

# 75MW KLOOFSIG PV SOLAR FARM (PHASE 1)



## TRANSPORT MANAGEMENT AND TRAFFIC IMPACT ASSESSMENT (TIA) REPORT PROJECT NO.: R2004-TM & TIA/01

(on Remainder of Farm 18, Kalkpoort, near Petrusville, Northern Cape Province)

(FOR SUBMISSION WITH PROJECT EIA APPLICATION :  
DEA Ref: 14/12/16/3/3/2/951)

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## 1 INTRODUCTION

### 1.1 Background Information

Kloofsig Solar (Pty) Ltd intends to develop a **75MW Photo Voltaic Solar energy facility**, on the Remainder of Farm 18, Kalkpoort (RE/18), located within the Pixley Ka Seme District Municipality and the Renosterberg Local Municipality, near Pertusville town in the Northern Cape Province.

The proposed development consists of **three separate project phases** of 75MW each (with a total power generation capacity of 225 MW should all phases be developed), covering a total area of approximately 970ha. A preliminary Site Development Plan (SDP) indicating the location of each phase is shown in Annexure A and briefly described below.

- **Kloofsig 1** (DEA reference number 14/12/16/3/3/2/951) is at the centre of the site and covers approximately 209,3ha and includes typically 275 000 of 300Watt PV-panels, a new 132kV powerline (approximately 8.5km long) and a new substation No.1 to connect to the existing 132kV over-head powerline, running to the south-east of the site. An on-site substation and short connection to the existing 400kV powerline crossing the site is also proposed as part of Phase 1 (this infrastructure will support all phases of the development, should they be developed).
- **Kloofsig 2** (DEA reference number 14/12/16/3/3/2/952) is on the northern side of the site and covers approximately 243,8ha and includes typically 275 000 of 300Watt PV-panels and includes the new substation No.2 and a connection to the existing 400kV powerline crossing the site, similar as described for Kloofsig 1.
- **Kloofsig 3** (DEA reference number 14/12/16/3/3/2/953) is on the southern side of the site and covers approximately 495,9ha and includes typically 275 000 of 300Watt PV-panels and includes the new substation No.3 and a connection to the existing 400kV powerline crossing the site, similar as described for Kloofsig 1.

This Transport Management and Traffic Impact Assessment Report covers only the impacts of the Kloofsig PV Solar Phase 1 Development. Similar reports are compiled for the Phase 2 and Phase 3 developments separately, emphasising on the separate and cumulative impacts, if any, should 2 or ultimately all 3 phases be developed.

### 1.2 Terms of Reference

Kloofsig Solar (Pty) Ltd appointed AfriCoast Consulting Engineers (Pty) Ltd to carry out professional engineering services related to the development of the proposed Solar farm. This Transport Management and Traffic Impact Assessment Report **forms an integral part of the supportive documentation required for the Environmental Impact Assessments (EIA)** and application to DEDEAT.

### 1.3 Purpose of the Report

The loading, transportation, handling, temporary storage and the erection of the various components required for the Solar Energy Facility, from the point of import or from the manufacturing plant to the development site, is a critical aspect of the success of development. This aspect is an extremely expensive and time-consuming aspect of the development that can easily be overlooked. "Fatal flaws" during the transport route analysis, or sufficient space available on site for the storage, handling and erection of components, will have negative financial impacts on this development, as well as on the environment.

Various alternative transport routes, any obstructions en route, as well as available types of transport trucks and cranes, should be considered and compared, in order to carefully select the safest and most economical transport route alternative.

The purpose of this report is to :

- identify transport routes, which will be **practical, safe and economical** to transport all PV solar components to the proposed Solar Farm development;
- identify transport routes having the **least impact on road users and traffic, the environment and surroundings**;
- identify all constraints and required road improvements to accommodate the expected heavy transport vehicles, through performing desktop studies and available photo records (no visual road assessments were done).
- Identify the impact on current and future traffic en route to the Solar Farm Development;
- comment on the management aspects of the construction traffic to and on site during the various Phases, to highlight limitations, which need to be understood for proper logistics planning during the construction phases;
- investigate and comment on the current site conditions and expected impacts or changes, due to expected traffic volumes.

