



ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF 50MW PV SOLAR PARK AND ASSOCIATED INFRASTRUCTURE (88KV TRANSMISSION LINE) ON PORTIONS 15, 27 & 28 OF THE FARM SCHIETFONTEIN 437 JQ WITHIN MADIBENG LOCAL MUNICIPALITY, NORTH WEST PROVINCE

SOCIO-ECONOMIC IMPACT STUDY

DESKTOP LEVEL ASSESSMENT (SCOPING LEVEL)

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1 INTRODUCTION

This document is prepared by **Urban-Econ Development Economists** in request by **Phakanani Environmental** on behalf of **Zolograph Investments RF (Pty) LTD** to undertake a Socio-Economic Impact Study for the **construction of the proposed 50MW DeWildt solar park and associated power lines** near Ga-Rankuwa in the North West Province. The socio-economic impact study is conducted as part of the Environmental Impact Assessment (EIA) process managed by Phakanani Environmental.

This document presents the desktop level assessment (scoping level assessment) of potential socio-economic impacts, which undertakes to determine the current socio-economic baseline characteristics of the delineated study area, and identify the potential influence of the proposed project on the surrounding economic activities and communities based on the secondary data. A more detailed assessment of the study area involving engagement with the Interested and Affected Parties (I&APs) and analysis of the potential impacts is to be undertaken, which will result in an updated socio-economic impact assessment report. It will also take into account the concerns raised during the Public Participation Process.

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 construction of the DeWildt solar facility 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 Phakanani Environmental. The scoping phase inputs address only a portion of the scope of work involved in the Socio-Economic Impact Assessment Study. It enables identification of potential impacts to be analysed in at the later stage, as well as assist the project team and 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 desktop 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 alternatives during the project life cycle
- Identify impacts and project effects (direct, indirect, induced, and cumulative) that will require further investigation and recommend an approach for pursual 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

The proposed project involves the construction of the 50MW solar park near Ga-Rankuwa. The study area is located in the Bojanala District Municipality (DM) within the Madibeng Local Municipality (LM), 9km south-west of Ga-Rankuwa.

The project will consist of one 50MW export capacity solar park facility referred to as DeWildt and associated power lines that would connect the facility to the national grid. The proposed energy facility is proposed to be located on portions 15, 27 and 28 of the Farm Schietfontein 437 JQ situated in the Madibeng LM (refer to Figure 1.1).

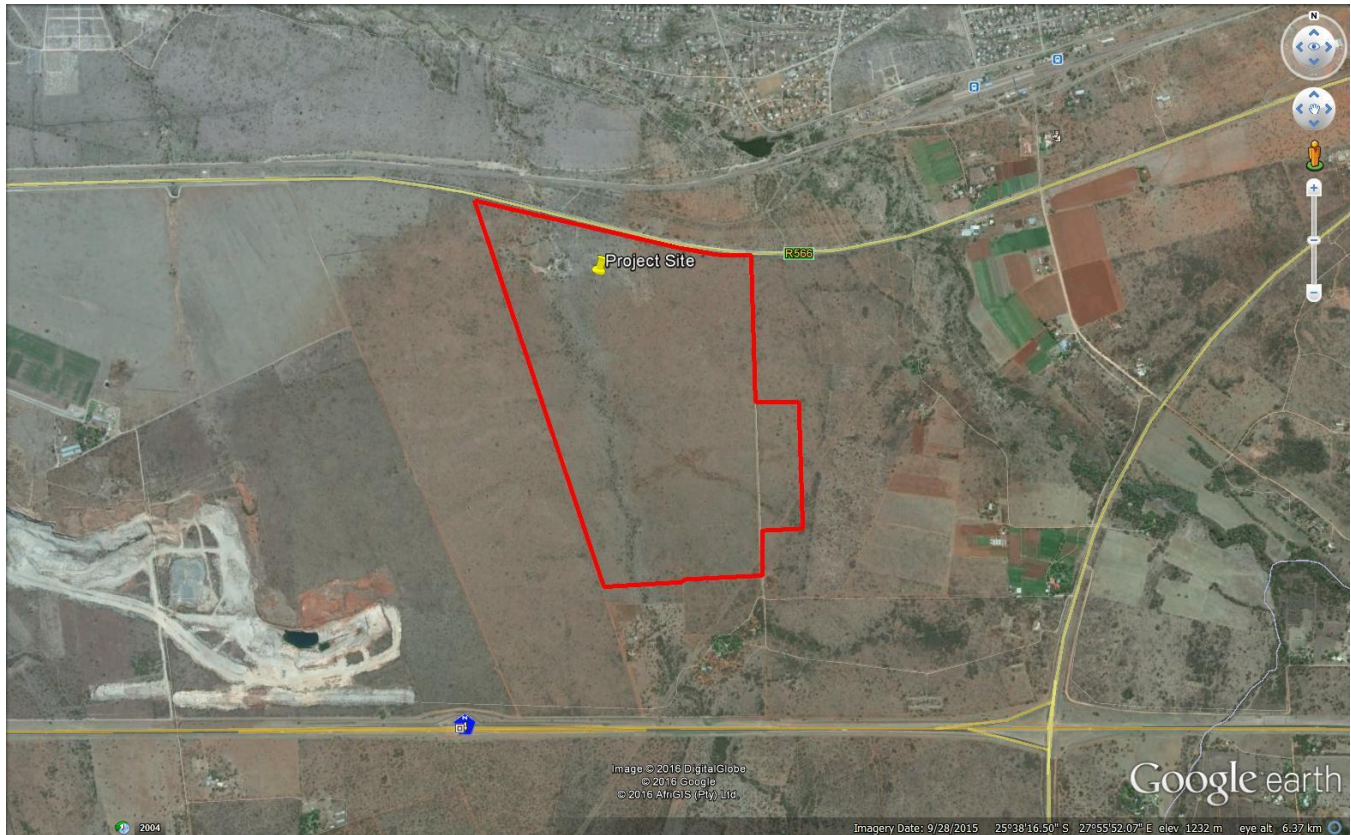


Figure 1-1: Project site

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.
- **Baseline profiling:** A description of the study area is given in terms of selected socio-economic variables. It includes the analysis of spatial context and regional linkages, population size and household numbers, structure and growth of the economy, labour force and employment situation

as well as access to basic services and the state of the local built environment. Profiling for the study 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 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 an indication of whether a project is aligned with the goals and aspirations of the developmental vision in South Africa and at 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)
 - Integrated Resource Plan (IRP) 2010-2030 promulgated in 2011
 - Industrial Policy Action Plan (IPAP2) (2014/2015 – 2016/2017)
- Regional (North West province):
 - North West Provincial Development Plan (PDP) 2030 (2013)
 - Renewable Energy Strategy for the North West Province
- Local (Bojanala district Municipality and Madibeng LM):
 - Bojanala Platinum District Municipality I IDP Report 2015-16
 - Draft Madibeng Local Municipality Spatial Development Framework 2015
 - Local Municipality of Madibeng 5 Year IDP (2011-16)

National policy alignment

South Africa suffers from a high level of poverty and inequality, which influences developmental objectives set by government. Greater inclusivity, faster growth (i.e. 5.4% by 2030), servicing the needs of all South Africans, equipping people with skills, and achieving close to full employment (i.e. 11 million new jobs by 2030) are among the key priorities for the country for the next fifteen years (National Planning Commission, 2011).

