EIA LEVEL REPORT

SOIL, LAND USE, LAND CAPABILITY AND AGRICULTURAL POTENTIAL SURVEY:

PROPOSED LOERIESFONTEIN PHOTOVOLTAIC SOLAR ENERGY FACILITY: LOERIESFONTEIN, NORTHERN CAPE PROVINCE

January 10th, 2012

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DECLARATION

I, Johan Hilgard van der Waals, declare that I –

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

J.H. VAN DER WAALS
TERRA SOIL SCIENCE

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SOIL, LAND USE, LAND CAPABILITY AND AGRICULTURAL POTENTIAL SURVEY – PROPOSED LOERIESFONTEIN PHOTOVOLTAIC SOLAR ENERGY FACILITY: LOERIESFONTEIN, NORTHERN CAPE PROVINCE

1. TERMS OF REFERENCE

Terra Soil Science (TSS) was commissioned by Savannah Environmental (Pty) Ltd to undertake an EIA level soil, land use, land capability, and agricultural potential survey for the proposed Loeriesfontein Photovoltaic Solar Energy Facility on the Farm Narosies 228 north of Loeriesfontein in the Northern Cape Province.

2. INTRODUCTION

2.1 Study Aim and Objectives

The study area has been proposed to serve as a locality for the construction of a photovoltaic solar energy facility and associated infrastructure for power generation purposes. This study aims to determine the possible impact that this development could have on the soils, land use, land capability and agricultural potential as well as to identify areas of high sensitivity regarding solar panels and infrastructure.

The study has as objectives the identification and estimation of:

» Soil form (SA taxonomic system) and soil depth for the area;
» Soil potential linked to current land use and other possible uses and options;
» Discussion of the agricultural potential in terms of the soils, water availability, surrounding developments and current status of land; and
» Discussion of impacts (potential and actual) as a result of the development.

2.2 Agricultural Potential Background

The assessment of agricultural potential rests primarily on the identification of soils that are suited to crop production. In order to qualify as high potential soils they must have the following properties:

» Deep profile (more than 600 mm) for adequate root development,
» Deep profile and adequate clay content for the storing of sufficient water so that plants can weather short dry spells,
» Adequate structure (loose enough and not dense) that allows for good root development,
» Sufficient clay or organic matter to ensure retention and supply of plant nutrients,
» Limited quantities of rock in the matrix that would otherwise limit tilling options and water holding capacity,
» Adequate distribution of soils and size of high potential soil area to constitute a viable economic management unit, and

» Good enough internal and external (out of profile) drainage if irrigation practices are considered. Drainage is imperative for the removal (leaching) of salts that accumulate in profiles during irrigation and fertilization.

In addition to soil characteristics, climatic characteristics need to be assessed to determine the agricultural potential of a site. The rainfall characteristics are of primary importance and in order to provide an adequate baseline for the viable production of crops rainfall quantities and distribution need to be sufficient and optimal. The combination of the above mentioned factors will be used to assess the agricultural potential of the soils on the site.

2.3 Survey Area Boundary

The survey area lies between 30° 28’ 30’’ and 30° 36’ 25’’ south and 19° 32’ 58’’ and 19° 39’ 24’’ east approximately 45 km north of the town of Loeriesfontein in the Northern Cape Province (**Figure 1**).

2.4 Survey Area Physical Features

The survey area lies on relatively level terrain with small undulations and a south-south-westerly aspect. The altitude varies between 820 m above mean sea level in the south to 980 m in the north. The geology is dominated by shale with dolerite intrusions that increase in frequency from south to north.

3. SOIL, LAND CAPABILITY, LAND USE SURVEY AND AGRICULTURAL POTENTIAL SURVEY

3.1 Method of Survey

The EIA level soil, land capability, land use and agricultural potential surveys were conducted in three phases.

3.1.1 Phase 1: Land Type Data

Land type data for the site was obtained from the Institute for Soil Climate and Water (ISCW) of the Agricultural Research Council (ARC). The land type data is presented at a scale of 1:250 000 and entails the division of land into land types, typical terrain cross sections for the land type and the presentation of dominant soil types for each of the identified terrain units (in the cross section). The soil data is classified according to the Binomial System (MacVicar et al., 1977). The soil data was interpreted and re-classified according to the Taxonomic System (MacVicar, C.N. et al. 1991).

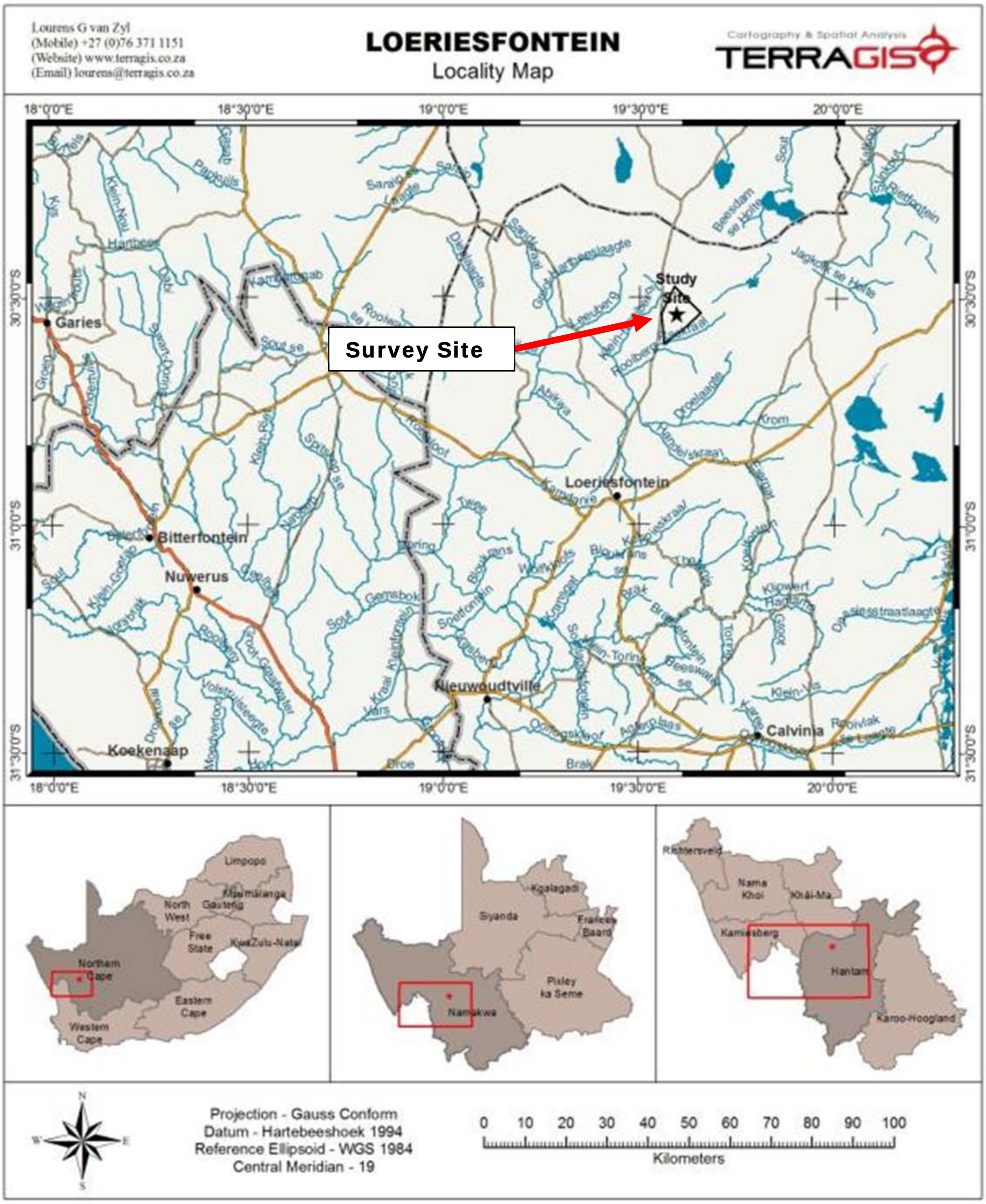

Figure 1 Locality of the survey site

3.1.2 Phase 2: Aerial Photograph Interpretation and Land Use Mapping

The most up to date aerial photographs of the site were obtained from Google Earth. The image was used to interpret aspects such as land use and land cover as well as historic land uses such as cultivation.

