ENVIRONMENTAL IMPACT ASSESSMENT FOR DOORNHOEK FLUORSPAR MINE PROJECT

SOCIO-ECONOMIC IMPACT STUDY

SCOPING PHASE INPUT

MAY 2016

URBAN-ECON
Development Economists

Celebrate Development Diversity

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Experience: 11 years

Brief profile: Elena Broughton is a senior professional and the manager of the Innovation & Sustainable Development Unit at Urban-Econ. She has extensive knowledge in various fields of economic development that includes 11 years of experience in undertaking socio-economic impact assessment studies for a variety of private clients spanning the mining, manufacturing, energy, infrastructure, and retail sectors. She also acted as a peer reviewer in a number of socio-economic impact assessment studies and completed a few strategic socio-economic impact assessments. Her involvement in the field allowed her to develop a sound understanding of the South African environmental legislation and developmental policies and equipped her with a widespread knowledge of socio-economic implications and benefits of various new developments.

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Brief profile: **Ruan Fourie** has wide-ranging knowledge and experience in economic development analyses. His special field of interest relates to the development of the economy through innovation and new technologies to ensure a sustainable growth. This has included work in sustainable energy and industry development in sustainable and environmentally friendly means. He has been involved in various economic development studies, which incorporated liaison with communities to ensure local involvement. His skills have been applied in numerous economic impact, economic development, feasibility; infrastructure related and database development studies. Ruan has been involved with various stakeholders from various institutions, such as the dti, South African Post Office, DBSA, GIZ, SALGA, Department of Energy, Department of Science and Technology, SAPOA, SANEDI, Department of Environmental Affairs, etc. Correspondence with these institutions has developed his networking and communicative skills and ensured that his knowledge is accumulated in new industries outside his educational background.

DECLARATION OF INDEPENDENCE

I, Elena Konstantinovna Broughton, declare that:

- 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.
- 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.

Signed……. Date……..

DECLARATION OF INDEPENDENCE

I, Ruan Fourie, declare that:

- 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.
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Signed……. Date……..

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ABBREVATIONS AND ACRONYMS

CAGR	Compounded Average Growth Rate
DM	District Municipality
EIA	Environmental Impact Assessment
ENRC	Eurasian Natural Resources Corporation plc
IDP	Integrated Development Plan
LED	Local Economic Development
LM	Local Municipality
NDP	National Development Plan
NGPF	New Growth Path Framework
NIP	National Infrastructure Plan
PDP	Provincial Development Plan
RNLM	Ramotshere Moiloa Local Municipality
SA	South Africa
SIP	Strategic Infrastructure Project

1 INTRODUCTION

This document is prepared by Urban-Econ Development Economists (Urban-Econ) in request by Exigo Sustainability (Pty) Ltd (Exigo), on behalf of SA Fluorite (Pty) Ltd and Southern Palace (Pty) Ltd, the controlling interest of which belong to Eurasian Natural Resources Corporation plc (ENRC), to undertake a Socio-Economic Impact Study for the Doornhoek Fluorspar Project near Zeerust in the North West Province. The socio-economic impact study is conducted as part of the Environmental Impact Assessment (EIA) process managed by Exigo.

This document forms part of the deliverable for the scoping phase of the process and undertakes to determine the current socio-economic baseline characteristics of the preliminary delineated study area, as well as identify the potential influence of the proposed project on the surrounding economic activities and communities to guide the assessment during the next phase.

1.1 Scope of the Study

The purpose of the socio-economic impact assessment is to determine the potential socio-economic implications of the project activities and associated infrastructure, and to compare its effects with the “no-go” alternative. The “no-go” alternative assumes that the proposed Doornhoek Fluorspar Project is not established, which means that it represents the current status of the environment, including the socio-economic situation.

The current report is prepared as part of the socio-economic study and is used as an input into the scoping report that is compiled by Exigo. The scoping phase inputs address only a portion of the scope of work involved in the Socio-Economic Impact Assessment Study and enable the project team, as well as the client, to make more informed decisions regarding the way forward for the proposed project, from an environmental management point of view. The purpose of the socio-economic scoping report is as follows:

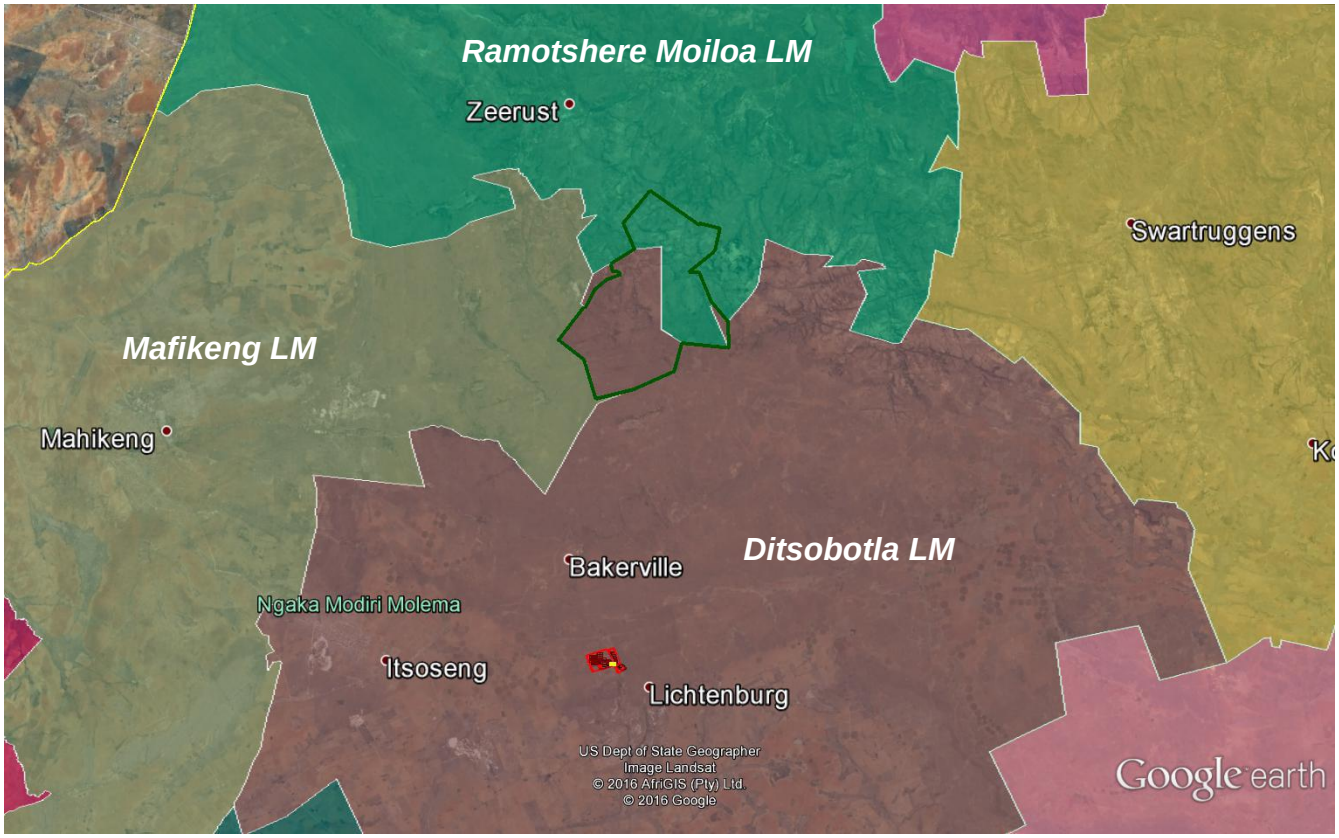
- Undertake a policy review and assess the alignment of the proposed project with the national, provincial and local socio-economic policies.
- Create a socio-economic profile for the study area using secondary data.
- Identify potential negative and positive economic impacts that could be generated by the proposed project during its life-cycle.
- Identify impacts and project effects (direct, indirect, induced, and cumulative) that will require further investigation and recommend an approach for perusal during the EIA phase for completion of the impact assessment exercise.
- Identify gaps in knowledge and data that will need to be addressed during the EIA phase.

1.2 Project Content, Location and Study Area Delineation

ENRC plans to develop a fluorspar operation at the Doornhoek Fluorspar Project near Zeerust. There is a strong history of acid grade fluorspar production in the area, dating back to the 1960s. Having secured the exploration rights over a large area, including permits held by SA Fluorite (Pty) Ltd and

Southern Palace (Pty) Ltd covering a total of nine farms surrounding Doornhoek 305JP, ENRC now wishes to progress from exploration to project development (exploration has shown that economically viable concentrations of fluorspar underlie these properties). ENRC proposes to mine 1.5 MT of ore per year over a minimum of 30 years, and likely much longer.

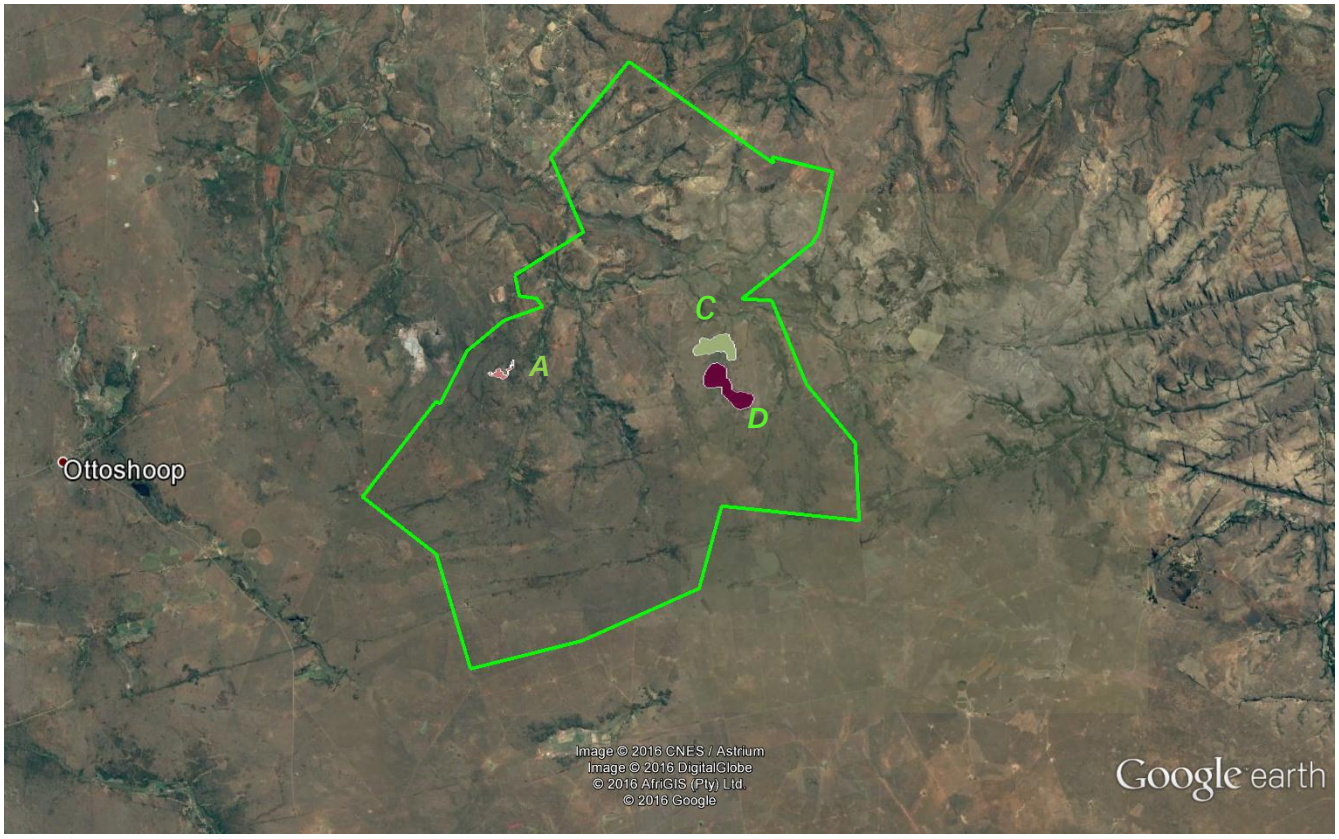
The majority of the mining right area is located in the Ditsobotla Local Municipality (LM), with a portion being extended over to the Ramotshere Moiloa LM. Both of these municipalities form part of the Ngaka Modiri Molema District Municipality (DM) in the North West Province (see Map 1-1).