Investment in infrastructure, including expansion of electricity generation capacities, is acknowledged to be an important prerequisite for achieving the targeted economic growth rates and employment creation (National Planning Commission, 2011). Considering that **the National Development Plan 2030** also calls for a more sustainable use of natural resources and transition to a low-carbon economy, it is clear that reliance on carbon fuels to generate electricity is not a desirable future. Therefore, development of new

electricity generation capacities is planned through the diversification of the current electricity generation mix, which involves among others harnessing of renewable energy sources.

Through the **Integrated Resource Plan (IRP) 2010–2030** (Department of Energy , 2011), government has committed to produce 8 400 MW from Photovoltaic (PV), 8 400 MW from Wind and 1 000 MW from Concentrated Solar Power (CSP) by 2030. In order to achieve this, the Renewable Energy Independent Power Producer Procurement Programme (RE IPPPP) was launched. To date, three ministerial determinations have been made that called for the procurement of 13 125 MW (out of envisaged 17 800 MW) of renewable energy from IPPs, of which 4 725 MW were allocated for solar PV energy projects. Considering the four bidding windows that have been completed so far, 1 899 MW have already been awarded to solar PV energy projects. This means that 2 826 MW are still available for allocation in the future bidding rounds, creating opportunities for establishment of new solar PV energy projects similar to the one under analysis.

All of the above suggests that **the proposed project is in alignment with the national developmental priorities and programmes aimed at increasing domestic electricity generational capacity**. Furthermore, the proposed project, if approved, would allow sustaining “a competitive renewable energy manufacturing sector and related support industries” that would have been established in the country by that time on the backbone of the RE IPPPP. This means that the project also falls in line with the **IPAP 2014/2015 – 2016/2017**, which focuses on strengthening the capacity of solar and wind energy generation in the country and subsequently increasing the local content of renewable energy projects in South Africa.

Regional policy alignment

The North West Provincial Development Plan (PDP) 2030 places much emphasis on addressing key challenges around regional unemployment and poverty among others. The PDP envisages to reduce the Province’s 2010 unemployment rate of 24%, to 14 and 6% by 2020 and 2030, respectively. An additional 815 000 jobs would be required in order for the province to realise the aforementioned 2030 target (North West Planning Commission , 2013).

The agricultural and mining sectors are identified as the Province’s two priority sectors, vital in expanding the North West economy. The PDP stipulates the need to expand agriculture production, with emphasis on well supported small-scale farming, communal farmers, commercial farmers, and cooperatives. Furthermore, there are other key sectors also identified in the PDP, through which the Province will expand its economy, and these include:

- Specific manufacturing sub-sectors
- Renewable energy supplier industry
- Construction and infrastructure
- Tourism (including arts and culture)
- SMME development and financial sector inclusion and development

Renewable energy infrastructure is incorporated as part of the construction and infrastructure sector. The PDP acknowledges that renewable energies, especially solar- and waste/biomass-to-energy initiatives, will play an increasingly important role. Renewable energy is envisaged to contribute a much greater share of provincial energy supply mix in the future, with the Province aiming to increase renewable energy

consumption to 37% by 2030, and also to increase access to electricity from the recorded 84% in 2011, to 95% by 2030 (North West Planning Commission , 2013). The need for more independent power producers and promoting the use of solar power in the Province is also explicitly stated as part of the envisaged action items to support investments in renewable energy infrastructure. The western part of the North West is mentioned as having the greatest potential for solar energy; however, the lack of a mainline transmission grid in that part of the province is also identified as a possible constraint to the roll-out of major solar power projects.

A Renewable Energy Strategy for the North West Province (2012) has also been developed. The Strategy was developed in response to the need for the North West Province to participate meaningfully within the renewable energy sector of South Africa. Solar energy (including photovoltaics as well as solar water heaters), municipal solid waste, hydrogen and fuel cell technologies, bio-mass, and energy efficiency are identified as the technologies with the most potential and a competitive strength for the North West Province (North West Province Department of Economic Development, Environment, Conservation and Tourism , 2012). With respect to solar energy, the Dr. Ruth S. Mompoti and Ngaka Modiri-Molema District Municipalities are identified as municipalities in the Province with considerable potential. However, as earlier alluded, the Strategy also clearly states that a roll-out of solar projects in some parts of these two district municipalities might be a challenge, mainly as a result of grid connection constraints. Nevertheless, there are still other parts of the province that are also believed to be good for solar energy projects, for example the Bojanala Platinum East, where the proposed project is to be located, is clearly stated as a high priority for photovoltaics (North West Province Department of Economic Development, Environment, Conservation and Tourism , 2012).

The above regional policies suggest that **the proposed project is in alignment with the provincial development priorities**. Although much emphasis is placed on the agricultural and mining sectors, the development of a viable renewable energy sector including solar energy technologies is also explicitly stated and prioritised for the North West Province.

Local policy alignment

The Bojanala Platinum District Municipality IDP 2015-16 identifies the agriculture and mining sectors as the two priority sectors for the Bojanala Platinum District Municipality. According to the IDP, economic opportunities in Bojanala abound in these two sectors (Bojanala Platinum District Municipality, 2015). Furthermore, tourism is also identified as a major economic activity within the district. It is therefore, critical to consider the spatial development priorities of the municipalities involved in order to investigate whether the planned project is not in direct conflict with other land use profiles for prioritised sectors such as agriculture, mining, and tourism.

The Draft Madibeng Local Municipality Spatial Development Framework (MLM SDF) 2015 outlines the spatial development priorities for the Madibeng Local Municipality. Figure 2-1 illustrates a map developed in the draft MLM SDF showing the spatial configurations and envisaged future residential developments within the Madibeng municipality.

Based on the given map, it can be established that the proposed project site (with the red star) falls within an area zoned for mining (i.e. purple region). The draft MLM SDF explicitly states that areas with resources that contribute to the local economy should be protected. Although the site is not within a conservation area, or an area demarcated as high agricultural potential, the fact that it falls within an area

zoned for mining raises a concern from a mineral resource sterilisation perspective, especially considering that mining is considered a priority sector for the district municipality and the North West province at large.

Nevertheless, it should also be noted that the draft MLM SDF stipulates the support of industrial and mixed land use development especially along the Brits/Rosslyn Mixed Land Use Corridor. The corridor, which is believed to cover part of the proposed site, is recommended for industrial, economic, and mining expansion. It is thus imperative to further establish whether the proposed solar energy project can be defined as part of the recommended industrial and economic infrastructure and whether it will not be in direct conflict for land with existing mining rights exploration or expanding mining projects.