3.1.3 Phase 3: Site Visit and Soil Survey

A site visit was conducted on the 21st of November, 2011, during which a soil survey was conducted. The site was traversed on foot and in a vehicle with the aim of ascertaining as much of the soil variability as possible. Soils were described and photographs were taken of pertinent soil, landscape and land use characteristics.

3.2 Survey Results

3.2.1 Phase 1: Land Type Data

The farm Narosies falls into the **Fc467**, **Fc468** and **Fc474** land types (Land Type Survey Staff, 1972 - 2006). (Refer to **Figure 2** for the land type map of the area). Below follows a brief description of the land types in terms of soils, land capability, land use and agricultural potential. Due to the large degree of similarity between the firstly the Fc land types and secondly the Ib land types they will be discussed in combination.

Land Types Fc467, Fc468 and Fc474

Soils: Predominantly shallow and rocky soils with lime and/or gypsum throughout the profiles. The soils vary from red to yellow-brown and bleached to white due to the presence of the lime ad gypsum. The entire area, except drainage depressions, is characterised by a varying degree of surface rock (desert pavement) or rock outcrops. Numerous drainage depressions occur with soil material eroded from higher lying areas deposited in the depressions. The depression areas are characterised by soils with signs of incipient pedogenesis in the form of cutanic character and alluvial stratification.

Land capability and land use: Exclusively extensive grazing due to climatic and soil constraints. Soil erosion is a distinct risk due to low vegetation cover and shallow soils.

Agricultural potential: Very low potential due to the low rainfall (less than 100 mm per year – **Figure 3**), rocky and shallow soils.

3.2.2 Phase 2: Aerial Photograph Interpretation and Land Use/Capability Mapping

The interpretation of satellite images (**Figures 4** to **10**) yielded one land use exclusively namely extensive sheep grazing. From the images it is clear that there is little or no plant cover on large areas of the site leading to a very low carrying capacity. From previous interactions with farmers in the area it was ascertained that the carrying capacity is around 10 to 15 ha per ewe. This means that an economically viable sheep farming unit will have to be in excess of 20 000 ha. The biological productivity is therefore very low and during this phase already the impacts of a PV energy development is concluded to have a very small impact on agricultural activities.

An additional aspect that was identified during this phase is the drainage and erosion patterns on the landscape that are clear indicators of a very arid area with infrequent flash rainfall and flood events. For an area such as this a rainfall event of 10 to 20 mm in a short period of time will lead to significant runoff and erosion.