Map 1-1: Mining right area relative to municipal boundaries

The mining of fluorspar on the proposed site is envisaged to be done in operation brackets of five-years each. Thus, the project's life will span more than a 30-year period (refer to Map 1-2):

- Years 1-5: During this period, construction of the processing plant and access roads will occur.
- Years 5-10 (year 1 to 5 of operations): Mining of resource area A. Ore will be trucked to processing plant via haul roads.
- Year 10 to 20 (year 6-15 of operations): Mining of resource area D
- Year 20-30 (year 16-25 of operations): Mining of resource area C & D
- Year 30+ (year 25-30 of operations): Mining of resource area D



Map 1-2: Resource areas A, C and D

1.3 Methodology for the Scoping Phase

The methodological approach adopted for conducting the scoping study includes three phases:

- **Data collection:** Secondary research encompassing the examination of relevant policies, local and provincial strategic documents, and secondary data presented by Stats SA and Quantec. The information obtained assists in providing a preliminary profile of the socio-economic environment that could potentially be affected. Google imagery is used to preliminary identify the land uses of the farms that will be affected by the project as well as any adjacent farms. Selected Interested and Affected Parties were engaged to gain better insight into the local socio-economic situation and gather land-use and socio-economic data concerning the directly and indirectly affected farms.

- **Baseline profiling:** A description of the study area is given in terms of selected socio-economic variables. It includes the analysis of parameters such as population size and household numbers, structure and growth of the economy, labour force and employment situation. Profiling is done by making use of the Quantec Research database, Stats SA's Census 2011 data, and various strategic documents produced for the relevant municipality. A brief profile of the local area, and specifically the directly affected zone of influence, is also provided.

- **Identification of the anticipated impacts:** This step includes the identification of the socio-economic impacts that could be expected during various phases of the project's life cycle and the way forward with respect to the collection of data required to quantify and qualify the impacts.

2 POLICY REVIEW

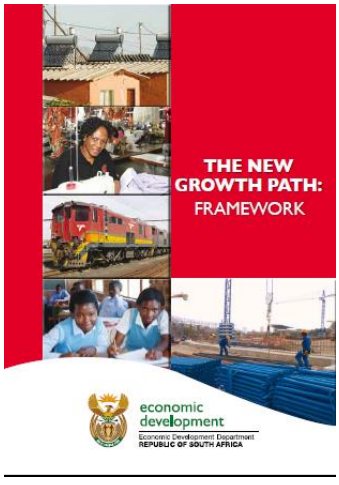
A policy review plays an integral role in the early stages of a project. The review provides a high level indication of whether a project is aligned with the goals and aspirations of the developmental policy within a country as well as at a local level. Furthermore, the analysis signposts any red-flag or developmental concerns that could jeopardise the development of the project and assist in amending it, preventing costly and unnecessary delays.

The following government strategic documents applicable to the delineated study areas were examined:

- National (South Africa):
  - New Growth Path Framework (NGPF) (2010)
  - National Development Plan (NDP) 2030 (2011 - 2030)
  - Industrial Policy Action Plan (IPAP) 2015/2016-2017/2018
- Regional:
  - North West Provincial Development Plan (PDP) 2030 (2013)
- Local:
  - The Revised Ditsobotla LM Integrated Development Plan (IDP) 2015/16 - 2017/18 (2013)
  - The Ditsobotla LM Local Economic Development (LED) Strategy (2016)
  - The Reviewed Ramotshere Moiloa LM Integrated Development Plan (IDP) 2015/2016

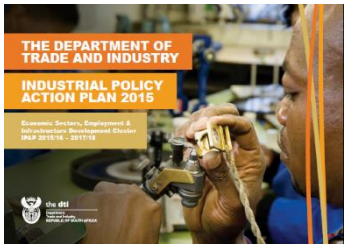
National policies and strategic plans alignment

From an economic perspective, the proposed project aligns with key national policies and strategies that identify mining as a crucial economic sector for job creation and economic growth, which are developmental priorities for the country:



- The **New Growth Path Framework (NGPF)** cites employment creation as one of the primary tools to stimulate and grow the national economy and lists six key sectors and activities that have potential for job creation. These include the mining industry with a particular emphasis on mineral beneficiation and on increasing the rate of minerals extraction.
- The **National Development Plan (NDP)** 2030 is informed by the New Growth Path and states that 11 million new employment opportunities must be created to improve the livelihoods of South Africans and grow the economy. It further states the key means for achieving the desired growth, including stimulation of private investment, involvement of labour intensive industries, and adequate beneficiation of the country's mineral resources.

- The **IPAP 2015/2016-2017/2018** in its sectoral focus area cluster specified "leveraging SA's mineral endowments" as being one of the key interventions for the country in the near future. in addition, fluorspar is an integral component in numerous products such as nuclear fuel, thin fill solar cells, lithium batteries, power transmission, petroleum, refrigerants, pharmaceuticals, smart chips, etc. Industries associated with the production of the above, i.e. green energy, white goods and electro-technical, ICT goods, pharmaceuticals, are also the priority industries for government interventions and for investment.

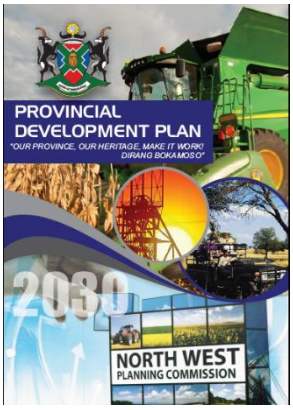


- The **Strategic Infrastructure Project (SIP) 4: Unlocking the economic opportunities in North West Province** is one of the 18 SIPs that government developed to fast track development and growth throughout South Africa. SIP 4 is one of the five geographic SIPs that were formulated. It aims to accelerate investments in road, rail, bulk water, treatment and transmission infrastructure; enable reliable supply and basic service delivery; facilitate the development of mining, agricultural and tourism activities; and trigger beneficiation opportunities in the Province. Therefore, the mining and processing of ore to generate acid grade fluorspar falls directly under this SIP.

- A **Beneficiation Strategy for the Minerals Industry of South Africa (2011)** identified five mineral commodities that have been prioritised for the advancement through various stages of value addition. These include energy commodities, iron and steel, pigment and titanium metal production, autocatalytic converters and diesel particular filters on the basis of Platinum Group Metals (PGMs), and jewellery fabrication. The strategy proposed a coordinated approach to stimulate and increase beneficiation activities in the country that among others include the finalisation of relevant legislative policies and implementation of strategic activities. the development of fluorspar mineral resources is implied through the exploitation of energy commodities that South Africa is endowed with, which include uranium and thorium and other commodities such as fluorspar used in production of nuclear fuel.

Regional policies alignment

The **North West Provincial Development Plan (PDP) 2030** identifies mining as one of its two priority economic sectors with a comparative advantage, together with agriculture. It is envisaged that mining will contribute an additional 55 000 jobs by 2030, representing about 14% of the Province's job creation. For that to happen, the sector must maintain an annual growth rate of 2.5% until 2030.



The PDP acknowledges that downstream production (beneficiation) should be promoted, but more economic potential exists in backward linkages (e.g. equipment and chemicals manufacturing). The sector should be sensibly supported by the Province through investment retention and promotion. However, the Plan also stresses the necessity to use water efficiently in a province that experiences water scarcity, as well as to protect the environment and water resources for future use once mining

activities have ceased. Furthermore, it aims to ensure that mining companies deliver more effectively on their socio-economic development obligations, with a particular focus on local enterprise development and local procurement of goods and services.

Local policy alignment

From a local policy perspective, the proposed project does not appear to contravene any strategy or plan developed by the Ditsobotla or Ramotshere Moiloa LM's. On the contrary, it seems to be in line with Key Performance Area (KPA) 3 "Local economic Development and Spatial Rationale", which is one of the five KPAs set out in the **Revised Ditsobotla LM Integrated Development Plan (IDP) for 2015/16 - 2017/18.** The main objectives under this KPA include:

- Developing "a vibrant, growing economic environment conducive for investment attraction and retention"; and
- Creating "an enabling environment for job creation and businesses to thrive".

The same applies to the **Reviewed Ramotshere Moiloa LM Integrated Development Plan (IDP) 2015/2016,** where the proposed project is in line with the Fourth Key Performance Area outlined in the IDP. KPA 4 pertains to local economic development and states the importance of transforming the local economy to create decent work and sustainable livelihoods for the all that live in the local municipality (Ramotshere Moiloa LM, 2015/2016).

The **Ditsobotla LM Local Economic Development (LED) Strategy** of 2016 identifies mining as one of the three most important sectors within the LM, along agriculture and tourism; and untapped mineral resources/deposits as one of the key opportunities for the growth of this sector (Ditsobotla LM, 2016). The potential projects listed under this opportunity include:

- investigation/prospecting to identify untapped resources
- promotion of mineral deposits to potential investors
- skills development and training
- facilitation of financial and funding support for small-scale mining activities
- establishment of one or more small mining operations within a cluster of small and larger operations that could co-operate in the utilisation of concentrators
- possibly smelting and refining plant in the Lichtenburg area
- assessment of slate mining potential.

Where the project is planned to be developed, namely within ward 14, the following activities have been identified by communities (Ditsobotla LM, 2016):

- Flagship projects in the Welverdient Carlisonia area include diamond, manganese mining and services
- In the Bakerville area: Food services, diamond mining, crop farming(vegetable), artisans, garden services, piggery, goat, and cattle farming, sewing, sport and recreation, recycling
- Flagship projects in the Rietvlei area include: slate mine, road making and house building
- Flagship projects in the Grasfontein area include: diamond, manganese mining and farming
- Flagship projects in the Bakerville area include diamond mining, recycling and farming

Conclusion

The proposed project appears to be in line with the policies and strategies formulated at the national, provincial and local levels. The development of mining activities, while protecting the environment and water resources, is seen as an opportunity for the further development of the North West Province, the Ditsobotla LM, and the Ramotshere Moiloa LM. However, agriculture and tourism are two other important activities for economic growth in the study area. Therefore, care should be taken when developing the project to ensure that it is not established to the detriment of the other key economic sectors in the area.

No spatial development frameworks for the North West, the Ngaka Modiri Molema DM, the Ramotshere Moiloa LM or the Ditsobotla LM were available during the writing of the scoping phase input. Therefore, it was not possible to determine whether the project is in line with the spatial visions of these administrative units or whether it may contradict them.

3 BASELINE INFORMATION

This chapter examines key socio-economic characteristics of the study area, as per delineation provided in the previous chapter. This is essential as it provides both qualitative and quantitative data related to the communities and economies under observation, creating a baseline against which the impacts can be assessed.

The specific focus of the socio-economic profile is on the Ditsobotla LM as well as the towns of Lichtenburg and Zeerust in the Ramotshere Moiloa LM.