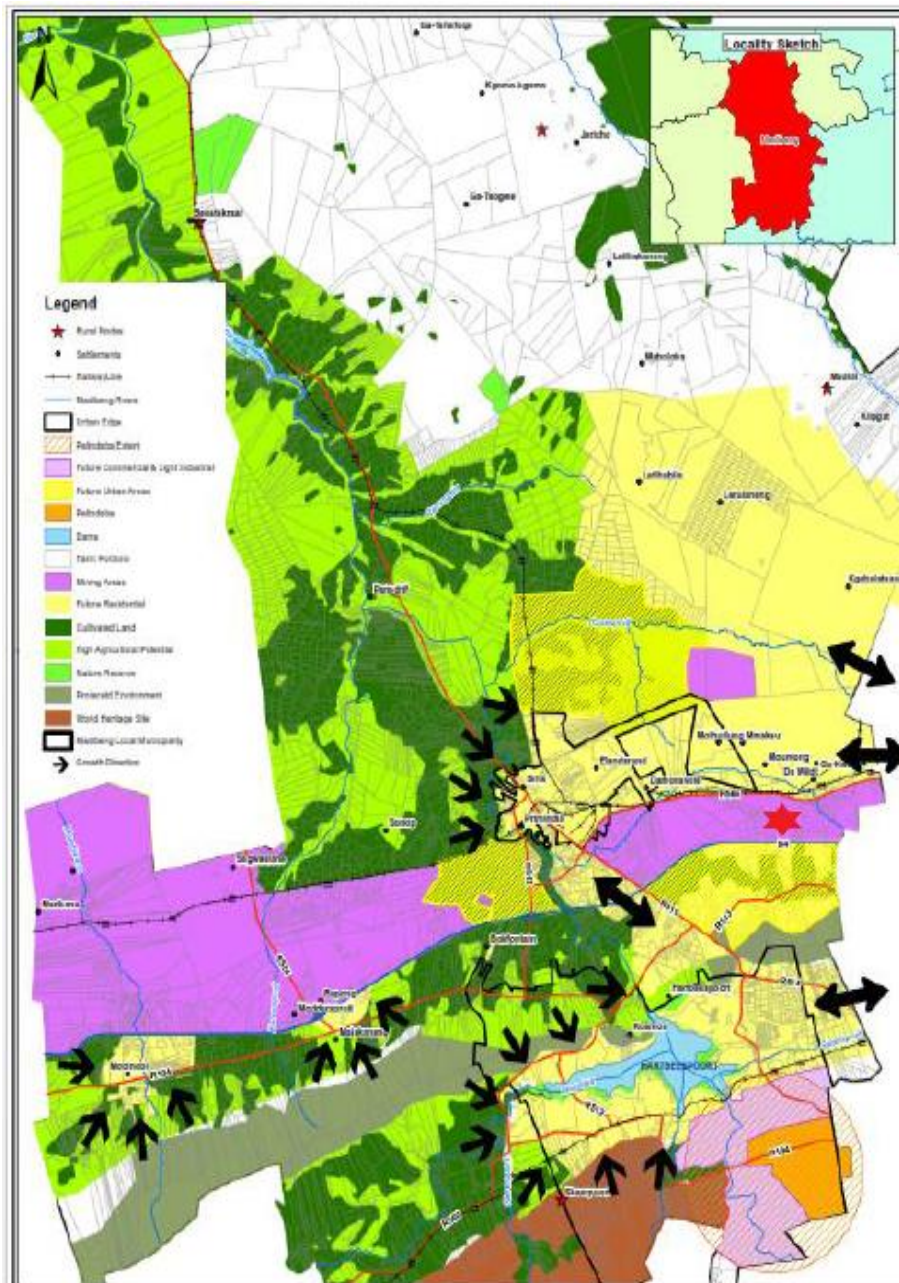


Figure 2-1: Madibeng spatial development map (Madibeng Local Municipality, 2015)

With respect to the **Local Municipality of Madibeng's 5-Year IDP (2011-16)**, project-related aspects such as electricity and local economic development are identified among the six priority areas to be pursued within the local municipality. The need for increased rural electrification within the MLM, as discussed under Priority Area 3 pertaining to electricity (Madibeng LM, 2011), could potentially benefit from this planned electricity generation project. Although no local economic development projects linked or related to the project are shortlisted, it is believed that the implementation of this planned solar project would benefit the local economy not only through job creation but also through the implementation of socio-economic and enterprise development plans and help address some of the key challenges around unemployment and poverty.

The reviewed local policies reveal that **further consultations with relevant local authorities will be essential, especially considering that the proposed project location falls within an area zoned for mining**. Mining and agriculture are key priority sectors within the North West Province as a whole; hence, the need to seek clarity and investigate further on whether the proposed solar energy project will not conflict expanding mining activities.

After considering the reviewed documentation, the proposed solar facility is in alignment with national and provincial objectives, plans, and strategies relating to socio-economic development. The proposed project fits well with the plans to diversify the province through investment in renewable energy projects. However, at local level, possible competition for land use with expanding mining activities should be investigated especially considering that the proposed project location falls within an area zoned for mining. Furthermore, considering the importance of the agricultural and tourism industries in the development of local economies, an investigation into the current land uses in the zone of influence of the proposed project will need to be undertaken. This will be required to determine if the proposed project is to have any negative impact on the growth and development of these sectors.

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.

3.1 Study area's composition and locational factors

The study area is located in the Bojanala Platinum DM within the Madibeng LM, 9km south-west of Ga-Rankuwa and 14km east of Brits. Various other smaller settlements are closer to the proposed site, but they are further extensions of Ga-Rankuwa.

The **Ga-Rankuwa township** had been settled by Tswana people since at least the 17th century. The original farm named Hebron was bought by 30 families who were descendants of the Bakwena people for between 150 and 300 pounds. It was officially classified as a township in 1965, and used to settle displaced individuals from other areas during the apartheid regime.

The Brits town was only officially established in 1924 on the farm Roode Kopjes (Red Hills) but the settlement began far earlier. In 1840, Albertus Venter settled down on the farm De Kroon, which later

became known as Ou Werf. In 1906, a railway station called Brits was established and a small number of businesses began to form around this railway station.

Various smaller settlements that extend from Ga-Rankuwa exist in close proximity to the proposed site. These include Moumong, Ramolapong, Tswara, Mmkau and Ga-Matlou.

The following points of interest exist within a 50km radius of the proposed project:

- Hartbeespoort dam
- Hartbeespoort elephant sanctuary
- Ann van Dyk cheetah centre

Notable economic activities in close proximity to the site include:

- Xstrata Eland Platinum Mine
- Herculite Ferrochrome Mine
- Protech Ready-Mix Brits Plant
- Various agricultural activities

The proposed site has ample access to road infrastructure as it is located directly adjacent to the R566. Alternatively, the N4 national road is located to the south of the delineated area and the site can be accessed through a dirt road that leads from the N4 to the proposed site.

3.2 Sense of place, history and cultural aspects

As already mentioned, the proposed project is located in the Madibeng LM, which forms part of the Bojanala Platinum DM in the North West Province.

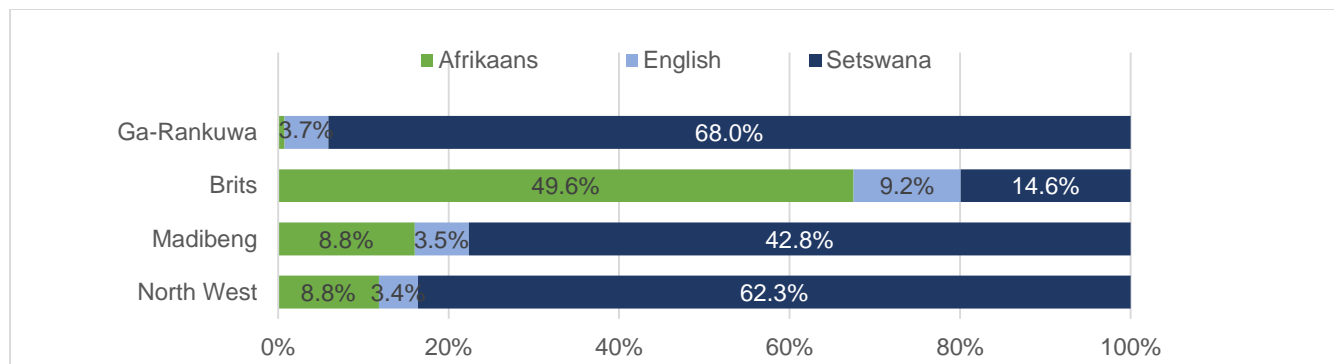


Figure 3-1: Most spoken languages in North West, Madibeng LM, Brits and Ga-Rankuwa (Stats SA, 2016)

Setswana is the most spoken language in the Madibeng LM, with almost half of people using it as their first language. The situation in the Municipality is very similar to that of the Province. However, Afrikaans is spoken by a large portion of the population in Brits while nearly 70% of people in Ga-Rankuwa speak Setswana (see Figure 3-1).

