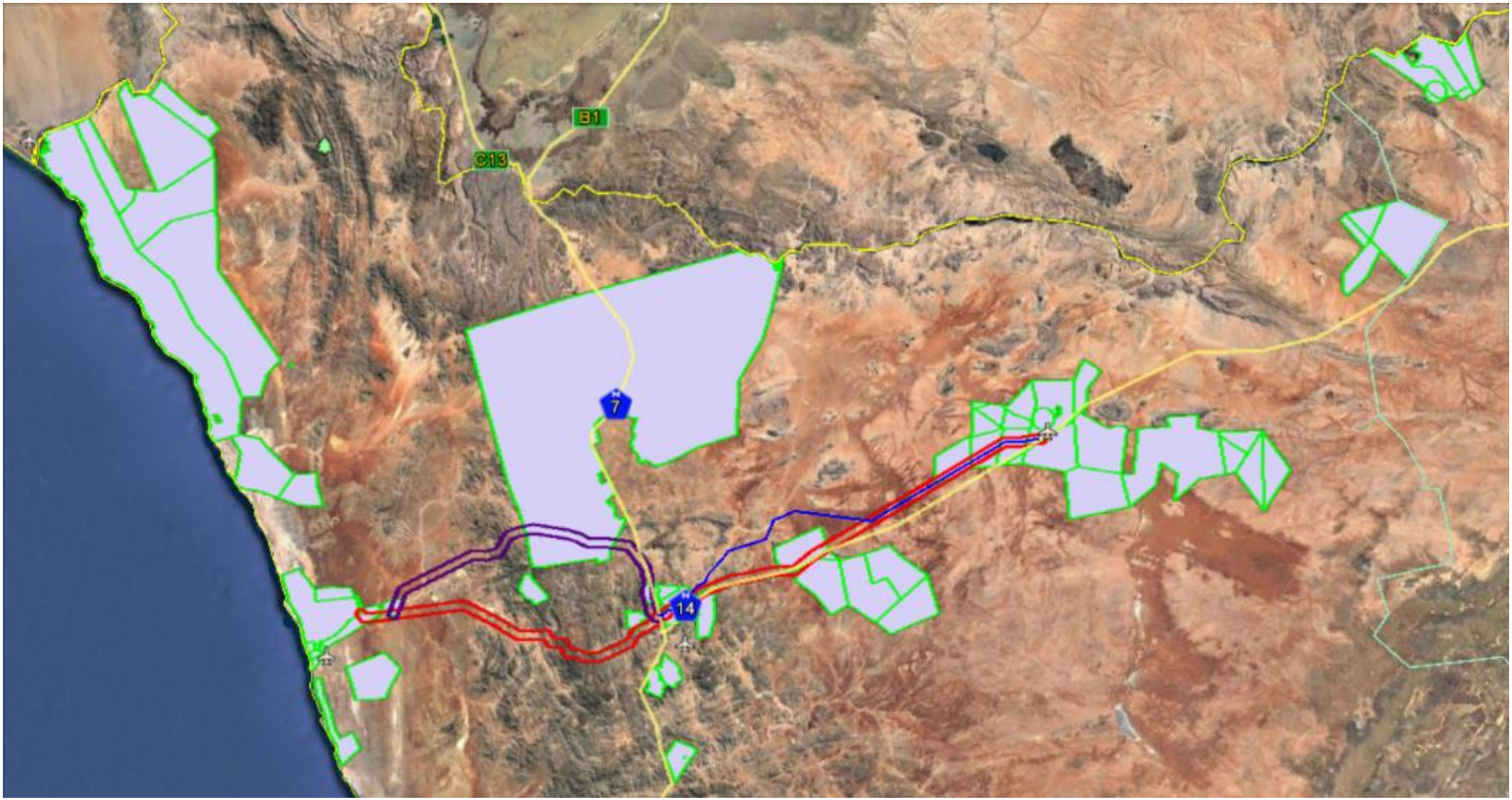

Figure 5-1: The farm portion boundaries (shaded polygons) of the various renewable energy projects planned for the study area (Source: Eskom/Google Earth)

5.3 MINING

As noted in preceding chapters the mining industry remains the key economic sector for the NKLM despite its decline in contributions to local GDP and employment over the last decade. Despite this, there are still active operations in the Nababeep, Concordia and Aggeneys areas, with the latter indicated as holding the most potential for as yet undiscovered or unexplored copper, zinc, lead and silver deposits that are characteristic of the Black Mountain and Gamsberg deposits mined by Vedanta. Although the proposed powerline will not impact on any existing operations if sited carefully, its eventual routing could well impact on potential or future operations for which there have been prospecting rights issued by the DMR. An existing mine is located in close proximity to the Nama substation (see figure below) that is assumed to be a diamond deposit, and is located almost entirely within the confines of Alternative 1 and 4. Respectively given that they share a common origin and alignment until such time as Alternative 4 turns northwards.

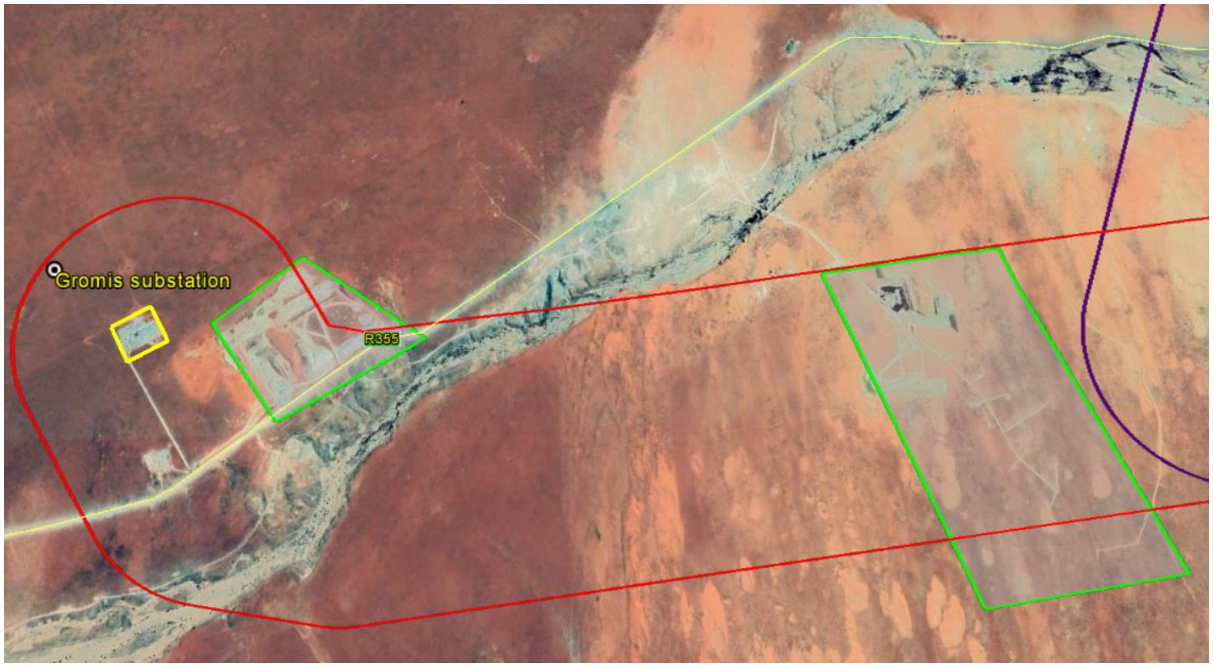

Figure 5-2: Operational mine in proximity to Gromis substation - green polygons are areas in the Alternative 1 & 4 corridors that are currently mined (Source: Google Earth)

The Okiep Copper Company has its active operations located near the town of Nababeep and is not affected by any of the corridor alternatives under assessment as they circle this settlement at some distance. Similarly, its operations at Carolusberg, immediately east of Springbok, fall outside of the corridor alternatives. It is not apparent from the analysis of available and current areal imagery that any other existing operations will be directly affected by any of the corridor alternatives with the exception of the operation depicted above. The prospecting licence application information made available by DMR's Springbok office indicates that the majority of these applications and previously issued mining rights are largely located on the portions of the corridor alternatives between Springbok and Aggeneys. These have not all been mapped and depicted for this assessment owing to the large numbers thereof, but only those pertinent to the Alternatives 1 and 5 are depicted in Figure 5-3 below. The figure reflects farm portions with *active and current* prospecting applications underway.

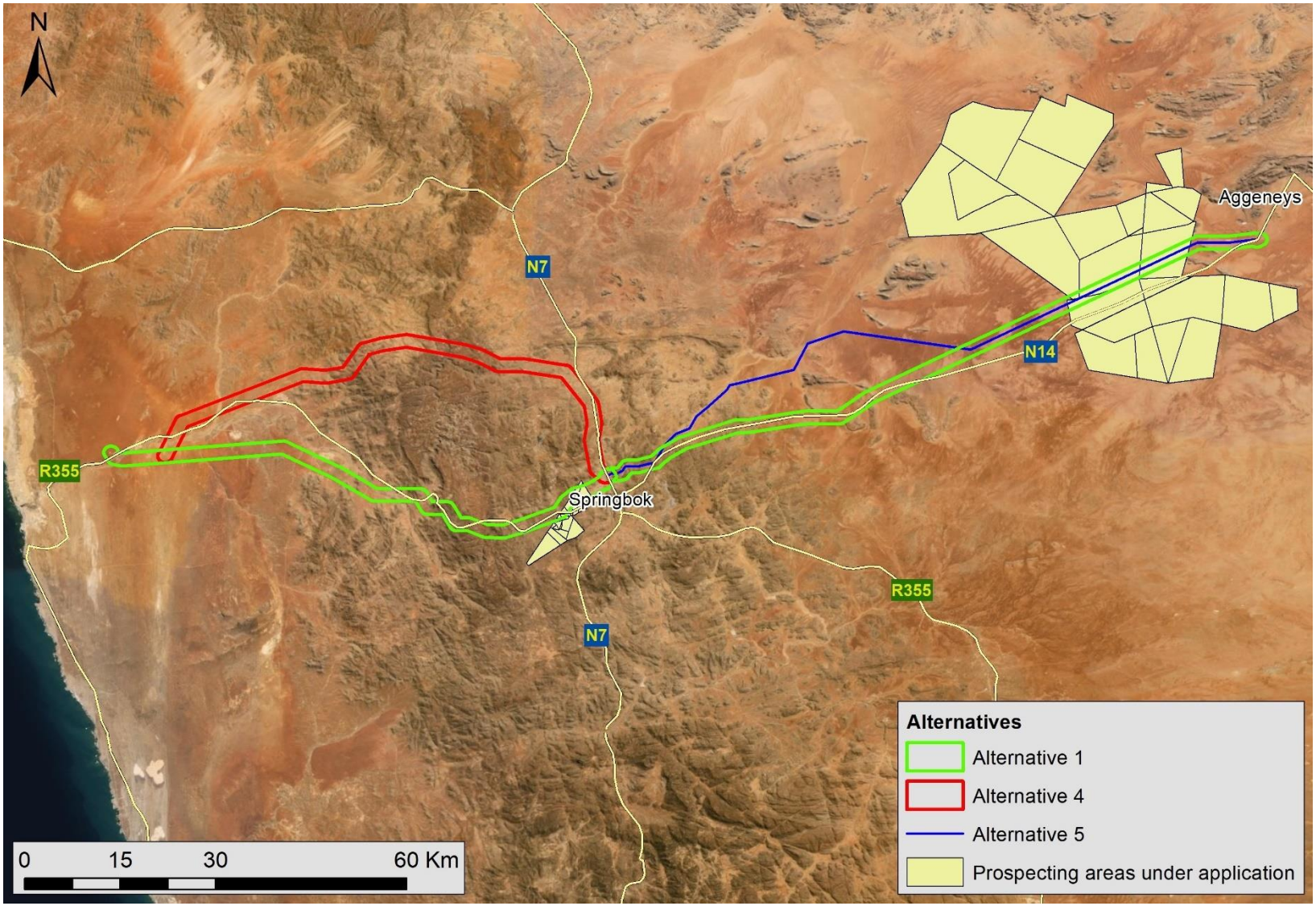

Figure 5-3: Farm portion boundaries of active prospecting applications - Springbok to Aggeneys