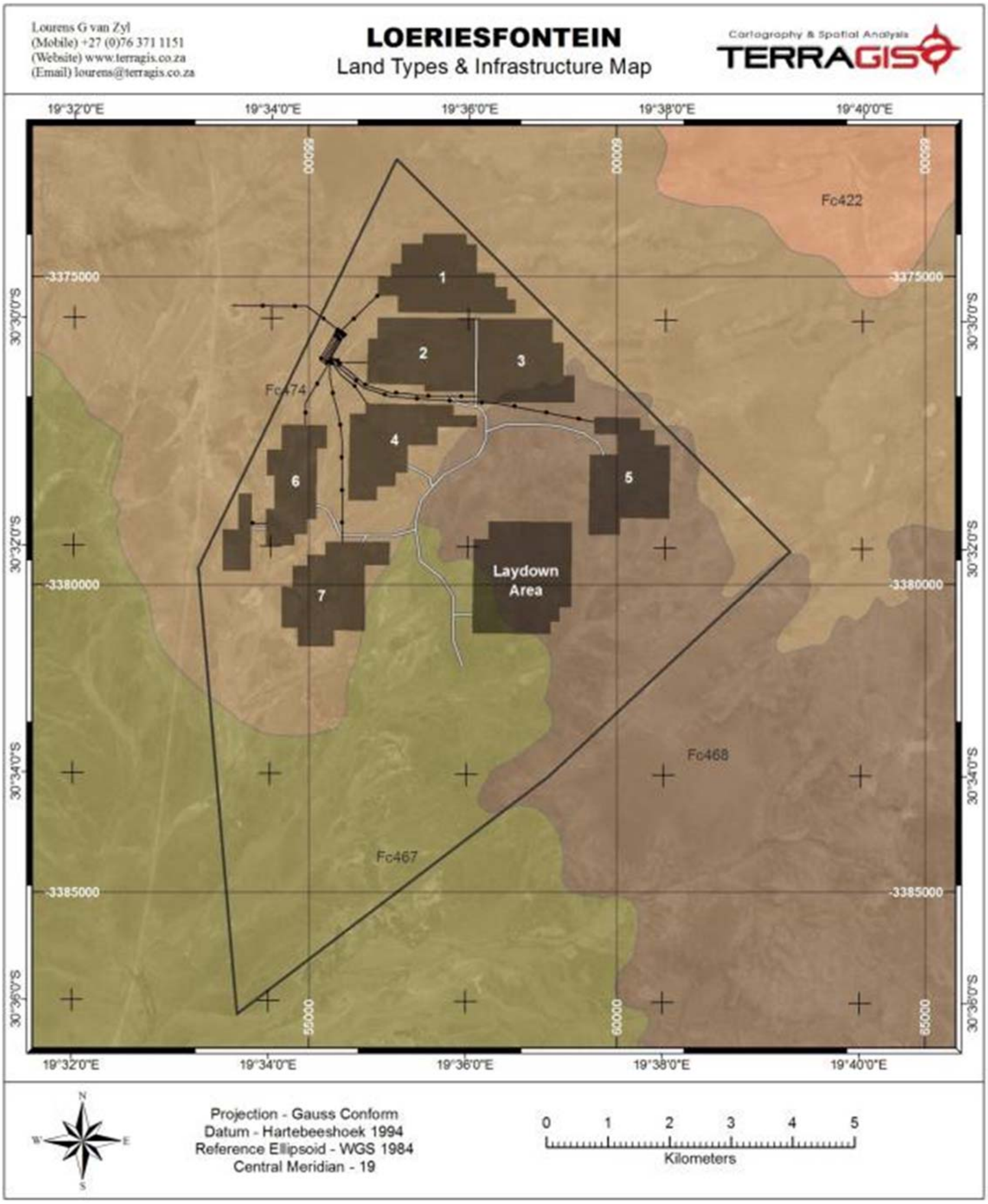

Figure 2 Land type map of the survey site with proposed infrastructure

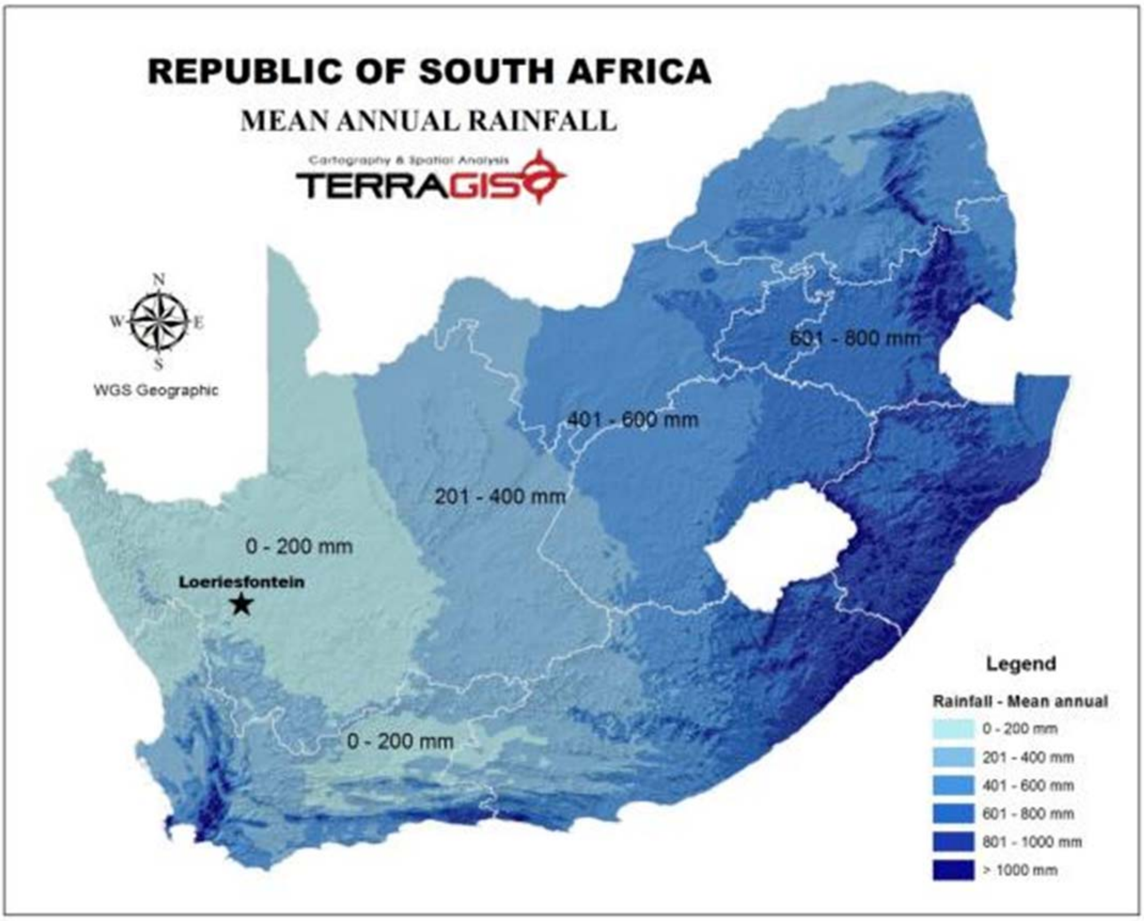

Figure 3 Rainfall map of South Africa indicating the survey site

Figure 4 Google Earth image of site 1

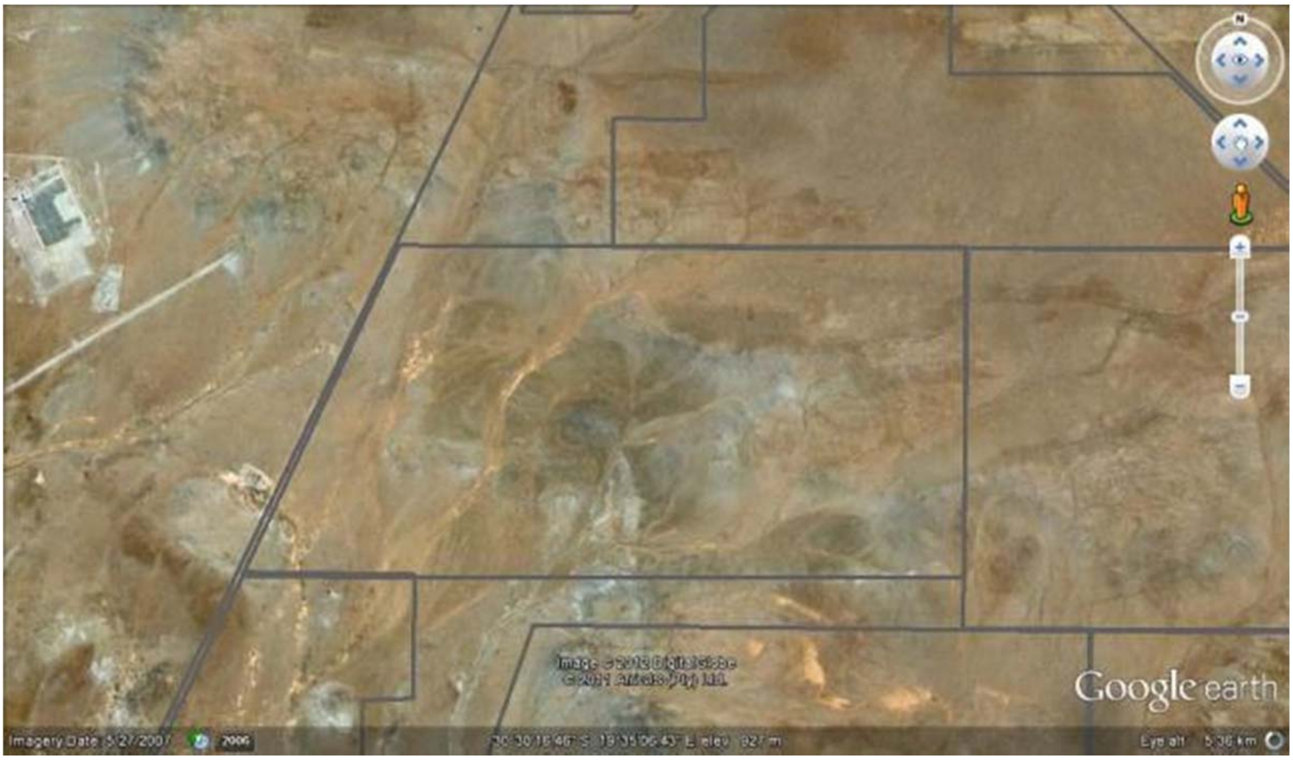

Figure 5 Google Earth image of site 2

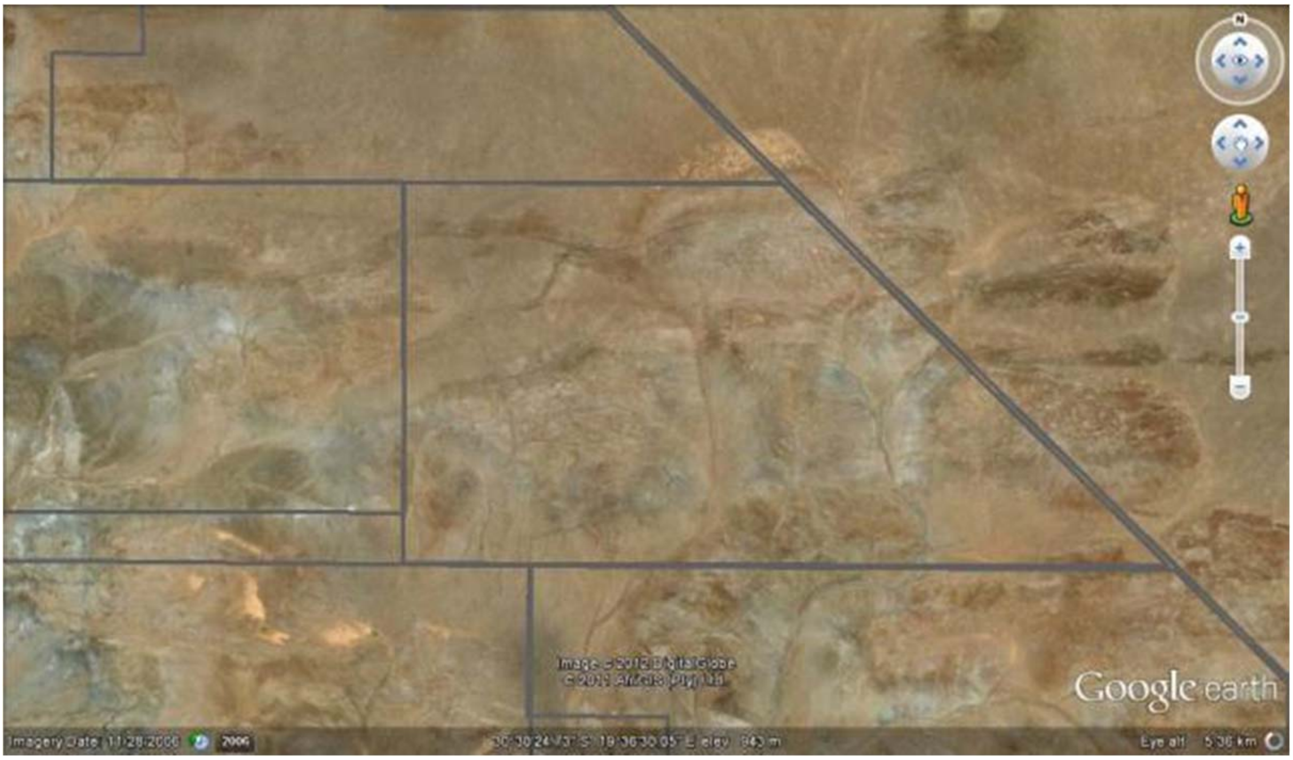

Figure 6 Google Earth image of site 3

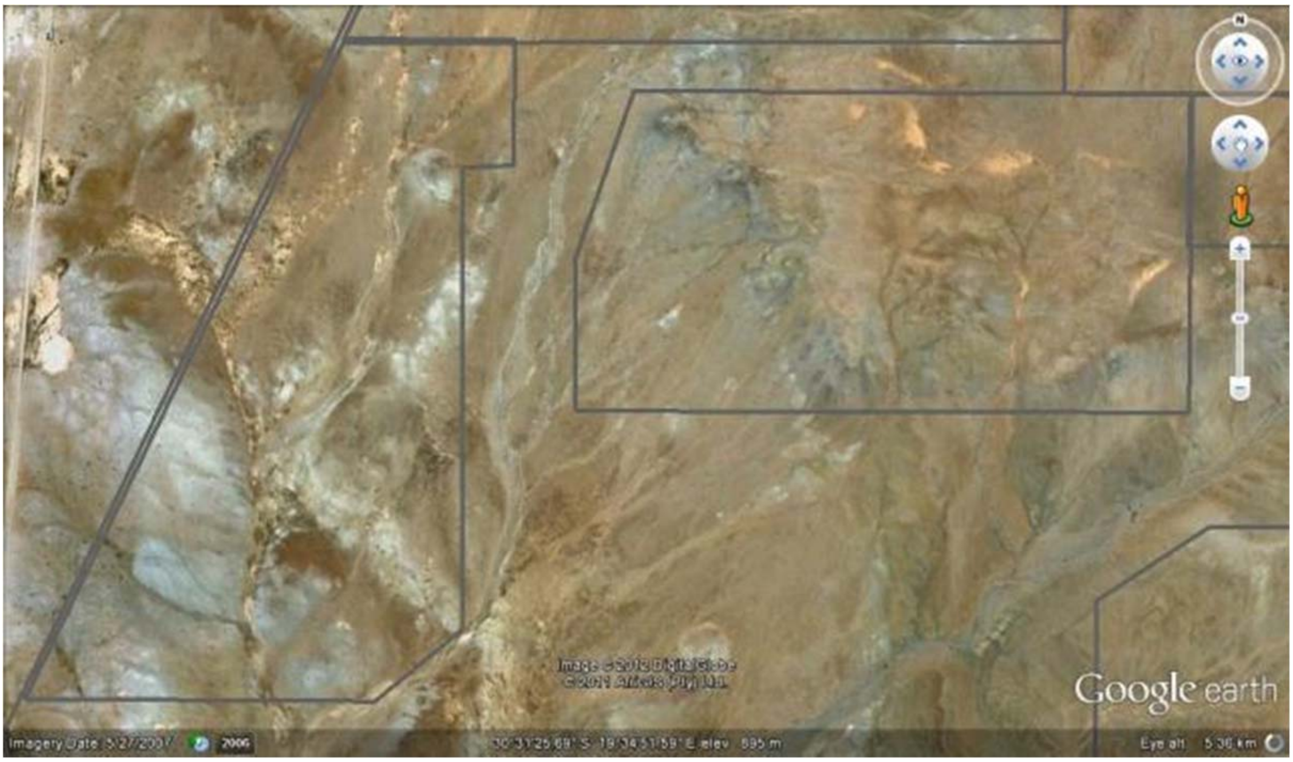

Figure 7 Google Earth image of sites 4 and 5

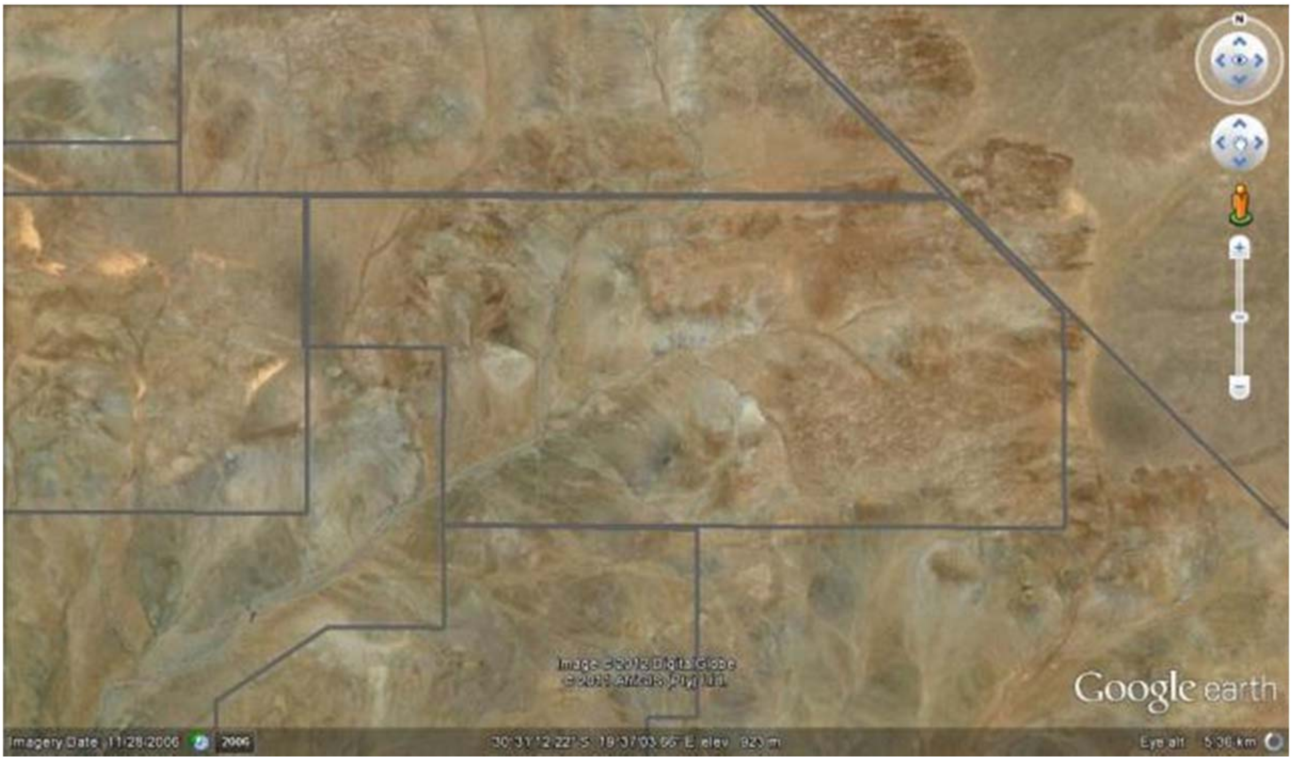

Figure 8 Google Earth image of site 6

Figure 9 Google Earth image of site 7

3.2.3 Phase 3: Site Visit and Soil Survey