The same trends are observed when looking at the social group distribution; about 90% of people are black in the Madibeng LM. In the case of the two towns, there again exists a contrast as 42% of the

people living in Brits are black while 46,3% of people are white. This is in sharp contrast with Ga-Rankuwa where 99,2% of people are black (Stats SA, 2016).

3.3 Demographic Profile

The Madibeng LM is home to approximately 477 380 people, with a total of 160 724 households (Stats SA, 2016). The population has increased by 38,4% between 2001 and 2011 (from 345 036 in 2001). Over half of the population in the municipality lives in formal (brick house) dwellings (51,7%); the rest include 0,7% of people who live in tribal or traditional areas, and 39,4% of people who live in informal dwellings (Stats SA, 2016). The large proportion of people living in the urban area can be explained by the ease of access to opportunities and services within the larger urban centres, in this case Brits, Ga-Rankuwa, and the rest of Pretoria.

Table 3-1: Populations density and growth at Provincial, district, local and town level

Location	Area (km ²)	Population (2011)	Population density per km ²	Population increase (2001-2011)
North West	104881,7	3 509 950	33,5	17,7%
Bojanala Platinum DM	18 333	1 507 503	82,2	27%
Madibeng	3 839	477 380	124,3	38,4%
Brits	111	25 604	231,3	58,1%
Ga-Rankuwa	52	90 942	1 742.80	18,1%

(Stats SA, 2016)

The female population (46,8%) accounts for slightly less of the LM's population compared to the male population (53, 2%). The Madibeng LM's population is very young, with 64.8% of people being less 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.

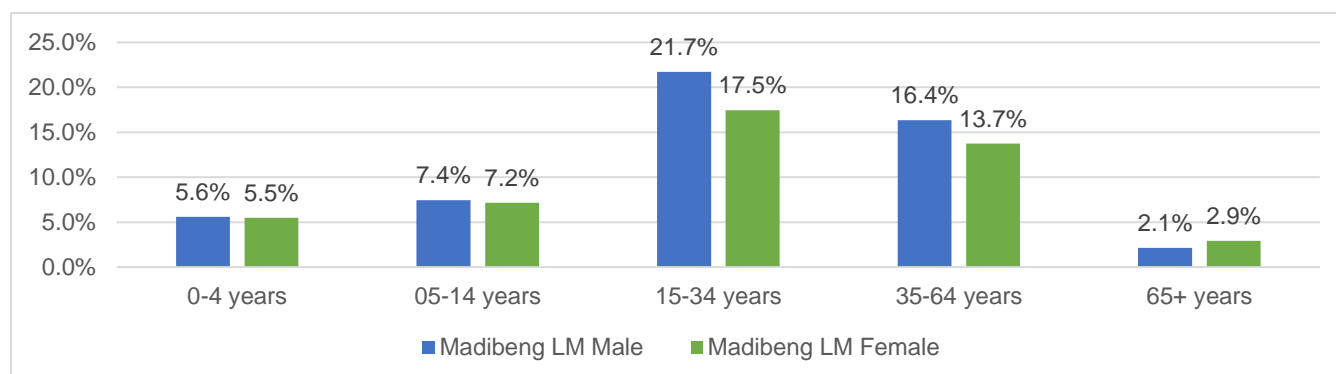


Figure 3-2: Age and gender profile in the Madibeng LM (Stats SA, 2016)

The youth (age 15-34) make up the majority of the people living in the Madibeng LM with 39,2% of the population falling in said age group. This is followed by the group between the ages of 35 and 64, which accounts for 30,1% of the Madibeng LM 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 for the Madibeng LM (see Figure 3-2). The population in the area is characterised by a smaller dependency ratio than that observed in the province or in the country (30,7% for the Madibeng LM compared to the national and provincial averages of 34.8% and 35.3%, respectively).

The municipal area is adversely affected by the high rate of HIV/AIDS. The number of HIV-positive people living in the LM equates to 13,6% of the total population, which is slightly higher than provincial and national averages. It must also be noted that HIV/AIDS-related deaths account for more than half the deaths that occur in the LM. This can be attributed to a number of factors such as higher proportions of migrant workers (miners and farm workers), high rates of poverty, unemployment and teenage pregnancies.

3.4 Economy

In 2013, the Madibeng LM's economy was valued at R549 million in current prices (Quantec, 2016). It contributed 26,8% to the District's economy and 13,8% to the economy of the North West Province, which in turn, accounted for 0,8% of the national economy. The Madibeng economy relies heavily on the primary and secondary sectors that contribute about 42.4% to its GDP generation.

Overall, economic activities in the LM are predominantly driven by the mining and agricultural sectors. The predominant mining activities in the Madibeng area include the production of the following (Madibeng LM, 2016):

- Ferrochrome
- Vanadium Pent oxide
- Chromium
- Silica Sand used in the manufacturing of glass
- Stone quarries
- Granite quarries
- Platinum

As indicated in the table below, though, the agricultural sector has been stagnating between 2003 and 2013, while the mining industry has been growing at a lacklustre pace. The economic growth in the municipality was largely stimulated by the tertiary industries and specifically finance and business service sector that was also the secondly largest sector in the municipality in terms of GDP.

Table 3-2: Structure and composition of the North West's and Madibeng LM's economies

Economic Sector	North West (GDP in 2013 prices)			Madibeng LM (GDP in 2013 prices)		
	GDP (R'ml)	% of GDP	CAGR (2003 - 2013)	GDP (R'ml)	% of GDP	CAGR (2003 - 2013)
Agriculture	4847,5	1,6%	1,8%	328,9	2,3%	0,4%
Mining and quarrying	61 011,1	-1,2%	-1,3%	3 238,9	22,8%	1,9%
Manufacturing	9 632,3	3,0%	3,3%	2 094,8	14,7%	3,6%
Electricity, gas and water	2 675,0	1,7%	1,9%	33,9	0,2%	-10,2%
Construction	5 011,9	5,1%	5,7%	326,5	2,3%	3,7%
Trade	24 536,8	2,7%	3,0%	1 494,4	10,5%	1,8%
Transport and communication	15 169,2	2,8%	3,1%	1 775,6	12,5%	4,9%
Finance and business services	29 097,4	6,0%	6,7%	2 673,4	18,8%	8,3%
Personal services	16 344,4	2,6%	2,9%	936,5	6,6%	3,2%

Economic Sector	North West (GDP in 2013 prices)			Madibeng LM (GDP in 2013 prices)		
	GDP (R'ml)	% of GDP	CAGR (2003 - 2013)	GDP (R'ml)	% of GDP	CAGR (2003 - 2013)
General government	28 504,5	3,1%	3,4%	1 309,9	9,2%	3,8%
TOTAL	196 830,1	2,2%	2,1%	14 212,8	100,0%	3,7%

(Quantec, 2016)

The Madibeng LM economy experienced a sharp decline in 2008 (see Figure 3-2), which can be attributed to the global economic recession following 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, the Madibeng LM's economy could not recover in full after that time either. The growth that was seen in the 2010/2011 years can be attributed to a large increase in the mining sector. This shows the importance of the mining sector in the LM economy. Unfortunately, this had the opposite effect on the LM and DM economies in 2012, as unrest in this sector caused a slump in commodity prices which lead to a large decrease in mining production and trade.

