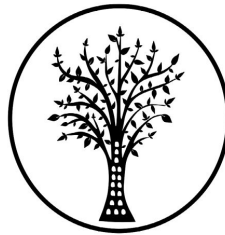


# ARCHAEOLOGICAL SPECIALIST STUDY

In terms of Section 38(8) of the NHRA for a  
PROPOSED ROOIFONTEIN BULK WATER SUPPLY

Prepared by



CTS HERITAGE

In Association with

**EnviroAfrica**

And

**ACRM**

August 2018



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## THE INDEPENDENT PERSON WHO COMPILED A SPECIALIST REPORT OR UNDERTOOK A SPECIALIST PROCESS

I Jenna Lavin, as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Jenna Lavin

**Signature of the specialist**

CTS Heritage

**Name of company**

16 August 2018

**Date**



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## EXECUTIVE SUMMARY

The proposed Rooifontein Bulk Water Supply system includes the equipment for existing boreholes, the equipment for additional boreholes, the construction of a 190K steel panel reservoir, the installation of approximately 6km of pipelines, and the construction of a Water Treatment Works (desalination plant) and associated evaporation ponds (waste brine). The proposed development will be located approximately 1km northeast of Rooifontein settlement (Figure 1). The development area is located on a featureless, sandy piece of ground that lies between the Buffelsrivier to the immediate south, and a steep, rocky kopje to the north. The area is known for its quiver tree forests.

Overall, there were no constraints or limitations associated with the study. Access to all the location sites was unrestricted and mobility unhindered.

Dense natural vegetation, however, resulted in poor archaeological visibility, but indications are that the proposed site is not a sensitive archaeological or heritage landscape.

Indications are that the proposed activities will not impact on significant archaeological heritage on site 1. Possible graves were identified in the Rooifontein WWTW Site 2 footprint area and have been graded as having high local (Grade IIIA) significance.

The overall impact significance, however, is rated as being low, and there are no objections to the proposed development should site 1 be pursued.

In summary;

- The proposed development will not negatively impact on any significant archaeological resources should site 1 be pursued.
- Should site 2 be pursued, a buffer zone of 15m must be implemented around the possible burials identified as per table 2.
- There is no objection to the proposed development and there is no preferred alternative in terms of impacts to heritage resources.



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## 1. INTRODUCTION

### 1.1 Background Information on Project

The proposed Rooifontein Bulk Water Supply system includes the equipment for existing boreholes, the equipment for additional boreholes, the construction of a 190K steel panel reservoir, the installation of approximately 6km of pipelines, and the construction of a Water Treatment Works (desalination plant) and associated evaporation ponds (waste brine). At present, the exact layout of these components has not been determined. The applicant has only provided estimated locations for the proposed water treatment works and evaporation ponds and not the position of boreholes and pipelines. The proposed development will be located approximately 1km northeast of Rooifontein settlement (Figure 1). The development area is located on a featureless, sandy piece of ground that lies between the Buffelsrivier to the immediate south, and a steep, rocky kopje to the north. The area is known for its quiver tree forests.

The proposed Rooifontein Bulk Water Supply system includes the following:

- equipment for existing boreholes,
- equipment for additional boreholes,
- construction of a 190K steel panel reservoir,
- installation of approximately 6km of pipelines,
- construction of a Water Treatment Works (desalination plant) and associated evaporation ponds (waste brine).