The land use as identified during the previous phase was confirmed during the site visit and survey. The soil survey confirmed the land type data. Although many different zones could be identified, the site can be divided into two main soil zones. These are 1) shallow soils and rock outcrops and 2) alluvial deposits in drainage features. Due to the fact that these areas merge constantly it is not possible to delineate such zones on a map. Rather, the alluvial soil zones can be considered to be associated with the drainage features as indicated in **Figure 10**.

3.2.3.1 Shallow Soils and Rock Outcrops

These areas are dominated by a range of arid soils of the Mispah (Orthic A-horizon / Hard Rock) and Glenrosa (Orthic A-horizon / Lithocutanic B-horizon) forms. A range of soils of other forms also occur but these are all dominated by signs of incipient pedogenesis or recent alteration in terms of erosion. These soils include shallow Augrabies (Orthic A-horizon / Neocarbonate B-horizon) and Valsrivier (Orthic A-horizon / Pedocutanic B-horizon / Unconsolidated material without signs of wetness) forms. Soils in large areas of the landscape contain lime (**Figure 11**) and or gypsum – and indication of the arid climate in that evaporation processes dominate. The areas range from rock outcrops (**Figure 12**) to shallow soils with a distinct desert pavement surface (**Figures 13** to **17**) to exposed profiles due to erosion (Figures).

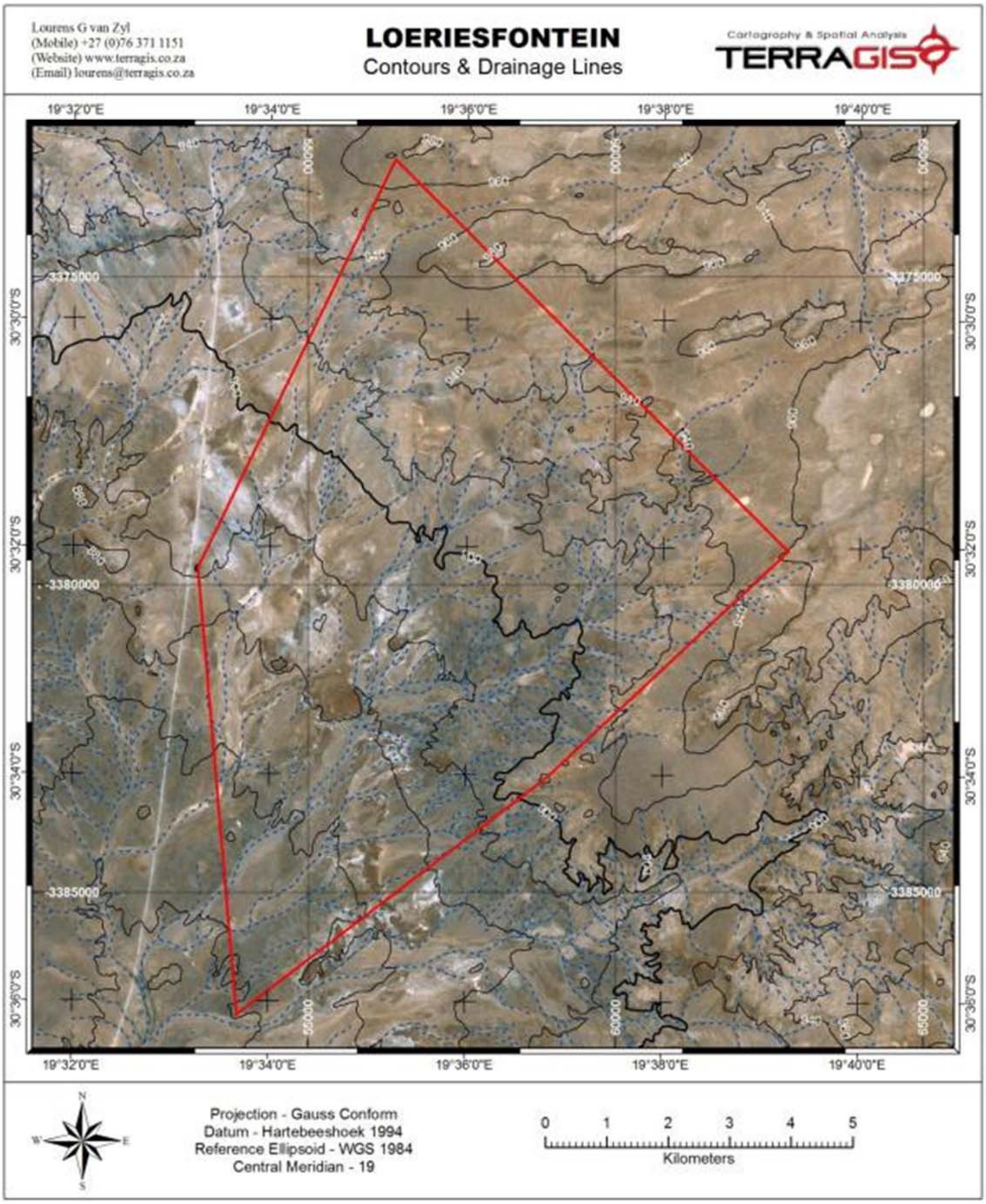

Figure 10 Satellite image of the survey site indicating the contours and drainage features

Figure 11 Effervescence of the soil with a 10% HCl solution indicating the presence of lime