3.1 Study area's composition and locational factors

The major towns situated in close proximity to the site include:

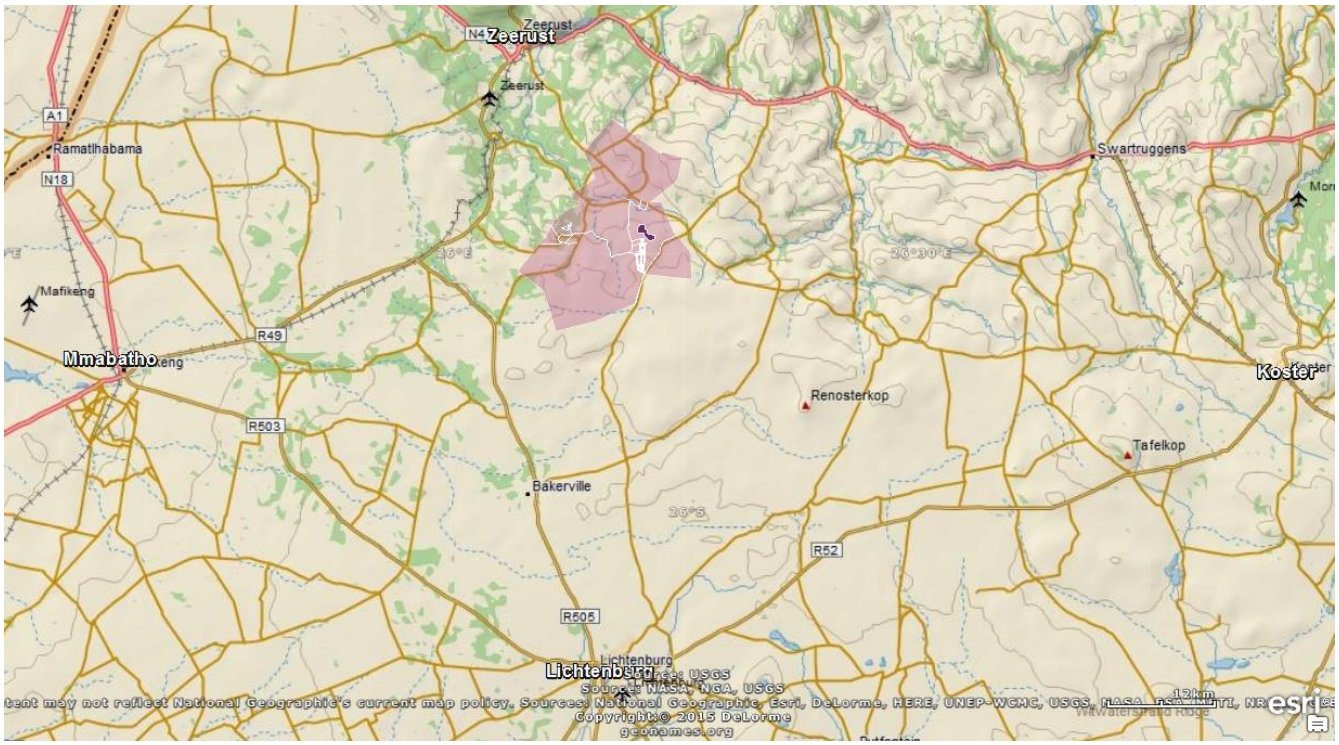
- **Zeerust** (Ramotshere Moiloa LM): Originally a farm, the town was established in 1867. Mixed farming and the mining of lead and chrome constitute the backbone of the town's economy. Because of its location on the N4 highway, on the way to Botswana, tourism is a growing industry in the town and the surrounding area. Attractions in the town and around include Kleinfontein Memorial, Kaditshwene Village Ruins, the Zeerust Museum, Marula Kop (an Iron Age settlement 50km north of Zeerust), and the Madikwe Game Reserve (90km north of Zeerust) (SA Venues, 2016).
- **Lichtenburg** (Ditsobotla LM)**:** The town emerged in 1873, but it was the discovery of diamonds that propelled its expansion in the late 1920s. It is predominantly a farming town with maize, groundnut and sunflower seed farms surrounding the area (SA Venues, 2016).

The following points of interest are situated within a 50km-radius from the proposed project sites:

- The **Molemane Nature Reserve** (adjacent to the site) includes a dam and an old mill at its centre.
- **Mafikeng Game Reserve** (about 40km west of the site) is one of the major breeding parks for white rhinos in South Africa. It is also located on a malaria-free zone.

- The **Lichtenburg Game Breeding Centre** (about 50km south of the site) is a 6 000-hectare reserve, which aims to further the breeding programmes of endangered species already in place by the National Zoo, and to supplement the populations of local and international zoos.
- **Wondergat** (about 30km west of the site) is a 70-metre cave diving spot.
- **Marico Oog** (about 40km to the east) is an inland diving site.
- The **Groot-Marico** mountains and river.

As indicated on Map 3-1, the area is relatively well-connected.



Map 3-1: Road networks in the study area

There are two national roads situated in close proximity to the project site (i.e. the N4 and the N18), connecting it with the Gauteng Province to the east, Botswana to the north-west, and the Northern Cape to the south-east. The other important roads present in the area, which link the Ditsobotla LM with surrounding municipalities, include:

- Road 52 from Koster to Lichtenburg, and further westwards from Lichtenburg to Mafikeng (R503). High traffic volumes are observed on this road.
- Road 503 linking Lichtenburg with Coligny and ultimately Klerksdorp.
- The R505 traversing the municipality and connecting Lichtenburg with Ottoshoop to the north and Wesselsbron (Free State) to the south.
- Road 49 connecting Zeerust with Botswana to the north, and with Mahikeng in a south-western direction. It then becomes the N18, which goes to Kimberley.

Existing mining and quarrying activities, that are in line with the proposed project, can be observed in the Ditsobotla LM and the Ramotshere Moiloa LM. There are various mining and quarrying activities that particularly impact on both of the LMs. These consist of:

- The limestone quarry of AfriSam around Dudfield
- The quarrying activities of Lafarge between Bodibe and Springbokpan
- The quarry areas of Lafarge near Lichtenburg
- The mining of diamonds in the north-western parts of the municipality (i.e., Bakerville, Grasfontein and Welverdiend), many of which have been abandoned without proper rehabilitation
- The state quarries in the northern part of the municipality
- Witkop Fluorspar mine near Zeerust (not active)

Regarding agriculture activities, commercial farming is predominant in both LM's. These comprise commercial dry-land and irrigated agricultural activities in the southern part of the Ditsobotla LM and more extensive farming in the areas situated northeast and northwest of Lichtenburg (Ditsobotla LM, 2015). Farming activities in the Ramotshere Moiloa LM are predominantly subsistent/small-scale activities and are slowly moving away from crop irrigation to more exotic wildlife and game hunting activities. This can be attributed to the severe shortage of water within the LM.

3.2 Sense of place, history and cultural aspects

As already mentioned, the proposed project is located in the Ditsobotla and Ramotshere Moiloa LM's, which form part of the Ngaka Modiri Molema DM in the North West Province. Setswana is the most spoken language in both the Ditsobotla and Ramotshere Moiloa LM's, with close to eight people out of ten using it as their first language in both LMs. The situation in the Municipalities are very similar to that of the Province. However, Afrikaans is spoken by a large portion of the population in the two major towns of Zeerust and Lichtenburg, which contrasts with the municipal and provincial levels (see Figure 3-).

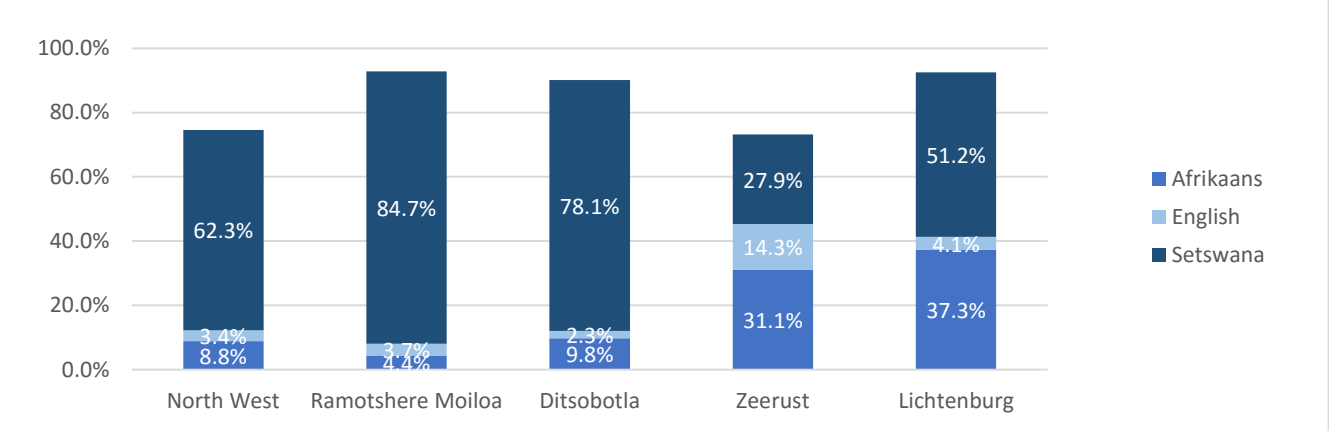


Figure 3-1: Most spoken languages in North West, Ramotshere Moiloa, Ditsobotla, Zeerust and Lichtenburg (Stats SA, 2016)

The same trends are observed when looking at the social group distribution. About 90% of people in the Ditsobotla LM are black African, with almost 95% of the same group in the Ramotshere LM. In the case of the two towns, a quarter and one-third of the population is white in Zeerust and Lichtenburg, respectively (Stats SA, 2016).

3.3 Demographic Profile

The **population in the Ditsobotla LM** reached 168 904 people, or 44 501 households, in 2011; which represented a growth of 14.4% compared to the population of 147 616 in 2001. Over half of the population in the municipality lives in urban areas (52.3%); the rest include 24.1% of people who live in tribal or traditional areas, and 23.5% of people who live on a farm (Stats SA, 2016).

The **population of the Ramotshere Moiloa LM** reached 150 714 people in 2011, or 40 740 households, in the same year. This in turn represents a 7.3% absolute growth from 2001 which is half that of the Ditsobotla LM growth. Nearly 80% of the households in the LM are living in a brick or concrete formal dwelling with its own stand. This is followed by nearly 9% of households living in informal dwellings, and almost 4% of households living in traditional dwellings (Stats SA, 2016).

As can be seen in Table 3-1, the population density in the municipality is lower than the provincial and district levels.

Table 3-1: Population growth and density indicators

Location	Area (km2)	Population (2011)	Population density per km2	Population growth (2001-2011)
North West	104 881,7	3 509 950	33,5	17,7%
Ngaka Modiri Molema	28 206,1	842 702	29,9	10,2%
Ramotshere Moiloa LM	7 193,9	150 714	21,0	7,3%
Ditsobotla LM	6 464,9	168 904	26,1	14,4%
Lichtenburg	108,9	26 337	241,9	118,5%
Zeerust	57,1	9 093	159,3	N/A

(Stats SA, 2016)

The Ditsobotla LM's population is very young, with 66.2% of people being less than 35 years old. The same can be said for the Ramotshere Moiloa LM, with just over 70% of the population being younger than 35 years old. This is however, on par with national figures, i.e. 66.7% of South Africans are less than 35 years old.

The youth (age 15-34) make up the majority of the people living in both Ditsobotla and Ramotshere Moiloa with 33,7% and 32,1% of the population falling in said age group respectively. This is followed by the group between the ages of 35 and 64, which accounts for 28.4% of Ditsobotla LM and 27.6% of Ramotshere Moiloa LM's population.

