

Heritage Impact Assessment

Heritage Impact Assessment for the Proposed Tom Burke
Solar Park at Tom Burke, 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 Tom Burke Solar Park on Portion 2 of the Farm Klipfontein 31 LQ near Tom Burke in the Limpopo Province.

Local Authority: Waterberg District Municipality.

Developer: Tobivox (Pty) Ltd.

Date of field work: 09 February 2012.

Date of report: February 2012.

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 Tom Burke 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 Tom Burke Solar Park on Portion 2 of the Farm Klipfontein 31 LQ near Tom Burke 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

Tobivox (Pty) Ltd has proposed the development of the Tom Burke Solar Park on Portion 2 of the Farm Klipfontein 31 LQ near Tom Burke 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 60 MW. The generated energy will be connected to the Eskom or municipal grid through the adjacent Eskom Tom Burke Substation. 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 Portion 2 of the Farm Klipfontein 31 LQ which was approximately 427ha in size and the total development area for the Solar Park will cover approximately 190ha of the proposed property. 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 January 2012 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 Tom Burke Solar Park will be situated on Portion 2 of the Farm Klipfontein 31 LQ near Tom Burke in the Limpopo Province. The proposed property was approximately 427ha in size of which 190ha of the area was earmarked for development (photo 1).

The property was situated on the western corner of the crossing of the N11 and the R572 tar roads. A small section of this property on the eastern side was previously disturbed and exposed to agricultural activities. Most of the property was largely undisturbed and was used for cattle grazing or used as a game farm. The Eskom Tom Burke Substation was situated adjacent and on the eastern side of the proposed property (photo 2). Several power lines crossed the property from the substation (photo 3). Two small pans were also situated on the eastern extent of the property (photo 4), but these will be avoided during the development of the project. The proposed area was mostly flat and consisted of red sandy soils with typical dense bushveld vegetation (photo 5).

The proposed development will be situated on the Tom Burke 2327 BB & Marnitz 2328 AA 1:50 000 topographical maps (See Appendix B: Location Maps).

5. Archaeological History of the Area

The examination of archival records, historical data and cartographic resources represents a critical additional tool for locating and identifying heritage resources and in determining the historical and cultural context of the study area. Therefore an internet literature search was conducted and relevant archaeological and historical texts were also consulted. Relevant topographic maps and satellite imagery were studied. Researching the National Archive records as well as the SAHRA APM Report Mapping Project records, it was determined that no previous archaeological or historical studies had been performed within grid square 2328AA and that one previous archaeological or historical study had been performed within grid square 2327BB:

Hutten, M., & Gaigher, S., 2000. **Proposed Development of a Cellular Base Station-Kauletsi-Northern Province.** An unpublished report by Archaeo-Info on file at SAHRA as: 2000-SAHRA-0081.

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 sites

The Stone Age is divided into the Early; Middle and Late Stone Age. The *Early Stone Age* (ESA) includes the period from 2.5 million years B.P. to 250 000 years B.P. and is associated with Australopithecines and early *Homo* species who practiced stone tool industries such as the Oldowan and Acheullian. The *Middle Stone Age* (MSA) covers various tool industries, for example the Howiesons Poort industry, in the period from 250 000 years B.P. to 25 000 years B.P. and is associated with archaic and modern *Homo sapiens*. The *Late Stone Age* (LSA) incorporates the period from 25 000 years B.P. up to the Iron Age and Historical Periods and contact between hunter-gatherers and Iron Age farmers or European colonists. This period is associated with modern humans and characterised by lithic tool industries such as Smithfield and Robberg.

Both ESA and MSA sites are known from the Limpopo Valley as well as lithic industries that appear to be transitional between the two ages and with dates estimated at 300 thousand years ago (Kuman *et al.* 2005). The presence of numerous rock art sites with associated stone tool assemblages in the Limpopo River basin, Blouberg, Makgabeng, Waterberg and Soutpansberg attests to the presence of Late Stone Age San/Bushman communities across the region (e.g. Pager, 1973; Eastwood *et al.*, 2002). Migrating Sotho/Tswana tribes who entered this region called the San '*Barwana*' and named the Blouberg/Makgabeng area *Senwabarwana* meaning the 'drinking place of the Barwana' (Bonner & Carruthers 2003). The town of Bochum near Blouberg was recently renamed to Senwabarwana.

