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CULTURAL HERITAGE RESOURCES IMPACT ASSESSMENT OF ERF 5041 (PORTION OF ERF 1) KURUMAN MUNICIPALITY GA-SEGONYANA ADMINISTRATIVE DISTRICT NORTHERN CAPE PROVINCE

EXECUTIVE SUMMARY

The proposed development site lies just east of Kuruman in typical Kalahari Thorn veldt. The soil is deep Kalahari Red Sand. No important cultural heritage resources or graves were found on the site. There is no object to the development of the site from a cultural heritage resources point of view.

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1. BACKGROUND INFORMATION ON PROJECT:

(a) Whether the report is part of a scoping report/EIA/HIA or not

Yes, the report is part of a Basic Assessment (BA) report

(b) Type of development (e.g. low cost housing project, mining etc).

*Establishment of a Business 1 Complex
Casino, hotel, conference facilities, entertainment and water world etc.*

(c) Whether re-zoning and/or subdivision of land is involved.

*Re-zoning from agriculture to Business
The area falls within the urban edge of Kuruman and has been earmarked by the Municipality for development*

(d) Developer and consultant and owner and name and contact details;

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(e) Legislative requirements of Act 25 of 1999.

(f) Definition

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of paleontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

(g) Protected sites in terms of the National Heritage Resources Act, Act No. 25 of 1999

The following are the most important sites and objects protected by the National Heritage Act:

- Structures or parts of structures older than 60 years.
 - Archaeological sites and objects.
 - Paleontological sites.
 - Meteorites.
 - Ship wrecks.
 - Burial grounds.
 - Graves of victims of conflict.
 - Public monuments and memorials.
 - Structures, places and objects protected through the publication of notices in the Gazette and Provincial Gazette.
 - Any other places or objects, which are considered to be of interest or of historical or cultural significance.
- 1.1 Geological sites of scientific or cultural importance.
 - 1.2 Sites of significance relating to the history of slavery in South Africa.
 - 1.3 Objects to which oral traditions are attached.
 - 1.4 Sites of cultural significance or other value to a community or pattern of South African history

(h) Description of the Property of Affected Environment

Details of area surveyed:

- Full location Data for Province, Magisterial District/Local Authority and property (e.g. farm/erf) name and number etc.;

Erf 5041 (Portion of erf 1) Kuruman Municipality, Ga-segonyana Administrative District, Northern Cape province
Properties – Refer to Appendix A

- Location map(s)/ orthophotos of the general area. These must include the map name and number (e.g. 3313 DC Bellville). Maps must include at least a 1:50 000 and (if) available also a 1:10 000 (i.e. most detail possible). Large scale colour satellite photos make a useful addition. Maps should be preferable at least A4 size.

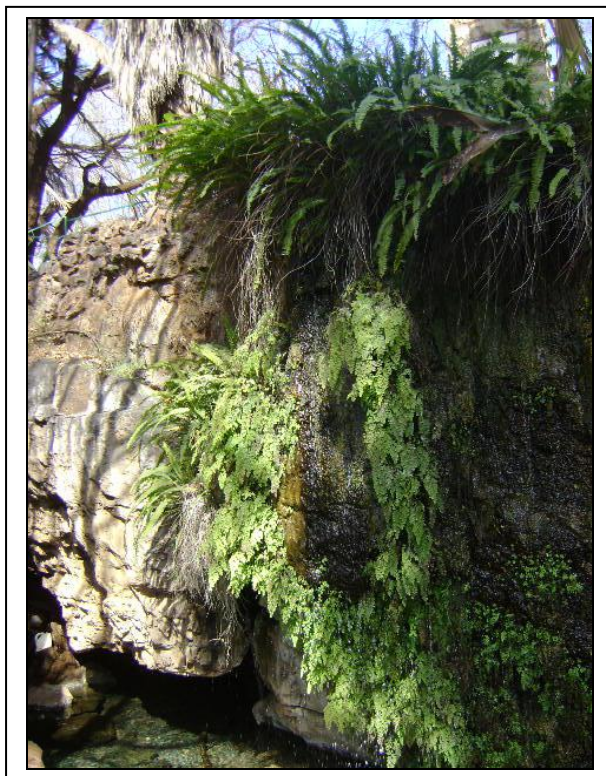
Attached

- Either the Location Map or the Site Map must have the polygon of the area surveyed marked on it and full geographical co-ordinates for all relevant points and where applicable, indication of the area to be developed (footprint).

Attached

2. METHODOLOGY

During the survey the site was visited together with the staff of AB Enviro Consult CC. The site lies west of the town Kuruman next to the road to Khatu. The site is part of the Ghaap Plateau 1131 metres above sea level Van Schalkwyk 2010). The area is semi desert thorn veldt with large Camel Thorn trees (*Acacia Erioloba*) dominating the landscape. The site itself has deep Kalahari sands. The site was inspected on foot and photographed. Documents for background information were searched. The Kuruman Fountain which is the life blood of the area together with the Wonderwerk Cave and the Moffat Mission Station were visited -see photograph of fountain.