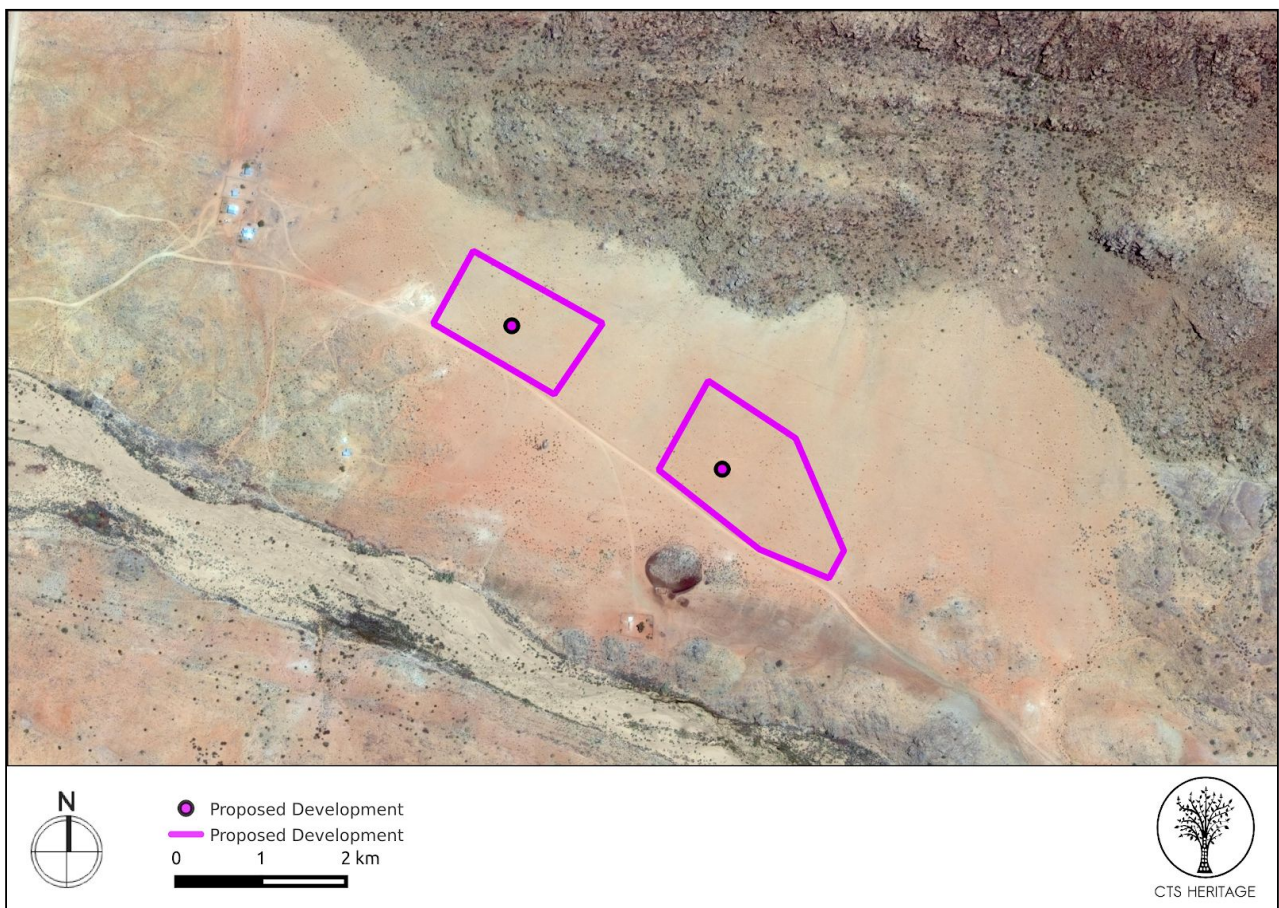
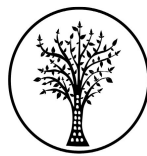


Figure 1: Close up satellite image indicating proposed location of development



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## **1.2 Description of Property and Affected Environment**

Site 1 (preferred) is located on sandy west facing slopes north of the Buffelsrivier. The soils comprise weathered quartzitic sands. Some surface quartz is present and there is hardly any natural vegetation covering the site, apart from a few small scrubby bushes and patches of succulent groundcover. There are no significant landscape features on the proposed development site, which is severely overgrazed and trampled. Some burrowing also occurs.