Iron Age

The Iron Age incorporates the arrival and settlement of Bantu speaking people and overlaps the Pre-Historic and Historical Periods. It can be divided into three phases. The *Early Iron Age* includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The *Middle Iron Age* spans the 10th to the 13th Centuries A.D. and includes such well known cultures as those at K2 and Mapungubwe. The *Late Iron Age* is taken to stretch from the 14th Century up to the colonial period and includes traditions such as Icon and Letaba. The Limpopo Valley to the west of the study area is well known for its Early and Middle Iron Age sites in the vicinity of the Shashe-Limpopo confluence and related Zhizo settlements spread to the north and west as the Toutswe culture (contemporary with K2, circa 1000 A.D.) of the Mahalapye-Palapye area of Botswana (Huffman 2007) and north of the study site. The next century saw the arrival of Sotho/Tswana groups in the region and their ceramic style was collectively named Moloko (Evers 1983). Huffman renamed the first phase of Moloko to the Icon facies. Sites with Icon type pottery extend north and south of the Soutpansberg and westwards across the study area, northwards into Botswana. Icon sites range from 1300 - 1450 AD. The later, 2nd phase of Moloko can be divided into the Letsibogo-, Madikwe- and Olifantspoort-facies of which the Letsibogo facies is most relevant to the study area (\pm 1500 – 1700 AD). The Letsibogo facies is however, poorly documented, but occurs along the Limpopo River to the west and south of the confluence with the Shashe (Huffman 2007).

Bonner & Carruthers (2003) quoted an extract from van Warmelo's text regarding the Ba-Birwa who settled in the region from the 1700's. According to the oral history of the Ba-Birwa as documented by Van Warmelo, they originated from near the Letswalo country above modern Tzaneen. A group splintered away and moved west to Tlokwa country (Ramokgopa and Mmatshaka north of Polokwane) under chief Mahothodiala. Clashes with the Ba-Tlokwa made them move further westward and they divided again. The smaller section moved to the Ngwala hills on the farm Mietjesfontein next to the Mogalakwena River approximately 10-15km south of the Limpopo. After several years at Mietjesfontein they moved south to the Tolwe hills on the farm Klimaf, approximately 60 km to the north-east of the study area. From here the chief, Bjalope, tried to expand his rule and sent his subjects successfully in several directions to occupy a larger area. (Van Warmelo 1953). The Ba-Tlokwa (from the east), Bagananwa (from the west and south) and Ndebele (from the north) had periodic influences on the Ba-Birwa from the study area through conflict, trade and intermarriage during the 18th and 19th Centuries. The Bagananwa group settled in the Blouberg region (to the east) during the early 1800's. The Bagananwa originated from the earlier Bahurutshe chiefdom further to the south (Rustenburg/Zeerust). After their split with the Bahurutshe these people moved to Shoshong and then to Tshwapong in Botswana (Bonner & Carruthers 2003).

Historical Period

The beginning of the Historical Period overlaps the demise of the late Stone and Iron Ages and is characterised by the first written accounts of the region from 1600 A.D. A number of early European travellers travelled through the area, including Coenraad de

Buys and his party who spent time amongst the Bamangwato in the Shoshong-Tswapong area before eventually settling at the base of the western Soutpansberg. Captain Frederick Elton was the first explorer to follow the Limpopo from the Shashe area to the sea and must have passed fairly close to the study area on his way to the Shashe (Elton 1872). European big game hunters started to hunt in the north-western parts of the Limpopo Province from the mid 1800's. Their operations were based at the frontier town of Schoemansdal at the foot of the Soutpansberg. These hunters ranged widely through the Limpopo Valley and south and eastern Botswana, focussing mainly on the ivory of elephants for trade; they later employed African hunters including the Ba-Birwa, BaVenda and Bagananwa (Bonner & Carruthers 2003).

In an effort to claim control over the whole of the Republic the ZAR-government ventured into several wars with African Chiefs who resisted these claims. The 1894 war against the Blouberg Bagananwa and their chief Malebogo was well documented by local missionary Christoph Sonntag. The war ended with the imprisonment of chief Malebogo and the ZAR-government gaining control over the Bagananwa (Sonntag undated; Bergh 1999). The area was not a significant theatre during the Anglo-Boer War although a brief battle was fought between Rhodesian and Boer forces in the vicinity of Rhodes Drift on the Limpopo some distance to the east of the study area. According to Bonner and Carruthers (2003) one overall effect of the war on the area was the total effacing of a 'previously negligible' white presence and the re-occupation of their land by formerly displaced black communities. After 1900 European farmers were encouraged by the ruling government to occupy farms in the study area in an effort mainly to compromise for land losses in other parts of the province (Bonner & Carruthers 2003).

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 February 09, 2012 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

Mrs. Vos, the wife of Mr. G. Vos the owner of the property, was questioned during the survey and she indicated that she was 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.