Considering the working age group that is between the ages of 15 and 64, the study area has a slightly bigger percentage of working age males than females in the Ditsobotla LM while the opposite is true for the Ramotshere Moiloa LM. The population in the area is characterised by a relatively high **dependency ratio**, with 38.1% for Ditsobotla and 40.1% for the Ramotshere Moiloa LM, compared to the national and provincial averages of 34.8% and 35.3%, respectively. This includes 32.6% and 32.8% of the population within the ages of 0 to 14, and 5.5% and 7.5% of the population who is over 65 years old for the Ditsobotla LM and the Ramotshere Moiloa LM, respectively (Stats SA, 2016).

The Ditsobotla LM had a reported 19 710 individuals who were **HIV-positive** in 2015, which equates to 12.1% of the total LM population. The Ramotshere Moiloa LM in turn noted 19 759 individuals living with the virus, which equates to 11.9% of the LM population. These percentages are on par with national and provincial levels of 11.3% and 12,7%, respectively.

Total **AIDS-related deaths** equated to 699 and 708 individuals for the respective LM's, or 0.4% of the LM population for both LM's. This is higher than the national and provincial averages of 0.3% and 0.2%, respectively. The AIDS-related deaths in the Ditsobotla LM equated to 36.4% of total deaths in the LM, with the Ramotshere Moiloa LM following close behind with 30.8% of total LM's deaths.

Considering the above information, it can be suggested that the health-related situation in Ditsobotla is slightly worse than that in the Ramotshere Moiloa LM. This situation is worsened by the fact that there are no clinics or centres targeting treatment of HIV/AIDS in either of the municipalities. Based on the information sourced from the interviews, one clinic existed in Ramotshere Moiloa LM, but had to close down.

Crime situation also appears to be considerably worse in Ditsobotla than in Ramotshere Moiloa. In 2015, 4 662 cases of serious crimes were recorded in the Ditsobotla LM and almost half of that in the Ramotshere Moiloa LM, although the population in these municipalities differed only slightly.

Assault with the intent to inflict grievous bodily harm was the most common reported crime in both LM's with 764 cases for Ditsobotla LM and 347 cases for the Ramotshere Moiloa LM. This is followed by theft other than burglary and motor vehicle. The third most prevalent crime is burglary at residential premises. The discussion with the local authorities also revealed that theft of copper cables is very common in the area and is a major problem, as it affects the ability of the local communities to communicate through land lines.

Drugs and alcohol abuse also appear to be a notable social ill in the areas and direct contributor to crime in the area. This was particularly an acute problem in Ditsobotla, where about 7.3% of all reported crime cases were linked to drugs.

3.4 Economy

In 2013, the **Ditsobotla economy** was valued at R8 014.3 million in current prices (Quantec, 2016). It contributed 26.2% to the District's economy and 4.07% to the economy of the North West Province, which in turn, accounted for 6.5% of the national economy. The Ditsobotla economy relies heavily on the tertiary sector, with 76.8% contribution towards the local GDP, followed by 15.1% and 8.1% by the secondary and tertiary sectors, respectively. This contrasts with the provincial level, where the tertiary sector represents 57.7% of the economy and the secondary sector accounts for a third of it. The biggest contributors to the Ditsobotla LM's economy (46.4%) are the sectors of "wholesale and retail trade, catering and accommodation" and "finance, insurance, real estate and business services" (refer to **Error! Reference source not found.**). Clover and PPC are the largest secondary sector employers in the municipality.

In 2013, the **Ramotshere Moiloa economy** was valued at R3 698.3 million in current prices (Quantec, 2016). The LM contributed 5.1% and 1,4% to the DM and provincial economies, while adding 0,1% to national GDP. The Ramotshere Moiloa LM economy relies heavily on the tertiary sector with 82.7% of GDP generated by this sector. This is followed by the secondary and primary sector contributing 11.2% and 6.1%, respectively. The biggest contributing sector in the LM were that of wholesale and retail trade (32%), general government (20.3%), and finance and business services (14.7%). The main sectoral differences between the two identified LM's is that of the General government sector which is significantly smaller in the Ditsobotla LM than in the Ramotshere Moiloa LM.

Table 3-2: : Structure and composition of the Ramotshere Moiloa and Ditsobotla LM's economies

Economic Sector	Ramotshere Moiloa LM (GDP in 2013 prices)			Ditsobotla LM (GDP in 2013 prices)		
	GDP (R'ml)	% of GDP	CAGR (2003 - 2013)	GDP (R'ml)	% of GDP	CAGR (2003 - 2013)
Agriculture	69,5	1,8%	2,4%	556,5	6,9%	3,3%
Mining and quarrying	154,2	4,2%	-7,0%	96,4	1,2%	-8,5%
Manufacturing	152,9	4,1%	-4,4%	764,2	9,5%	5,0%
Electricity, gas and water	185,4	5,0%	8,4%	159,7	2,0%	2,1%
Construction	77,2	2,1%	5,9%	284,1	3,5%	7,7%
Trade	1 183,5	32,0%	4,1%	1 906,5	23,8%	6,6%
Transport and communication	175,3	4,7%	6,7%	641,8	8,0%	1,0%
Finance and business services	542,2	14.7%	-1,2%	1 814,6	22,6%	8,6%
Personal services	405,9	11,0%	5,7%	758,0	9,5%	3,7%
General government	751,7	20,3%	0,2%	1 032,5	12,9%	4,3%
TOTAL	3 698,3	100.0%	-0,4%	8 014,3	100,0%	5,1%

(Quantec, 2016)

Over a ten-year period between 2003 and 2013, the Ditsobotla LM's economy grew at a **Compounded Average Growth Rate** (CAGR) of 5.1% per year, which is significantly higher than the Province's CAGR of 2.2%. This growth can be attributed to the sustained growth in the manufacturing and finance and business services sector which grew at CAGR of 5% and 8.6%, respectively. At the same time, the mining sector recorded an important recession, with a negative CAGR of 8.5% (refer to **Error! Reference source not found.**). The mining sector also experienced a decline at the provincial level, but to a much lesser extent (negative CAGR of 1.2%).

Over the same period, the Ramotshere Moiloa LM's economy declined by a CAGR of -0.4%, which can be attributed to the sharp declines in the mining, manufacturing and finance and business services sectors. These sectors declined by 7,0%, 4,4% and 1,2% respectively. The decline in the mining sector is again far greater than that of the province.

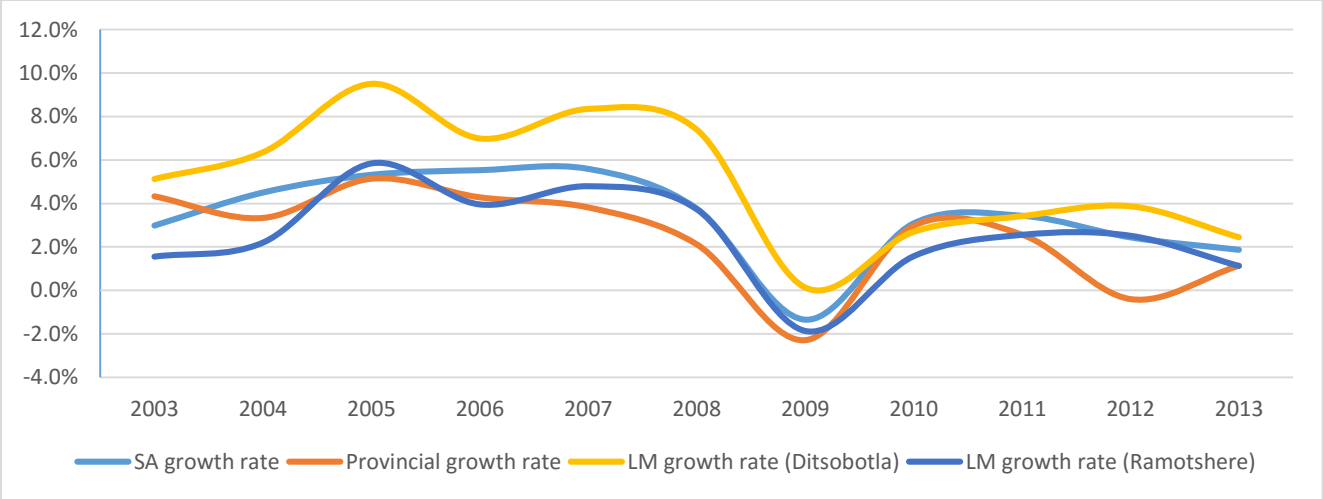


Figure 3-1: Growth rates for South Africa, the North West Province, Ramotshere Moiloa LM and Ditsobotla LM (Quantec, 2016)

Both municipalities' economies experienced a sharp decline in 2008 (see Figure 3-1), which can be attributed to the global economic recession following a financial crisis, which negatively impacted the demand for South Africa's goods and services, and resulted in a drastic decrease in export earnings and domestic consumption. Although the economic situation started to improve somewhat from 2010, the prognosis for faster recovery was not realised, and it was clear that the recession had a far greater impact than what was originally perceived. As a result, the national economy showed poor performance after the 2009 recession and it is clear that despite a growth spike in 2012; Ditsobotla's economy could not recover in full after that time either. The Ramotshere Moiloa LM staged a growth recovery in early 2010, but began to slow down after 2012. The draught experienced earlier in the year is expected to further negative impact on the economies' growth trajectories, particularly in the Ditsobotla LM.

3.5 Labour Force and Employment Structure

The total active population in the Ditsobotla LM reached 53 003 people in 2011; over 28% of these were unemployed, and 15.1% worked in the informal sector. The active population in the Ramotshere Moiloa LM is significantly smaller with 35 357 people active, of who 36.3% area unemployed and 14,1% working in the informal sector. The unemployment and informal employment rates are significantly lower in the two major towns located in close proximity to the project site.

Table 3-3: Employment-related indicators in North West, Ditsobotla, Lichtenburg and Zeerust (2011)

Indicator	North West	Ditsobotla LM	Ramotshere Moiloa LM	Lichtenburg	Zeerust
Total active population	1 236 786	53 005	35 357	5 001	3 329
Formal sector (%)	67,9%	63,0%	65,7%	79,4%	74,7%
Informal sector (%)	15,0%	15,1%	14,1%	6,8%	10,8%
Unemployment rate	31,4%	28,4%	36.3%	20,5%	11,8%

(Stats SA, 2016)

In line with the local economies' structure, most people in both the Ditsobotla LM and Ramotshere Moiloa LM are employed in the tertiary sector (74.6% and 84.9% respectively), with the three sectors of wholesale and retail trade, personal services and general government making the largest contribution to employment. The mining sector employs only 0.8% and 2.4% of people within the two LMs, respectively, while it represents a fifth of employment opportunities at the provincial level. The large majority of people working in the mining sector at both the LM and provincial levels are considered semi- and unskilled workers (over 75%), with skilled workers accounting for about 20% of the miners (Stats SA, 2016).

Table 3-4: Employment by industry sector in North West and the Ditsobotla LM (2011)

Industry	Ramotshere Moiloa LM		Ditsobotla LM	
	Employment	%	Employment	%
Agriculture, forestry and fishing	658	3,5%	4 850	11,3%
Mining and quarrying	450	2,4%	341	0,8%
Manufacturing	765	4,0%	3 146	7,4%
Electricity, gas and water	227	1,2%	179	0,4%
Construction	759	4,0%	2 357	5,5%
Trade, catering and accommodation	7 137	37,6%	1 2914	30,2%
Transport, storage and communication	536	2,8%	1 629	3,8%
Finance, insurance, and business services	1 467	7,7%	4 414	10,3%

Industry	Ramotshere Moiloa LM		Ditsobotla LM	
	Employment	%	Employment	%
Community, social and personal services	3 281	17,3%	8 160	19,1%
General government	3 676	19,4%	4 778	11,2%
Total	18 960	100%	42 770	100%

(Stats SA, 2016)

Formal sector employment in both the Ditsobotla LM and the Ramotshere Moiloa LM consists of mainly semi- and unskilled workers with 82.4% and 79,4%, respectively; followed by skilled workers with 17.6% and 20.6% for the same LMs. This is in alignment with the district averages that show almost the same figures for each skill level.