Eye of the Kuruman River
Local people stil collect
secrate water at the fountain
and burn candles for
meditation

3. CULTURAL HERITAGE OF THE AREA

The Stone Age archaeology of the Northern Cape

The following framework provides an overview of major Northern Cape Stone Age sites in the general region of the survey area.



Entrance to the Wonderwerk Cave

Wonderwerk Cave.

One of the best-known sites in the region is the Wonderwerk Cave in the Kuruman Hills. The cave extends horizontally for 139 m and was formed by an ancient solution cavity in the dolomite formation (Beaumont 2004:31). Excavations since the 1940, which became more focussed as from 1976 to 1993, revealed a stratified series of deposits that accumulated up to a depth of about 7 metres and are divided into nine Major Units (Beaumont and Vogel 2006). The application of a range of dating methods points to an LSA at 1-12.5 kyr (kyr=thousand years ago), the MSA at around ~70 to >220 kyr ago, the Fauresmith to ~270-500 kyr ago and a ephemeral Acheulean at >0.78 myr BP (Beaumont and Vogel 2006). An interdisciplinary project initiated in 2004 aim at dating the ESA deposits in particular, using a range of radiometric techniques, and will also focus on analysing the lithic faunal and botanical remains recovered from these strata (Chazan et al 2008).

The lithic succession at Wonderwerk serves as a benchmark for the Stone Age sequence of the Northern Cape. It comprises an uppermost LSA sequence that contains Ceramic LSA, Wilton and Oakhurst. Some of the cave deposit has been removed by guano diggers, which destroyed some of the important archaeological levels. The MSA levels that were still intact yielded blades and unifacial MSA points. The ESA sequence contains the usual large cutting tools and includes a Fauresmith assemblage with blades, large scrapers and radially prepared cores. Whereas the paintings at Wonderwerk are in a poor state of preservation, the region has some good engraving and painted sites.

The Kathu Region

The Kathu sites contain significant ESA Acheulean and Fauresmith assemblages. Archaeological and palaeoenvironmental data from Kathu Pan and Kathu Townlands were used to reconstruct changes over time in the prehistoric environment (Beaumont 2004:50. Associated faunal remains with some of the Acheulean include *Elephas recki recki*. These animals disappeared at sites in East Africa such as at Olorgesailie, Kenya, at around 600 000/800 000 years ago (Beaumont 2004: 51; McNabb 2004:656). This provides a relative date for the lithic assemblage. Biostratigraphy or faunal correlation is often used to date the

southern African sites and gives some indication of the approximate age of the associated assemblages.



Early Stone Age artefacts
from a site near Hotazel

The LCT's from this area often contain very fine handaxes with some superb examples produced on banded ironstone. In some of the Acheulean deposits, but also in MSA levels, lithics display a shiny silica skin. One particular site at the Kathu Townlands covers a large area and contains an estimated minimum of 10 billion flaked items. This is ascribed to the use of the high-grade bedrock jasper as a source for raw materials and this is supported by the high incidence of handaxe roughouts (Beaumont 2004:52). The prepared core technique was used to produce the spectacular small handaxes, long blades, convergent flakes/points, scrapers found in the Fauresmith collections. Some MSA tools were also recovered from the Kathu localities (Beaumont 2004).

Pigment Mining

Pigments such as ochre and specularite were widely used and the specularite mines at Tsantsabane/Blinkklipkop and Doornfontein 1 near Postmasburg were rich and well-known ore sources that were quarried extensively over a long period of time (Beaumont and Morris 1990:65-74; Mitchell 2002:256-7; Morris 2004). Dunn (1931:110) was told that 'it was from here that the Bushmen and other natives for hundreds of miles obtained their supplies of specular iron ore, which becomes red when burnt'. The pigment was bartered and exchanged for goods such as iron knives, assegais, axes, tobacco, copper and iron and copper ornaments and beads (Campbell 1822: Vol II; Burchell 1967; Arbousset and Daumas 1968). Investigations at Blinkklipkop established a date of AD 800 for the utilization of this particular rich source Thackeray et al 1983; Beaumont and Morris 1990).

The LSA at the Pigment Mines

The use of earth pigments, and in particular ochre and specular haematite, is universal (Watts 2002:1). Pigments, but moreover the exceptional pieces of engraved and ground incised pieces of ochre from MSA contexts at sites such as Wonderwerk attest to the time-depth of such practices (Mitchell 2002:99). Specular haematite was extensively mined by at least 40 000 BP at Ngwenya/Lion Cavern, Swaziland (Mitchell 2002:99). Quarrying of ore bodies often destroy earlier evidence for the utilisation of the resource. The investigations at Blinkklipkop near Postmasburg in the Northern Cape (Thackeray et al 1983; Beaumont

and Morris 1990) established a date of AD 800 for the utilization of this particular rich source. The mainly late Holocene lithic sequences at the mining localities are characterised by informal tool types with low frequencies of formal tools. Some of these were most likely to have been used in the mining and processing of the pigments. Pottery and items of European origin have also been recovered (Morris 1990:67-70). The LSA of the Northern Cape is well researched (Humphreys and Thackeray 1983).