<i>FIELD RATING</i>	<i>GRADE</i>	<i>SIGNIFICANCE</i>	<i>RECOMMENDED MITIGATION</i>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local	Grade	High	Mitigation (Part of

Significance (LS)	3B	Significance	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.

Tom Burke Solar Park

The proposed development of the Tom Burke Solar Park will be situated on Portion 2 of the Farm Klipfontein 31 LQ near Tom Burke in the Limpopo Province.

A small section of this property on the eastern side was previously disturbed and exposed to agricultural activities. Most of the property was largely undisturbed and was used for cattle grazing or used as a game farm. The Eskom Tom Burke Substation was situated adjacent and on the eastern side of the proposed property. Several power lines crossed the property from the substation. Two small pans were also situated on the eastern extent of the property, but these will be avoided during the development of the project. The proposed area was mostly flat and consisted of red sandy soils with typical dense bushveld vegetation.

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:

Tom Burke Solar Park

- The proposed area to be developed was mostly undisturbed and was used for cattle grazing or as a game farm.
- 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 Tom Burke Solar Park in the indicated area can continue from a heritage point of view.

10. References

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APPENDIX A

Photographs



Photo 1: General view of the proposed site from the south-east.



Photo 2: View of the Tom Burke Substation to the east.



Photo 3: View of the existing power lines across the site.



Photo 4: View of the small pan on the eastern extent.