Figure set 12 Rock outcrops in the form of sheets

Figure set 13 Desert pavement surface on a shallow soil profile

Figure set 14 Desert pavement surface

Figure set 15 Desert pavement surface

Figure set 16 Desert pavement surface with sparse vegetation

Figure set 17 Desert pavement surface with sparse vegetation

Figure 18 Exposed profile in a borrow pit close to the site

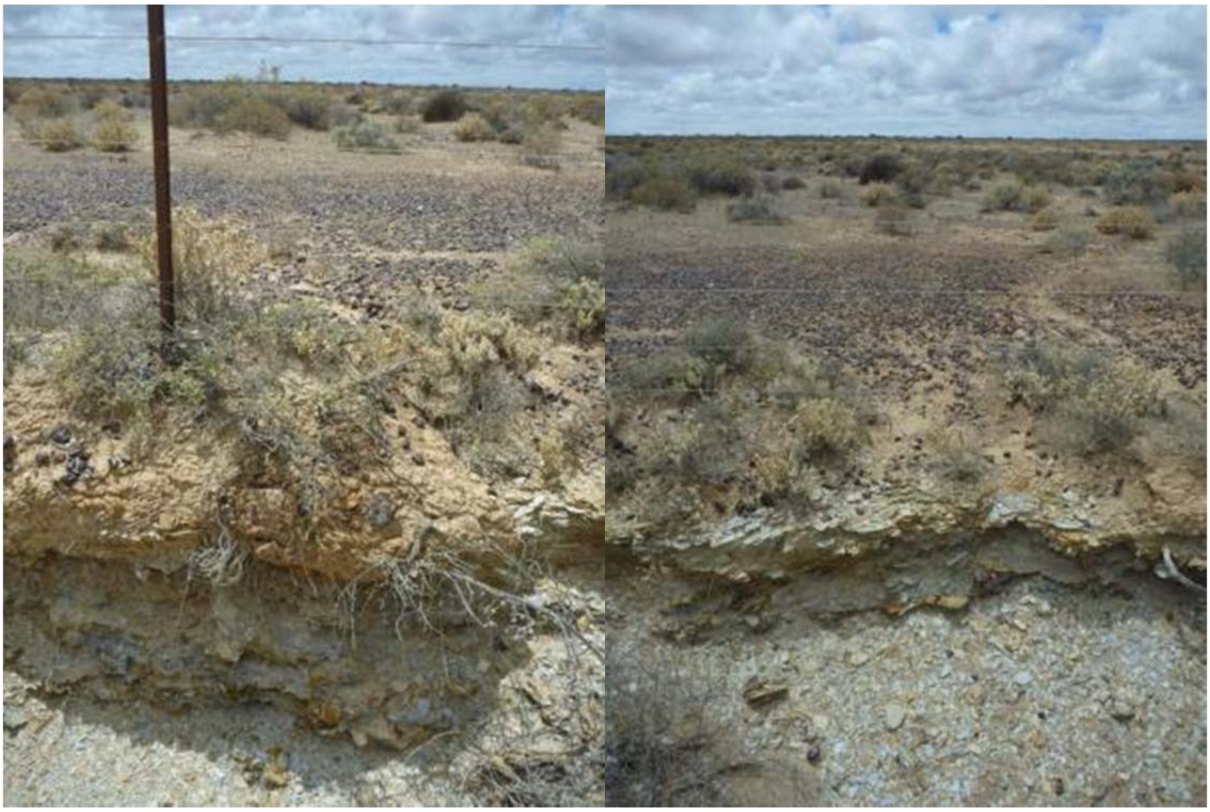

Figure set 19 Exposed profiles of shallow soils

Figure set 20 Exposed profiles of shallow soils

3.2.3.2 Alluvial Deposits in Drainage Features

The alluvial deposits in drainage features are dominated by gravel and pebbles (**Figure 21** to **23**) as soil formation is very limited in very arid environments. Depending on the coarseness of the material these deposits can be classified as being of the Dundee (Orthic A-horizon / Stratified Alluvium) soil form. These areas are sensitive to erosion but are not considered sensitive from a development perspective. Care should be taken though to plan for storm water events as these areas can experience very high energy water flow events. These areas do not constitute wetlands according to the wetland delineation guidelines (DWAF, 2005) but accelerated erosion should be prevented.

Figure 21 Coarse alluvial deposits in drainage features

Figure 22 Coarse alluvial deposits in drainage features

Figure 23 Coarse alluvial deposits in drainage features

4. INTERPRETATION OF SOIL, LAND CAPABILITY AND LAND USE SURVEY RESULTS

The interpretation of the land use and land capability results yielded a number of aspects that are of importance to the project.

4.1 Agricultural Potential

The agricultural potential of the site is very low due to soil and climatic constraints. The specific nature of the soils on the site precludes any form of crop production through irrigation or dryland practices. The grazing capacity of the site is very low due to the same constraints (climate and soils). The site layout as provided in **Figure 24** is acceptable as the areas to be developed will not impact significantly on agricultural activities.

4.2 Overall Soil and Land Impacts

Due to the low agricultural potential of the site as well as the low rainfall the impacts on soils and agriculture is expected to be low – provided that adequate storm water management and erosion prevention measures are implemented. These measures should be included in the layout and engineering designs of the development. The erodibility of the soils on the site is associated with the sparse vegetation cover and thin soil profiles.

An aspect that should be noted is the dominance of shale and slate rocks on the site. These have a distinct tendency to cut tyres and lead to punctures. During the construction process the development team should implement countering measures in the form of using adequate tyres or to construct roads and track that do not have such rocks on the road surface.