Site 2 is also located on the west facing sandy slopes north of the Buffelsrivier, alongside Site 1. There is hardly any surface vegetation, apart from a few low bushes and succulent ground cover. Some quartz is present but no significant landscape features occur. The ruins of a modern dwelling (small patch of concrete foundation and a few concrete and clay bricks, glass and rusted metal) occur alongside the gravel road. Several possible nearby graves were also recorded. The site is heavily trampled in the south west, alongside the gravel road. Some burrowing also occurs.

## **2. METHODOLOGY**

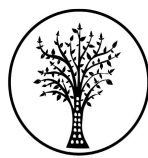
### **2.1 Purpose of Archaeological Study**

The purpose of this archaeological study is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999) in terms of impacts to archaeological resources.

### **2.2 Summary of steps followed**

- An archaeologist conducted a survey of the site and its environs on 9 and 10 August 2018 to determine what archaeological resources are likely to be impacted by the proposed development.
- The identified resources were assessed to evaluate their heritage significance in terms of the grading system outlined in section 3 of the NHRA (Act 25 of 1999).
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner.





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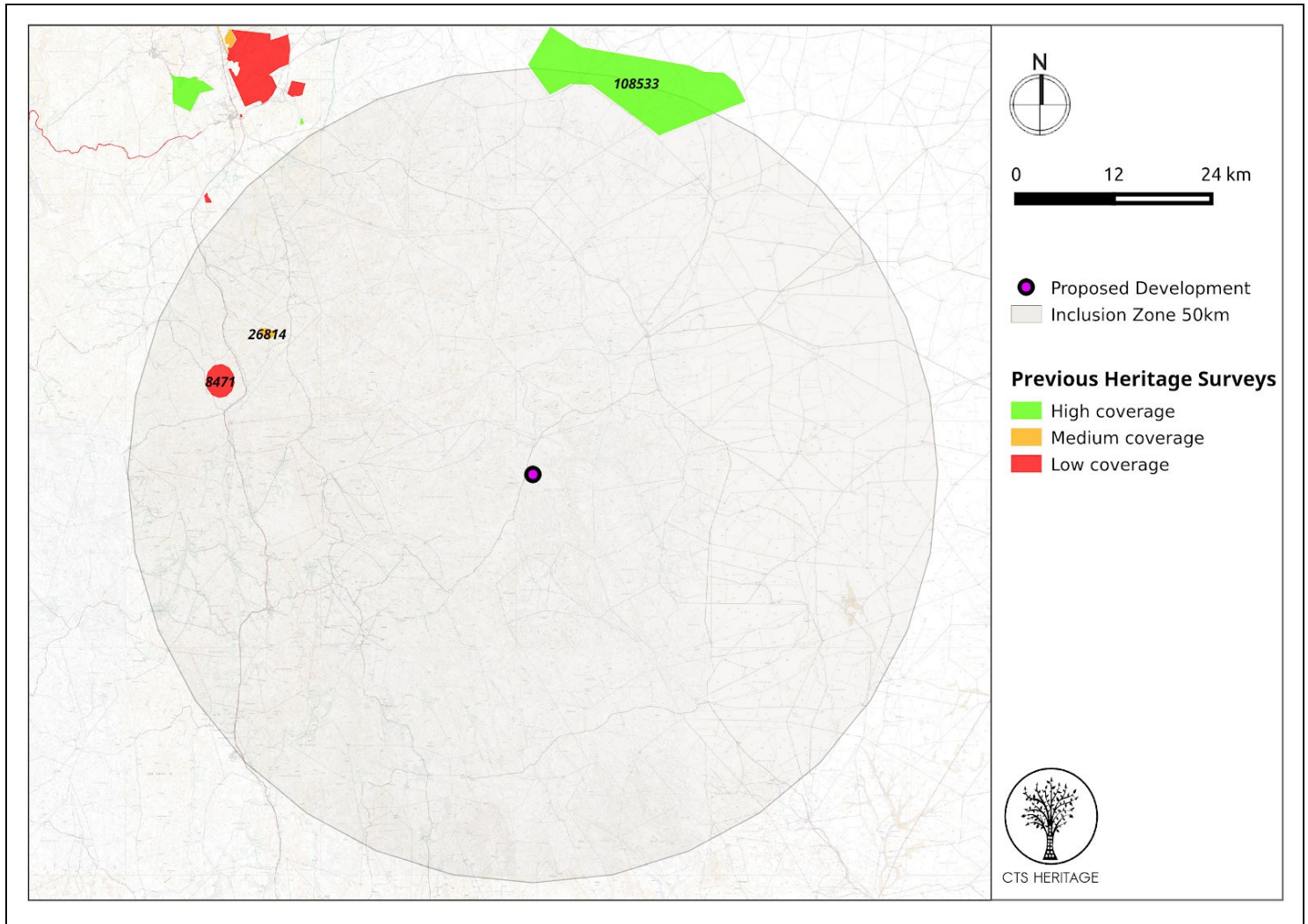


Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted

### 3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

The central Namaqualand region has been inhabited since the Early Stone Age (ESA) and was increasingly exploited throughout the Middle and Later Stone Ages (MSA and LSA, respectively). In the period of recent prehistory, the area was home to Khoekhoen who moved seasonally through the landscape with their flocks, a pattern of transhumance that was repeated by the early European settlers in the region. The proposed development area is situated on the farm Leliefontein, on which the Leliefontein Mission Station was established in 1812, and lies some 33km southwest of Rooifontein. The Mission Station was the site of the Leliefontein Massacre in 1902, which saw the slaughter of 35 local inhabitants by the Boer Leader Manie Maritz.

Very limited heritage survey work has been conducted in this region, with only three previous archaeological surveys completed within a 50km radius, and most of these at some distance away (Figure 2). Two studies conducted some distance to the northwest of the study area yielded no archaeological heritage significance, with one identifying no heritage resources (Gaigher 2012, SAHRIS NID 8614), and the other reporting only a low-density diffuse background scatter of glass and ceramic shards at one location that represents displaced historic domestic refuse (Deacon 2003,



SAHRIS NID 8471). A further study conducted almost 50km to the north reported that “[a] large number of heritage resources were found, some of which were deemed highly significant. These resources varied from background scatters of stone artefacts (very low significance) to rock art and graves (very high significance) to farm werfs and historical features (generally medium to high significance)” (Orton and Webley 2012, SAHRIS NID 108533). This variable signature of archaeological material across the landscape is more likely a consequence of the lack of reconnaissance and research in the area rather than a real lack of archaeological material.

Known heritage sites in the area include a single Provincial Heritage Site, being the Methodist Church and Manse at nearby Leliefontein (SAHRIS SID 28127) (Figure 3a). Further known sites comprise archaeological and rock art sites, as well as a single structure (Figures 3a-d). One archaeological site has received a grading of IIIa (SAHRIS SID 35019), while a further four have been graded as IIIb (SAHRIS SIDs 35030-32 and 35040). Worth mentioning are two features indicated on the topographical map of the area, which indicates a ruin in the settlement itself and a kraal on the banks of the Buffelsrivier, to the southeast of the proposed development site (Figure 3e). Nothing further is known about these features, or whether they are still present on the ground, and it is unlikely that they will be impacted by the development.

**Table 1: Table of known heritage resources within the development footprint (Figure 3a and 3b)**

Site ID	Site No	Site Name	Site type	Grading
28127	9/2/066/0012	Methodist Church and Manse, Leliefontein, Namaqualand District	Building	Grade II
35013	KANG040	Kangnas 040	Artefacts	NA
35014	KANG039	Kangnas 039	Artefacts	NA
35015	KANG038	Kangnas 038	Building	NA
34979	KANG019	Kangnas 019	Artefacts	NA
93814	Twee Rivieren	Twee Rivieren Rock Art Site	Rock Art	NA
35019	KANG034	Kangnas 034	Artefacts	Grade IIIa
35030	KANG077	Kangnas 077	Artefacts	Grade IIIb
35031	KANG078	Kangnas 078	Artefacts	Grade IIIb
35032	KANG079	Kangnas 079	Artefacts	Grade IIIb
35040	KANG080	Kangnas 080	Artefacts	Grade IIIb