It appears that the Alternative 5 route option between Springbok and Aggeneys is more likely to constrain future mining operations in this area that Alternative 1 that follows and existing powerline servitude and/or the N14 road reserve for the majority of the alignment between Springbok and the existing Aggeneis substation. The prospecting areas depicted above are the farm boundaries of active prospecting activity by two entities neighbouring the Gamsberg operations at Aggeneys (Black Mountain), with the latter company holding one of these prospecting rights. The Carolusberg area does not appear to hold any active prospects that are traversed by Alternative 1 that CES can determine from the information (farm portion details) provided by the Springbok DMR office. Alternative 4 is also less likely to impede any future mining activity than 1 and 5 by virtue of the terrain, topography and underlying geology that it traverses in the Bulletrap area, as well as the fact that currently operating mines in this area (Nababeep) are far removed from this corridor.

5.4 AGRICULTURE

Alternative 1 is the only corridor alternative that appears to impact on any cultivated agricultural land (either current or historic) as determined by an analysis of the areal imagery. These land parcels are located in the immediate western approach to Springbok as per the below figure. These areas appear to have been ploughed recently, and therefore either rely solely on irregular rainfall, or a combination of rain and groundwater (borehole) sources for irrigation. As such, these are unlikely to be areas of high productive capacity - especially in drought periods such as currently being experienced - but given the very small areas of cultivated land observable along the corridors in general it is likely to be of importance for the individual farmers in question.

Figure 5-4: Historically or currently cultivated land located within the Alternative 1 Corridor (Source: Google Earth)

Agricultural land is reported to range in price from R800 p/ha closer to the coastline, while farm prices are in the region of R1200 p/ha the closer you get to Springbok and surrounds (*pers. comm. Michael Leach, Social Specialist of Enviroworks, prices obtained from landwoners and estate agents in Springbok, October 2019*). It is these values that Eskom will take into consideration when negotiating the servitude over the affected landowners' properties.

The dominant agricultural activity on farms potentially affected by the corridor alternatives is sheep and goat production on these farms, with the only observable crop production happening in the areas indicated above. In general, the construction of powerlines does not inhibit future agricultural activity with the exception of the pylon and support stay footings and foundations necessary to erect the powerline. This is particularly the case for livestock farming operations that after the construction phase disturbance and land clearance remain available for grazing purposes going forward. As such, aside from the visual intrusion and what is often perceived by farmers as the "nuisance" of periodically having Eskom maintenance personnel on their properties, it is not anticipated that prevalent agricultural practices and land uses will be significantly affected by the project - with the exception of one area discussed in more detail in the following chapter.

5.5 TOURISM ATTRACTIONS AND OPERATIONS

It is apparent that Alternative 1 (the section between Kleinzee and Springbok) stands to impact the most on the existing tourism operations in the study area. As noted in Chapter 3 there are several establishments of various quality and standard that rely on the relatively "unspoilt" landscapes of their locations as a marketing drawcard for tourists. While the imposition of a 400kV powerline in proximity to these establishments may not necessarily imply a directly related decline in business and associated economic losses if the visual impacts thereof can be minimised or mitigated (e.g. ensure that topography utilised as far as possible to screen the line, and the prevailing panoramas or vistas that characterise these establishments are disturbed as little as possible) the base assumption informing the assessment of the significance of these impacts as that alternatives that do not affect existing tourism operations at all - like Alternative 4 - are preferable to those that do. Alternative 4 traverses an area that is largely devoid of settlements (with the exception of Bulletrap) and holds no known tourism attractions or attractions until its approach to Nama substation (Okiep and its historical attractions and accommodation establishments) that is already highly developed and urban in nature, with established powerline and road servitudes already characterising the visual landscape.

At a more macro or regional level, it is also preferable that alternatives that potentially affect existing tourism attractions (parks/reserves, annual flowering sites of renown), routes or strategically planned initiatives in the study area (such as the Coastal Tourism Corridor) area voided as far as possible. As such, it is only Alternative 1 that holds the potential to affect existing tourism attractions and operations in any potentially significant manner.

5.6 PROPERTY VALUE AND LAND USE

The land portions (predominantly agricultural or mining land use zonings, except for the suburban residential areas on the approach to Springbok) affected by the permanent

powerline servitude are to be compensated for accordingly by Eskom. These compensation calculations are predicated on existing land values (Section 5.4 above), as well as the inclusion of an additional *solatium* payment that amongst other reasons is to ensure ongoing access to the servitude for Eskom maintenance personnel, and compensate for what is often perceived as a "nuisance" for farmers. A key question in assessing potential property or land use impacts is whether the imposition of the powerline will lead to a reduction in local property values (farms as well as residential areas), or whether project activities (construction and operational phases) will limit or constrain the pre-project land uses and activities currently occurring on these properties.

Given the nature of the study area and existing land uses it is not likely that any of the alternatives under consideration, with the exception of Alternative 1, will have significant agricultural land value implications by virtue of these traversing largely rural area with the exception of the more densely settled residential areas on the respective alternatives' approaches to Nama substation. Alternative 1 is also likely to constrain any further future residential development to the northwest of the existing suburbs, thereby constraining residential land uses in this servitude should it be the Eskom's preferred option. Figure 5-5 below depicts the existing powerline (yellow line on image) into Nama substation that is between the outlying residential areas of Springbok and the steep topography immediately north thereof.

Figure 5-5: Existing powerline servitude in Corridor 1
(Source: Eskom/Google Earth)

However, it is noted that the topography immediately northwest if these residential areas is already a physical constraint to future urban development in this direction. Given that an existing powerline servitude already traverses this section there appears to be very little room for horizontal deviation of a new powerline servitude in this area. This aspect is discussed in more detail in Chapter 6.

5.7 RESETTLEMENT OR ECONOMIC DISPLACEMENT

While physical resettlement of project affected persons or households can be avoided by the careful siting of the route as it passes through or adjacent to more densely populated centres such as Okiep and Springbok, potential economic displacement (temporary or permanent constraints imposed on cultivated land parcels of agricultural land, reduction of tourism numbers and accommodation bed nights, the sterilisation of parts of large industrial or residential landholdings where structures are not affected by the servitude, possible loss of rental income etc.) will be more of an issue than resettlement.

The “pinch point” for Alternative 1 (Figure 5-5) as it approaches Springbok from the west that is the only area where the necessity for resettlement is a slight possibility. This is the only area of concern in terms of potential physical displacement, whereby residential houses or stands could be affected by the powerline, however, provided the line is routed over the steep topography to the west of these suburbs there should be no reason why any person or household would require resettlement for the project to proceed.

6 IMPACT ASSESSMENT

6.1 IMPACT CATEGORIES

The following anticipated impacts have been identified for assessment in this report as informed by the preceding chapter:

- Job creation and skills development;
- Direct and indirect economic impacts (including the subsequent enabling and development of IPP projects that the proposed powerline will facilitate);
- Mining (existing right holders/operations and exploration license holders);
- Economic impacts on agriculture;
- Economic impacts on tourism attractions or operations;
- Property value and land use impacts; and
- Resettlement and economic displacement impacts.

These are assessed by project phase in the sections that follow. Please note that not all impact categories are applicable, or potentially as significant, over the project lifespan and its associated phases (planning and design, construction and operation), and where not applicable are noted as such. The "no-go" alternative is only considered and assessed for the planning and design phase.

6.2 PLANNING AND DESIGN PHASE IMPACTS

6.2.1 Job Creation and Skills Development

While there is no project led local employment in the design phase, Springbok's peripheral settlements that are in close proximity to the powerline corridors under assessment such as Bulletrap, Nababeep, Buffelsrivier, Kommagas, Okiep and Concordia stand the most to benefit from any job creation and skills development impacts arising from the project's construction phase (the operational phase benefits tend to be very low or insignificant). The respective SDF's and IDP's reviewed as part of this assessment note that these settlements are largely scattered over the municipal area and were in many instances established in close proximity to the mining areas, nestled between rocky topography, with limited expansion possibilities. The SDF (NKLM, 2016) indicated that a *"…large proportion of the municipal area can be classified as "economically marginalised areas" which implies that the affordability and spending power in the municipal area might be fairly low. The low household income pattern also has implications for the types of initiatives that can be feasible and sustained in the context of the local market demand. This profile furthermore holds considerable implications for the financial status of the municipality and its ability to effectively implement projects (it can be assumed that the property tax base is fairly low)".*

These plans further advocate the investment in human capital and skills development as priorities for these areas. Should these settlements be prioritised for employment, the potential labour pool in these towns is very likely to satisfy the construction phase personnel requirements. These settlements are reflected in Figure 6-1 below.