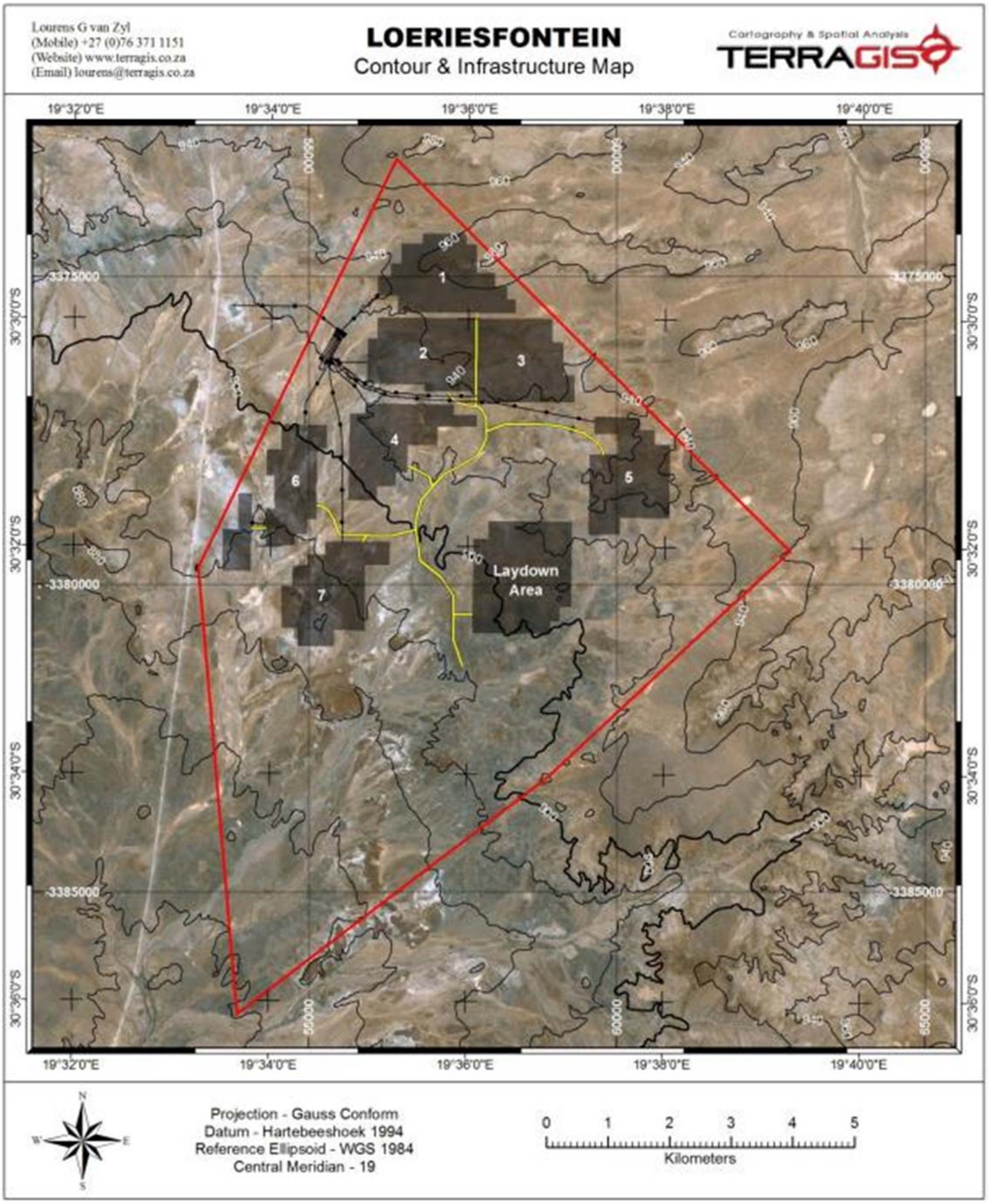

Figure 24 Site layout of the development

5. ASSESEMENT OF IMPACT

5.1 Assessment Criteria

The following assessment criteria (**Table 1**) will be used for the impact assessment.

Table 1 Impact Assessment Criteria

CATEGORY	DESCRIPTION OF DEFINITION
Direct, indirect and cumulative impacts	In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Nature	A description of the cause of the effect, what will be affected and how it will be affected.
Extent (Scale) • 1 • 2 • 3 • 4 • 5	The area over which the impact will be expressed – ranging from local (1) to regional (5).
Duration • 1 • 2 • 3 • 4 • 5	Indicates what the lifetime of the impact will be. • Very short term: 0 – 1 years • Short-term: 2 – 5 years • Medium-term: 5 – 15 years • Long-term: > 15 years • Permanent
Magnitude • 2 • 4 • 6 • 8 • 10	This is quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
Probability • 1 • 2 • 3 • 4 • 5	Describes the likelihood of an impact actually occurring. • Very Improbable • Improbable • Probable • Highly probable • Definite
Significance	The significance of an impact is determined through a synthesis of <u>all</u> of the above aspects.

CATEGORY	DESCRIPTION OF DEFINITION
	S = (E + D + M)*P S = Significance weighting E = Extent D = Duration M = Magnitude
Status • Positive • Negative • Neutral	Described as either positive, negative or neutral
Other	• Degree to which the impact can be reversed • Degree to which the impact may cause irreplaceable loss of resources • Degree to which the impact can be mitigated

5.2 List of Activities for the Site

Table 2 lists the anticipated activities for the site. The last two columns in the table list the anticipated forms of soil degradation and geographical distribution of the impacts.

Table 2 List of activities and their associated forms of soil degradation

Activity	Form of Degradation	Geographical Extent	Comment (Section described)
Construction Phase			
Construction of solar panels and stands	Physical degradation (surface)	Two dimensional	Impact small due to localised nature (Section 5.3.1)
Construction of buildings and other infrastructure	Physical degradation (compound)	Two dimensional	(Section 5.3.2)
Construction of roads	Physical degradation (compound)	Two dimensional	(Section 5.3.3)
Construction and Operational Phase Related Effects			
Vehicle operation on site	Physical and chemical degradation (hydrocarbon spills)	Mainly point and one dimensional	(Section 5.3.4)
Dust generation	Physical degradation	Two dimensional	(Section 5.3.5)

5.3 Assessment of the Impacts of Activities

Many of the impacts are generic and their impacts will remain similar for most areas on the site. The generic activity will therefore be assessed. The impacts associated with the different activities have been assessed below for each activity. These impacts have been summarized in **Table 8**. **Note:** The impacts listed below indicate that no mitigation is possible. It is important to note that any soil impact in the form of drastic physical disturbance (as with construction activities) is a permanent one and no mitigation is possible. The mitigation that can be applied is the restriction of off-site effects due to developments through adequate implementation of environmental management measures (discussed later in the report).

5.3.1 Construction of Solar Panels and Stands

Table 3 presents the impact criteria and a description with respect to soils, land capability and land use for the construction of solar panels and stands.

Table 3 Construction of solar panels and stands

Criteria	Description	
Cumulative Impact	The cumulative impact of this activity will be small as it is constructed on land with low agricultural potential.	
Nature	This activity entails the construction of solar panels and stands with the associated disturbance of soils and existing land use.	
	Without Mitigation	With Mitigation
Extent	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed
Duration	5 – Permanent (unless removed)	5 – Permanent (unless removed)
Magnitude	2	2
Probability	4 (highly probable due to inevitable changes in land use)	4 (highly probable due to inevitable changes in land use)
Significance of impact	S = (1 + 5 + 2)*4 = 32 (low)	S = (1 + 5 + 2)*4 = 32 (low)
Status	Negative	Negative
Mitigation	None possible. Limit footprint to the immediate development area	None possible. Limit footprint to the immediate development area

5.3.2 Construction of Buildings and Other Infrastructure

Table 4 presents the impact criteria and a description with respect to soils, land capability and land use for the construction of solar panels and stands.

Table 4 Construction of buildings and other infrastructure

Criteria	Description	
Cumulative Impact	The cumulative impact of this activity will be small as it is constructed on land with low agricultural potential.	
Nature	This activity entails the construction of buildings and other infrastructure with the associated disturbance of soils and existing land use.	
	Without Mitigation	With Mitigation
Extent	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed
Duration	5 – Permanent (unless removed)	5 – Permanent (unless removed)
Magnitude	2	2
Probability	4 (highly probable due to inevitable changes in land use)	4 (highly probable due to inevitable changes in land use)
Significance of impact	S = (1 + 5 + 2)*4 = 32	S = (1 + 5 + 2)*4 = 32 (low)
Status	Negative	Negative
Mitigation	None possible. Limit footprint to the immediate development area	None possible. Limit footprint to the immediate development area

5.3.3 Construction of Roads

Table 5 presents the impact criteria and a description with respect to soils, land capability and land use for the construction of roads.

