

# **Heritage Impact Assessment**

Heritage Impact Assessment for the Proposed Mokopane Solar Park in Piet Potgietersrust Extension 6 in Mokopane, Limpopo Province.

## **Compiled for:**

Africa Geo-Environmental Services (AGES)

## **Survey conducted & Report compiled by:**

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## Executive Summary

**Site name and location:** Proposed development of the Mokopane Solar Park on Erven 1439, 1440, 1441 and on the “voetgangerslaan” between erven 1440 and 1441 in Piet Potgietersrust Extension 6 in Mokopane in the Limpopo Province.

**Local Authority:** Waterberg District Municipality.

**Developer:** Firefly Investments 228 (Pty) Ltd.

**Date of field work:** 16 September 2011.

**Date of report:** September 2011.

**Findings:** No site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area. The proposed development of the Mokopane Solar Park at the indicated area can continue from a heritage point of view

**Disclaimer:** *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites and/or graves could be overlooked during the study. Hutten Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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## **1. Introduction**

Hutten Heritage Consultants was contracted by Africa Geo-Environmental Services (AGES) to conduct a Heritage Impact Assessment (HIA) on the proposed development of the Mokopane Solar Park on Erven 1439, 1440, 1441 and on the “voetgangerslaan” between erven 1440 and 1441 in Piet Potgietersrust Extension 6 in Mokopane in the Limpopo Province.

The aim of the study was to identify all heritage sites, to document and to assess their significance within Local, Provincial and National context. The report outlines the approach and methodology implemented before and during the survey, which includes in Phase 1: Information collection from various sources and social consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

This HIA forms part of the Environmental Impact Assessment (EIA) as required by various Acts and Laws as described under the next heading and is intended for submission to the provincial South African Heritage Resources Agency (SAHRA) for peer review.

Minimum standards for reports, site documentation and descriptions are set by the Association of Southern African Professional Archaeologists (ASAPA) in collaboration with SAHRA. ASAPA is a legal body representing professional archaeology in the Southern African Development Community (SADC) region. As a member of ASAPA, these standards are tried to be adhered to.

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access routes, construction camps, etc.) during the development.

## **2. Legislative Requirements**

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

National Environmental Management Act (NEMA) Act 107 of 1998

National Heritage Resources Act (NHRA) Act 25 of 1999

Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

National Environmental Management Act (NEMA) Act 107 of 1998

Basic Environmental Assessment (BEA) – Section (23)(2)(d)

Environmental Scoping Report (ESR) – Section (29)(1)(d)

Environmental Impacts Assessment (EIA) – Section (32)(2)(d)

Environmental Management Plan (EMP) – Section (34)(b)

National Heritage Resources Act (NHRA) Act 25 of 1999

Protection of Heritage resources – Sections 34 to 36; and

Heritage Resources Management – Section 38  
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002  
Section 39(3)  
Development Facilitation Act (DFA) Act 67 of 1995  
The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

### **3. Proposed Project**

Firefly Investments 228 (Pty) Ltd has proposed the development of the Mokopane Solar Park on Erven 1439, 1440, 1441 and on the “voetgangerslaan” in between erven 1440 and 1441 in Piet Potgietersrust Extension 6 in Mokopane in the Limpopo Province. This development will mainly be the establishment of a renewable energy generation facility (Photovoltaic Solar Facility). The generated energy (electricity) will be supplied to the existing Eskom or municipal grid.

After bush clearing, construction will concentrate on the erection of Photovoltaic panels which will be mounted on constructed foundations. The proposed facility shall make use of this photovoltaic technology with a total generating capacity of up to 8 MWp. The generated energy will be connected to the Eskom or municipal grid through an adjacent Eskom power line. Associated engineering infrastructure such as service roads, water and sewerage lines for administrative and accommodation areas and electrical lines will also be installed. The facility will be located on Erven 1439, 1440, 1441 and on the “voetgangerslaan” in between erven 1440 and 1441 in Piet Potgietersrust Extension 6 in Mokopane which measured approximately 19,3ha in size. Two sections of power lines or underground cables will connect the solar park to the existing Eskom network. These power lines or cables will measure approximately 270m in length. The purpose of the study was to determine if the proposed area was suitable for the development of the Solar Park from a heritage point of view.

The project was tabled during August 2011 and the developer intends to commence as soon as possible after receipt of the ROD from the Department of Environmental Affairs.