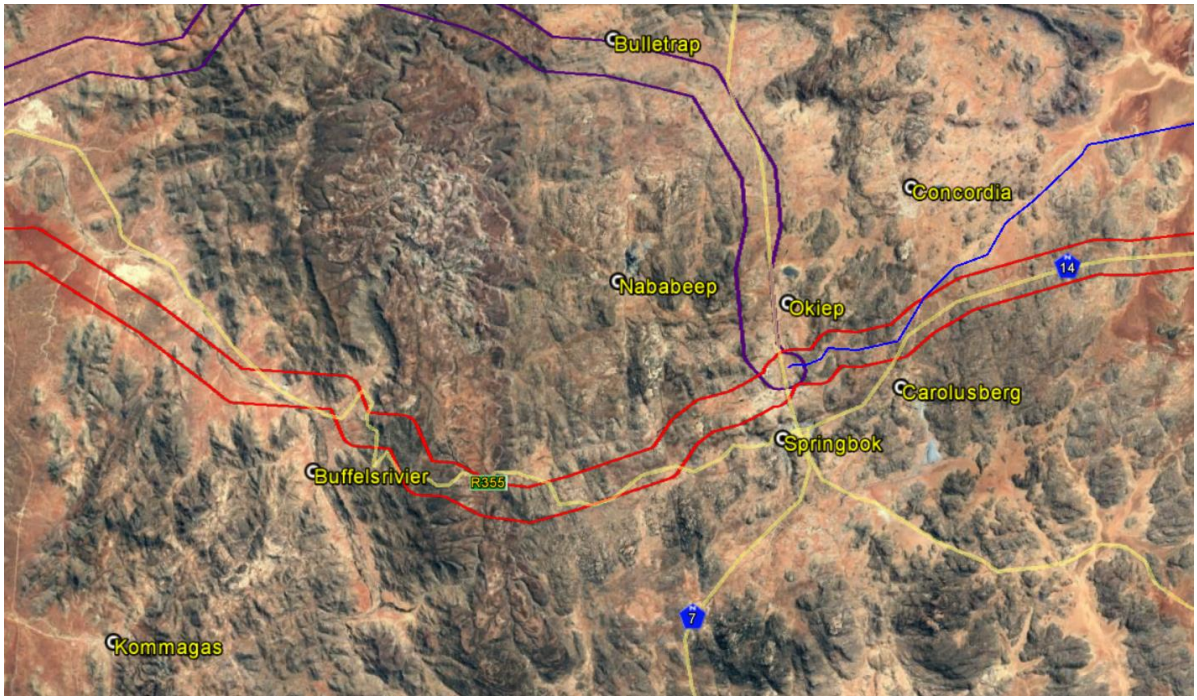

Figure 6-1: Economically marginalised towns and settlements in the project study area (Source: Google Earth)

With regard to the alternatives under assessment:

Alternative 1: All the alternatives can be expected to have similar job creation and skills development potential in that they will require similar numbers of local
Alternative 4: labour regardless of the preferred route that is selected. All the alternatives have economically marginalised settlements in close proximity to these
Alternative 5: corridors, and as such, the availability of labour is likely to exceed project demands. The overall impacts are deemed to be of similar beneficial significance for all alternatives but will be of high significance for all options if these marginalised communities are prioritised for employment during the construction phase.

"No-go": The no go alternative would not result in any employment or skills development for these local communities. Similarly, any skills that may be imparted to employees on the powerline project that may be applicable to future renewable energy projects under development in the NKLM leading to further employment opportunities will not be possible without the powerline being constructed. Accordingly, this is deemed of high negative significance for the study area communities.

To this end it is preferable to commence early engagement with the NKLM and elected representatives and/or traditional leadership of these communities as to how best this can be achieved by Eskom and its construction contractors. An initial skills audit of the relevant communities and the establishment of part-time "labour desks" in each of these will facilitate achieving the project induced job creation and upskilling opportunities where they are most needed.

Table 6-1: Job creation and skills development

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Job creation and skills development;																				
Project activity:	**Planning and design phase**																			
Alternative 1	While there are usually no jobs during the planning phase available to local communities, prioritising economically marginalised communities in proximity to all corridor alternatives for construction phase employment should occur in this period. Engagement with the respective municipalities and community representatives in this regard can be initiated.	6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	Prioritise the communities of Buffelsrivier and Kommagas for construction phase employment and upskilling initiatives.
Alternative 4		6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	Prioritise the communities of Bulletrap and Nababeep for construction phase employment and upskilling initiatives.
Alternative 5		6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	Prioritise the communities of Carolusberg and Concordia for construction phase employment and upskilling initiatives.
"No-go" alternative	This implies no project related employment and skills development to surrounding communities and the NKLM in general.	10	4	3	5	5	5	135	H	H	10	4	3	5	5	5	135	H	H	N/A

6.2.2 Direct and Indirect Economic Impacts

These impacts are generally insignificant in the planning and design phase, unless the opportunity is used to identify future phase impacts that may be undesirable or highly negative that cannot be appropriately managed or mitigated. Similarly, any potential beneficial impacts that can be identified at this time, and more importantly how these can be assessed for prioritisation going forward need to form part of the planning phase analysis. Negative economic impacts that could arise from the development are dealt with individually in Sections 6.2.3 - 6.2.7 that follow, as each of these aspects and impacts have economic implications for individuals, communities and the NKLM, but of potentially varying intensity and spatial distribution. As such, these individual level assessments and aspects also inform the overall significance ratings for this impact (over all its phases), particularly in instances where an alternative may be potentially be more prejudicial than beneficial for a given aspect.

Of primary beneficial economic impact will be provision of electrical grid security (decreased chances of power interruptions that are a reality of the current circuit design) and the facilitation of the REDZ. Alternative 4 also allows for shorter and easier grid connections for any potential renewable energy projects that will be developed to the north of Springbok than Alternative 1, also implying an economic efficiency for these future projects if this corridor is selected as the preferred option.

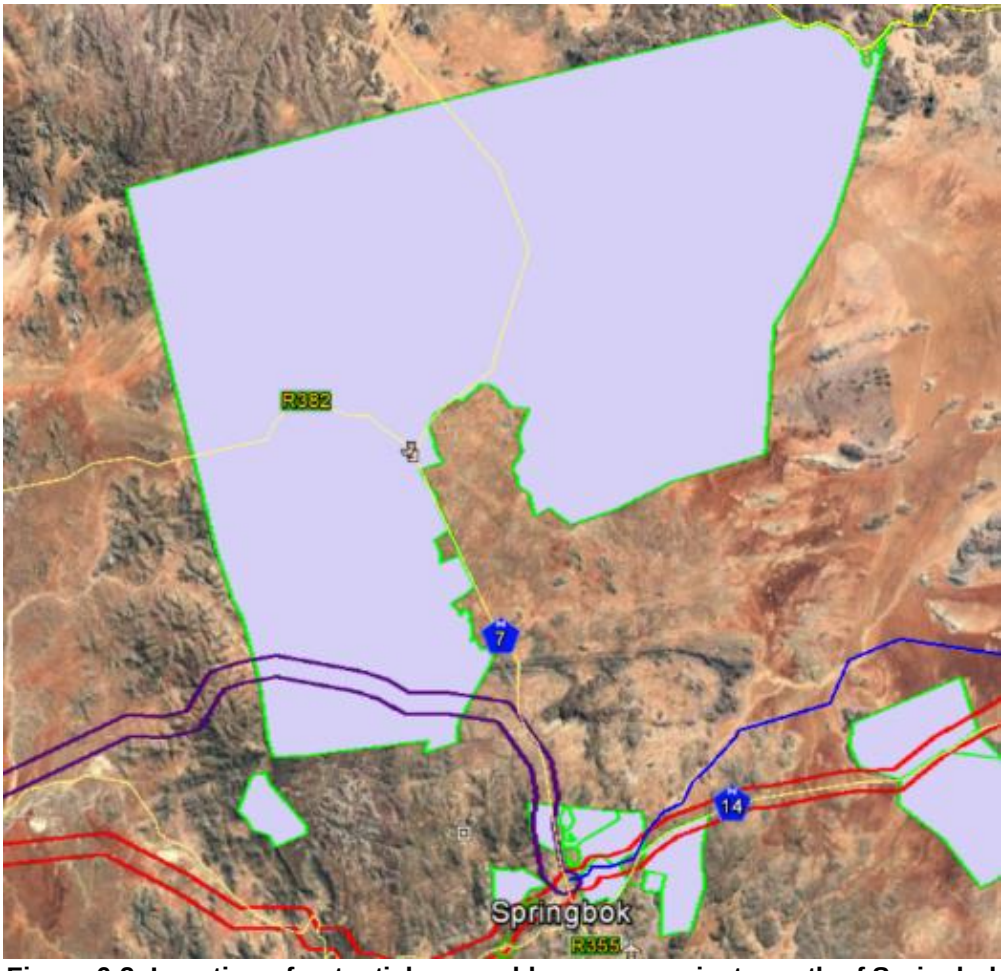

Figure 6-2: Location of potential renewable energy projects north of Springbok (Source: Google Earth)

As for job creation and skills development above, the overall direct and indirect economic impacts arising from project capital spends are likely to be of similar significance in terms of the overall quantum or contribution to local GDP, but the intensity of these impacts can differ spatially. Direct benefits such as employment will increase the flow of money through marginalised communities if their residents are prioritised for employment. An increase in wages will also stimulate local retail businesses to some degree.

Aside from wages the contractor goods and services expenditure during the construction phase (direct impacts), it is to be expected that some level of SMME development within these local communities can materialise over time with the development of the renewable energy projects in proximity to Springbok and Kleinzee. These indirect (or multiplier) impacts are expected to take the form of increased business-to-business transactions indirectly locally, as well as a concomitant increase in household-to-business activity within the NKLM. While the marginalised settlements like Bulletrap stand to benefit more at the micro level, the macro (or NKLM) level economic benefits are likely to be the same for all alternatives, with the exception of those that potentially pose negative direct impacts on tourism, or can result in some form of economic displacement (Alterative 1 for example).

Eskom has estimated the capital cost of powerline and associated substation upgrades to be R2.68 Billion escalated to 2027 costs (pers. comm. Michael Leach). In terms of direct economic benefits to the regional economy there is unlikely to be a significant difference between any of the alternatives, with the exception of those potentially resulting in financial losses for project affected persons or business.

Alternative 1: The assessment takes into account the potential impacts of these alignment on agricultural land, residential areas and tourism establishments. These could potentially be of moderate negative significance should these establishments incur losses in the subsequent construction and operational phases. With the application of mitigation measures (screening the powerline as far away as possible from this establishments and out of their main viewsheds or panoramas) it may be that any economic losses experienced are negligible and these impacts will be of moderate beneficial significance.

Alternative 4: This option follows for easier grid connections to future energy projects located north of Springbok along the N7. It will not impact on existing tourism attractions and operations. It is unlikely to result in any significant negative economic impacts for the farms and smallholding areas it traverses in its approach to Springbok, affect current land uses or likely to impede future mining operations.

Alternative 5: Is also in close proximity to some farmsteads and residences as it deviates north from Alternative 1, however if it can be sited at a suitable distance from these residences it may not have detrimental economic impacts on these inhabitants or their farming operations. Both alternatives 4 and 5 are deemed to be of high beneficial significance if marginalised communities can benefit the most from these anticipated direct and indirect impacts.

“No-go”: Should the project not proceed it will not allow for the development of the renewable energy projects with the REDZ that is located in the municipality who require the additional line capacity to connect to the grid. Existing industry and settlements will still not have secure electricity supply. This will be of high negative significance for the NKLM.