Table 5 Construction of roads

Criteria	Description	
Cumulative Impact	The cumulative impact of this activity will be small as it is linear and limited in geographical extent.	
Nature	This activity entails the construction of roads with the associated disturbance of soils and existing land use.	
	Without Mitigation	With Mitigation
Extent	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed along the road	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed along the road
Duration	5 – Permanent (unless removed)	5 – Permanent (unless removed)
Magnitude	2	2
Probability	4 (highly probable due to inevitable changes in land use)	4 (highly probable due to inevitable changes in land use)
Significance of impact	S = (1 + 5 + 2)*4 = 32 (low)	S = (1 + 5 + 2)*4 = 32 (low)
Status	Negative	Negative
Mitigation	None possible. Limit footprint to the immediate development area and keep to existing roads as far as possible	None possible. Limit footprint to the immediate development area and keep to existing roads as far as possible

5.3.4 Vehicle Operation on Site

It is assumed that vehicle movement will be restricted to the construction site and established roads. Vehicle impacts in this sense are restricted to spillages of lubricants and petroleum products. **Table 6** presents the impact criteria and a description with respect to soils, land capability and land use for the operation of vehicles on the site.

Table 6 Assessment of impact of vehicle operation on site

Criteria	**Description**	
Cumulative Impact	The cumulative impact of this activity will be small if managed.	
Nature	This activity entails the operation of vehicles on site and their associated impacts in terms of spillages of lubricants and petroleum products	
	Without Mitigation	With Mitigation
Extent	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed	1 - Site: The impact is two dimensional but then limited to the immediate area that is being developed
Duration	2 – Short-term	2 – Short-term
Magnitude	2	2
Probability	4	2 (with prevention and mitigation)
Significance of impact	S = (1 + 2 + 2)*4 = 20	S = (1 + 2 + 2)*2 = 10 (with prevention and mitigation)
Status	Negative	Negative
Mitigation	Maintain vehicles, prevent and address spillages	Maintain vehicles, prevent and address spillages

5.3.5 Dust Generation

Generated dust can impact large areas depending on environmental and climatic conditions. **Table 7** presents the impact criteria and a description with respect to soils, land capability and land use for dust generation on the site.

Table 7 Assessment of impact of dust generation on site

Criteria	Description	
Cumulative Impact	The cumulative impact of this activity will be small if managed but can have widespread impacts if ignored.	
Nature	This activity entails the operation of vehicles on site and their associated dust generation	
	Without Mitigation	With Mitigation
Extent	2 - Local: The impact is diffuse (depending on environmental and climatic conditions) and will probably be limited to within 3 – 5 km of the site	2 - Local: The impact is diffuse (depending on environmental and climatic conditions) and will probably be limited to within 3 – 5 km of the site
Duration	2 – Short-term	2 – Short-term
Magnitude	2	2
Probability	4	2 (with mitigation and adequate management)
Significance of impact	S = (2 + 2 + 2)*4 = 24	S = (2 + 2 + 2)*2 = 12 (with mitigation and adequate management)
Status	Negative	Negative
Mitigation	Limit vehicle movement to absolute minimum, construct proper roads for access	Limit vehicle movement to absolute minimum, construct proper roads for access

Table 8 Summary of the impact of the development on agricultural potential and land capability

Nature of Impact	*Loss of agricultural potential and land capability owing to the development*	
	Without mitigation	With mitigation
Extent	Low (1) – Site	Low (1) – Site
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low (2)
Probability	Highly probable (4)	Highly probable (4)
Significance*	32 (Low)	32 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Medium	Medium
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	No	No
Mitigation: The loss of agricultural land is a long term loss and there are no mitigation measures that can be put in place to combat this loss.		
Cumulative impacts: Soil erosion may arise owing to increased surface water runoff. Adequate management and		

erosion control measures should be implemented.
Residual Impacts: The loss of agricultural land is a long term loss. This loss extends to the post-construction phase. The agricultural potential is very low though.

5.4 Environmental Management Plan

Tables 9 to **11** provide the critical aspects for inclusion in the EMP.

Table 9 Measures for erosion mitigation and control

Objective: Erosion control and mitigation		
Project components	Soil stabilisation, construction of impoundments and erosion mitigation structures	
Potential Impact	Large scale erosion and sediment generation	
Activity / risk source	Poor planning of rainfall surface runoff and storm water management	
Mitigation: Target / Objective	Prevention of eroded materials and silt rich water running off the site	
Mitigation: Action/control	**Responsibility**	**Timeframe**
Plan and implement adequate erosion control measures	Construction team and engineer	Throughout project
Performance indicator	Assessment of storm water structures and erosion mitigation measures. Measurement of actual erosion and sediment generation.	
Monitoring	Monitor and measure sediment generation and erosion damage	

Table 10 Measures for limiting vehicle operation impacts on site (spillages)

Objective: Erosion control and mitigation		
Project components	Maintenance of vehicles and planning of vehicle service areas	
Potential Impact	Oil, fuel and other hydrocarbon pollution	
Activity / risk source	Poor maintenance of vehicles and poor control over service areas	
Mitigation: Target / Objective	Adequate maintenance and control over service areas	
Mitigation: Action / control	**Responsibility**	**Timeframe**
Service vehicles adequately	Construction team and engineer	Throughout project
Maintenance of service areas, regular cleanup	Construction team and engineer	Throughout project
Performance indicator	Assessment number and extent of spillages on a regular basis.	
Monitoring	Monitor construction and service sites	

Table 11 Measures for limiting dust generation on site

Objective: Dust generation suppression		
Project components	Limit and address dust generation on site linked to construction activities	
Potential Impact	Large scale dust generation on site	
Activity / risk source	Inadequate dust control measures, excessive vehicle movement on unpaved roads	
Mitigation: Target / Objective	Minimise generation of dust	
Mitigation: Action / control	**Responsibility**	**Timeframe**
Implement dust control strategy including dust suppressants and tarring of roads	Construction team and engineer	Throughout project
Limit vehicle movement on unpaved areas to the absolute minimum	Construction team and engineer	Throughout project
Performance indicator	Assessment of dust generated on site	
Monitoring	Monitor construction site and surrounds	

6. CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the proposed development of a photovoltaic facility on the site will not have large impacts due to the very low agricultural potential of the site. The low agricultural potential of the site is the result of a very low rainfall as well as the dominance of shallow soils and rock outcrops.

It is imperative though that adequate storm water management measures be put in place as the soils on the site have no cohesion due to inherent soil properties as well as lack of plant roots. The main impacts that have to be managed on the site are:

1. Erosion must be controlled through adequate mitigation and control structures.
2. Impacts from vehicles, such as spillages of oil and hydrocarbons, should be prevented and mitigated.
3. Dust generation on site should be mitigated and minimised as the dust can negatively affect the quality of pastures as well as sheep production.

The impacts on the site need to be viewed in relation to the opencast mining of coal in areas of high potential soils – such as the Eastern Highveld. With this comparison in mind the impact of a solar energy facility is negligible compared to the damaging impacts of coal mining – for a similar energy output. Therefore, in perspective, the impacts of the proposed facility can be motivated as necessary in decreasing the impacts in areas where agriculture potential plays a more significant role.

Potential negative impacts on the construction process in the form of a distinct risk of very regular punctures in tyres due to the presence of platy shale and slate rocks need to be addressed by the development and construction team. It is proposed that adequate road and track preparation be done to minimise the risks for such occurrences. Do to the low impact of these activities on the site this aspect is seen as one that can be implemented from start of the project. The preparation of the roads and tracks should dovetail with erosion mitigation and planning to prevent damage to the roads and tracks as well as accelerated erosion on the site.

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