4. HISTORIC BACKGROUND

In 1812 John Campbell visited the Northern Cape and travelled as far north as Lithako (Dithakou) north of the present Kuruman. In 1816 the missionaries J. Read and R Hamilton started working in the area. Read convinced chief Mothibi to move his capitol to the banks of the Kuruman River and established Nieu-Lithako (Oberholster JJ 1972: 200).



Stonewalls of Dithakong Late Iron Age Site 60 kilometres north east of Kuruman

In 1820 Read returned to his former mission station at Bethelsdorp and was replaced by Robert Moffat. He firstly worked amongst the Hottentots and then moved to Kuruman in 1821. In 1824 the mission station was moved to its present position 5 kilometres north of Kuruman. Here Moffat worked for 37 years. The church was declared a National Monument in 1939. (Oberholster JJ 1972: 200 and Wikipedia).



Early drawing of the Moffat Mission Station



Moffat Mission Station
Building

The area was later settled by white farmers. The region to a large extent has stayed a farming community. Because of the low rainfall of the area the farms were large. Many of the farms have seen very little development. For building purposes the farmers had to use local material. Many of the early farmhouses were built of limestone which was quarried locally (Küsel US 2011) – see photographs.



Limestone building blocks
in a deserted farmhouse
north of Kuruman

As permanent water was scarce wells had to be dug (Küsel US 2009).



Hand dug water well on the Farm York north of Kuruman

Today the area surrounding Kuruman has developed into a major mining area where iron ore and manganese is mined. The oldest manganese mine is at Black Rock. This area has the largest known manganese ore body in the world. In a survey done in 2009 the author recommended to SAHRA to have the Black Rock Mine declared a National Heritage Site. Unfortunately this has not been done by SAHRA (Küsel U.S. 2009 & 2011).



The Historic Black Rock manganese mine at Black Rock north of Kuruman

5. RESULTS

The site lies south of the N14 road from Kuruman to Kathu (see Google map). The soil is deep red Kalahari sand. The vegetation is Kalahari Bushveld with large Camel thorn trees (*Acacia Erioloba*) in the centre of the property (see photographs below).



Grass and Thorn veldt vegetation on Red Kalahari sand dunes on the investigated site



No cultural heritage resources older than sixty years could be found on the investigated site. There are also no graves visible on the surface.

6. CONCLUSION

There are no important cultural heritage resources or graves present on the proposed development site.

7. RECOMMENDATIONS

There is no objection to the proposed development of the site from a cultural heritage resources point of view.

If during construction any cultural heritage resources or graves are unearthed all work has to be stopped until the site has been inspected and mitigated by a cultural heritage practitioner.

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- Map of South Africa, dating to 1022, showing lack of infrastructure (roads,
- Map showing the location of some important sites in the larger region (Map 2722: Chief Surveyor General)
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9. APPENDIX A

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail:

The proposed Establishment of a Business 1 Complex on Erf 5041 (Portion of Erf 1) at Kuruman, Northern Cape province. The proposed development will entail the following (See Figure 1 for a copy of the proposed Layout Plan):

- i. Casino :2 500 m²
- ii. Hotel :2 800 m²
- iii. Conference Facilities :2 000 m²
- iv. Entertainment :2 000 m²
- v. Water world etc. :2 800 m²

The area falls within the Ga-Segonyana Local Municipality and the John Taolo Gaetsewe District Municipality. The area falls within the urban edge of Kuruman and has been earmarked by the Municipality for development.

1.1 WATER SUPPLY

Currently there is insufficient water storage capacity available for all existing developments and an approximate deficit of 5.5 MI at present exists in the Kuruman area.

The municipality is in the process of planning and constructing a new bulk storage reservoir at Bankhara-Bodulong with a trunk main to Kuruman. This reservoir shall have sufficient storage for current and future developments up to 2030. The estimated project completion date, is mid-2013, however this date will have to be confirmed with the Local Municipality.

The nearest connection point to the municipal water supply is $\pm 3\ 000\text{m}$ east of the proposed development. The recommended connection point is the existing DN 500mm pipeline running along Dolomite Street.

It is proposed that a DN 250 mm pipe ($\pm 3\ 000\text{m}$ long) should be installed for the Casino and the future surrounding developments prior to the commencement of the construction of the Casino.

1.2 SEWAGE DISPOSAL

Due to the topography of the area it would be possible for sewerage effluent of the proposed new development to drain under gravity to the existing municipal sewerage network.

The construction of a DN 150 mm outfall sewer from the proposed new development to the existing municipal sewerage network is therefore envisaged

Analysis indicates that the proposed connection point has sufficient capacity to accommodate sewage emanating from the proposed development. Sewers further downstream will however start to experience capacity limitations.

Allowance was made for the above mentioned outfall sewer, as well as downstream upgrading in the Kuruman Bulk Infrastructure Master Plan.