Table 6-2: Direct and indirect economic impacts

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Direct and indirect economic impacts																				
Project activity:	**Planning and design phase**																			
Alternative 1	Potentially holds negative economic impacts for tourism establishments along this route and could also impact on cultivated agricultural land.	6	3	2	2	3	3	48	M	M	6	2	3	4	4	4	76	M (+)	M (+)	This alternative alignment is screened by topography as far as possible from the existing accommodation establishments located along this corridor.
Alternative 4	Allows for easier grid connections for any potential renewable energy projects north of Springbok.	6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	Prioritise the economically marginalised communities in proximity to these corridors.
Alternative 5	Largely devoid of negative impacts with the potential exception of mining.	6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	
"No-go" alternative	The promotion and development of renewable projects within the REDZ is contingent on the powerline being built. Without it, the benefits stemming from these projects will not be realised.	10	4	3	5	5	5	135	H	H	10	4	3	5	5	5	135	H	H	N/A

6.2.3 Mining

As noted previously, this aspect of the assessment is the most limited in terms of confirmed detail on future mining areas, and the status of exploration activities within the project area. It is common practice that applicants for exploration (prospecting) permits or rights apply for large tracts of land (farm portions) be registered, and as such a preliminary analysis of the soft copy data provided by the Springbok office of the DMR indicates that the majority of the farm portions adjacent to, or traversed by, the alternative corridors under assessment are subject to existing, active, dormant or lapsed prospecting right applications. As such, it is difficult to determine from this dataset which applications are indeed viable prospects that will be commercially exploited in the future as this information is not freely available. It is also generally considered to be commercially sensitive information by mining companies. The design phase assessment of this aspect has therefore based its assumptions on the proximity of existing and known mining operations currently in production, alternatively those areas with active prospecting rights applications that are adjacent to known and exploited high quality deposits - the Aggeneys and Gamsberg area in particular. It was noted from internet searches of available literature and reports that the prospecting areas reflected in Figure 5-3 are recent applications (within the last 2 years).

Alternative 1: As noted in Chapter 5, the origins of both Alternatives 1 and 4 at Gromis substation potentially impinge on active mining operations located in the immediate proximity of the substation and its proposed powerline evacuation route to the east thereof. This probably of low overall significance as it is likely that Eskom in consultation with the mining company can determine a route out of the substation that will not impact on future mining activity in this area, and as importantly, ensure that the powerline won't be impacted by any mining activity either. Should it be possible from a technical perspective to route the powerline out of the substation directly to the north and then due east, and along areas not being mined before it joins Alternative 4, it could negate any concerns in this regard.

Alternative 4: This option is deemed to hold the lowest potential to impact on future mining prospects and is far removed from existing ones for the majority of its length, with the exception of its approach past Okiep southward into Nama substation. The latter section being unlikely to be mined in the future owing to it being very close to the urban edge of both Okiep and Springbok, and further influenced by the assumption that any significant deposits in this area would have already been discovered given its proximity to Okiep. This is an impact of low potential significance, both pre and post application of any feasible and practical mitigation measures that could be articulated at this point in the assessment process.

Alternative 5: It is only this option that probably presents a higher risk of constraining future mining activity given the limited amount of spatial data and detail in CES' possession. This assumption is predicated on the fact that it traverses an area of historical mining activities (albeit small scale) and is of a higher order of potential significance than the other alternatives.

"No-go": Should the project not proceed the mines in the NKLM will also not be assured of a secure electricity supply. While they are likely to have standby power generating systems (gensets) these are costly when required to be utilised during grid supply interruptions. As such, the no go option implies impacts of low significance to existing mining operations until such time as the network is strengthened and secured.

Table 6-3: Mining

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Mining																				
Project activity:	**Planning and design phase**																			
Alternative 1	Existing diamond mining operation in proximity to Gromis substation that can potentially be affected. Shared by Alternative 4 as a common point of origin. It is not anticipated to significantly impact on known future prospects in the Aggeneys (Gamsberg) mining area.	6	3	2	1	2	2	26	L	L	6	3	2	1	2	1	13	L	L	Avoid the existing operations in proximity to Nama substation (explore line evacuation options to the north of Gromis and existing mine infrastructure. East of Springbok toward Aggeneys the routing should stay as close as possible to existing powerline and/or road or reserves (or variations thereof that stay closer to the N14).
Alternative 4	No existing operations affected other than point of origin.	6	3	2	1	2	2	26	L	L	6	3	2	1	2	1	13	L	L	None put forward or applicable.
Alternative 5	As per Alternative 1.	6	3	2	2	3	3	48	M	M	6	3	2	2	3	3	48	M	M	As per Alternative 1.
"No-go" alternative	Lack of secure electricity supply going forward for existing mining operations.	6	3	2	1	2	2	26	L	L	6	3	2	1	2	2	26	L	L	None put forward or applicable.

6.2.4 Agriculture

Alternative 1 is the only option that potentially impacts on cultivated agricultural land, with the other options seemingly benign from this perspective. Sheep and goat farmers could possibly be disturbed and experience some nuisance during the construction phase of the project should the line traverse productive grazing areas.

Alternative 1: The section of the corridor west of Springbok has already been noted as potentially impacting on cultivated land in possibly both the construction and operational phases. If this is the preferred route careful siting of pylon infrastructure should be able to reduce these impacts is to low negative significance.

Alternative 4: No significant impacts are anticipated with this alternative. The majority of this alignment is along terrain that appears to be unsuited for livestock grazing – either arid coastal lowland or steep mountainous terrain that is largely devoid of suitable grazing. Impacts are likely to be of low to no significance.

Alternative 5: Depending on how close a powerline in this corridor would be to the residences and farmsteads east of Concordia it does hold some potential to disrupt possible sheep farming activities but is also likely to be of low significance.

“No-go”: No change to status quo.

Table 6-4: Agriculture

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Agriculture																				
Project activity:	**Planning and design phase**																			
Alternative 1	Possibility of construction and operational phase disturbances to cultivated areas.	6	3	2	2	3	3	48	M	M	6	3	2	1	2	2	26	L	L	Avoid the cropped areas as far as possible through careful route selection and pylon placement that will not impact on cultivated land.
Alternative 4	Not suited to livestock farming – topography and lack of grazing relative to lower lying and flatter areas that the other alternatives cover.	6	3	2	1	2	1	13	L	L	6	3	2	1	2	1	13	L	L	None put forward or likely to be required.
Alternative 5	Some possibility that there is sheep farming activity in the area east of Concordia that has multiple residences and farmsteads in close proximity to this route.	6	3	2	1	2	1	13	L	L	6	3	2	1	2	1	13	L	L	Route powerline as far away as possible from these farmsteads.
"No-go" alternative		No change to status quo									No change to status quo									N/A

6.2.5 Tourism

As discussed previously, the western section of Alternative 1 between Gromis and Nama substations is the only alternative of concern from a tourism impact perspective. Given that an existing powerline already traverses the entire length of Alternative 1, it will not be an intrusion into an unspoilt landscape, and this informs the significance ratings attached to the respective alternatives.

Alternative 1: if the visual impacts are significant and do result in fewer visitors to the Naries Namakwa Retreat in particular, it is very difficult to mitigate against a downturn in visitors and bed nights at the lodge. If this does prove to be the case it will remain of moderate negative significance at the regional scale, but highly significant at the local level. The existing powerline runs to the south of this venue and its accommodation units' scenic views appear to be orientated northwards away from the powerline. Accordingly, should it be possible to ensure that visual intrusion is kept to a minimum if this is the preferred option, and on the assumption that most visitors would not be put off by a new powerline in a landscape that already has these present, this will be of low significance.

Alternative 4: No impacts anticipated and subsequently of low to negligible significance.

Alternative 5: This option may present a visual intrusion for the accommodation units at the Appollis Guest Cottage, however, the same reasoning and mitigation measures applicable to Alternative 1 apply here and have been accorded the same level of significance.

"No-go": No change to status quo.

Table 6-5: Tourism

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Tourism and Heritage																				
Project activity:	**Planning and design phase**																			
Alternative 1	Most likely alternative to have impacts on existing tourism attractions and operations within the NKLM.	6	3	2	2	4	3	51	M	M	6	3	2	2	4	2	38	L	L	None put forward other than avoidance of Alternative 1 between Gromis and Nama substations as a viable alternative for tourism related impacts.
Alternative 4	No impacts anticipated.	6	3	2	1	2	1	13	L	L	6	3	2	1	2	1	13	L	L	None put forward.
Alternative 5	Potential visual intrusion on the Appollis Guest Cottage accommodation units.	6	3	2	1	2	1	13	L	L	6	3	2	1	2	1	13	L	L	None put forward.
"No-go" alternative		No change to status quo									No change to status quo									N/A

6.2.6 Property Value and Land Use

Flowing on from the discussion presented in Section 5.6 above:

Alternative 1: This corridor has the most potential to impact on property value and existing land uses in both the construction and operational phases and should therefore be considered the least preferred from a property value and land use perspective. It has been noted above that this routing will also impact on existing tourism and accommodation establishments. Should it lead to declines in tourist numbers and income it is not unrealistic to anticipate a decline on the resale value of these establishments. Should the powerline be constructed along this corridor, and subsequently does lead to a downturn in tourism numbers and bed nights for these entities, this could be of moderate negative significance, but reduced to low if the powerline is routed in a manner that intrudes the least visually on these tourism establishments. Farms closer to Springbok that cultivate land may be exposed to declines in property value should the powerline and pylons be badly placed in these areas, resulting in sterilised land portions or as a result of the perceived visual intrusion of the powerline.

Alternative 4: This is the least likely alternative to result in property value and land use impacts by virtue of the sparse and uninhabited terrain it traverses for most of its length. Accordingly, it is of low to negligible significance.

Alternative 5: This alternative is in close proximity to various farmsteads as it deviates north from the Alternative 1 corridor from Springbok to Aggeneys, however, as for the above careful siting of the powerline route and ensuring it is as far removed from these homesteads as possible is likely to see this impact being of low significance.

“No-go”: No significant changes are expected to the property value and existing land use status quo should the project not proceed. However, an argument could be put forward that should the project proceed, and a number of the renewable energy projects planned for the surrounding area undergo development, that an associated demand for residential housing (both short and longer term) could be expected in the Springbok area. This demand could lead to an escalation in residential housing prices, as has been observed in smaller rural towns such as De Aar and larger ones such as Upington, that are the locations of numerous wind, photovoltaic and concentrated solar power projects developed in the past 5 years. This would be a cumulative an indirect impact occurring over a period of time, but for the purposes of design phase impact assessment it is assumed that there will be no change to the status quo in the short term.

Table 6-6: Property value and land use

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Property value and land use																				
Project activity:	**Planning and design phase**																			
Alternative 1	Impacts on existing tourist attractions, accommodation and guest farms. Potential property value impacts on the western edge of Springbok where this corridor passes through 3 densely settled residential areas.	8	4	3	3	4	3	66	M	M	6	3	2	1	2	2	26	L	L	Ensure that the line I as least disruptive on scenic panoramas in the vicinity of the Naries Namakwa retreat. The “pinch point” on Alternative 1’s western approach to Springbok must be carefully sighted to avoid residential areas and housing if this is selected as the preferred option by Eskom.
Alternative 4	No significant impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 5	This alternative passes in close proximity to various farmsteads east of Carolusberg as it deviates northwards from Alternative 1	6	3	2	1	2	2	26	L	L	6	3	2	1	2	2	26	L	L	Ensure the powerline route is kept as far removed as possible from homesteads I this area.
“No-go” alternative		No change to status quo									No change to status quo									N/A

6.2.7 Physical Resettlement and Economic Displacement

Alternative 1: This route option potentially the most significant from an economic displacement perspective (temporary or permanent loss of agricultural land, loss in tourism numbers or visitors and bed nights, potentially developable land portions on the periphery of Springbok being constrained by the servitude etc.) potentially affecting both cultivated agricultural land and residential areas on the western approach to Springbok. The existing powerline servitude in this area also potentially presents challenges in accommodating a new servitude that doesn't impact on surrounding residential areas. It holds the potential to be of moderate negative significance but can be low if mitigated accordingly. There is no foreseeable reason through why this routing would result in any physical resettlement of households if avoidance of these is a primary objective of the Eskom design team.