### 1.4 Limitations of the Report

No visual road assessments have been done of the proposed Transport Routes from the point of import or manufacture, to the location of the new Solar Farm development.

No detail designs have been done yet, and **only a preliminary Site Development Plan (SDP) was compiled to date**. This report therefore does not present or discuss any detail designed infrastructure, and is limited to highlight concepts related to transport management and traffic impacts, which need to be addressed during the Detail Design Stage. No detail road layouts, horizontal alignments or vertical profiles, turning radii or sight distances at intersection, etc. have yet been calculated.



Aspects that will influence the final Transport Management recommendations in this report are :

- The specific Transport Operator and Crane Erection company that will be appointed and the number off and availability of specific types of trucks and cranes or a combination of different truck and crane types, will determine the final transport cost and hence the success of the transportation operations, and financial impact on the development costs of this solar farm. See Section 3.2 on typical Transport Trucks and Crane Types.
- Transport route alternatives were not analysed and compared on an economical basis (rand per kilometre travelled). This should be done once transport truck types and transport rates are available, in order to optimise the final recommended route, ensuring the most economical alternative.

## 2 SITE LOCALITY AND DESCRIPTION

### 2.1 Site Locality of Phase 1

The Kloofsig Solar Farm (Phase 1) is proposed on the same farm than the other two proposed future phases (Phase 2 and Phase 3), and is located approximately 10 to 15km north-west of Petrusville and approximately 140km south of Kimberley, in the Northern Cape Province (refer to **Maps 1 and 2** below).

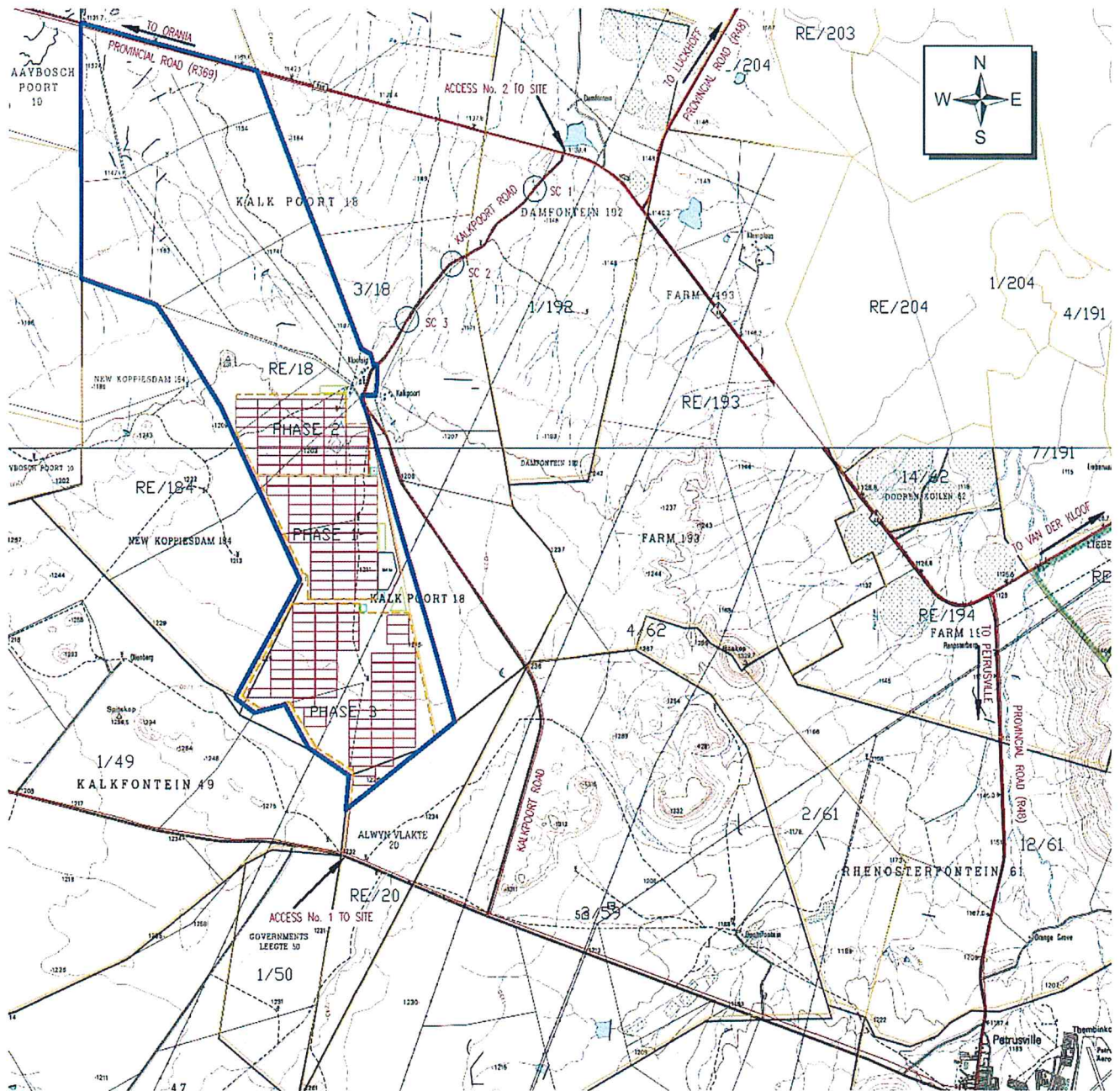
The **Phase 1** site boundary is located between coordinates:

- *Latitude:* 30°00'13.69"S and 30°01'09.68"S and
- *Longitude:* 24°32'30.44"E and 24°33'40.10"E



**Map 1:** Locality map of the proposed 3x 75MW solar farm developments.





| REFERENCE                              |  | REFERENCE                                    |  |
|--|--|--|--|
| National Freeway; National Route       |  | International Boundary and Beacon            |  |
| Arterial Route                         |  | Provincial Boundary                          |  |
| Main Road                              |  | Game, Nature Reserve & State Forest Boundary |  |
| Secondary Road; Bench Mark             |  | Perennial River                              |  |
| Other Road; Bridge                     |  | Perennial Water                              |  |
| Track and Hiking Trail                 |  | Non-perennial River                          |  |
| Railway; Station or Siding             |  | Non-perennial Water                          |  |
| Other Railway; Tunnel                  |  | Dry Water Course                             |  |
| Embankment; Cutting                    |  | Dry Pan                                      |  |
| Power Line                             |  | Marsh and Vlei                               |  |
| Built-up Area                          |  | Pipeline (above ground)                      |  |
| Buildings; Ruin                        |  | Water Tower; Reservoir; Water Point          |  |
| Post Office; Police Station; Store     |  | Coastal Rocks                                |  |
| Place of Worship; School; Hotel        |  | Prominent Rock Outcrop                       |  |
| Fence; Wall                            |  | Erosion; Sand                                |  |
| Windpump; Monument                     |  | Woodland                                     |  |
| Communication Tower                    |  | Cultivated Land                              |  |
| Mine Dump; Excavation                  |  | Orchard or Vineyard                          |  |
| Trigonometrical Station; Marine Beacon |  | Recreation Ground                            |  |
| Lighthouse and Marine Light            |  | Row of Trees                                 |  |
| Cemetery; Grave                        |  |  |  |

Map 2: Extracted Topographical Map (Refer to 1:50 000 Topographical Maps 2924DC and 3024BA).