### **4. Project Area Description**

The proposed development of the Mokopane Solar Park will be situated on Erven 1439, 1440, 1441 and on the “voetgangerslaan” in between erven 1440 and 1441 in Piet Potgietersrust Extension 6 in Mokopane in the Limpopo Province. The proposed properties were approximately 19,3ha in size of which most of the area was earmarked for development (photo 1).

The properties were situated in Piet Potgietersrust Extension 6 which formed part of the industrial district of the town of Mokopane. Existing industries were situated on the eastern side of the proposed properties (photo 2). A railway line bordered the properties on the northern, western and southern sides (photo 3). The two sections of power lines/cables which will measure approximately 270m and connects the solar park to the

existing Eskom network. They will extend northwards from the north-eastern corner of the properties to the Mahwelereng/Potgietersrus 33 kV power line.

The properties were previously used as a cattle grazing facility before it was earmarked as an industrial area. Currently the properties are not being farmed and are being earmarked to be developed as part of the industrial district. Parts of the properties were also exposed to illegal dumping activities (photo 4).

Most of the properties were relatively flat and consisted of red sandy soils with scattered rocky outcrops (photo 1).

The proposed development will be situated on the Tinmyne 2428 BB and Potgietersrus 2429 AA 1:50 000 topographical maps (See Appendix B: Location Maps).

## 5. Archaeological History of the Area

As heritage surveys deal with the locating of heritage resources in a prescribed cartographic landscape, the study of archival and historical data and cartographic information can represent a very valuable supporting tool in finding and identifying such heritage resources.

After researching the National Archive records as well as the SAHRA records it was determined that previous archaeological or historical studies have been performed in the demarcated study area or nearby areas.

A report by Archaic Heritage Project Management:

- Nel, J. 2008. **Phase 1 Heritage Impact Assessment Proposed Water Pipeline Routes, Magalakwena District, Limpopo Province.** (Unpublished report),

was consulted during this study. This report commented on cultural heritage finds and sites identified during the Heritage Impact Assessments performed for the nearby and relative water pipelines. These sites, however, will not be affected by the proposed development of the Solar Park. No other sites or finds of heritage value or significance were mentioned in this report regarding the study area.

The geographical area surrounding the town of Mokopane is well known for its archaeological sites dating to the Stone Age, Iron Age and Historical Age. These sites will be discussed briefly in order to provide the reader with background knowledge of the archaeological history of the immediate area surrounding Mokopane. The historical background and timeframe of the study area and other areas in Southern Africa can be divided into the Stone Age, Iron Age and Historical period. These can be divided as follows:

### **Stone Age**

The Stone Age is divided into the Early, Middle and Late Stone Age and refers to the earliest people of Southern Africa who mainly relied on stone for their tools.

*Early Stone Age:* The period from  $\pm 2.5$  million years to  $\pm 250\,000$  years ago. This period is associated with Australopithecines and other early *Homo* species. (e.g. Oldowan and Acheullian stone tool industries).

*Middle Stone Age:* Various lithic industries in SA dating from  $\pm 250\,000$  yrs – 25 000 yrs before present. This period is first associated with archaic *Homo sapiens* and later *Homo sapiens sapiens*. (e.g. Howiesons Poort stone tool industry).

*Late Stone Age:* The period from  $\pm 25\,000$ -yrs before present to the period of contact with either Iron Age farmers or European colonists. This period is associated with *Homo sapiens sapiens*. (e.g. Smithfield, Wilton, Robberg stone tool industries).

Several Stone Age sites have been identified around the town of Mokopane in the Limpopo Province. These sites fall under the larger Makapans Valley area and include the Cave of Hearths, *Scoonheid* Cave, Magazine Shelter, and Rufus Cave (Berg, 1999; Mitchell, 2002).

**Early Stone Age sites:**

The Makapans Caves are situated approximately 20km to the north-east of Mokopane and comprise a series of caves with evidence of hominid occupation (*Australopithecus africanus*) from approximately 3.3 million years ago. The Cave of Hearths is one of the better known caves associated with Early, Middle and Late Stone age traditions. It represents one of the few rock shelters to present Acheulean assemblages in southern Africa (Mitchell, 2002). This site also presented with one of the oldest Upper Pleistocene hominid remains (Tobias, 2005). *Scoonheid* cave is also associated with Early Stone Age assemblages (Berg, 1999).