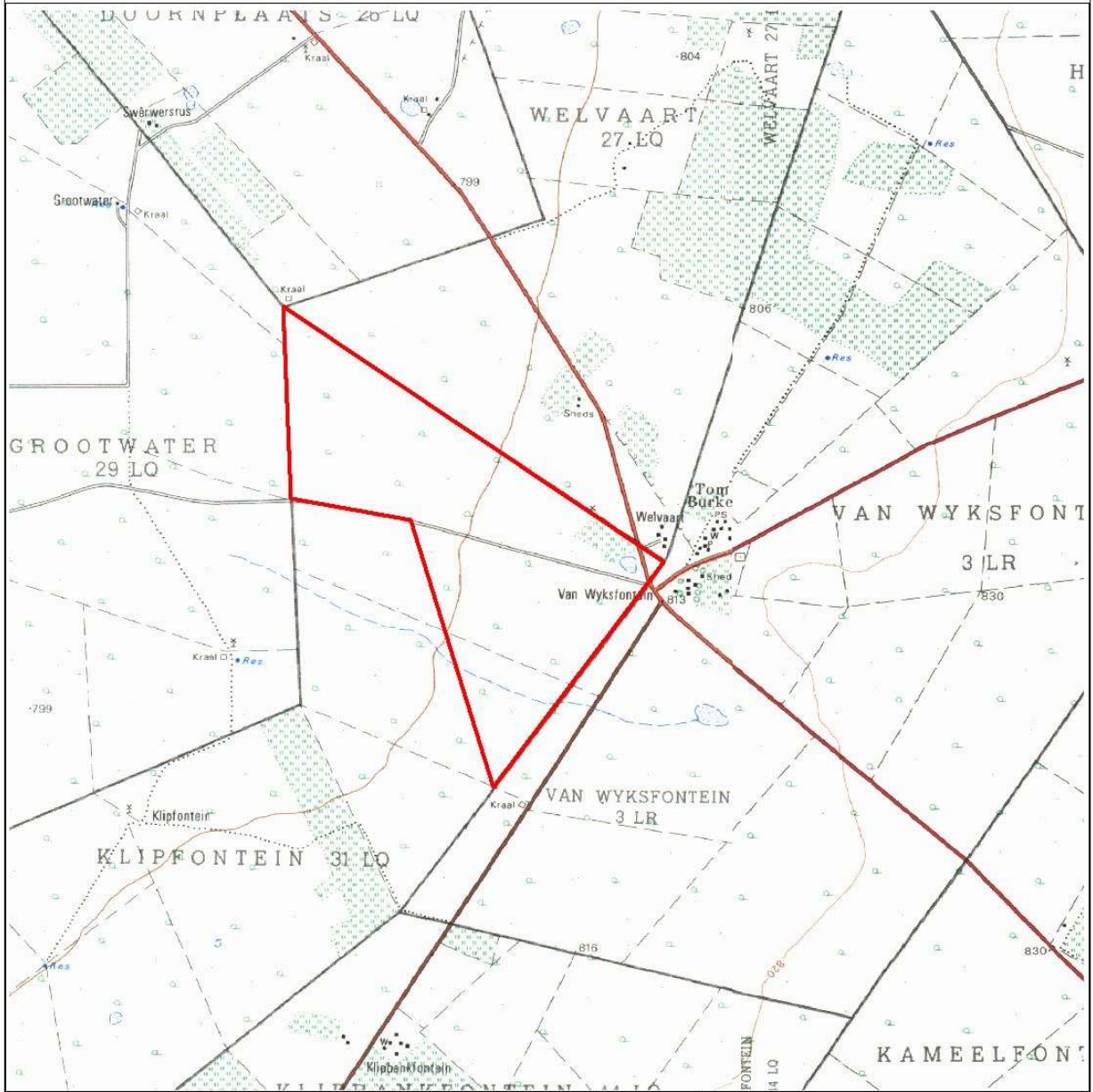


Photo 5: View of the typical bushveld vegetation.

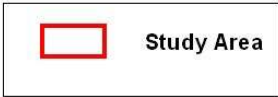
APPENDIX B

Location Maps

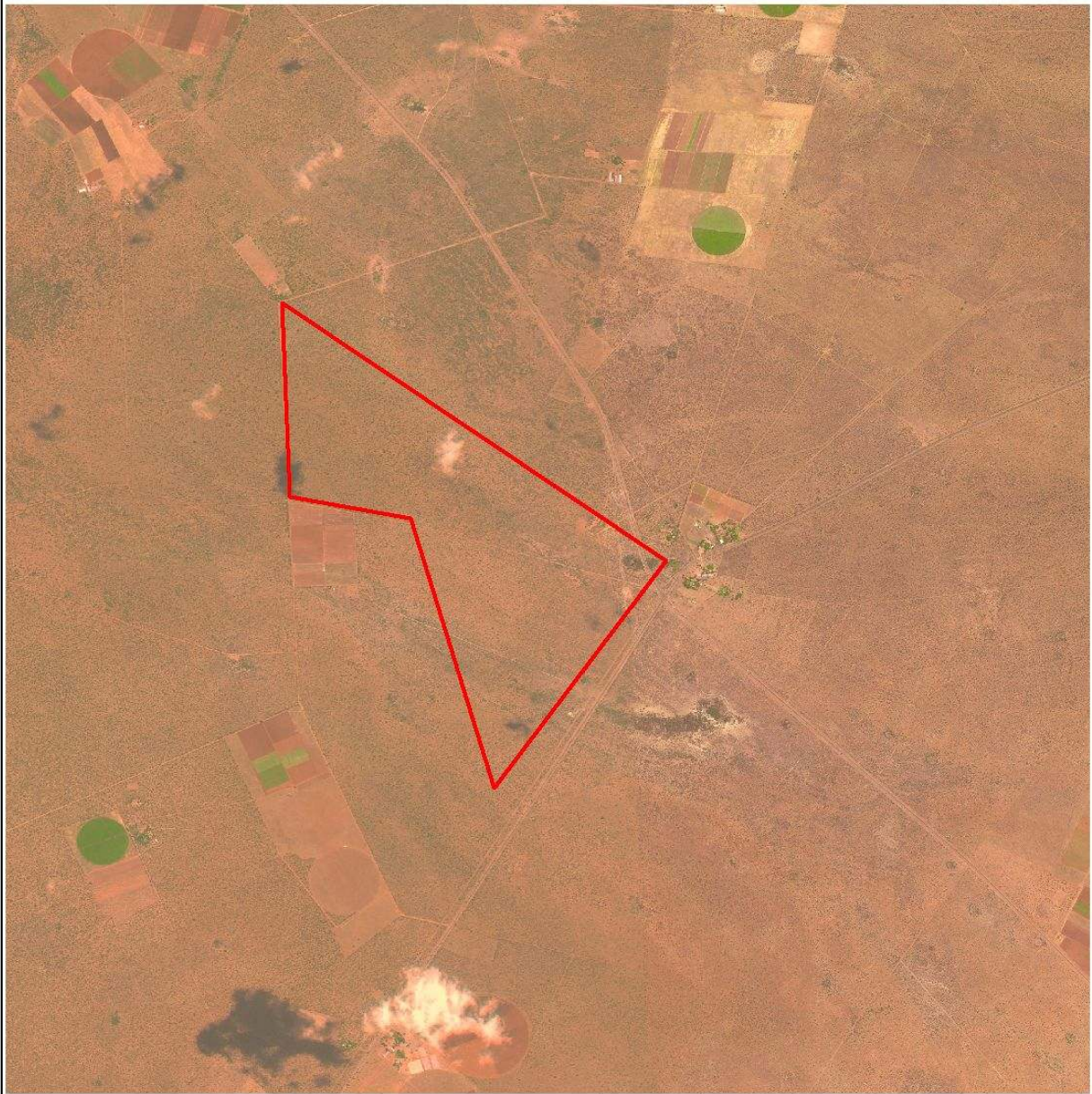
Tom Burke Solar Park 1:50 000 Series, Tom Burke 2327 BB & Marnitz 2328 AA