Table 3-5: Employment by skill level and occupation in Ditsobotla and Ramotshere Moiloa LM's

Skills	Ditsobotla LM Employment		Ramotshere Moiloa LM Employment	
	Employment	%	Employment	%
Skilled	**6 679**	**17,6%**	**4 705**	**20,6%**
Legislators, senior officers and managers	2 247	5,9%	1 210	5,3%
Professionals	1 978	5,2%	1 528	6,7%
Technicians and associate professionals	2 455	6,5%	1 967	8,6%
Semi-skilled	**18 262**	**48,24%**	**10 604**	**46,5%**
Clerks	3 745	9,9%	2 307	10,1%
Service workers and shop/market sales workers	5 286	14,0%	3 954	17,3%
Skilled agricultural and fishery workers	991	2,6%	418	1,8%
Craft and related trades workers	5 257	13,9%	2 773	12,2%
Plant and machine operators and assemblers	2 983	7,8%	1 152	5,1%
Unskilled	**12 919**	**34,1%**	**7 511**	**32,9%**
Elementary occupations	12 919	34.1%	7 511	32,9%
TOTAL	**37 860**	**100%**	**22 819**	**100%**

(Stats SA, 2016)

The above indicates that elementary occupations represent the biggest single group of skills observed in both of the municipalities, which is in line with the formal employment and economic profile of the area requiring labourers in the agriculture, mining and wholesale trade industries. Services workers and shop sales workers, as well as craft and related trade workers represent the second and the third largest group of formal occupation in both LMs. This again fits the profile of the local economy, where the former are largely engaged in the trade and personal services sector, while the latter is involved in the agricultural and mining industries.

3.6 Income

Table 3-6 shows that the households' weighted average income per month in the province, district and local municipal levels, is very low, especially compared to the already low national average income of R10 230/month in 2016 prices. The situation is particularly dire in the local municipalities, which record a weighted average income of R6 650/month for Ditsobotla LM and R4 816 for the Ramotshere Moiloa LM. This is explained by the overwhelming majority of households who earn less than R 3 200 per month in 2011 prices and who are largely dependent on social grants for these incomes. It can therefore, be concluded that most people living in the Ditsobotla LM and Ramotshere Moiloa LM are relatively poor. However, it is interesting to note that the income levels in the two major towns of Lichtenburg and

Zeerust are very high compared to what is observed in the greater area, i.e. the province and municipalities. They record a monthly income of, respectively, R13 507 and R18 039 in 2016 prices. This shows that the wealth is concentrated in urban areas, with sharp income inequalities observed in the rural areas of the LM and Province (Stats SA, 2016).

Table 3-6: Households per monthly income groups (Stats SA, 2016)

Indicator Income category (2011 prices)	North West	Ngaka Modiri Molema	Ramotshere Moiloa LM	Ditsobotla LM	Lichtenburg	Zeerust
No income	16,6%	15,3%	15,1%	12,6%	10,2%	7,5%
R1 - R4 800	4,2%	5,0%	5,1%	4,0%	2,5%	1,7%
R4 801 - R 9 600	7,2%	9,6%	10,3%	8,7%	5,8%	2,1%
R9 601 - R 19 200	18,7%	22,4%	23,9%	22,5%	13,9%	8,9%
R19 201 - R 38 400	19,9%	21,7%	22,3%	24,4%	17,5%	12,9%
R38 401 - R 76 800	15,4%	10,6%	10,5%	12,2%	14,5%	15,3%
R76 801 - R153 600	8,8%	7,0%	6,8%	7,4%	13,9%	20,5%
R153 601 - R307 200	5,3%	5,1%	4,1%	5,1%	11,6%	19,3%
R307 201 - R614 400	2,7%	2,3%	1,4%	2,4%	7,0%	8,2%
R614 401 - R1 228 800	0,8%	0,7%	0,4%	0,7%	2,4%	1,4%
R1 228 801 - R2 457 600	0,5%	0,5%	0,2%	0,0%	0,7%	2,3%
Weighted average income per month (2016 prices)	R7 046	R 6 338	R4 816	R6 650	R13 507	R18 039

(Stats SA, 2016)

The observed average income levels are closely linked to the employment situation and the educational levels observed in the area. Indeed, two-thirds of people have not reached their Matric level at the Provincial and Municipal levels, but this is true for only half and one-third of the population in Lichtenburg and Zeerust, respectively. Only a small percentage of people have had some form of higher education at the Provincial (7.6%) and Municipal (Ditsobotla 6.7%; Ramotshere Moiloa LM 6,3%) levels, while 15.7% and 19.1% of people in the two major towns of Lichtenburg and Zeerust reported some form of higher education (Stats SA, 2016).

Table 3-7: Education levels in the North West, Ditsobotla, Lichtenburg and Zeerust (2011)

	North West	Disobotla LM	Ramotshere Moiloa LM	Lichtenburg	Zeerust
No schooling	11,5%	14,6%	20,3%	8,7%	3,7%
Some primary	16,5%	22,4%	18,5%	12,9%	4,9%
Complete primary	5,1%	5,9%	5,0%	4,3%	2,4%
Some secondary	32,4%	29,7%	26,9%	26,7%	22,1%
Grade 12/ Std 10	24,5%	19,7%	20,7%	27,9%	30,2%
Higher	7,6%	6,7%	6,3%	15,7%	19,1%
Unspecified	0,3%	0,2%	0,3%	0,4%	0,5%
Not applicable (e.g. transients)	2,1%	0,7%	2,0%	3,4%	17,1%

(Stats SA, 2016)

4 ACCESS TO SERVICES AND STATE OF LOCAL BUILT ENVIRONMENT

Access to shelter, water, electricity, sanitation, and other services are indicators that assist to determine the standard of living of the people in the area under investigation. The state of local infrastructure is

another indicator to consider when assessing living standards. The availability of social and economic infrastructure, including roads, educational facilities, and health facilities, further indicates the nature of the study area, which is valuable in developing a complete profile of the circumstances in which communities are living. These measurements create a baseline against, which the potential impacts of the proposed project can be assessed.

4.1 Settlement profile

As indicated previously, the Ditsobotla LM is sparsely populated with 26 people per square kilometre. Over half of the population lives in urban areas, and the rest of people are almost evenly split between tribal and traditional areas and people residing on a farm. The western part of the municipality, namely the area between Lichtenburg, Itsoseng and Bodibe concentrates about 60% of the population (Ditsobotla LM, 2015). The LM stresses that a significant proportion of households who live on a farm have limited access to social services, as those are mainly concentrated in the Lichtenburg core area and other settlement clusters. The Municipality plans to develop Service Delivery Centres in these areas in order to improve access to social and economic services (Ditsobotla LM, 2015).

The Ramotshere Moiloa LM is equally sparsely populated with only 21 people per square kilometre. Nearly 80% of the households in the LM are living in a brick or concrete formal dwelling with its own stand. This is followed by nearly 9% of households living in informal dwellings, and almost 4% of households living in traditional dwellings (Stats SA, 2016). The Ramotshere Moiloa LM is characterised by only a few urban areas which includes Zeerust (main town) and various smaller formal settlements such as Groot Marico, Lehurutshe, Welbedacht, Ikagaleng and Dinokana. Nearly 70% of the LM is rural in nature and includes 40 villages spread across the entire LM (Ramotshere Moiloa LM, 2015/2016).

4.2 Access to Housing and Basic Services

Access to basic services in the study area reflects the inequalities within the district, and both the Ditsobotla and Ramotshere Moiloa LMs, with basic services being more adequately accessed in urban areas (Stats SA, 2016):

- **Housing:** Only 6.8% of people in Zeerust live in informal housing, while this is the case for 17.8% of people in the Ditsobotla LM and 9% for the Ramotshere Moiloa LM (the town of Lichtenburg is no exception with a low percentage of the population living in informal housing).
- **Water:** The two municipalities face serious challenges with respect to provision of adequate water supply to its residents and businesses. Less than two-thirds of the population have adequate access to water in the Ditsobotla municipality, while only 57% of the Ramotshere Moiloa LM's households have the same service. Furthermore, those households who are connected to bulk water supply often have water only during certain hours of the day. This is especially the case in the Ramotshere Moiloa LM, where water source is located some 25km away from any major settlement. The two towns of Lichtenburg and Zeerust provide very good access to water, with over 94% of people accessing water inside their dwelling or yard. the problem with water scarcity is associated with both – the water supply, which was exacerbated by the draughts experienced in the past few years, and the inadequate provision of infrastructure.
- **Sanitation:** The same challenging situation is observed regarding sanitation services, i.e. only 43% of people within the Ditsobotla municipality and 22.4% of people in the Ramotshere Moiloa LM have access to proper sanitation (e.g. connected to sewerage system); while over 94% of

people in Lichtenburg and Zeerust have access to proper sanitation (Stats SA, 2016). The sewage plants in the area need upgrades, but no provision for these have been known to be made by the district.

- **Electricity:** Access to electricity for lighting in the Ditsobotla LM is low compared to national and provincial figures. Close to one-fourth of the population in the Ditsobotla LM use candles for lightning, while 16,5% of the Ramotshere Moiloa LM population uses the same means to light their homes. The situation is better in the town of Lichtenburg (12.2% of people use candle light) and Zeerust with 96.3% of the population using electricity for lightning (Stats SA, 2016).

To improve access to basic services, the Municipality plans to implement the following projects (Ditsobotla LM, 2015):

Table 4-1: Planned projects related to basic services in the Ditsobotla LM

Access to electricity	
Project Description	**Planned NO of extensions**
Ditsobotla LM Projects	
• Ga-Maloka	140
• Tlhabologang Ext 4 RDP	600
• Tlhabologang Ext 5 RDP	600
• Tlhabologang Ext 6 RDP	400
• Verdwaal Phase 2 Ext	54
• Ditsobotla Farm Dwellers Houses	24
• Ditsobotla In-fills	60
Ramotshere Moiloa LM Projects	
• Lekgophung	104
• Nkweedumang Phase 1	29
• Nkweedumang Phase 2	15
• Skweepe	11
• Mokgola (Matlhola Section)	20
• Mokgola (Manogelo 1)	15
• Mokgola (Manogelo 2)	89
Access to water	
Project Description	**Ward**
Ditsobotla LM Projects	
• Bodibe Ward 17 Water Reticulation	11,17,18 & 19
• Boikhutso Bulk Water Supply	1 & 2
• Ga-Motlatla Water Supply	13
• Greater Lichtenburg Bulk Water Supply	1,2,3,4,5 & 6
• Itsoseng Bulk Water Supply Phase 2 (Bulk Supply Line)	7,8 & 9
• Matile 1 Water Supply	19
• Matile 2 Water Supply	19
• Meetmekaar and Springbokpan Water Supply	19
• Rietvlei Water Supply	14
• Verdwaal 2 Bulk Water and Reticulation	10
Ramotshere Moiloa LM Projects	
• Braklaagte Water Supply	8
• Groot Marico Bulk Water Supply Projects	17
• Moshana Water Supply Project	2
• Olienhout Park Water and Sewer Reticulation Phase 1	15
• Welbedacht Water and Sewer Reticulation	12
Access to sanitation	