**Middle Stone Age sites:**

Cave of Hearths presented with MSA stone tool assemblages on top of the ESA Acheulean assemblages. As its name suggests it is also associated with fire-management as several MSA hearths could be identified (Mitchell, 2002). Rufus Cave is also associated with MSA stone tool assemblages and along with Cave of Hearths represents the Howiessonspoort industry (Berg, 1999).

**Late Stone Age sites:**

LSA sites situated near Mokopane include Magazine Shelter and Cave of Hearts and are mainly associated with the Smithfield B industry (Berg, 1999).

**Rock Art sites:**

There are no known rock art sites in the direct vicinity of Mokopane. The nearest rock art site is situated approximately 20 to 30 km north-east of Mokopane (Berg, 1999).



## **Iron Age**

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic Periods. Similar to the Stone Age it can be divided into three periods:

*The Early Iron Age (EIA):* Most of the first millennium AD. (e.g. Happy Rest, Silver Leaves).

*The Middle Iron Age (MIA):* 10th to 13th centuries AD. (e.g. K2, Mapungubwe, Thavhatsena).

*The Late Iron Age (LIA):* 14th century to colonial period. (e.g. Icon, Letaba, Mutamba).

Several Early Iron Age sites could be identified in the area surrounding Mokopane. These sites represent two pottery traditions. The oldest pottery tradition is from the Urewe tradition and represents the Mzonjani facies dating to between AD 450 and AD 750 (Huffman, 2007). The second pottery tradition can be associated with the Kulundu tradition representing the Doornkop facies which dates to AD 750 - AD 1000 and the Diamant facies dating to AD 750 - AD 1000 (Huffman, 2007).

The only pottery tradition associated with the Middle Iron Age that could be identified in area dates to AD 1000 – AD 1300 and represents the Eiland facies of the Kulundu tradition (Huffman, 2007).

Several Late Iron Age sites could however be identified in the areas surrounding the town of Mokopane. These sites fall within the Kulundu pottery tradition and are associated with the Icon facies dating to AD 1300 – AD 1500 and the Madikwe facies dating to AD 1500 – AD 1700 (Huffman, 2007).

During the 1600's a group of iron working Nguni farmers moved from the Hlubi tribe in Kwa-Zulu Natal (Tugela River region) and settled in the former Transvaal as the Transvaal Ndebele. The Transvaal Ndebele was divided into two major groups of which the Northern Ndebele settled in the Mokopane/Polokwane region. It is not exactly known who they met and/or displaced in this region although several accounts of contact (friendly and unfriendly) with the Northern-Sotho and Ba-Pedi are reported in the ethnology of the relevant tribes. The Northern Ndebele can be divided into three groups i.e. the Langa (Laka), the Lidwaba (Letwaba) and the Muledlane (Moletlane).

The tribes of the Langa and the Lidwaba settled mostly north of Mokopane and around Polokwane. One of the ancestors of the Muledlane Ndebele, Musi, had 5 sons i.e. Manala, Masombuka (Mhwaduba), Ndzundza, Mathombeni (Kekana) and Sdhlomu (Dhlomu). After disputes and wars between two of the sons, Ndzundza and Mathombeni, the Kekana chieftaincy came into existence. Their descendants settled in the Zebediela, Makapans valley and Mokopane regions. From these areas they waged several military campaigns against their Ba-Pedi and Northern-Sotho neighbours to establish themselves as the dominant group in the region. Mokopane took over the chieftaincy in the 1830's.

## **Historic Period**

The Historic Period intermingles with the later parts of the Stone and Iron Age, and can loosely be regarded as times when written and oral recounts of incidents became available. It also refers to the period of colonial expansion and settlement.

17th Century to present AD (1600 – 2000).

The first Europeans to move into the area of Mokopane were the Voortrekkers (trek boers) who moved here in the 1840s and eventually founded the town Potgietersrus (today known as Mokopane) in 1861 (Berg, 1999). However, fights broke between the Boers and the Langa- and Kekana Ndebele to the north and south of Mokopane (Berg, 1999). Several battlefields associated with these skirmishes took place just outside of the boundaries of Mokopane, mainly against the Kekana Ndebele. Makapansgat is most famous as the scene of a clash between the Boer Commando of Piet Potgieter and the local Langa and Kekana Ndebele of the region. The Boer Commando was on a punitive expedition after the attacks on Boer Pioneers and Chief Makapan (Mokopane) then fled to these caves to escape from them. Chief Makapan (Mokopane), his tribes people and their livestock were besieged in the cave for nearly a month between 25<sup>th</sup> October and 21<sup>th</sup> November 1854. During this time, many hundreds died of hunger and thirst or were shot by Boers. Piet Potgieter was also killed by one of Mokopane's men during the siege. The cave was declared a National Monument in 1936 (Evers, T.M. 1983).