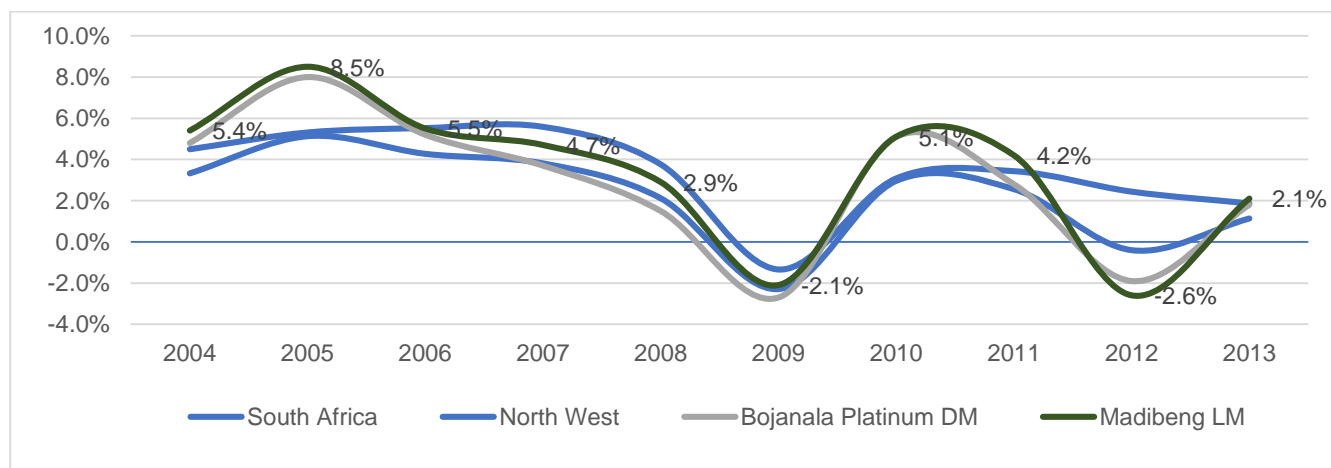


Figure 3-2: Growth rates for South Africa, the North West Province, Bojanala Platinum DM and Madibeng LM (Quantec, 2016)

3.5 Labour Force and Employment Structure

The total active population in the Madibeng LM reached 215 932 people in 2011, over 30% of who were unemployed, and 14,2% worked in the informal sector. The unemployment and informal employment rates are significantly lower in Brits, while it is slightly higher in Ga-Rankuwa (refer to Table 3-5).

Table 3-5: Employment-related indicators in North West, Bojanala Platinum DM, Madibeng LM, Brits and Ga-Rankuwa (2011)

Indicator	North West	Bojanala Platinum	Madibeng LM	Brits	Ga-Rankuwa

Total active population	1 236 786	632 283	102 568	10 832	40 429
Formal sector (%)	67,9%	70,9%	68,2%	74,3%	71,9%
Informal sector (%)	15,0%	13,4%	14,2%	9,1%	9,6%
Unemployment rate	31,4%	30,6%	30,4%	14%	35,4%

(Stats SA, 2016)

In line with the local economy's structure, most people in the Madibeng LM are employed in the tertiary sector (60,1%), with the three sectors of wholesale and retail trade, personal services and finance, insurance and real estate making the largest contribution to employment. The mining sector employs 19,2% of people within the LM, while it represents a fifth of employment opportunities at the provincial level (see Table 3-3). The large majority of people working in the mining sector at 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 3-3: Employment by industry sector in North West and the Madibeng LM (2011)

Industry	North West		Madibeng LM	
	Employment	%	Employment	%
Agriculture, forestry and fishing	41 089	4,8%	5 012	4,6%
Mining and quarrying	177 922	20,9%	21 101	19,2%
Manufacturing	47 471	5,6%	12 433	11,3%
Electricity, gas and water	3 649	0,4%	121	0,1%
Construction	40 835	4,8%	5 054	4,6%
Trade, catering and accommodation	179 866	21,1%	22 816	20,8%
Transport, storage and communication	35 669	4,2%	6 422	5,9%
Finance, insurance, and business services	80 755	9,5%	12 134	11,1%
Community, social and personal services	133 158	15,6%	14 650	13,4%
General government	111 814	13,1%	9 914	9%
Total	852 226	100%	109 661	100%

(Stats SA, 2016)

Formal sector employment in the Madibeng LM consists of mainly semi- and unskilled workers with 75,8%, followed by skilled workers with 24,2%. This is in alignment with the district averages that show almost the same figures for each skill level.

3.6 Income

Table 3-4 shows that the households' weighted average income per month in the Province, district, local municipal levels and the township of Ga-Rankuwa, is very low, especially compared to the already low national average income of R10 230/month in 2016 prices (see Table 3-4). The situation is particularly dire in the local municipality, which records a weighted average income of R7 250/month. This is explained by the overwhelming majority of households who have no income and earn an annual salary of less than R 9 600 in 2011 prices. It can therefore, be concluded that most people living in the Madibeng LM are relatively poor. However, it is interesting to note that the income levels in the town of Brits are very high compared to what is observed in the greater area; i.e. the Province and municipalities. It records a monthly average income of R18 169 in 2016 prices. This shows that the wealth is concentrated in urban areas, with sharp income inequalities observed in rural areas and townships of the LM and Province (Stats SA, 2016).

Table 3-4: Households per monthly income groups (Stats SA, 2016)

Indicator	North West	Bojanala Platinum DM	Madibeng LM	Brits	Ga-Rankuwa
Income category (2011 prices)					
No income	16,6%	17,3%	16,3%	11,7%	16,5%
R1 - R4 800	4,2%	3,5%	3,3%	2,0%	3,5%
R4 801 - R 9 600	7,2%	5,5%	5,5%	2,5%	5,0%
R9 601 - R 19 200	18,7%	16,3%	17,1%	8,69%	15,1%
R19 201 - R 38 400	19,9%	18,8%	20,0%	14,8%	17,5%
R38 401 - R 76 800	15,4%	19,1%	19,2%	13,5%	17,1%
R76 801 - R153 600	8,8%	10,0%	9,5%	13,3%	13,1%
R153 601 - R307 200	5,3%	5,3%	4,9%	15,4%	8,4%
R307 201 - R614 400	2,7%	2,8%	2,7%	12,9%	3,1%
R614 401 - R1 228 800	0,8%	0,9%	0,9%	4,1%	0,4%
R1 228 801 - R2 457 600	0,5%	0,3%	0,4%	0,6%	0,2%
Weighted average income per month (2016 prices)	R7 046	R 7 146	R7 250	R18 169	R7 549

(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 Matric level at the provincial and municipal levels, but this is true for only one-third of the population in Brits. Only a small percentage of people have had some form of higher education at the provincial (7.6%) and municipal (7,6%) levels, while 19,3% and 16,2% of people in the two major towns of Brits and Ga-Rankuwa reported some form of higher education (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. Infrastructure and the state of local infrastructure is another indicator to contemplate when considering 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

The Madibeng LM is more densely populated when compared to provincial and district levels. The density of the population in the two towns is even greater, with 231 and 1 742 people living in every square km in Brits and Ga-Rankuwa, respectively.

Table 3-1: Populations density and growth at Provincial, district, local and town level.