Project Description	Ward
Ditsobotla LM Projects	
• Blydeville Outfall Sewer Projects	3 & 4
• Ditsobotla Rural Sanitation	
• Itekeng & Biesiesvlei Bulk Sanitation	21
• Itsoseng Waste Water Treatment Plant Upgrade	8 & 9
• Lichtenburg Waste Water Treatment Plant	1,2,3,4,5
• Tlhabologang Bulk Water Supply (Waste Water Treatment Works)	15, 16 & 21
• Tlhabologang Bulk Sanitation (Monitoring & Evaluation)	15, 16 & 21
• Tlhabologang Bulk Sanitation (Outfall Sewer)	15, 16 & 21
Ramotshere Moiloa LM Projects	
• Groot Marico Waste Water Treatment Plant	17
• Groot Marico Outfall Sewer and Reticulation	17
• Ramotshere Moiloa Rural Sanitatio	All
• Zeerust Waste Water Treatment Plant Phase 2	15
Access to housing	
Project Description	**Total contractual target**
Ditsobotla LM Projects	
• Itsoseng 619 (project linked subsidies)	619
• Itsoseng Ext 3 (project linked subsidies)	200
• Blydeville Ext 4 (Integrated Residential Development Programme)	
• Lichtenburg Ext 4 (CRU)/Social Housing Feasibility (Integrated Residential Development Programme)	200
• Ditsobotla PHP (People's Housing Process)	710
• Boikhutso 245 (Informal Settlement Upgrading)	245
• Sheila 250 (Informal Settlement Upgrading)	250
• Tlhabologang 141 (Informal Settlement Upgrading)	141
• Coligny (Informal Settlement Upgrading)	
• Tlhabologang (Informal Settlement Upgrading)	40
• Verdwaal 401 (Rural Housing and Communal Land Rights)	401
• Bodibe 248 (Rural Housing and Communal Land Rights)	248
• Ditsobotla 2000 (Rural Housing and Communal Land Rights)	2 000
• Ditsobotla Villages (Rural Housing and Communal Land Rights)	1 040
• Boikhutso Extension 1 Senior Citizens (Priority Projects)	2 030
• Itsoseng Phase 2 (Priority Projects)	500
Ramotshere Moiloa LM Projects	
• RDP Housing Project	N/A
• RDP Housing Project – Groot Marico	N/A

(Ditsobotla LM, 2015) (Ramotshere Moiloa LM, 2015/2016)

4.3 Transport infrastructure

The Ditsobotla LM is characterised by a fragmented urban structure, with the Lichtenbrug-Boikhusto cluster as the core area of the municipality. The municipality aims to improve roads and transport by integrating the surrounding settlements with the Lichtenburg core area. The projects presented in Table 4-2 have been identified to be in the pipeline for the area.

The Ramotshere Moloa LM has focused on increasing the quality of all road infrastructure in the LM and has made the tarring, paving and maintenance of roads a priority in all wards in the LM (Ramotshere Moiloa LM, 2015/2016). Backlog figures were not available in the Ramotshere Moiloa LM IDP.

Table 4-2: Proposed road and transport projects in Ditsobotla LM

Project name	Funder
Construction of Lichtenburg Weighbridge	NW Public Works and Roads
Rehabilitation of 40km Road D933 & D2095 between Lichtenburg & Gelukspan (Duffield & Sephaku)	NW Public Works and Roads
Rehabilitation of Road D408 between Itsoseng & Goedgevonden through Springbokpan	NW Public Works and Roads
Rehabilitation: Sections of Road P28/1 between Mahikeng and Lichtenburg	NW Public Works and Roads
Patchwork on Road P183/1 between Lichtenburg & Deelpan Phase 2	NW Public Works and Roads
Construction of Roads and Stormwater in Bodibe	Ditsobotla LM
Construction of Roads and Stormwater in Bakerville	Ditsobotla LM
Construction of Roads and Stormwater in Tlhabologang	Ditsobotla LM
Construction of Access Roads in Itsosen Construction and Upgrade of Roads and Stormwater in Boikhutso	Ditsobotla LM
Construction of Access Roads in Itekeng	Ditsobotla LM
Construction of Roads and Stormwater in Ga-Maloka	Ditsobotla LM
Refurbishment of Internal Roads in Lichtenburg	Ditsobotla LM
Construction of Roads and Stormwater in Springbokpan	Ditsobotla LM
Construction of Roads and Stormwater in Blydeville Extensions	Ditsobotla LM
Internal Roads and Stormwater for ward 6	Ramothsere Moiloa LM
Mmasebudule Internal Roads	Ramothsere Moiloa LM
Ntsweletsoku Internal Roads	Ramothsere Moiloa LM
Borakalalo Bridge and Internal Roads	Ramothsere Moiloa LM
Nyetse Internal Roads\Technical\Civil Engineering	Ramothsere Moiloa LM
Bosugakobo Internal Road	Ramothsere Moiloa LM
Sandvlagte Internal Road	Ramothsere Moiloa LM
Madutle Matlhase Internal Road	Ramothsere Moiloa LM
Ikageleng W16 Internal Roads	Ramothsere Moiloa LM
Supingstadt Internal Road	Ramothsere Moiloa LM
Motswedi Internal Road	Ramothsere Moiloa LM
Dinokana W9 Internal Roads Phase 2	Ramothsere Moiloa LM
Swartkopfontein Internal Roads Phase 2	Ramothsere Moiloa LM
Lobatla Ward 20 Internal Roads	Ramothsere Moiloa LM
Zeeust Internal Road	Ramothsere Moiloa LM

(Ditsobotla LM, 2015) (Ramotshere Moiloa LM, 2015/2016)

4.4 Social and Recreational Infrastructure

The local area comprises of the following social and recreational infrastructure (Ditsobotla LM, 2015):

- **Educational facilities:**
  - A total of 107 primary schools, including junior primary (30), primary (74) and senior primary (3) in the Ditsobotla LM. These are concentrated in the central and south-western segments of the LM. Primary schools in the Rmaothsere Moiloa LM include Henryville, Sefathlhane, Zeerust, Glen Alice and Moruti primary schools.
  - A total of 23 secondary schools, including combined schools (2), intermediate schools (6), secondary schools (14), and one senior secondary school in the Ditsobotla LM. Secondary schools in the Rmoathsere Moiloa LM include Ikageleng, Zeerust, Ramotshere, Thuto-Ke-Mattla and Ngotwane high schools.
- **Health facilities:**

  - Two hospitals, i.e. General De La Rey Hospital and Thusong Hospital in Ditsobotla LM.
  - Two hospitals in Ramotshere Moiloa LM: Zeerust hospital, Lehurutshe hospital.
  - Nine clinics, i.e. Lichtenburg Municipal Clinic, Boikhutso Clinic, Blydeville Clinic, Coligny Clinic, Tlhabologang Clinic, Itekeng Clinic, Bodibe Clinic; and Itsoseng Clinic in Ditsobotla LM. Clinics in Ramotshere Moiloa LM incudes Dinokana, Lehurutshe, Tswelopele and Zeerust township clinics.
  - One old age home facility, namely the Lichthuis Old Age Home situated in Lichtenburg.
- **Police stations:** There are several police stations situated in close proximity to the site, e.g. Itsoseng police station, Ottoshoop police station, Zeerust police station, Lehurutshe police station, and Lichtenburg police station.

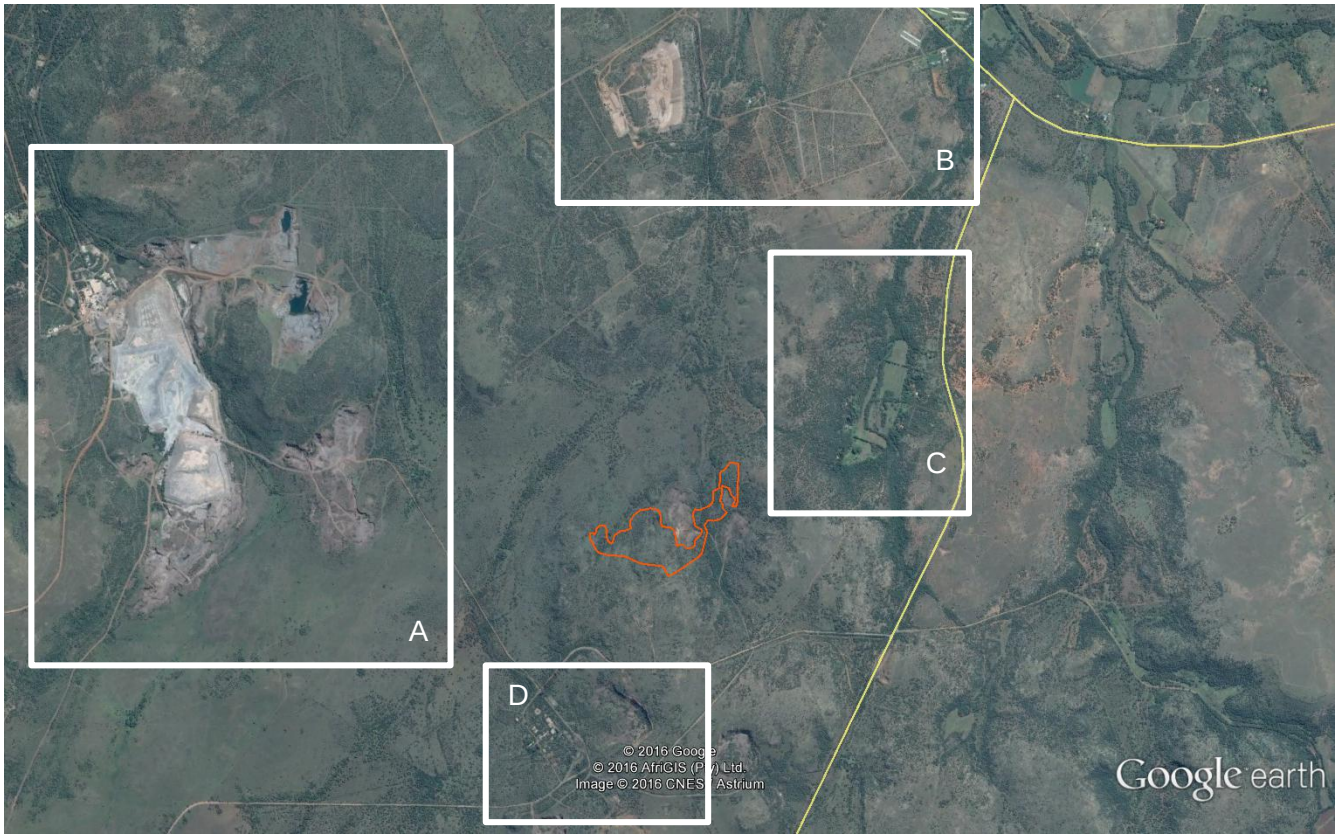
5 SITE-RELATED INFORMATION

Based on the review of the Google imagery, as well as site visit responses, it can be suggested that the area where the proposed project is to be located is of rural nature with limited presence of man-made structures, infrastructure, and economic activities. This section investigates secondary and primary data sources in order to identify the land uses of portions affected by the proposed project.