The first gold discovered and mined in the old Transvaal was at Eersteling, approximately 25km north-east of Mokopane in 1871. Edward Button and William Pigg used a stamp battery since 1874 to crush gold bearing quartz ore to extract the gold, but by 1877 they had to close the mines due to recovering costs. However, prospecting and mining in the district continued and it was estimated that by 1885 more than 1000 people were working on Eersteling and adjoining farms (SAHRA).

No major historical sites could be identified in the vicinity of Mokopane, except for the skirmishes between the Ndebele and Boers already mentioned. During the second Anglo-Boer War (1899-1902) this area again saw no major troop movements or battles, however it was located on a block line that followed the old railway lines and therefore might have seen small scale skirmishes (Berg, 1999).

## **6. Methodology**

### **Physical Survey**

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access route, construction camp, etc.) during the development.

The physical survey was conducted on foot over the entire area proposed for development. Priority was placed on the undisturbed areas. A systematic inspection of the area on foot along linear transects resulted in the maximum coverage of the proposed area. The survey was conducted on September 16, 2011 and was performed by M. Hutten and field worker T. Mulaudzi.

No sampling was done as no sites or finds of heritage significance were found.

## Interviews

Passersby (people working in the area) were casually questioned during the survey and they indicated that they were not aware of any sites of heritage value or significance (such as graves) in the proposed area.

## Restrictions

Vegetation proved the major restriction in accessibility to some of the areas and also contributed to poor surface visibility after the spate of recent good rains.

## Documentation

All sites/findspots located during the foot surveys were briefly documented. The documentation included digital photographs and descriptions as to the nature and condition of the site and recovered materials. The sites/findspots were plotted using a Global Positioning System (GPS) (Garmin GPSmap 60CSx) and numbered accordingly.

## 7. Assessment Criteria

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions.

## Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

<b><i>FIELD RATING</i></b>	<b><i>GRADE</i></b>	<b><i>SIGNIFICANCE</i></b>	<b><i>RECOMMENDED MITIGATION</i></b>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance	Grade 2	-	Conservation; Provincial Site

(PS)			nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	Grade 4C	Low Significance	Destruction

**Impact Rating:**

**Low or No Significance:**

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

**Moderate Significance:**

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can not be avoided, appropriate mitigation measures must be implemented to minimize the significance.

**High Significance:**

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

**Certainty**

*DEFINITE:* More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

*PROBABLE:* Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

*POSSIBLE:* Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

*UNSURE:* Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

### **Duration**

*SHORT TERM:* 0 – 5 years

*MEDIUM:* 6 – 20 years

*LONG TERM:* more than 20 years

*DEMOLISHED:* site will be demolished or is already demolished

### **Mitigation**

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

## **8. Assessment of Sites and Finds**

This section will contain the results of the heritage site/find assessment.

### **Mokopane Solar Park**

The proposed development of the Mokopane Solar Park will be situated on Erven 1439, 1440, 1441 and on the “voetgangerslaan” in between erven 1440 and 1441 in Piet Potgietersrust Extension 6 in Mokopane in the Limpopo Province.

Existing industries were situated on the eastern side of the proposed properties. A railway line bordered the properties on the northern, western and southern sides.

The properties were previously used as a cattle grazing facility before it was earmarked as an industrial area. Currently the properties are not being farmed and are being earmarked to be developed as part of the industrial district. Parts of the properties were also exposed to illegal dumping activities.

After intensive investigations, no sites or finds of any heritage value or potential were identified.

Field Rating:	None
Heritage Significance:	None
Impact:	None
Certainty:	None
Duration:	None
Mitigation:	A – No further action necessary

## **9. Recommendations**

The following steps and measures are recommended regarding the investigated area:

### **Mokopane Solar Park**

- The proposed area to be developed was mostly undisturbed and was used for cattle grazing.
- The proposed site was also recently exposed to illegal dumping activities.
- No further site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area.
- The proposed development of the Mokopane Solar Park in the indicated area can continue from a heritage point of view.

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# **APPENDIX A**

## **Photographs**





Photo 1: General view of the proposed site.



Photo 2: View of the existing industries to the east.





Photo 3: View of the railway line on the northern side.