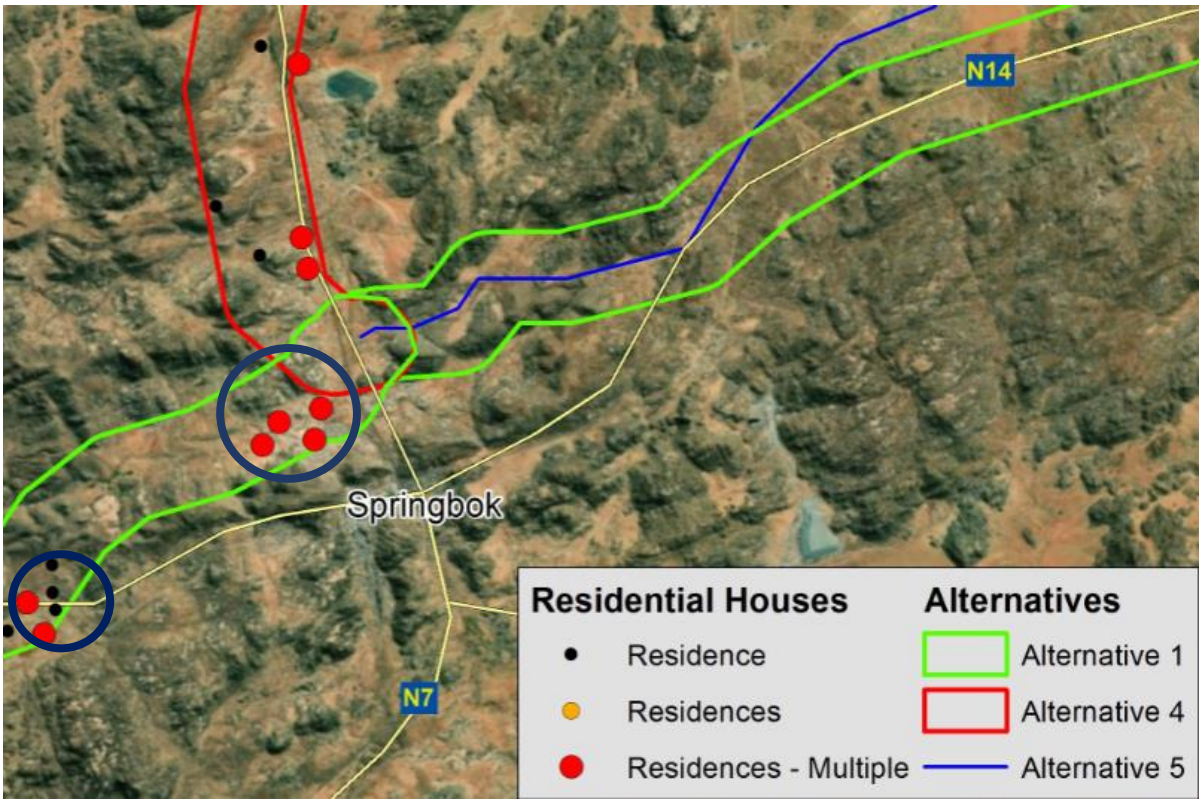

Figure 6-3: Spatial constraints or "pinch points" imposed on Alternative 1 by the prevailing topography and suburban residential and peri-urban areas (blue circles) west of Springbok

Alternative 4: As can be observe from Figures 6-3 above, and 6-4 to 6-6 that follow, it is unlikely that this northern approach to Nama substation will impact on any residences within this corridor if it utilises the western portion thereof in its approach to Nama substation. While not as constrained as Alternative 1 in this regard, there are multiple residences and suburban development along the N7 road in the vicinity of Okiep that would require a deviation to the west of the corridor to avoid these houses. These impacts will be of low to negligible significance.

Alternative 5: This option is also highly unlikely to require physical resettlement, however, a portion of this routing that is in close proximity to existing farmsteads (homes and associated agricultural infrastructure) just east of Carolusberg as this options deviates northwards from

Alternative 1 (Figure 6-5). From a visual intrusion and potential interruption to agricultural activity perspective (only livestock potentially) this option should also be avoided, but also likely to be of low overall significance.

“No-go”: Should the project not proceed the status quo will remain unchanged.

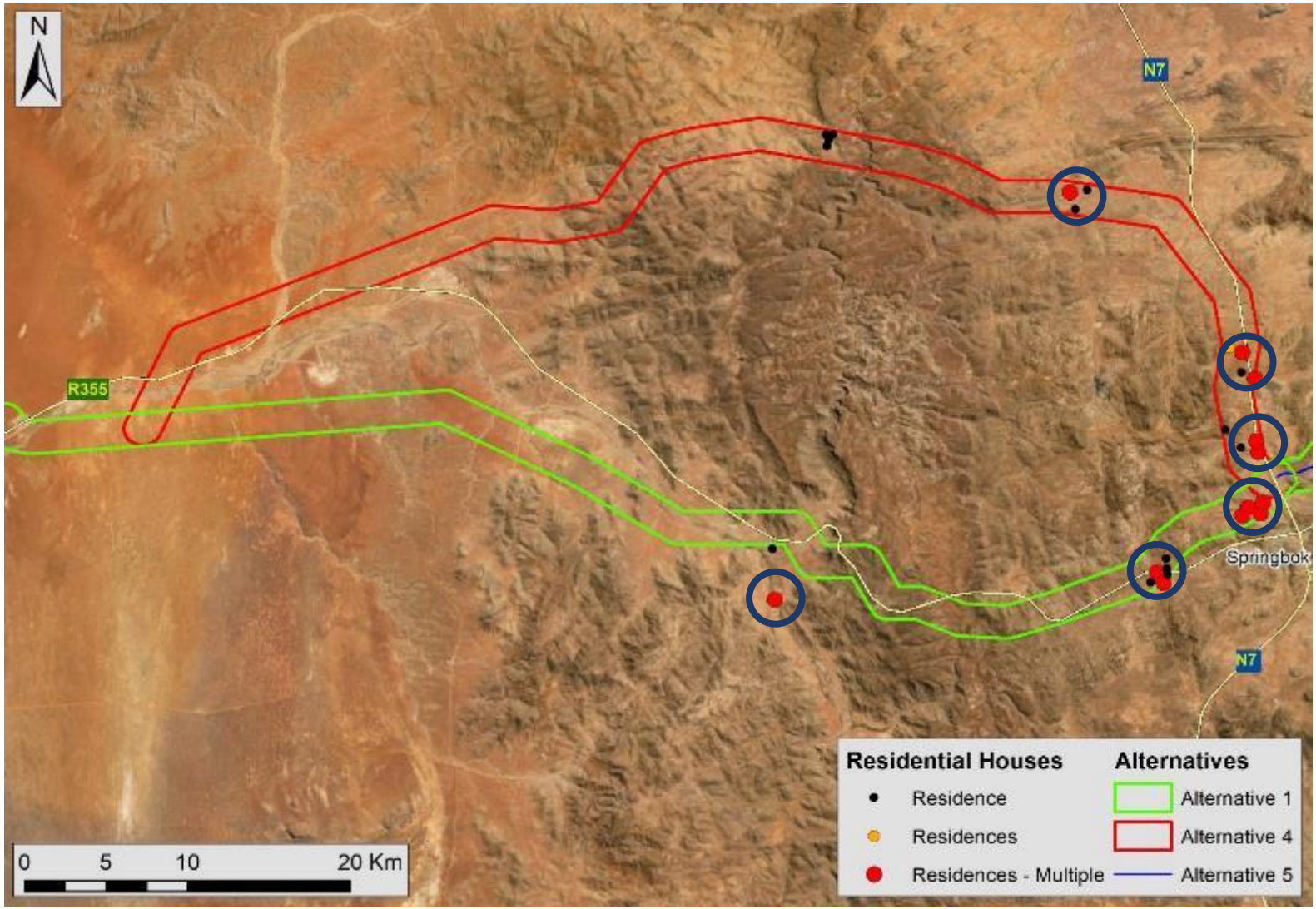

Figure 6-4: Residential houses and settlements- Gromis substation to Springbok (blue circles represent more densely settled areas)

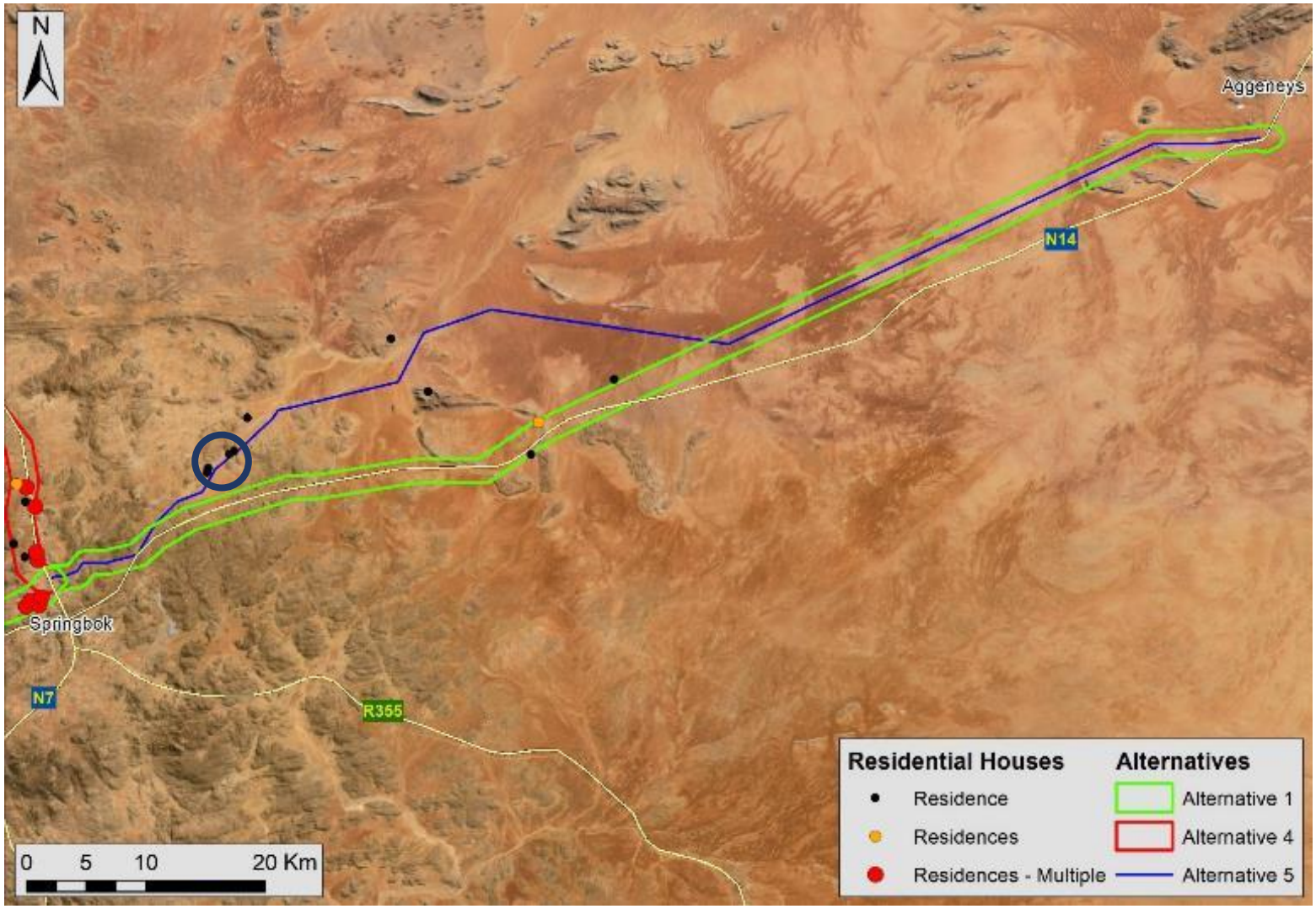

Figure 6-5: Residential houses and settlements - Springbok to Aggeneis substation