Resource area A

The area where ‘resource area A’ of the project is to be located is characterised by farm land and surrounded by some selected economic activities. Considering the areas delineated on Imagery 5-1, the following preliminary estimates of these activities and land uses can be identified:

- Identified area A: Witkop mine
- Identified area B: Poultry farming and crop production
- Identified area C: Arable land
- Identified area D: Abandoned infrastructure used for activities (possibly quarry) in the past

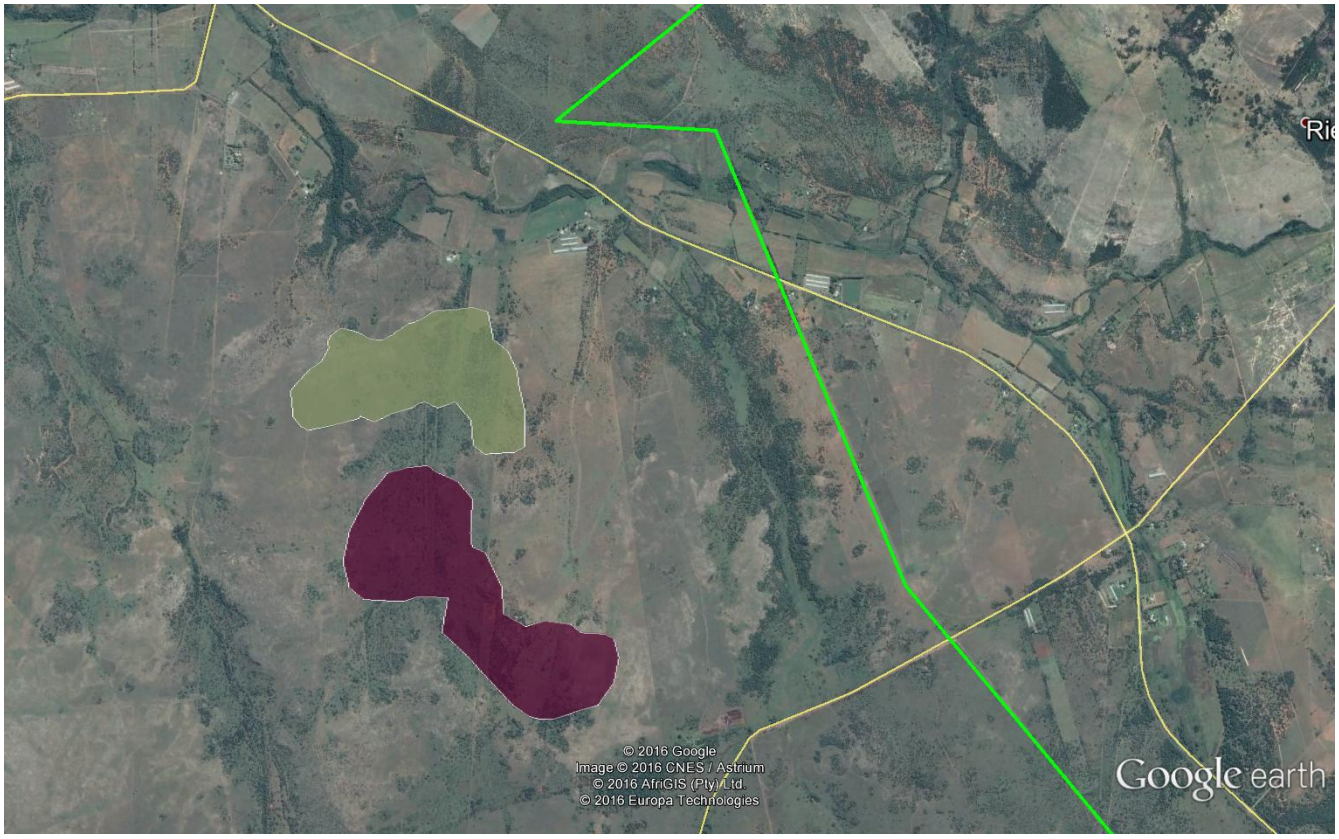


Imagery 5-1: Resource area A, project area imagery

Imagery 5-2: Resource area A project area imagery per selected area

Resource area C, D and extensions.

Areas surrounding resource area C and D of the project are also classified as rural and consist of farming activities. Crop production and poultry farming appear to be concentrated to the north and north-east from the project site. The rest of the area is used for livestock grazing.



Imagery 5-3: Resource areas C and D

Land use info collected

Listed in the tables below are the land uses for the various directly and indirectly affected land portions. Two land owners account for the majority of properties that are envisaged to be affected by the proposed project, which accounts for 16 farm portions. ENRC also owns some of the directly and indirectly affected farm portions.

Witkop Fluorspar mine is also located in close proximity to the proposed mine, but no contact could be established with the mine owners after its closure. Various numbers that were phoned did not exist, but this could be attributed to the high number of cable theft that occurred in the area, which was identified during the interview with the local authority. In such cases, Google imagery was used to identify any relevant land uses that may conflict with the proposed project.

Directly affected land uses

Table 5-1: Information on directly affected land portions

Farm	Type of effect	Information
Portion 1 (r/e), 5 (r/e), 10 (ptn of 4), 29 (ptn of 1), 2+ (ptn of 6), 27 (ptn of 6) of the farm Kafferskraal 306 JP	Resource area C, D	• Commercial exotic game hunting and breeding farm (1 445 ha) • 120 animals on farm • 12 people living on the farm • 7 labourers

Farm	Type of effect	Information
		• Land owner opinion: Concerned with the quantity and quality of water in the area, if the proposed project was to continue. He furthermore stated that there were many natural springs in the area that may run dry if the project was to continue. A final concern was expressed regarding road infrastructure and the effect that such a project would have on the quality of roads in the area.
Portion 9 and 10 (ptn of 5) of the farm Rhenosterfontein 304 JP.	Resource area A	• Commercial exotic game hunting and breeding as well as livestock farming (2 500 ha) • 350 game and 50 livestock on farm • 9 people living on the farm • 3 labourers • Land owner opinion: The landowner stated that he is not against the proposed project, but is concerned about the rehabilitation of soils once the mine has finished mining. He also indicated that further consultation is required with him on the portions of his farm that will have to become inactive to allow construction of the mine's infrastructure. Lastly, he stated that he does not wish to move from the property as it is his home.
Portion 24 (ptn of 6), 25 (ptn of 6) and 30 (ptn of 6) of the farm Kafferskraal 306 JP.	Resource area C, D	• Owned by ENRC (336 ha)
Portion 1 (r/e) of the farm Knoflookfontein 310 JP.	Mining infrastructure	• No answer after repeated attempts.
Portion 3 of the farm Knoflookfontein 310 JP.	Mining infrastructure	• Incorrect contact details.
Portion 6 (ptn of 1) of Knoflookfontein 310 JP	Mining infrastructure	• No contact information and could not gain access to property during site visit.
Portion 7 (ptn of 1) of Knoflookfontein 310 JP	Mining infrastructure	• Incorrect contact details.
Remainder of Doornplaats 340 JP	Directly affected	• No contact information and could not gain access to property during site visit.
Portion 1 of Doornplaats 341 JP	Directly affected	• No contact information and could not gain access to property during site visit.
Portion 2 of Doornplaats 342 JP	Directly affected	• Incorrect contact details.

Indirectly affected land uses

Table 5-2: Information on indirectly affected far portions

Farm	Type of effect	Information
Portion 4 (r/e), 6 (r/e), 12 (ptn of 6), 28 (ptn of 6) of the farm Kafferskraal 306 JP	Resource area C, D	• Commercial exotic game hunting and breeding farm (1 445 ha) • 120 animals on farm • 12 people living on the farm • 7 labourers • Land owner opinion: Concerned with the quantity and quality of water in the area if the proposed project was to continue. He furthermore stated that there were many natural springs in the area that may run dry if the project was to continue. A final concern was expressed regarding road infrastructure and the effect that such a project would have on the quality of roads in the area.
Portion 2 (r/e), 5 (r/e), 25 (ptn of 5) and 17 (ptn of 4) of the farm Rhenosterfontein 304 JP	Resource area A	• Commercial exotic game hunting and breeding as well as livestock farm (2 500 ha) • 350 game and 50 livestock on farm • 9 people living on the farm • 3 labourers • Land owner opinion: The landowner stated that he is not against the proposed project, but is concerned about the rehabilitation of soils once the mine has finished mining. He also indicated that further consultation is required with him on the portions of his farm that will have to become inactive to allow construction of the mine's infrastructure (the owner owns properties where some of the mine's infrastructure will be located). Lastly, he stated that he does not wish to move from the property as it is his home.
Portion 8,9 of the farm Kafferskraal 306 JP.	Resource area C, D	• Owned by ENRC (10 ha)
Remainder of Knoflookfontein 310 JP	Mining infrastructure	• Commercial exotic game hunting and breeding as well as livestock farm (935 ha) • 1000 game and 200 livestock on farm • 40 people living on the farm • 10 labourers • Land owner opinion: The landowner expressed no concerns regarding the proposed project.
Portion 14 (ptn of 6) of the farm Kafferskraal 306 JP	Resource area C, D	• No contact information and could not gain access to property during site visit.
Remainder of Saamgevoeg 320 JP	Indirectly affected	• No contact information and could not gain access to property during site visit.
Portion 2 of Knoflookfontein 310 JP	Mining infrastructure	• Incorrect contact details.
Portion 4 of Knoflookfontein 310 JP	Mining infrastructure	• Incorrect contact details.

Farm	Type of effect	Information
Portion 5 (r/e) of Knoflookfontein 310 JP	Mining infrastructure	• Landowner refused to divulge information.
Portion 6 (ptn of 1) of the farm Rhenosterfontein 304 JP.	Resource area A	• Witkop Fluorspar mine could not be contacted
Portion 15 (ptn of 2) of the farm Rhenosterfontein 304 JP.	Resource area A	• No contact information and could not gain access to property during site visit.
Portion 2 (r/e) of the farm Strydfontein 326 JP.	Indirectly affected	• Incorrect contact details.

6 SUMMARY AND POTENTIAL SOCIO-ECONOMIC IMPACTS

The planned fluorspar mining operations are proposed to be located south of Zeerust but in both the Ditsobotla and Ramotshere Moiloa LMs, which form part of the North West Province. The national, provincial and local levels acknowledge in their policies and strategies the need to develop the mining sector and promote private investment to stimulate growth in the area. Considering the impact of mining activities on the environment, they also underline the necessity to protect the ecosystem and use water resources in an efficient and sustainable way. Furthermore, mining should better contribute to the socio-economic development of the communities in the area, especially through local enterprise development and local procurement. The planned mining operations are in line with the national, provincial and local priorities and do not appear to conflict with other activities in the area.

The planned mining activities should further promote the development of an area with a small economy, a high unemployment rate (i.e. 28.4% and 36,3% of unemployed people in the Ditsobotla LM and Ramotshere Moiloa LM respectively), and large disparities between urban and rural areas. The towns of Zeerust and Lichtenburg are well developed, and Zeerust is particularly well developed when focusing on indicators such as income levels and access to basic services. It was indicated that labour for the proposed project is planned to be sourced from the local community as far as possible, and be accommodated in the town of Zeerust.

More detailed information on the activities located on the farms where various project components will be situated and on the adjacent farms was needed to inform the potential socio-economic impacts, particularly from a local perspective. For this purpose, a site visit was undertaken during which various Interested and Affected Parties (I&Aps) were engaged with; these included:

- Land owners of the directly and indirectly affected farm portions
- Economic activities located in the vicinity of the project sites (crop production, poultry farming, and quarrying)
- Representatives of the local governments, i.e. Ditsobotla and Ramotshere LMs
- Local real estate agents

- Local tourism associations
- Prominent community leaders of the nearby towns of Zeerust and Lichtenburg

Considering the primary data collection and available knowledge of the project, a number of positive and negative socio-economic impacts can be identified and that will be investigated in greater detail in the EIA phase of the project. These are highlighted in the tables below. Table 6- 1 provides the preliminary rating of impacts, while Table 6-2 includes mitigations measures that could be considered.