Sewage emanating from the proposed development will gravitate to the Barnard Street Pump Station from where it will be pumped to the Kuruman Waste Water Treatment Works (WWTW).

The Sanitation Master Plan indicates that during stage1, the Barnard Street Pump Station will be running below capacity and can thus accommodate the necessary development.

However, this capacity is dependent on the following conditions:

- The regional WWTW to be commissioned.
- A trunk sewer through Kuruman North to be constructed
- All three Ds Van Jaarsveld Street Pump Stations, as well as Wrenchville Pump Stations no longer pump towards Barnard Street Pump Station, but sewage flowing into these pump stations gravitates into the above mentioned Trunk Sewer.
- Mothibistad's sewer infrastructure is connected onto the above Trunk Sewer.

Should the above mentioned infrastructure not be provided and/or modified, another option available is that, the discharge capacity of the Barnard Street pump station can be increased by means of certain mechanical changes to the pumps.

Although the Kuruman WWTW has a maximum capacity of 4.0MI/day it is operating at 3.7MI/day and therefore can accommodate the proposed development.

The WWTW capacity has the same pre-conditions as mentioned before. Should they however not be met, the treatment requirements at the Kuruman WWTW will increase up to 3.9 MI/day, but will still be able to accommodate the proposed development.

1.3 ELECTRICAL SUPPLY

A number of options were investigated for the electrical supply of the proposed development. The following option is the preferred option;

Construct a new overhead supply line from Moffat Substation.

Moffat substation is the main Substation of Kuruman which is responsible for supplying all of Kuruman with electricity. Moffat substation is currently almost fully loaded which implies that no further development in Kuruman is possible. In the near future a project where a second substation is going to be constructed at the North Eastern side of Kuruman making an additional 7MVA available on Moffat Substation

Figure 1 Layout Plan



The developers planning a Mall on the Kathu road from Kuruman has claimed 4MVA of the 7MV and it was brought to the attention of relevant parties that the casino development will need the remaining 3MVA.

In order for the casino development to utilize the 3MVA from Moffat substation a new electrical overhead line must be constructed from the substation to the boundary of the casino development stand, (4km).

This option will be able to provide the necessary electricity to the new casino development.

1.4 TRAFFIC

□ According to the traffic impact study, the proposed development is expected to generate the following additional traffic volumes during the PM peak hour:

- 234 veh/h entering the development
- 223 veh/h exiting the development

- The analysis of the combined 5-year growth of existing traffic, plus the generated traffic, loaded onto the adjacent N14 road network, showed that excellent Levels of Service will prevail, with no delays to the N14 through traffic and minimal delays to the development-generated traffic.
- A standard rural non-signalized intersection with an embayed right turn slot will satisfactorily handle the traffic flows in a safe and controlled manner.
- The speed limit along the N14 national route adjacent to the development is too high at 120 km/h and it should be reduced to 80 km/h.

Taxi lay-bys should be provided in both directions of travel on N14 adjacent to the access intersection

1. FEASIBLE AND REASONABLE ALTERNATIVES

“Alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of

the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

No	Alternative type, either alternative: site on property, properties, activity, design, technology, operational or other (provide details of “other”)	Description
1	<p>Alternative 1: Proposal: This will entail an activity alternative.</p>	<p>The preferred alternative entails the proposed Establishment of a Business 1 Complex on Erf 5041 (Portion of Erf 1) at Kuruman, Northern Cape Province. The proposed development will entail the following (See Figure 1 for a copy of the proposed Layout Plan):</p> <ul style="list-style-type: none"> i. Casino :2 500 m2 ii. Hotel :2 800 m2 iii. Conference Facilities :2 000 m2 iv. Entertainment :2 000 m2 v. Water world etc. :2 800 m2

2	Alternative 2: This will entail an activity alternative.	<p>Alternative 2 will entail the Establishment of a steel factory on Erf 5041 (Portion of Erf 1) at Kuruman, Northern Cape province.</p> <p>This will not be the preferred alternative due to the fact that the area is too close to residential areas for this type of development. This type of development will also not be able to accommodate some of the larger <i>Acacia Erioloba</i> trees found on site. Another problem will be that the available water and electrical supply in the area will not be sufficient for this type of development and will need additional electricity for the factory.</p> <p>Air and noise pollution will also have to be considered.</p> <p>Coal, which will be needed in the smelting process, is also not available in the area.</p> <p>An additional piece of land will have to be found for the waste material generated in the manufacturing process.</p>
3	No-Go Alternative	<p>This Alternative will entail that the <i>status quo</i> will prevail. This is not the preferred option as the applicant has identified a need for this type of development in the area. The applicant has also secured a gambling license, should the development not take place at this location, the applicant will take his license somewhere else and the huge capital investment and job opportunities will be lost for the</p>

Paragraphs 3 – 13 below should be completed for each alternative.

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection. List alternative sites if applicable.