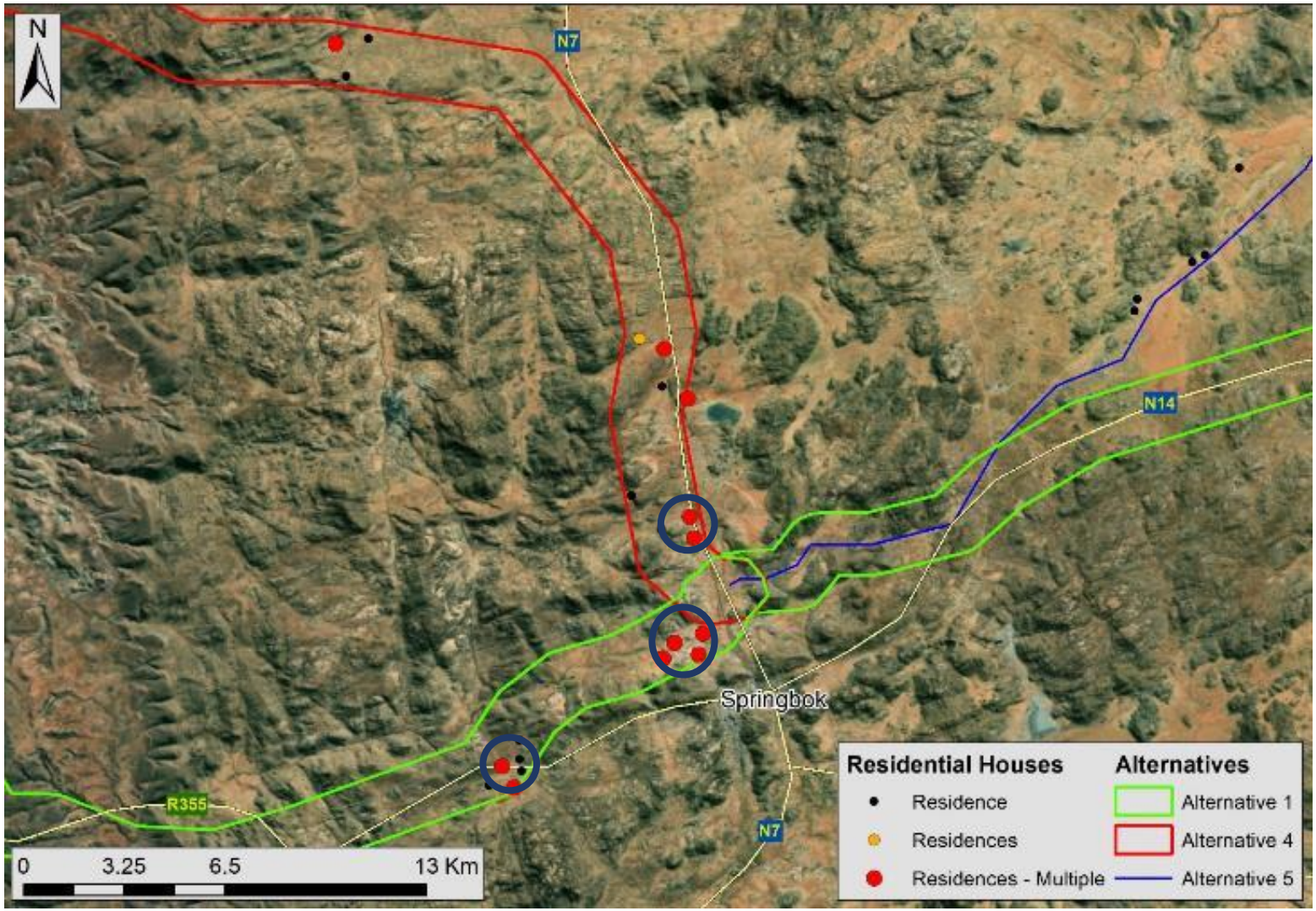

Figure 6-6: Residential houses and settlements - Alternative 1 and 4 approaches into Nama substation

Table 6-7: Physical resettlement or economic displacement

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																	MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION								
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Physical resettlement or economic displacement																				
Project activity:	**Planning and design phase**																			
Alternative 1	Pinch point west of Springbok holds the highest risk for economic displacement both farmers cultivating land in the area, as well as landowners on these approaches into Springbok. The residential area that is adjacent to the existing powerline servitude could also possibly be affected.	8	4	3	3	4	3	66	M	M	6	3	2	1	2	2	26	L	L	Avoid unnecessary sterilisation of residential land parcels. Explore alternative horizontal alignment within this corridor further northwards.
Alternative 4	No impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 5	No impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
"No-go" alternative		No change to status quo									No change to status quo									N/A

6.3 CONSTRUCTION PHASE IMPACTS

6.3.1 Job Creation and Skills Development

As for the planning and design phase these impacts are not expected to vary significantly for the alternatives under assessment at a municipal level, however, should communities like Bulletrap be prioritised for employment these impacts will be more significant at this local level. However, all alternatives are deemed to be of high beneficial significance should the economically marginalised settlements be prioritised over a labour pool from larger towns such as Okiep and Springbok.

Table 6-8: Job creation and skills development

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Job creation and skills development;																				
Project activity:	**Construction phase**																			
Alternative 1	Similar benefits for all alternatives in terms of contribution to formal employment and potential skills provision.	6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	Prioritise economically marginalised communities for employment.
Alternative 4		6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	
Alternative 5		6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	

6.3.2 Direct and Indirect Economic Impacts

As for the preceding section, these benefits will be similar for alternatives at a macro or regional level in terms of their contribution to GDP and the stimulation of the economy. Once again, these benefits will be more significant if the economically marginalised communities are the primary beneficiaries and participants in these activities.

Table 6-9: Direct and indirect economic impacts

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Direct and indirect economic impacts																				
Project activity:	**Construction phase**																			
Alternative 1	Contributions to local and regional GDP, SMME activity stimulation, increased investment in the region etc.	6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	None put forward.
Alternative 4		6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	
Alternative 5		6	2	3	4	4	4	76	M (+)	M (+)	10	3	3	4	2	5	110	H (+)	H (+)	

6.3.3 Mining

Aside from possible temporary interruptions to the mining activities located immediately adjacent to Gromis substation it is very unlikely that construction activity will affect any currently operating mines. Its anticipated that Eskom, its contractors and the miner in question will ensure that any interruptions are limited. Accordingly, all the alternatives are likely to have low to negligible impacts on mining operations in the construction phase.

Table 6-10: Mining

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Mining																				
Project activity:	**Construction phase**																			
Alternative 1	Slight interruptions to mining activity near Gromis substation is possible.	6	3	2	2	4	3	51	M	M	2	2	2	1	2	2	18	L	L	Sufficient engagement and liaison between key actors will ensure this can be manged.
Alternative 4	No impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 5	No impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.

6.3.4 Agriculture

Construction phase impacts are anticipated to be insignificant within the exception of Alternative 1 potentially.

Alternative 1: This is the only alternative that can potentially impact on cultivated land during the construction period. Should construction activities no be timed and managed in a manner that does not interfere with these activities and crop yields it will be of low significance, but of moderate negative significance if not.

Alternative 4: No significant impacts anticipated – only traverses uncultivated land.

Alternative 5: No significant impacts anticipated – only traverses uncultivated land.

Table 6-11: Agriculture

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Agriculture																				
Project activity:	**Construction phase**																			
Alternative 1	Impacts on cultivated land or crops.in the western approach to Springbok.	6	3	2	2	3	3	48	M	M	6	3	2	1	2	2	26	L	L	Ensure construction activity is timed to avoid disturbances to standing crops and time construction in a manner that avoids peak season or harvesting activities. Adhere to the management principles and mitigation measures contained in the Generic EMPr.
Alternative 4	No impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 5	No impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.

6.3.5 Tourism

Construction phase impact on tourism will be similar for all alternatives, with these largely revolving around the visual intrusion of these activities on more remote tourism establishments that will be in proximity to these activities. Careful selection of construction camps, laydown or stockpile areas for construction materials should be sited with these sensitivities in mind. Provided these activities are appropriately managed by Eskom and is contractors and don't result in inconveniences (excessive construction vehicle movements and associated traffic delays for example) it is unlikely that these impacts will be of significance.

Table 6-12: Tourism

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Tourism and Heritage																				
Project activity:	**Construction phase**																			
Alternative 1	None anticipated. Provided construction activities are appropriately managed and any tourism attractions and features are taken into account when siting camps, stockpiles, laydown areas and potential heavy vehicle movements are taken into consideration.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	Adhere to the management principles and mitigation measures contained in the Generic EMPr.
Alternative 4		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	
Alternative 5		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	

6.3.6 Property Value and Land Use

Property value impacts are expected to be negligible in the construction stages as any potential implications in this regard are most likely to eventuate in the operational phase of the powerline. Construction activities that impact on existing land uses and activities are, however, more prevalent during this period. As for potential agricultural impacts, any activities such as grazing, commercial or industrial activity, small scale mining or quarrying etc. that may be occurring in these corridors, but has not been identified as yet in the screening process to date, could potentially experience disruptions or nuisances if they are located near the eventual servitude as the construction spread progresses. Again, this requires careful siting at the detailed design phase to ensure this disruptions are minimised and that the Generic EMPr specifications for all construction aspects and activities are adhered to.