Location	Area (km ²)	Population (2011)	Population density per km ²	Population growth (2001-2011)
North West	104881,7	3 509 950	33,5	17,7%
Bojanala Platinum DM	18 333	1 507 503	82,2	27%
Madibeng	3 839	477 380	124,3	38,4%

Location	Area (km ²)	Population (2011)	Population density per km ²	Population growth (2001-2011)
Brits	111	25 604	231,3	58,1%
Ga-Rankuwa	52	90 942	1 742.80	18,1%

(Stats SA, 2016)

Over half of the population in the municipality lives in formal (brick house) dwellings (51,7%); the rest include 0,7% of people who live in tribal or traditional areas, and 39,4% of people who live in informal dwellings (Stats SA, 2016). The large proportion of people living in the urban area can be explained by the ease of access to opportunities and services within the larger urban centres, in this case Brits, Ga-Rankuwa, and the rest of Pretoria.

4.2 Access to Housing and Basic Services

Access to basic services in the study area reflects the inequalities within the district and the Madibeng LM, with basic services being more adequately accessed in urban areas (Stats SA, 2016):

- **Housing:** Only 27,7% of people in Brits live in informal housing, while this is the case for 42,3% of people in the Madibeng LM. Surprisingly, the number of people living in informal housing within Ga-Rankuwa is only 11,8%, which is in sharp contrast with the LM and Brits.
- **Water and sanitation:** The two towns of Brits and Ga-Rankuwa provide very good access to water, with over 80,5% and 93,3% of people accessing water inside their dwelling or yard, respectively. The same trend follows in the LM where 67,9% of people have access to water inside their homes or on their property. The same situation is observed regarding sanitation services, i.e. only 27,1% of people within the Madibeng municipality have access to proper sanitation (e.g. connected to sewerage system). In the town, 75,2% and 90% of people are connected to the sewerage system network, which is far better than provincial and district averages. (Stats SA, 2016).
- **Electricity:** Access to electricity for lighting in the Madibeng LM is in line when compared to national and provincial figures. Only 15,9% of the population in the Madibeng LM use candles for lightning, while only 14,8% of Brits people use the same method to light their homes. The situation is even better in the township of Ga-Rankuwa where 92,8% of people have access to electricity (Stats SA, 2016).

To improve access to basic services, the Municipality plans to implement the following projects:

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

Project Description	Planned NO of extensions
Access to electricity	
Madibeng LM Projects	
• Makgabelwane	500
• Oskraal	200
• Regorigile	400
• Hebron	800
Access to water	
Madibeng LM Projects	
• Rehabilitation of Boreholes in Hebron/Kgabalatsane/Rockville & Lethabong, Mmakgebetwane, Sephai, Jonathan	N/A
• Water Supply Scheme 1	N/A

Project Description	Planned NO of extensions
• Ward 29 water supply	29
• Meters replacement at Modderspruit	N/A
• Upgrading Brits Water Purification Plant	N/A
Access to sanitation	
Madibeng LM Projects	
• VIP toilets for Segwaelane.	N/A
• Provision of VIP toilets (600 VIP toilets by BPDM in rural areas).	N/A
Access to housing	
Madibeng LM Projects	
• Oukasie Ext 5	1000
• Mothutlung Ext 2	1000
• Lethlabile Block I phase 1	1000
• Lethlabile Block I phase 2	768
• Scheerpoort	700
• Refentse	155
• Oukasie Proper	1271
• Bokfontein	529
• Modderspruit	500
• Bapong	550
• Klipgat	500
• Maboloka	550
• Mmakau	550
• Madidi	100
• Jericho	100
• Hebron	60
• Kwariakraal	30
• Klipvoorstad	30
• Jonathan	30

(Madibeng LM, 2016)

4.3 Transport infrastructure

The Madibeng LM has prioritised the maintenance of road infrastructure as well as expanding some of the tarred road infrastructure in the LM. This expansion of infrastructure is difficult to maintain as some areas are the responsibility of the DM to maintain and expand. Brits town falls under the LM's jurisdiction, and 64% of all roads in the town are tarred. The majority of gravel roads are located in the Lethlabile, Mothutlung and Oukasie areas, which lie on the outskirts of Brits town.

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

Project name	Allocation
Jericho to Makgabetlwane road – phase 1	R5 million
Shakung road	R5 million
Majakaneng bus route – phase 1	R2 million
Mothotlung storm water phase 1	R3 million
Klipgat storm water phase 1	R3 million
Oukasie storm water phase 1	R3 million
Oukasie road X 5	R5 million

(Madibeng LM, 2016)

4.4 Social and Recreational Infrastructure

The local area comprises of the following social and recreational infrastructure (Madibeng LM, 2016).

- **Educational facilities:**
 - A total of 218 schools in the eight circuits of the department of education are in the jurisdiction of the Madibeng LM. The LM average of pupils per teacher is 40, but this is higher in certain village areas (Madibeng LM, 2016). The primary need identified in the village area schools is sanitation. Very few schools in these areas have access to proper sanitation for their pupils.
- **Health facilities:**
 - A total of 36 health facilities are currently rendering services in the local municipality. These include five mobile health clinics and six mobile dental clinics. The patient to nurse-ratio currently prevalent in the LM is 1:54, where the acceptable average should be 1:38. There thus exists a massive shortage of nurses within the LM as well as public health facilities. The understaffed facilities also mean that services rendered take a long time to reach the patient and, in some areas, the turnaround time is up to eight days (Madibeng LM, 2016).
- **Police stations:** There are four police stations situated in close proximity to the site, e.g. DeWildt police station, DeWildt ride old police station, Mothutlong police station, Brits police station, and Ga-Rankuwa police station. There is a definite need for more police stations in various wards throughout the LM as indicated in the IDP ward needs analysis (Madibeng LM, 2016).

5 SITE-RELATED INFORMATION

The site-related information section will investigate the various dynamics of the proposed site in order to ensure that the current land use activity does not conflict with the establishment of the proposed facility. If there are any conflicts identified, then they will be investigated further in the next phase.

5.1 Land-use profile

The proposed project involves the construction of the 50MW solar park and associated power lines near Ga-Rankuwa on portions 15,27 and 28 of the farm Schietfontein 437 JQ situated in the Madibeng LM (refer to Figure 5-1). The area where the project is to be located appears to be located on farm land (possibly used for cattle grazing) and surrounded by some selected economic activities. The following preliminary estimates of these activities and land uses can be identified:

- Identified area A: Xstrata Eland Platinum Mine
- Identified area B: Large farming activities that vary in type (irrigation included)
- Identified area C: Crop production
- Identified area D: Large grouping of housing

Verifications of the current activity on site and activities in the surrounding area will have to be made during the site visit, which will occur after submission of this report. Interviews with the owners or managers of the farm portions directly adjacent to the site, as well as those located further away that may

be affected by noise or visual impacts will be undertaken to determine the socio-economic profiles of these farms portion and identify any concerns of the affected parties.