Alternative:
Latitude (

Alternative:

Alternative S1 (Preferred or only site alternative)

Latitude (S): 27° 27' 20.92"	Longitude (E): 23° 25' 32.67"
--	---

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Size of the activity:

Alternative A1² (preferred activity alternative)

50 000m²

Alternative A2 (if any)

100 000m²

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Size of the site/servitude:

Alternative A1 (preferred activity alternative) 100 000m²

100 000m²

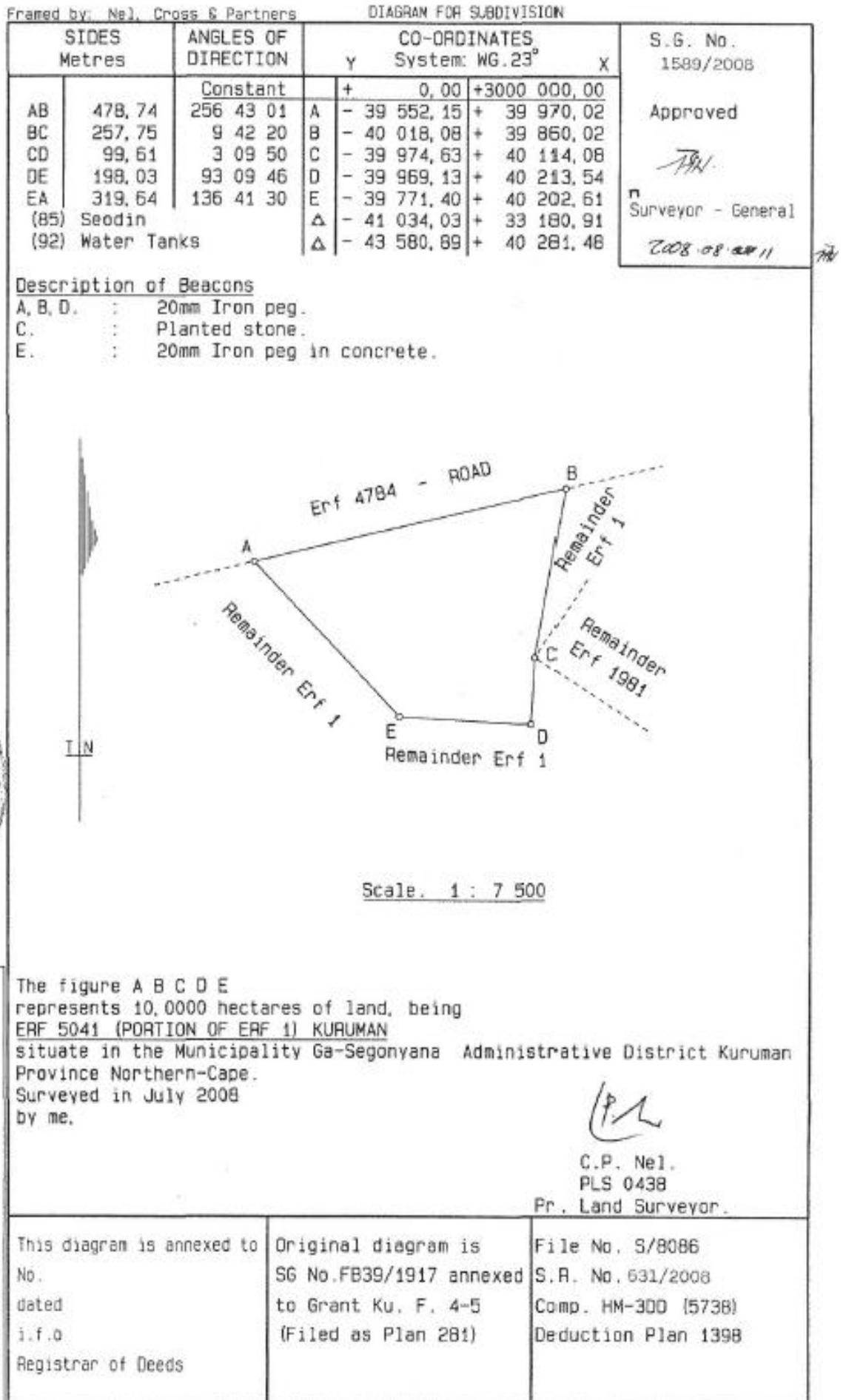
Alternative A2 (if any) 100 000m²

100 000m²

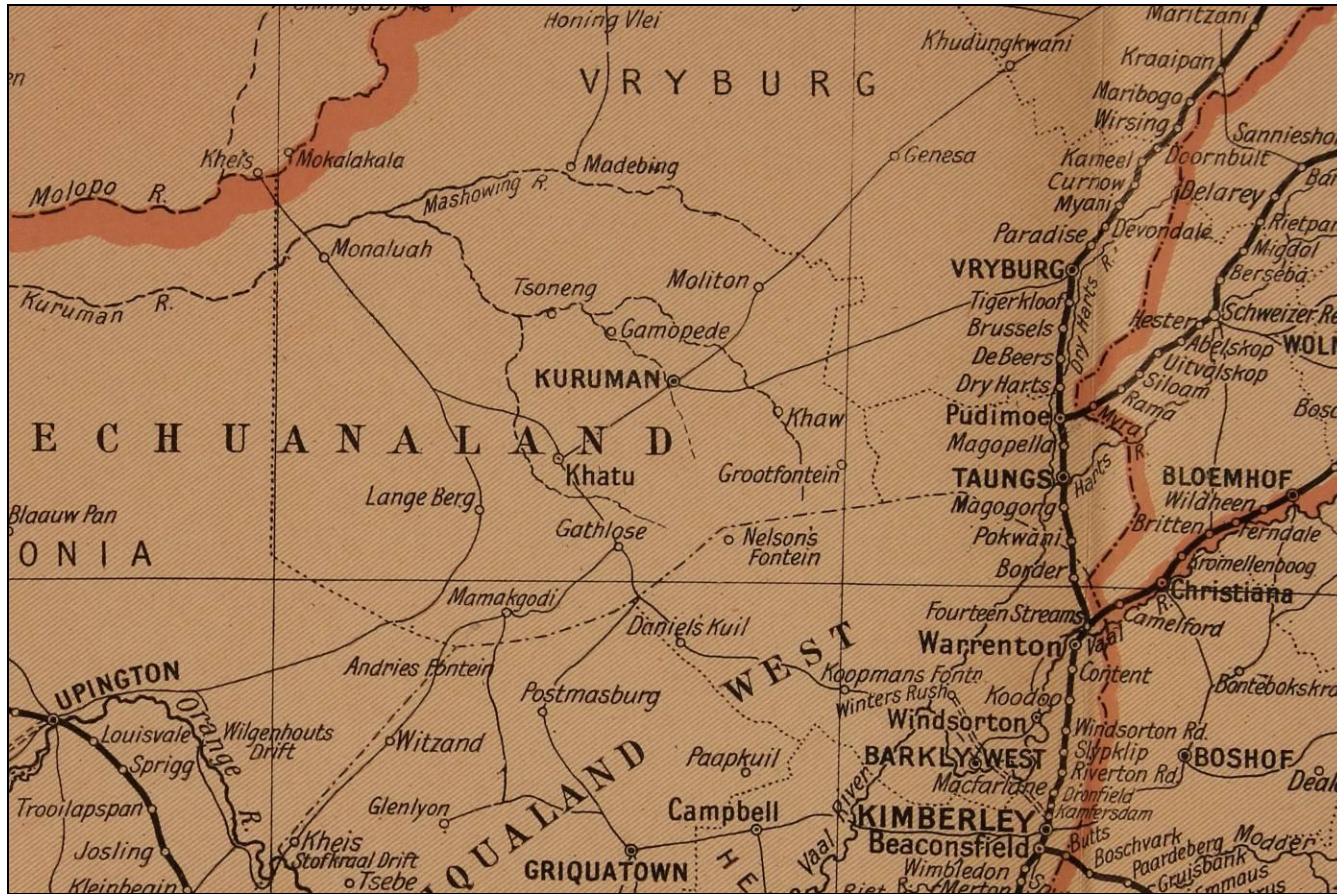
1 "Alternative S." refer to site alternatives.

2 "Alternative A." refer to activity, process, technology or other alternatives.