Table 6-1: Preliminary assessment of potential socio-economic impacts

Nr	Activity	Impact	Without or With Mitigation	Nature (Negative or Positive Impact)	Probability		Duration		Scale		Magnitude/ Severity		Significance	
Construction Phase														
1	Capital investment into the establishment of the mine	Stimulation of production and GDP due to investment	**WOM**	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
			WM	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
2	Capital investment into the establishment of the mine	Stimulation of employment due to investment	**WOM**	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
			WM	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
3	Creation of employment	Improved standard of living due to creation of employment	**WOM**	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
			WM	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
4	Creation of employment	Skills development	**WOM**	Positive	Probable	2	Short term	1	Regional	3	Medium	6	20	Negligible
			WM	Positive	Highly Probable	4	Short term	1	Regional	3	Medium	6	40	Low
5	Capital investment into the establishment of the mine	Government revenue increase	**WOM**	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
			WM	Positive	Definite	5	Short term	1	Regional	3	Medium	6	50	Moderate
6	Sterilisation of land due to construction and mine establishment activities	Loss of agricultural production due to land sterilisation	**WOM**	Negative	Highly Probable	4	Long term	4	Site	2	Medium	6	48	Moderate
			WM	Negative	Probable	2	Long term	4	Site	2	Low	2	16	Negligible
7	Construction activities on site	Change in the sense of place among the directly and indirectly affected communities	**WOM**	Negative	Definite	5	Long term	4	Site	2	Medium	6	60	Moderate
			WM	Negative	Definite	5	Long term	4	Site	2	Low	2	40	Low
8	Capital investment into the establishment of the mine and recruitment of construction workers	Change in demographics of the area due to potential influx of workers and job seekers	**WOM**	Negative	Probable	2	Medium term	3	Regional	3	Medium	6	24	Low
			WM	Negative	Probable	2	Medium term	3	Regional	3	Low	2	16	Negligible

Nr	Activity	Impact	Without or With Mitigation	Nature (Negative or Positive Impact)	Probability		Duration		Scale		Magnitude/ Severity		Significance	
9	Construction activities that would increase traffic (light and heavy vehicles) on local roads	Deterioration of local infrastructure	**WOM**	Negative	Highly Probable	4	Short term	1	Regional	3	Medium	6	40	Low
			WM	Negative	Highly Probable	4	Short term	1	Regional	3	Medium	6	40	Low
10	Influx of job seekers	Added pressure on basic service delivery and growth of informal settlements	**WOM**	Negative	Probable	2	Medium term	3	Regional	3	Medium	6	24	Low
			WM	Negative	Probable	2	Medium term	3	Regional	3	Low	2	16	Negligible
11	Capital investment into the establishment of the mine and recruitment of construction workers	Increase in social pathologies (Crime, xenophobia, prostitution, etc.) due to influx of people into the area	**WOM**	Negative	Probable	2	Medium term	3	Regional	3	Medium	6	24	Low
			WM	Negative	Probable	2	Medium term	3	Regional	3	Low	2	16	Negligible
12	Influx of job seekers	Pressure on local social facilities to provide quality services	**WOM**	Negative	Probable	2	Medium term	3	Regional	3	Medium	6	24	Low
			WM	Negative	Probable	2	Medium term	3	Regional	3	Low	2	16	Negligible
13	Construction activities that bring about the change in the sense of place	Impact on property values	**WOM**	Negative	Probable	2	Long term	4	Site	2	Medium	6	24	Low
			WM	Negative	Probable	2	Long term	4	Site	2	Low	2	16	Negligible
Operational Phase														
14	Mining operations	Stimulation of production and GDP due to operations	**WOM**	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
			WM	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
15	Mining operations	Stimulation of employment creation due to operations	**WOM**	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
			WM	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
16	Mining operations	Skills development	**WOM**	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High

Nr	Activity	Impact	Without or With Mitigation	Nature (Negative or Positive Impact)	Probability		Duration		Scale		Magnitude/ Severity		Significance	
			WM	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
17	Creation of employment at the mine	Improved standard of living due to creation of employment	**WOM**	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
			WM	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
18	Mining operations	Increase in government revenue and its ability to deliver services	**WOM**	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
			WM	Positive	Definite	5	Long term	4	Regional	3	Medium	6	65	High
19	Extraction and processing of minerals	Export earnings	**WOM**	Positive	Probable	2	Long term	4	Regional	3	Low	2	18	Negligible
			WM	Positive	Probable	2	Long term	4	Regional	3	Low	2	18	Negligible
20	Operation of the mine and employment from local community	Conflict between mine workers and farm workers about jobs and benefits	**WOM**	Negative	Highly Probable	4	Long term	4	Regional	3	Medium	6	52	Moderate
			WM	Negative	Highly Probable	4	Long term	4	Regional	3	Low	2	36	Low
21	Increase in income	Increase in alcohol and drug abuse	**WOM**	Negative	Highly Probable	4	Long term	4	Regional	3	Low	2	36	Low
			WM	Negative	Probable	2	Long term	4	Regional	3	Low	2	18	Negligible
22	Operations of the mine requiring access to water, electricity, etc.	Pressure on local authorities to provide adequate basic services	**WOM**	Negative	Highly Probable	4	Long term	4	Regional	3	Low	2	36	Low
			WM	Negative	Probable	2	Long term	4	Regional	3	Low	2	18	Negligible
23	Investment into the local communities through SLP	Improved quality of life and service delivery	**WOM**	Positive	Highly Probable	4	Long term	4	Regional	3	Low	2	36	Low
			WM	Positive	Definite	5	Long term	4	Regional	3	Low	2	45	Moderate
Closure														
24	Expenditure on decommissioning and closure	Stimulation of production and GDP and employment	**WOM**	Positive	Definite	5	Short term	1	Regional	3	Low	2	30	Low
			WM	Positive	Definite	5	Short term	1	Regional	3	Low	2	30	Low

Table 6-2: Preliminary mitigation measures for the identified potential socio-economic impacts

Nr	Activity	Impact	Mitigation Measures	Mitigation Effect
Construction Phase				
1	Capital investment into the establishment of the mine	Stimulation of production and GDP due to investment	• The project developer should engage with local authorities and business organisations to investigate the possibility of procurement of construction materials, goods, and services from local suppliers where feasible	Can be reversed
2	Capital investment into the establishment of the mine	Stimulation of employment due to investment	• Employ labour-intensive methods in construction where feasible • Where possible, local labour and sub-contracting to local companies should be considered for employment to increase the positive impact on the local economy	Can be reversed
3	Creation of employment	Improved standard of living due to creation of employment	• Employ labour-intensive methods in construction where feasible • Where possible, local labour and sub-contracting to local companies should be considered for employment to increase the positive impact on the local economy	Can be reversed
4	Creation of employment	Skills development	• Facilitate knowledge and skills transfer between workers during the construction phases • Set up apprenticeship programmes to build on existing skills or for the advancement of development of new skills for construction workers, especially those coming from the local communities	Can be reversed
5	Capital investment into the establishment of the mine	Government revenue increase	• None required	Can be reversed
6	Sterilisation of land due to construction and mine establishment activities	Loss of agricultural production due to land sterilisation	• Engage with the affected farmers to investigate the opportunities to minimise the loss of productive agricultural land	May cause irreplaceable loss of resources
7	Construction activities on site	Change in the sense of place among the directly and indirectly affected communities	• Implement mitigation measures proposed by the various specialists. Including traffic, visual, and noise specialists.	Can be avoided, managed or mitigated
8	Capital investment into the establishment of the mine and recruitment of construction workers	Change in demographics of the area due to potential influx of workers and job seekers	• All available positions should be clearly communicated to minimise the influx of unwanted job seekers • Expectations about job creation should be responsibly managed to stem the influx of hopeful job-seekers	Can be avoided, managed or mitigated
9	Construction activities that would increase traffic (light and heavy vehicles) on local roads	Deterioration of local infrastructure	• Partner with local municipal authorities and other prominent users of the local roads to upgrade them to meet the required capacity and intensity of the vehicles related to the construction of this component of the proposed project • Provide public transport alternatives for workers so as to decrease the number of vehicles on the road during peak hours	Can be avoided, managed or mitigated

Nr	Activity	Impact	Mitigation Measures	Mitigation Effect
10	Influx of job seekers	Added pressure on basic service delivery and growth of informal settlements	• Engage with local authorities to inform them of the development as well as discuss with them the ability of the municipality the meet the demands for social and basic services created by the migrant construction workers	Can be avoided, managed or mitigated
11	Capital investment into the establishment of the mine and recruitment of construction workers	Increase in social pathologies (Crime, xenophobia, prostitution, etc.) due to influx of people into the area	• Establish central recruitment offices in the towns of Zeerust and Lichtenburg and enforce labour and recruitment legislation • Employ locals as far as is feasibly possible • Ensure that job seekers are not allowed to loiter around the gates or set up informal settlements in the vicinity of the site • Set up a gate and controlled access system to monitor the movement of people to and from the site, as well as to reduce the influx of job seekers to the area • Inform the local municipality of the development and the anticipated influx of workers to the area and assist local authorities (including police and other groups) in devising an adequate strategy to address the potential effects	Can be avoided, managed or mitigated
12	Influx of job seekers	Pressure on local social facilities to provide quality services	• Engage with local authorities to inform them of the development as well as discuss with them the ability of the municipality the meet the demands for social and basic services created by the migrant construction workers • Provide on-site clinic services • Maximize the number of construction workers employed from the local community to reduce the increase in demand for community and basic services that may be spiked by in-migration of construction people from outside the area	Can be avoided, managed or mitigated
13	Construction activities that bring about the change in the sense of place	Impact on property values	• Create dialogues with the directly and indirectly farmers to educate and adequately inform them of the potential impacts on the surrounding environment, as well as mitigations that are planned to be implemented to address them • Implement mitigation measures that would reduce the effects on the sense of place (i.e. visual, noise, etc.)	Can be avoided, managed or mitigated
Operational Phase				
14	Mining operations	Stimulation of production and GDP due to operations	• Encourage procurement of requires services, materials and other inputs from local communities	Can be reversed
15	Mining operations	Stimulation of employment	• Encourage procurement of requires services, materials and other inputs from local communities • Recruit local labour as far as feasible to increase the benefits to the local communities	Can be reversed

Nr	Activity	Impact	Mitigation Measures	Mitigation Effect
		creation due to operations		
16	Mining operations	Skills development	• Devise skills development programmes as part of SLP and implement them	Can be reversed
17	Creation of employment at the mine	Improved standard of living due to creation of employment	• Encourage procurement of requires services, materials and other inputs from local communities • Recruit local labour as far as feasible to increase the benefits to the local communities	Can be reversed
18	Mining operations	Increase in government revenue and its ability to deliver services	• None required	Can be reversed
19	Extraction and processing of minerals	Export earnings	• Seek opportunities to export the mined commodity	Can be reversed
20	Operation of the mine and employment from local community	Conflict between mine workers and farm workers about jobs and benefits	• Implement strict labour practices • Engage with the local farmers and devise a strategy to reduce the chance of poaching of local farm workers	Can be avoided, managed or mitigated
21	Increase in income	Increase in alcohol and drug abuse	• Devise and implement an effective Employee Assistant Programme (EAP) to help overcome and mitigate the negative impacts of the social ills already prevalent in the communities. Strong relationships with government and non-governmental organizations and projects addressing such ills are strongly advisable.	Can be avoided, managed or mitigated
22	Operations of the mine requiring access to water, electricity, etc.	Pressure on local authorities to provide adequate basic services	• Mine is to devise a project that enhances water service delivery to communities and seek alternative water saving initiatives	Can be avoided, managed or mitigated
23	Investment into the local communities through SLP	Improved quality of life and service delivery	• Devise and implement projects to address the local community needs and create SMME opportunities (as part of SLP)	Can be reversed
Closure				
17	Expenditure on decommissioning and closure	Stimulation of production and GDP and employment	• Encourage procurement of requires services, materials and other inputs from local communities	Can be reversed

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