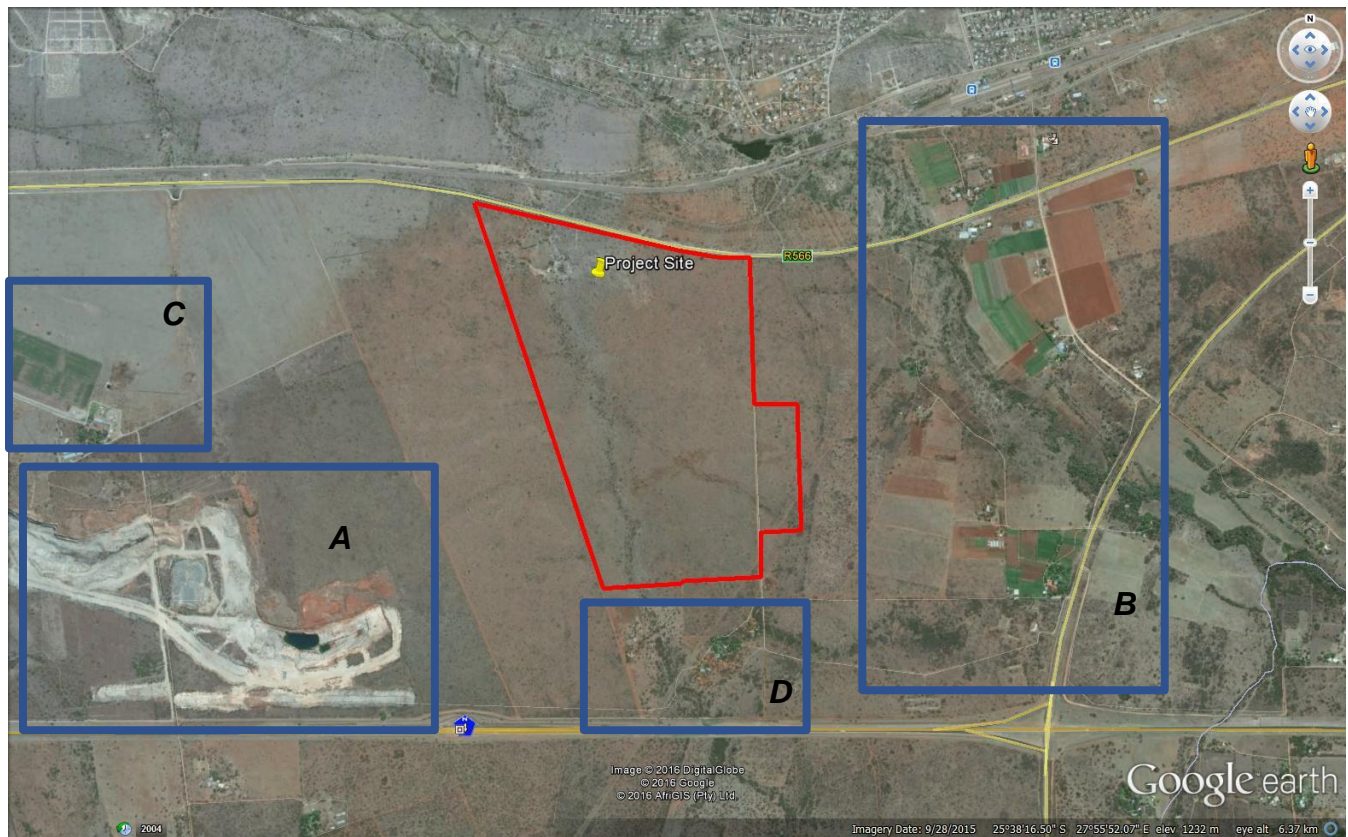


Figure 5-1: Project site



5.2 Resources and land capability

The proposed area is zoned as a potential mining area; the platinum mine already exists in close proximity to the proposed site (to the west). Because of this, any potential sterilisation of mineral resources must be investigated before proceeding further. The Madibeng LM in generally is known for its wealth of mineral resources, which include: platinum, ferrochrome, vanadium, chromium, silica sand and stone and granite quarries. The abundance of crop irrigation farming in the immediate proximity of the proposed site is indicative of the viability of farming in the area.

6 SUMMARY AND POTENTIAL SOCIO-ECONOMIC IMPACTS

Zolograph Investments RF (Pty) LTD is proposing to develop a solar energy facility with a total nameplate capacity of 50MW and associated 88KV transmission line. The proposed solar energy facility is proposed to be located on portions 15,27 and 28 of the farm Schietfontein 437 JQ situated in the Madibeng LM (refer to Figure 1.1). The site is in close proximity to the Ga-Rankuwa township while Brits town is located 14km west of the site.

The review of key national and provincial level energy policy documents indicated that the development of energy from renewable sources is strongly supported at both levels. The White Paper on Energy Policy

(1998) notes that renewable energy operates from an unlimited resource base and as such, can increasingly contribute towards a long-term sustainable energy future. It additionally notes that the support for renewable energy policy is guided by a rationale that South Africa has a very attractive range of renewable resources; particularly solar and wind, and that renewable applications are the least cost energy service in many cases: more so when social and environmental costs are taken into account. The Integrated Resource Plan (IRP) 2010-2030 also allocates 43% of new energy generation facilities in South Africa to renewables.

From a local perspective, the project appears to be in line with the local priorities but may have some conflict with the land use vision for the area. The area where the project is to be located is a zone for mining purposes, which suggests that it may have some minerals that could potentially be sterilised if the proposed solar energy facility is to be developed. This will need to be investigated further.

The population and the local economy of Madibeng LM is relatively large. Although the unemployment rate in the area is on par with the national level, the households in the local municipality have very low-income levels. The local economy is quite reliant on the agricultural and mining activities; however, their growth was negatively impacted by the unrests in the mining sector, draughts, and other challenges that negatively impacted on the municipal development. The municipality's growth was largely supported by the developments in the tertiary sector in the past few years; however, the growth of the tertiary industry is directly dependent on the local purchasing power of the local residents.

The economy is in need for investment that would diversify its economic base and lead to the improvement of standards of living among local households through the increased income levels and access to improved services, which can be achieved by raising the local municipality's revenue base through taxes and rates paid by new businesses. The proposed project is therefore, likely to create a positive impact on the local economic development and the socio-economic environment in the municipality in general.

Considering the project background and the understanding of the socio-economic environment where the proposed project is to be located, the following impacts can be predicted that will need to be investigated in greater detail.

Construction phase impacts to be investigated

Impact: Increase in production and GDP-R of the national and local economies due to project capital expenditure

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	National	One month to one year	Great	Daily	Definitely	11	10	High
	5	2	4	5	5			110
Mitigation Measures		<ul style="list-style-type: none"> - Procure construction materials, goods, and products from local suppliers if feasible - Employ local contractors where possible. - The proposed mitigation measures will possibly increase the positive impact in the local economy; however, this will not affect the rating. 						
With Mitigation	Area specific	One month to one year	Great	Daily	Definitely	11	10	High
	5	2	4	5	5			110

Impact: Creation of temporary employment in the local communities and elsewhere in the country

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Regional	One month to one year	Great	Daily	Definitely	10	10	Medium-High
	4	2	4	5	5			100
Mitigation Measures		<ul style="list-style-type: none"> - Employ labour-intensive measures in construction. - Employ local residents. - Sub-contract to local construction companies. - Utilise local suppliers. - Set-up a skills desk at the local municipal office and in the nearby communities to identify skills available in the community and assist in recruiting local labour during both construction and operation. <p>The proposed mitigation measures will possibly increase the positive impact in the local economy; however, this will not affect the rating.</p>						
With Mitigation	Regional	One month to one year	Extreme	Daily	Daily	11	10	High
	4	2	5	5	5			110

Impact: Skills development due to the creation of new employment opportunities

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	National	One month to one year	Significant	Daily	Seldom	10	8	Medium-High
	5	2	3	5	3			80
Mitigation Measures		<ul style="list-style-type: none"> - Contractors should provide learnerships and on-job training; - Where specialist training can be provided, candidates from local communities should be prioritised for training; and - Share knowledge with the sub-contracting companies during the construction period 						
With Mitigation	National	One month to one year	Significant	Daily	Often	10	9	Medium-High
	5	2	3	5	4			90

Impact: Improved standard of living of households directly or indirectly benefiting from an increase in household income

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Regional	One month to one year	Great	Daily	Definitely	10	10	Medium-High
	4	2	4	5	5			100
Mitigation Measures		<ul style="list-style-type: none"> - Recruit local labour as far as feasible to increase the benefits to the local households. - Employ labour-intensive methods in construction. - Sub-contract to local construction companies. - Use local suppliers where viable and arrange with the local Small and Medium Enterprises to provide transport, catering, and other services for the construction crew. 						
With Mitigation	Regional	One month to one year	Extreme	Daily	Definitely	11	10	High
	4	2	5	5	5			110

Impact: Increase in government revenue due to increase in investment and tax collected.