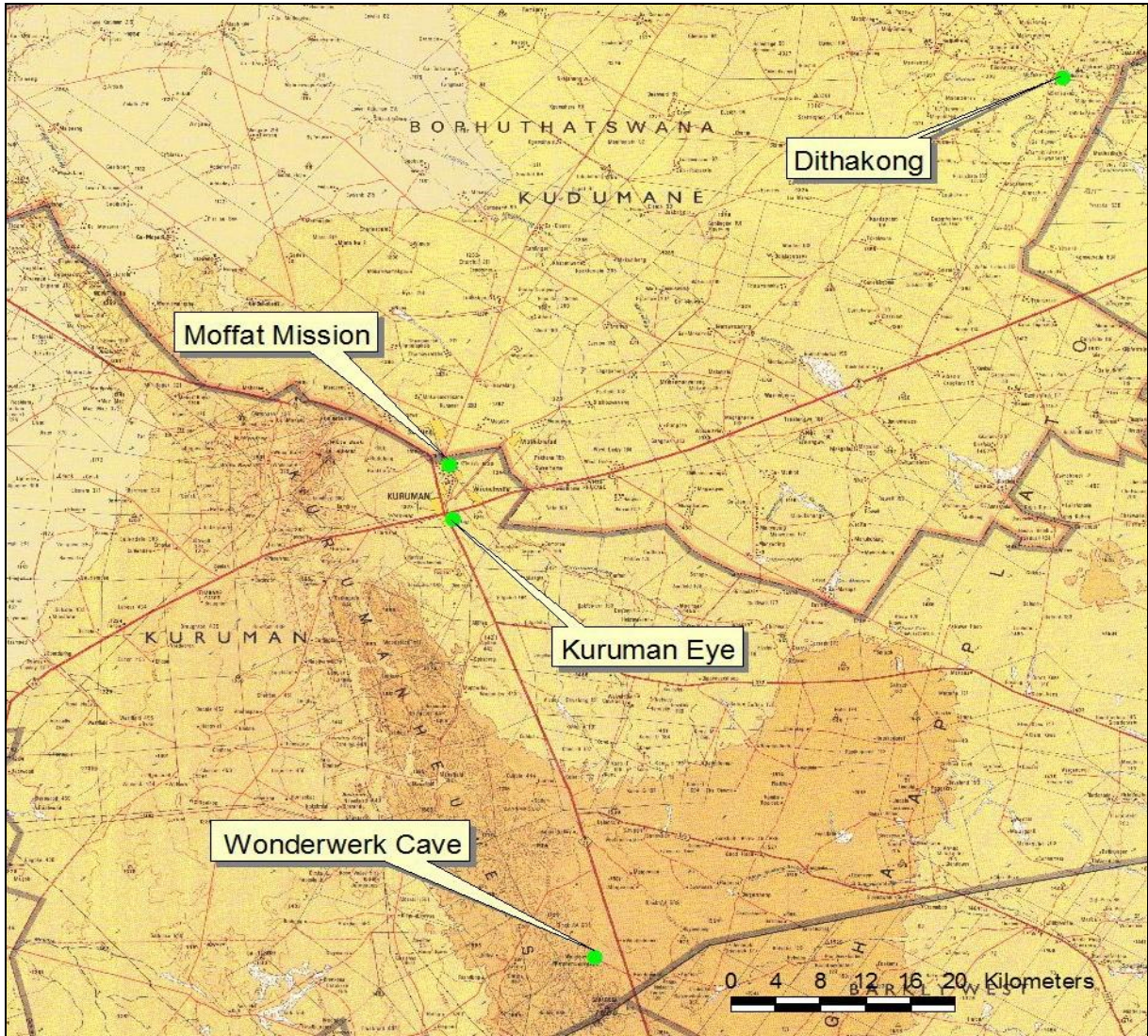
Figure 2: Relevant co-ordinates



10. MAPS

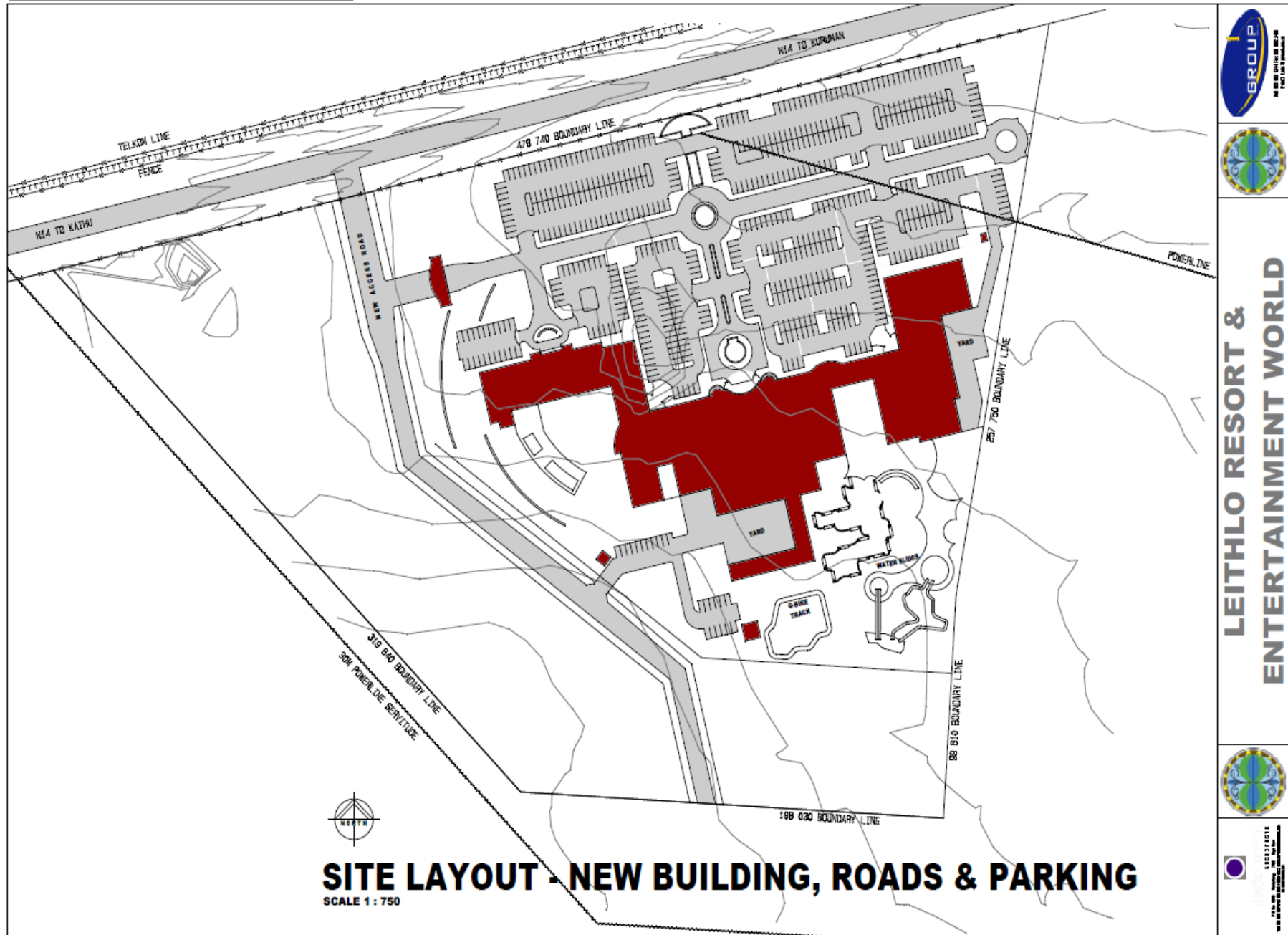


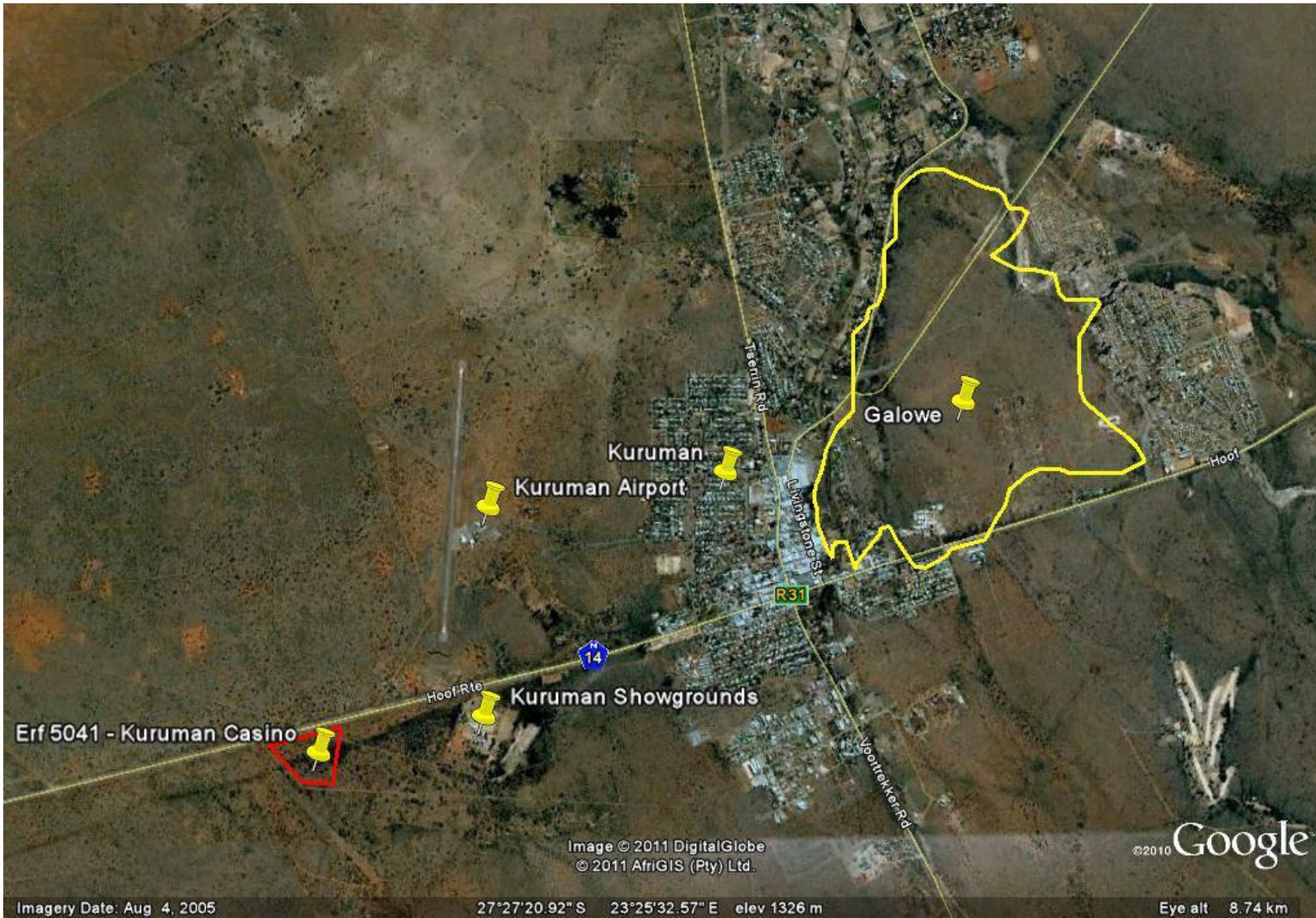
Section of the 1922 Map
of the Kuruman Area



Map showing the location of important sites in the Kuruman region (Map 2722 Chief Surveyor - General

FIGURE 1: Area to be developed





Google image of the area