1:30,000



Tom Burke Solar Park
Spot 5 National Mosaic 2327 B
& 2328 A



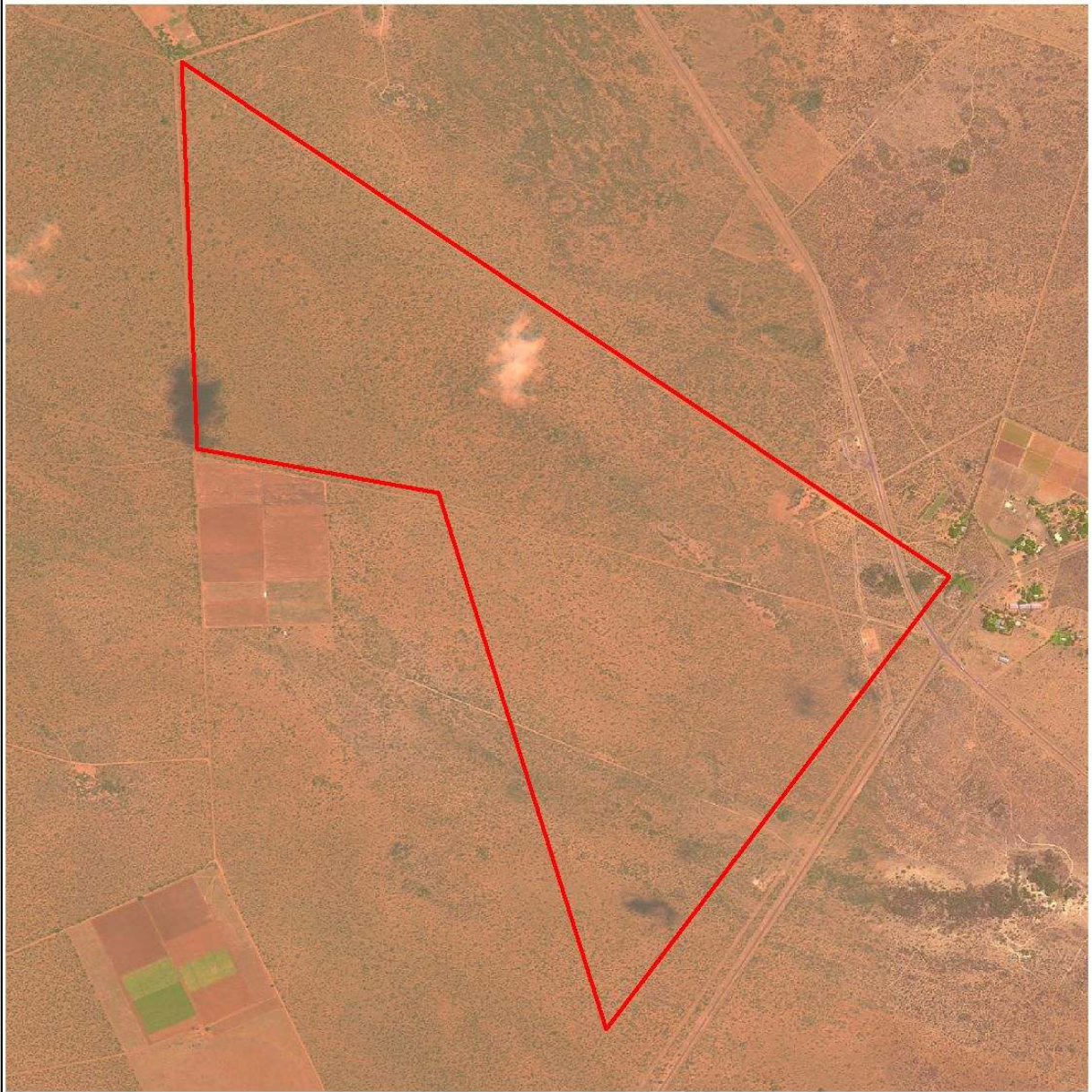
0 2 Kilometers

1:30,000



Study Area

Tom Burke Solar Park
Spot 5 National Mosaic 2327 B
& 2328 A



0 1 Kilometers

1:15,000



Study Area