Table 6-13: Property value and land use

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Property value and land use																				
Project activity:	**Construction phase**																			
Alternative 1	Only if Alternative 1 is utilised in its entirety is there a possibility it could constrain residential development to the west of Springbok in the future.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	Ensure construction activity remains within the construction servitude and does not affect neighbouring land portions and/or landowner activities.
Alternative 4		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	
Alternative 5		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	

6.3.7 Physical Resettlement and Economic Displacement

Alternatives 4 and 5 are not anticipated to be of significance during the construction phase on the assumption that any potentially negative impacts in this regard (construction activity in proximity to residential properties, commercial activities, high value agricultural land etc.) will have been identified in the detailed design and land acquisition negotiation phases and thereby avoided by the final route. The construction pages activities for Alternative 1 could as previously mentioned hold implications for farmers and landowners on the western edge of Springbok, as well as residents of the suburban areas in proximity to the existing powerline.

Table 6-14: Physical resettlement or economic displacement

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Physical resettlement or economic displacement																				
Project activity:	**Construction phase**																			
Alternative 1	Potential disturbances to landowners and residents on the western edge of Springbok arising from construction activity.	6	3	2	2	3	3	48	M	M	2	2	2	1	2	2	18	L	L	Ensure final route design is cognizant of sensitives identified in the BAR and land acquisition processes.
Alternative 4	No significant impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	
Alternative 5	Potential disturbances to landowners and residents due east of Concordia.	6	3	2	2	3	3	48	M	M	2	2	2	1	2	2	18	L	L	

6.4 OPERATIONAL PHASE IMPACTS

6.4.1 Job Creation and Skills Development

This will be negligible during the operational phase as Eskom personnel will be responsible for maintenance activities. There will be limited benefit to contractors and SMME's that Eskom generally does employ for certain activities like servitude vegetation trimming, security personnel etc. and should the economically marginalised communities be prioritised for these services or positions it will be of more benefit at the local level.

Table 6-15: Job creation and skills development

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Job creation and skills development;																				
Project activity:	**Operational phase**																			
Alternative 1	Limited formal employments, some Eskom goods and services spends likely to benefit local communities.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 4		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	
Alternative 5		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	

6.4.2 Direct and Indirect Economic Impacts

The powerline itself will not result in any significant contributions to the economy during the operational phase, however, as mentioned previously maintenance activities will require spends on local goods and services and ensure that this cash does flow through these communities. These impacts will also be similar for all alternatives. The real economic benefit of the powerline is likely to be cumulative in that it will allow for the development of numerous planned renewable energy facilities in the REDZ, and the development of these will have highly significant direct and indirect benefits for the regional economy.

Table 6-16: Direct and indirect economic impacts

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Direct and indirect economic impacts																				
Project activity:	**Operational phase**																			
Alternative 1	Ongoing economic benefits (direct, indirect and cumulative) as a result of the powerline's facilitation of economic growth in the region.	2	2	2	1	2	2	18	L	L	6	4	2	1	2	3	45	M	H +	Renewable energy sector development in the study area will be a highly significant project induced cumulative benefit to the regional economy.
Alternative 4		2	2	2	1	2	2	18	L	L	6	4	2	1	2	3	45	M	H +	
Alternative 5		2	2	2	1	2	2	18	L	L	6	4	2	1	2	3	45	M	H +	

6.4.3 Mining

Alternative 5 holds the greatest potential to constrain future mining activities within the study area. The Alternative 1 routing from Springbok to Aggeneys is along existing powerline and road reserves that have in effect already precluded mining in these servitudes. A widening of these existing reserves/servitudes to accommodate the powerline does by extension imply the least potential impact of future mining operations and existing ones.

Table 6-17: Mining

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Mining																				
Project activity:	**Operational phase**																			
Alternative 1	No significant impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 4	No significant impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 5	Potential impacts on future mining operations in the Springbok to Aggeneys corridor.	6	4	2	2	3	3	51	M	M	2	2	2	1	2	2	18	L	L	Discard this alternative if subsequent investigations to this report indicate there are highly viable deposits along this routing that are likely to become operational mines.

6.4.4 Agriculture

Provided all issues and concerns raised are addressed in the design and construction phases of the powerline, it should have no significant impacts on agricultural activity once operational.

Table 6-18: Agriculture

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Agriculture																				
Project activity:	**Operational phase**																			
Alternative 1	No significant impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 4		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	
Alternative 5		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	

6.4.5 Tourism

The main tourism attractions in the study area, namely Goegap Nature Reserve, other areas of floral significance in the general region, the postulated coastal tourism corridor, historical towns of Okiep etc. are located in areas that are already traversed by major powerline and road servitudes. Goegap in particular is “isolated” from these features by virtue of the areas topography. On the assumption that individual establishments like the Naries Namakwa Retreat and the various guest farms in the area will not suffer undue economic losses that can directly be attributed to the presence of the powerline, the operational phase impact on tourism can be expected to be negligible.

Table 6-19: Tourism

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Tourism and Heritage																				
Project activity:	**Operational phase**																			
Alternative 1	No significant impacts anticipated.	2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	None put forward.
Alternative 4		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	
Alternative 5		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	

6.4.6 Property Value and Land Use

Alternative 1's traverse through the western approaches to Springbok is the only operational phase area of concern for impacts on farm, industrial or residential properties in this area. Again, these impacts will largely stem from people's perceptions of the powerline in terms of its visual impact, or the possibility that a much larger powerline is now a lot closer to their properties also presents health and safety risks to them, or the simple fact of potential buyers will be discouraged. This could result from a combination of various factors that are highly individual in nature. As noted previously, should the project proceed and the planned energy sector projects in the study area be developed it may well lead to an escalation housing prices as demand for them increases. However, the if and when of this scenario is still a large unknown, and this project remains speculative in nature. Alternative 1 is deemed to be potentially of moderate negative significance if the routing through this area is not sensitive to adjacent owners and occupiers of land. However, informed final route design and open and transparent land acquisition negotiations that are responsive to individual and community sensitivities on these issues can largely avoid this scenario in the operational phase from materialising.

Table 6-20: Property value and land use

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Property value and land use																				
Project activity:	**Operational phase**																			
Alternative 1	Depreciation in property value.	8	4	3	3	4	3	66	M	M	6	3	2	1	2	2	26	L	L	None put forward
Alternative 4		2	2	2	1	2	2	18	L	L	2	2	2	1	2	2	18	L	L	
Alternative 5		6	3	2	1	2	2	26	L	L	6	3	2	1	2	2	26	L	L	

6.4.7 Physical Resettlement and Economic Displacement

These impacts are not expected to be of significance in the operational phase.

Table 6-21: Physical resettlement or economic displacement

PROJECT ALTERNATIVE	POTENTIAL ENVIRONMENTAL IMPACT / NATURE OF IMPACT	ENVIRONMENTAL SIGNIFICANCE																		MITIGATION
		BEFORE MITIGATION									AFTER MITIGATION									
		Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	Magnitude	Duration	Extent	Irreplaceable	Reversibility	Probability	TOTAL (SP)	Significance	CUMULATIVE	
Physical resettlement or economic displacement																				
Project activity:	**Operational phase**																			
Alternative 1	No significant impacts anticipated.	6	3	2	1	2	2	26	L	L	6	3	2	1	2	2	26	L	L	None put forward.
Alternative 4		6	3	2	1	2	2	26	L	L	6	3	2	1	2	2	26	L	L	
Alternative 5		6	3	2	1	2	2	26	L	L	6	3	2	1	2	2	26	L	L	

7 KEY FINDINGS

7.1 SUMMARY OF KEY FINDINGS

The key findings of this report are:

- Alternative 1 (the westerly section between Gromis and Nama substations) is the least preferred from a potential tourism impact perspective;
- The same section is also the only alternative that stands to impact on agricultural activity in the construction phase, and could potentially impose a minimal level of impact in the operational phase of the powerline;
- Similarly, although physical resettlement is not a necessary requirement for the project and can be easily avoided in its entirety, this alterative holds the most potential to impact on residential or suburban areas and result in potential economic displacement (loss of income, temporary or permanent disturbances to their properties etc.) for landholders in this corridor. Alternative 5 also passes in close proximity to several residences and farmsteads as it turns northwards (to the east of Concordia) and is likely to result in construction phase disturbances to these residents and their agricultural activities. It will also be very visually imposing for these residents due to its proximity;
- Should the above considerations be borne in mind when selecting the preferred route alignment for further assessment it is unlikely that the powerline would lead to notable declines in property value. As stated previously, one of the potential cumulative impacts of the powerline form a property value perspective is that as more renewable energy projects come into development in the NKLM it is likely to spur an increase in the price of residential properties. It is also not unrealistic to expect agricultural land prices to escalate for those properties that are suited to renewable energy project development;
- All of the alternatives will have similar beneficial and direct economic implications for the regional GDP, however, those alternatives (such as Alternative 4) that can prioritise and optimise the wage and goods and services expenditure on the more remote economically marginalised communities along their respective routings will have a much more beneficial impact at this micro/local level;
- Alternative 4 is also assumed to be the least likely to impact on existing and future mining activities as per the information at CES' disposal, and Alternative 5 should be avoided as it is the most likely to do so in the future. However, this assumption must be tested for all corridors going forward, especially the preferred route that will be subject to the BAR process required for environmental authorisation through the further interrogation of available data and requesting comments from prospecting rightsholders during the respective public participation stages of these respective processes; and
- Potential impacts on tourism attractions and operations, as well strategic development initiatives in this regard identified in the SDF and IDP documents, are likely to be minimal should the western section (the Kleinzee - Springbok leg only) be ruled out as a preferred option.

The summary impact statement is provided below.

7.2 SUMMARY IMPACT STATEMENT

The need and desirability for the project is beyond question as it is apparent that future economic growth - both in the NKLM and at a regional level - and ensuring security of local electricity supply, urgently requires the construction thereof. While this high level economic impact assessment has identified issues and areas if concern as it relates to the various corridor alternatives under assessment, it is not apparent to the authors of this report that any of these permutations are fatally flawed from an economic perspective, but they will have varying levels of benefit or negative impact at the local level. The potential job creation and skills development potential of the project, while short lived (construction phase), will be of significant benefit to local economically marginalised communities if they are prioritised to receive and participate in these benefits. The direct and indirect economic benefits arising from the project will also be notable, but mostly limited to the powerline's construction phase. However, the real benefits are likely to be cumulative in nature in that the powerline and substation network will enable the development of the energy sector projects planned for the study area, which in turn will stimulate the local economy whose GDP has been in decline for some time.

Impacts on existing and potential mining operations are likely to be relatively insignificant provided the eventual alignment follows existing powerline servitudes and road reserves as far as possible. Some impacts on current agricultural can be anticipated, however, these are also expected to be of low significance should due consideration be taken of these activities in the final design phase of the preferred and selected route. Tourism impacts are likely to be of low significance at the regional level, but do stand the risk of impacting more significantly on a few individual establishments or operations. For this reason, and by applying the precautionary principle, the section of the corridor from Gromis to Nama substation along Alternative 1 should be avoided, despite the existence of a powerline and servitude along its entire length.