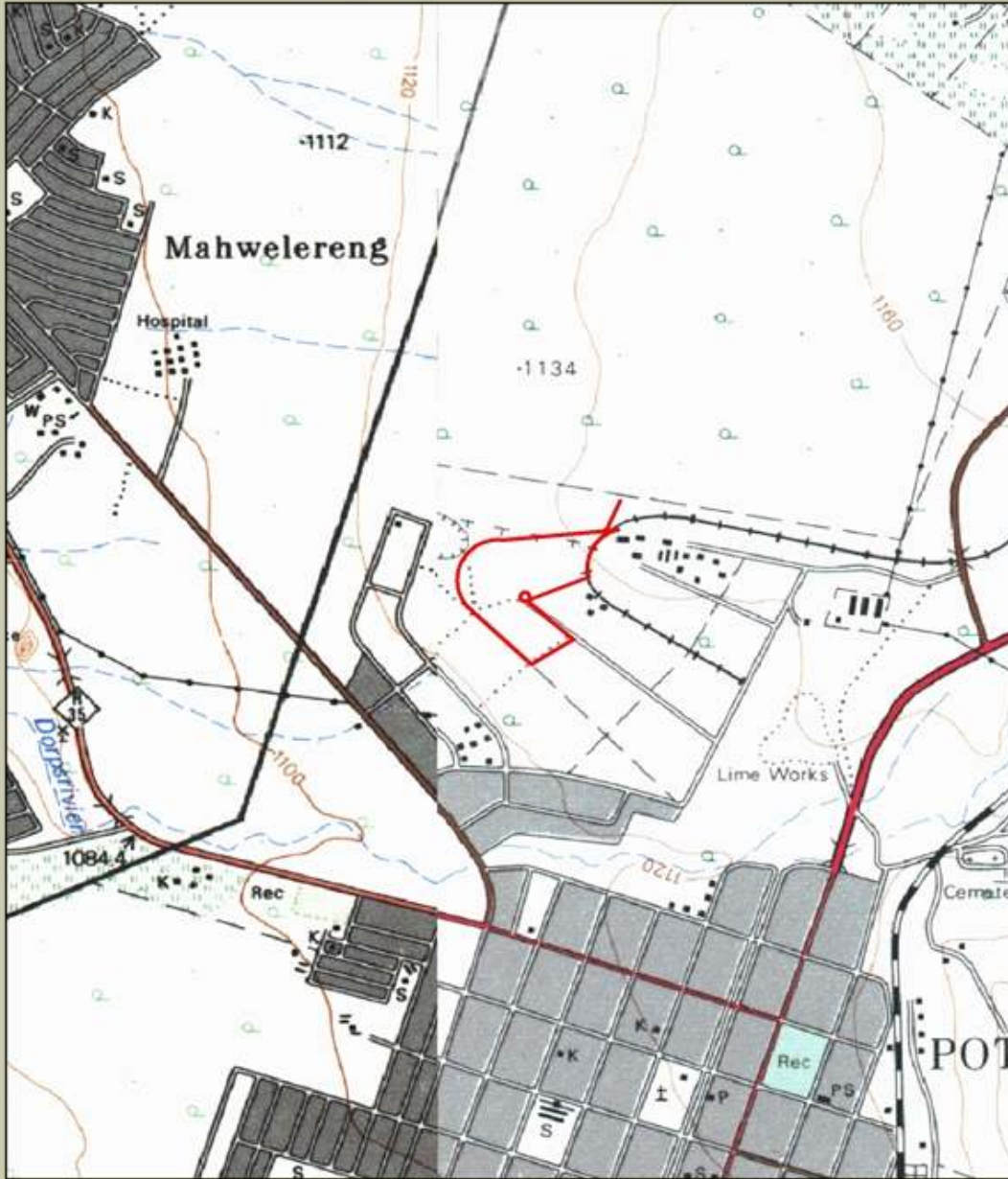
Photo 4: View of some of the illegal dumping on the site.

# **APPENDIX B**


## **Location Maps**



Mokopane Solar Park  
1:50 000 series, Tinmyne 2428BB  
& Potgietersrus2429AA



**Legend**

 study area


0 0.5 1 Kilometres



# Mokopane Solar Park Spot 5 National Mosaic, 2428B & 2429A



## Legend

 study area

0 0.5 1  
Kilometres






# Mokopane Solar Park Spot 5 National Mosaic 2428B & 2429A



## Legend

 study area

0 0.25 0.5  
Kilometres