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	National	One month to one year	Small	Daily	Definitely	9	10	Medium-High
	5	2	2	5	5			90
Mitigation Measures	- No Mitigation							
With Mitigation	National	One month to one year	Small	Daily	Definitely	9	10	Medium-High
	5	2	2	5	5			90

Impact: Potential loss of agricultural land

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Activity Specific	Life of operation	Small	Daily	Definitely	7	10	Medium-Low
	1	4	2	5	5			70
Mitigation Measures		<ul style="list-style-type: none"> - Reasonable compensation must be negotiated with the affected farmers if loss of agricultural land is confirmed - Should resettlement of farm workers be required, a Resettlement Action Plan must be developed and implemented - Construction shoulder undertaken with the least effect on the current condition of land 						
With Mitigation	Activity Specific	Life of operation	Small	Daily	Definitely	7	10	Medium-Low
	1	4	2	5	5			70

Impact: Potential sterilization of mineral resources

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Activity Specific	Life of operation	Great	Daily	Definitely	10	9	Medium-High
	1	4	4	5	4			90
Mitigation Measures		- Confirm that no exploration rights exist for the property where the project is to be located and engage with the owners of the exploration rights, if determined that such exist - Confirm the mineral resource potential of the land where the project is to be located and engage with the Department of Minerals to determine the consequences of sterilising these						
With Mitigation	Activity Specific	Life of operation	Small	Daily	Definitely	7	9	Medium-Low
	1	4	2	5	4			63

Impact: Increase in social pathologies associated with influx of migrant labourers and job seekers to the area (health, crime, prostitution, xenophobia, etc.)

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Regional	Permanent	Significant	Daily	Definitely	12	10	High
	4	5	3	5	5			120
Mitigation Measures		<p>The developers could implement the following measures to limit the occurrence of an increase in social pathologies:</p> <ul style="list-style-type: none"> - Ensure clear communication of the project information and effective public participation processes to minimise the influx of migrant job seekers. - Employ locals as far as feasible through the creation of the local skills database and recruitment of suitable candidates. - During construction the rules and regulations must be clearly communicated to all workers, personal property must be respected and avoided. - Manage workers to ensure that they are only on site during the reasonable working hours. Control the movement of workers between the site and areas of residence to minimise loitering in the area. - The contractors should make the necessary arrangements for allowing workers from outside the area to return home over weekends and/ or on a regular basis. This would reduce the risk posed to local family structures and social networks. - Implementing health awareness campaigns to curb the potential of spreading disease, use of drugs, or alcohol abuse for example. 						
With Mitigation	Regional	Permanent	Small	Daily	Definitely	11	10	Medium-Low
	4	5	2	5	5			110

Impact: Added pressure on basic services and social and economic infrastructure

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Regional	One month to one year	Significant	Daily	Possible	9	9	Medium-High
	4	2	3	5	4			81
Mitigation Measures		<ul style="list-style-type: none"> - Ensure effective communication of the project information throughout all stages to effectively manage expectations. - Ongoing consultation with the municipality to prepare local authorities for the activity and the increase demands that may result from this. - Where feasible, assist the municipality in ensuring that the quality of the local social and economic infrastructure does not deteriorate further (especially the condition of local roads). 						
With Mitigation	Regional	One month to one year	Small	Daily	Possible	8	9	Medium-low
	4	2	2	5	4			72

Operational phase impacts to be investigated

Impact: Sustainable increase in production and GDP-R of the national and local economies through operation and maintenance activities

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	National	Life of operation	Small	Daily	Definitely	11	10	High
	5	4	2	5	5			110
Mitigation Measures		- The project should aim to benefit the local economy as far as possible and feasible by opting for procurement of local goods and services. However, this will not affect the rating.						
With Mitigation	Area specific	Life of operation	Small	Daily	Definitely	11	10	High
	5	4	2	5	5			110

Impact: Creation of long-term employment in local and national economies through operation and maintenance activities

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Regional	One month to one year	Small	Daily	Definitely	8	10	Medium-High
	4	2	2	5	5			80
Mitigation Measures		<ul style="list-style-type: none"> - Where possible, the employment of local labour should be practiced to increase the benefit to the local community through prevention of leakage of buying power. - Local small businesses should also be approached to investigate the possibility of supplying inputs for maintenance and operations where viable, this should increase local indirect employment creation. 						
With Mitigation	Regional	One month to one year	Significant	Daily	Daily	9	10	Medium-High
	4	2	3	5	5			90

Impact: Skills development due to the creation of new sustainable employment opportunities

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	National	Life of operation	Small	Daily	Seldom	11	8	Medium-High
	5	4	2	5	3			88
Mitigation Measures		- In order to improve the chances of skills being developed during the operational period it is recommended that vocational skills transfer/training programmes be developed and knowledge sharing among employees encouraged. This mitigation measure could potentially improve the weighting of the impact in terms of its probability and increase its significance slightly.						
With Mitigation	National	One month to one year	Significant	Daily	Often	10	9	Medium-High
	5	2	3	5	4			90

Impact: Improved standard of living of households directly or indirectly benefiting from an increase in household income

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Regional	One year to ten years	Great	Daily	Definitely	11	10	High
	4	3	4	5	5			110
Mitigation Measures		- Local procurement of labour and required goods and services should be encouraged as far as feasible to increase the benefit to the local households. This, though, will not affect the overall rating.						
With Mitigation	Regional	One year to ten years	Great	Daily	Definitely	11	10	High
	4	3	4	5	5			110

Impact: Increase in government revenue stream

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	National	One year to ten years	Small	Daily	Definitely	10	10	Medium-High
	5	3	2	5	5			100
Mitigation Measures	- No Mitigation							
With Mitigation	National	One year to ten years	Small	Daily	Definitely	10	10	Medium-High
	5	3	2	5	5			100

Impact: Investment in the local communities and economic development projects as part of a Social Economic Development and Enterprise Development plan

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Regional	One year to ten years	Small	Daily	Definitely	9	10	Medium-High
	4	3	2	5	5			90
Mitigation Measures		- It is recommended that the project owner develops practical SED and ED programmes throughout the project's lifespan. The plan should be developed in consultation with local authorities and existing strategy documents to identify community projects that would result in the greatest social benefits. With regard to ED initiatives, focus should be on developing plans to support and create sustainable, self-sufficient enterprises. It is important that these plans be reviewed annually and where possible updated.						
With Mitigation	Regional	One year to ten years	Significant	Daily	Definitely	10	10	Medium-High
	4	3	3	5	5			100

Impact: Altered sense of place

MITIGATION STATUS	SPATIAL EXTENT	DURATION	SEVERITY	FREQUENCY OF ACTIVITY	FREQUENCY OF IMPACT	CONSEQUENCE	LIKELIHOOD	SIGNIFICANCE
Without Mitigation	Whole site/Plant	One year to ten years	Insignificant	Daily	Definitely	5	10	Low
	3	3	1	5	5			50
Mitigation Measures		- The mitigation measures proposed by the visual specialist should be adhered to.						
With Mitigation	Whole site/Plant	One year to ten years	Insignificant	Daily	Definitely	5	10	Low
	3	3	1	5	5			50

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