There is no reason why the project would require the physical resettlement of people or households, and the potential for economic displacement of landowners or users will be low provided that all income generating or economic activities occurring on affected land portions are noted in subsequent phases of the assessment process, and disruptions to these avoided or minimised. Land use impacts will be negligible provided the appropriate impact avoidance, mitigation and management principles are adhered to.

In summary, the project will have far more beneficial economic impacts for the residents of the NKLM and its economy that any anticipated negative ones, and where these do eventuate it will be in highly localised or individual situations where it is assumed that affected persons will have recourse for financial and or legal remedy to compensate for any losses that are demonstrated to be the result of the proposed project's activities.

8 CONCLUSION AND RECOMMENDATIONS

8.1 CONCLUSION

The below combination of Alternatives 1 and 4 is the preferred route alignment from an economic impact perspective.

Figure 8-1: The preferred route alternative

This conclusion is as a result of the following factors:

- Existing tourism operations will be the least affected by this route alignment;
- Current and planned mining areas less likely to be impacted by virtue of this route following the existing powerline servitudes and road reserves for the majority of the Springbok to Aggeneys section that in effect already precludes future development of these corridor areas for mining purposes;
- No cultivated agricultural land is likely to be disturbed, or stock farming operations significantly affected, in either the construction or operational phases of the powerline;
- No physical resettlement would be necessary and economic displacement is likely to be of minimal negative significance;
- More economically marginalised communities like Bulletrap and Nababeep, who by virtue of being in very close proximity to the preferred alternative, stand to benefit from potential employment and skills development initiatives should Eskom and their contractors prioritise these settlements for employment. It can be expected that some

level of SMME development can be fostered over time as a result of their proximity to the potential renewable energy projects planned for the north of Springbok; and
- Any potential renewable energy projects located north of Springbok will have an easier (shorter and cheaper) connections to the grid if the preferred alternative is utilised. It is these projects (and those already earmarked for the Kleinzee coastal corridor), and the electricity sector in general, that is expected to be a significant driver of future economic growth in the district.

The Alternative 1 section between Gromis and Nama substations should be deemed the least preferred, and only considered a possibility if other specialist inputs into this screening and impact assessment process consider Alternative 4 to be fatally flawed.

8.2 RECOMMENDATIONS

All pertinent mitigation and impact management measures prescribed in the *Generic Environmental Management Programme (EMPR)* will be adhered to by Eskom and its contractors, however, the following recommendations are put forward:

- Should Alternative 1 in its entirety be selected as the preferred corridor it is essential that the powerline route be shielded as far as is possible from those accommodation and tourism establishments that are along this route. In the Naries Namakwa Retreat situation it is better that the powerline run south of this and the Springbok Kleinzee road (R355) and remain as close as possible to it in its approach to Springbok;
- Given the vast areas and farm portions under mineral prospecting applications for which rights have either been issued, are in process, dormant or have lapsed, it is recommended that the potential for any viable future mining projects within the confines of any of the alternatives be a dedicated objective of the public participation process for the Screening Report. Similarly, the preferred alignment that will be subject to its own participation process when the BAR should make this a priority. Although it is the authors opinion that Alternative 4 is unlikely to impact on future mining activities by virtue of it being removed from existing or historical operations, it will be necessary that the forthcoming BAR process confirm this; and
- Eskom should pre-emptively engage with the NKLM and representatives of the economically marginalised communities within the study area as to how maximise potential employment opportunities locally, what sorts of skills development is in fact possible, and what would best serve these employees in terms of future energy sector or related work opportunities. Any SMME development opportunities that can be identified in collaboration with stakeholders needs to be undertaken prior to the commencement of construction activities.

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APPENDIX A: ASSESSMENT METHODOLOGY

For each potential impact, the DURATION (time scale), EXTENT (spatial scale), IRREPLACEABLE loss of resources, REVERSIBILITY of the potential impacts, MAGNITUDE of negative or positive impacts, and the PROBABILITY of occurrence of potential impacts must be assessed. The assessment of the above criteria will be used to determine the significance of each impact, with and without the implementation of the proposed mitigation measures. The scales to be used to assess these variables and to define the rating categories are tabulated in the tables below.

Evaluation component	Ranking scale and description (criteria)
DURATION	**5 - Permanent** **4 - Long term**: Impact ceases after operational phase/life of the activity (> 20 years). **3 - Medium term**: Impact might occur during the operational phase/life of the activity (5 to 20 years). **2 - Short term**: Impact might occur during the construction phase (< 5 years). **1 - Immediate**
EXTENT (or spatial scale/influence of impact)	**5 - International**: Beyond National boundaries. **4 - National**: Beyond Provincial boundaries and within National boundaries. **3 - Regional**: Beyond 5 km of the proposed development and within Provincial boundaries. **2 - Local**: Within 5 km of the proposed development. **1 - Site-specific**: On site or within 100 m of the site boundary. **0 -** None
IRREPLACEABLE loss of resources	**5 – Definite** loss of irreplaceable resources. **4 – High** potential for loss of irreplaceable resources. **3 – Moderate** potential for loss of irreplaceable resources. **2 – Low** potential for loss of irreplaceable resources. **1 – Very low** potential for loss of irreplaceable resources. **0 - None**
REVERSIBILITY of impact	**5 –** Impact **cannot** be reversed. **4 – Low** potential that impact might be reversed. **3 – Moderate** potential that impact might be reversed. **2 – High** potential that impact might be reversed. **1 –** Impact **will be** reversible. **0 –** No impact.
MAGNITUDE of <u>negative</u> impact (at the indicated spatial scale)	**10 - Very high**: Bio-physical and/or social functions and/or processes might be *severely* altered. **8 - High**: Bio-physical and/or social functions and/or processes might be *considerably* altered. **6 - Medium**: Bio-physical and/or social functions and/or processes might be *notably* altered. **4 - Low** : Bio-physical and/or social functions and/or processes might be *slightly* altered. **2 - Very Low**: Bio-physical and/or social functions and/or processes might be *negligibly* altered. **0 - Zero**: Bio-physical and/or social functions and/or processes will remain *unaltered.*
MAGNITUDE of <u>POSITIVE</u> IMPACT (at the indicated spatial scale)	**10 - Very high (positive)**: Bio-physical and/or social functions and/or processes might be *substantially* enhanced. **8 - High (positive)**: Bio-physical and/or social functions and/or processes might be *considerably* enhanced. **6 - Medium (positive)**: Bio-physical and/or social functions and/or processes might be *notably* enhanced. **4 - Low (positive)**: Bio-physical and/or social functions and/or processes might be *slightly* enhanced. **2 - Very Low (positive)**: Bio-physical and/or social functions and/or processes might be *negligibly* enhanced. **0 - Zero (positive)**: Bio-physical and/or social functions and/or processes will remain *unaltered.*
PROBABILITY (of occurrence)	**5 - Definite**: >95% chance of the potential impact occurring. **4 - High probability**: 75% - 95% chance of the potential impact occurring. **3 - Medium probability**: 25% - 75% chance of the potential impact occurring **2 - Low probability**: 5% - 25% chance of the potential impact occurring. **1 - Improbable**: <5% chance of the potential impact occurring.

CUMULATIVE impacts	**High**: The activity is one of several similar past, present or future activities in the same geographical area, and might contribute to a very significant combined impact on the natural, cultural, and/or socio-economic resources of local, regional or national concern. **Medium**: The activity is one of a few similar past, present or future activities in the same geographical area, and might have a combined impact of moderate significance on the natural, cultural, and/or socio-economic resources of local, regional or national concern. **Low**: The activity is localised and might have a negligible cumulative impact. **None**: No cumulative impact on the environment.

Once the evaluation components have been ranked for each potential impact, the significance of each potential impact will be assessed (or calculated) using the following formula:

SP (significance points) = (duration + extent + irreplaceable + reversibility + magnitude) x probability

The maximum value is 150 SP (significance points). The unmitigated and mitigated scenarios for each potential environmental impact should be rated as per the table below.

Significance Points	Environmental Significance	Description
100 – 150	**High (H)**	An impact of high significance which could influence a decision about whether or not to proceed with the proposed project, regardless of available mitigation options.
40 – 99	**Moderate (M)**	If left unmanaged, an impact of moderate significance could influence a decision about whether or not to proceed with a proposed project.
<40	**Low (L)**	An impact of low is likely to contribute to positive decisions about whether or not to proceed with the project. It will have little real effect and is unlikely to have an influence on project design or alternative motivation.
+	**Positive impact (+)**	A positive impact is likely to result in a positive consequence/effect, and is likely to contribute to positive decisions about whether or not to proceed with the project.

APPENDIX B: ADHERENCE TO THE NEMA EIA REQUIREMENTS FOR SPECIALIST STUDIES

The Environmental Impact Assessment (EIA) Regulations, promulgated in terms of the National Environmental Management Act (NEMA, Act no. 107 of 1998 as amended) dated 8th of December 2014, were amended on the 7th of April 2017. In terms of Appendix 6 of the Amended EIA Regulations (2014 and subsequent 2017 amendments), a Specialist Report must contain all the information necessary for a proper understanding of the nature of issues identified. The table below provides a list of all the information needed in a Specialist report and the right hand column of this table indicates the relevant sections of this Report that address these requirements.

(1) A SPECIALIST REPORT PREPARED IN TERMS OF THE AMENDED NEMA EIA REGULATIONS (2014 AND SUBSEQUENT 2017 AMENDMENTS) MUST CONTAIN –	**Relevant sections of this Report**
(a) Details of- (i) The specialist who prepared the report; and (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae; (b) A declaration that the specialist is independent in a form as may be specified by the competent authority;	*Chapter 1 & Appendix D*
(c) An indication of the scope of, and the purpose for which, the report was prepared;	*Chapter 1*
(cA) An indication of the quality and age of the base data used for the specialist report;	*Chapters 1 & 2*
(cB) A description of the existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	*Chapter 6*
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	*Not Applicable*
(e) A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	*Chapter 1*
(f) Details of an assessment of a specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure inclusive of a site plan identifying alternatives;	*Chapter 6*
(g) An identification of any areas to be avoided, including buffers;	*Not Applicable*
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	*Not Applicable*
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	*Chapter 1*
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	*Chapters 6 & 7*
(k) Any mitigation measures for inclusion in the EMPr;	*Chapters 6 & 8*
(l) Any conditions for inclusion in the environmental authorisation;	*Not Applicable*
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation;	*Not Applicable*
(n) A reasoned opinion-	*Chapter 8*

(i) Whether the proposed activity, activities or portions thereof should be authorised; and (iA) Regarding the acceptability of the proposed activity or activities, and (ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	
(o) A description of any consultation process that was undertaken during the course of preparing the specialist report;	*Chapter 4*
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	*Not applicable*
(q) Any other information requested by the competent authority.	*None at this stage.*

APPENDIX C: SPECIALIST DECLARATION

I, Marc Hardy, declare that in undertaking this specialist Economic Impact Assessment for the Gromis-Nama-Aggeneys 400 kV powerline:

- I act as the independent specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

CES Environmental and Social Advisory Services

Name of company (if applicable):

01 December 2019

Date:

APPENDIX D: SPECIALIST CV'S