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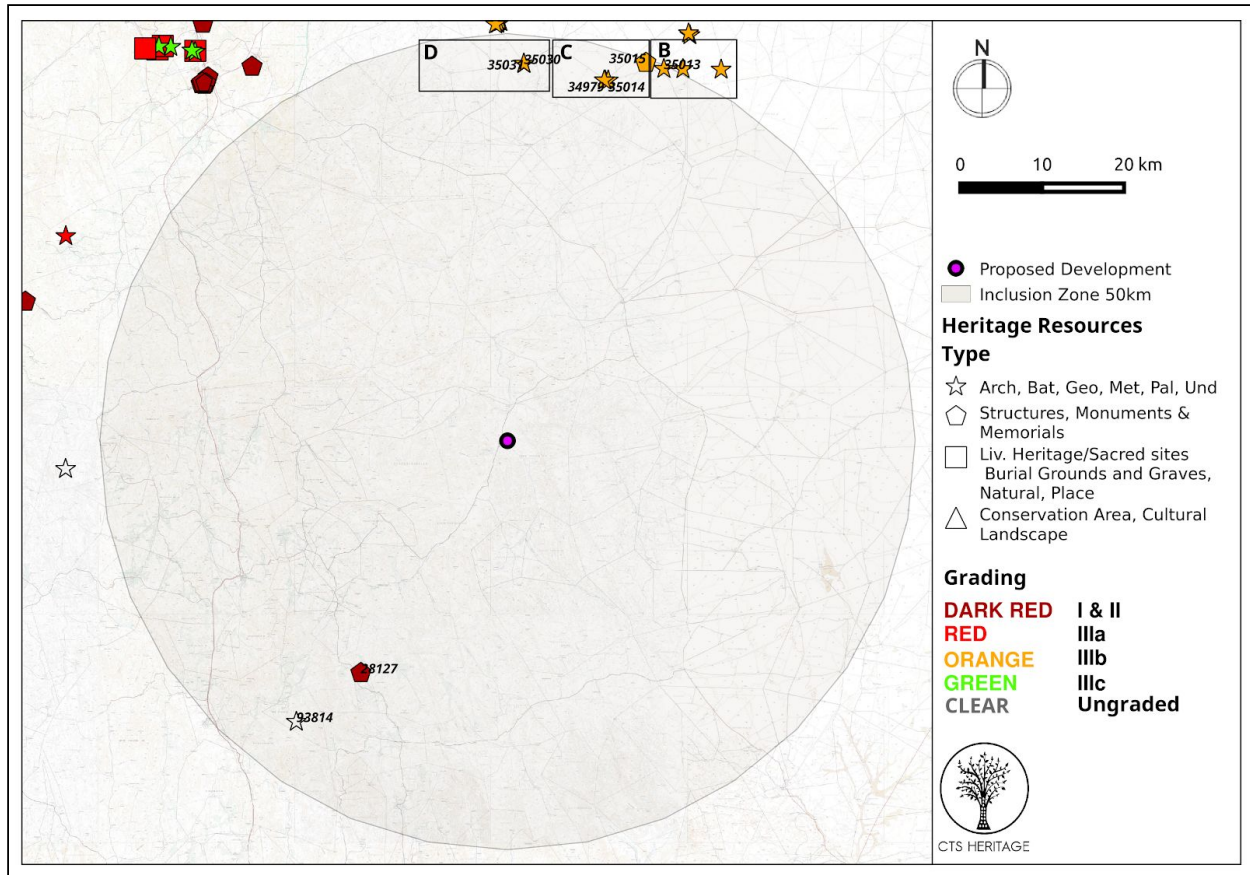


Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Figures 3a-3b for insets)

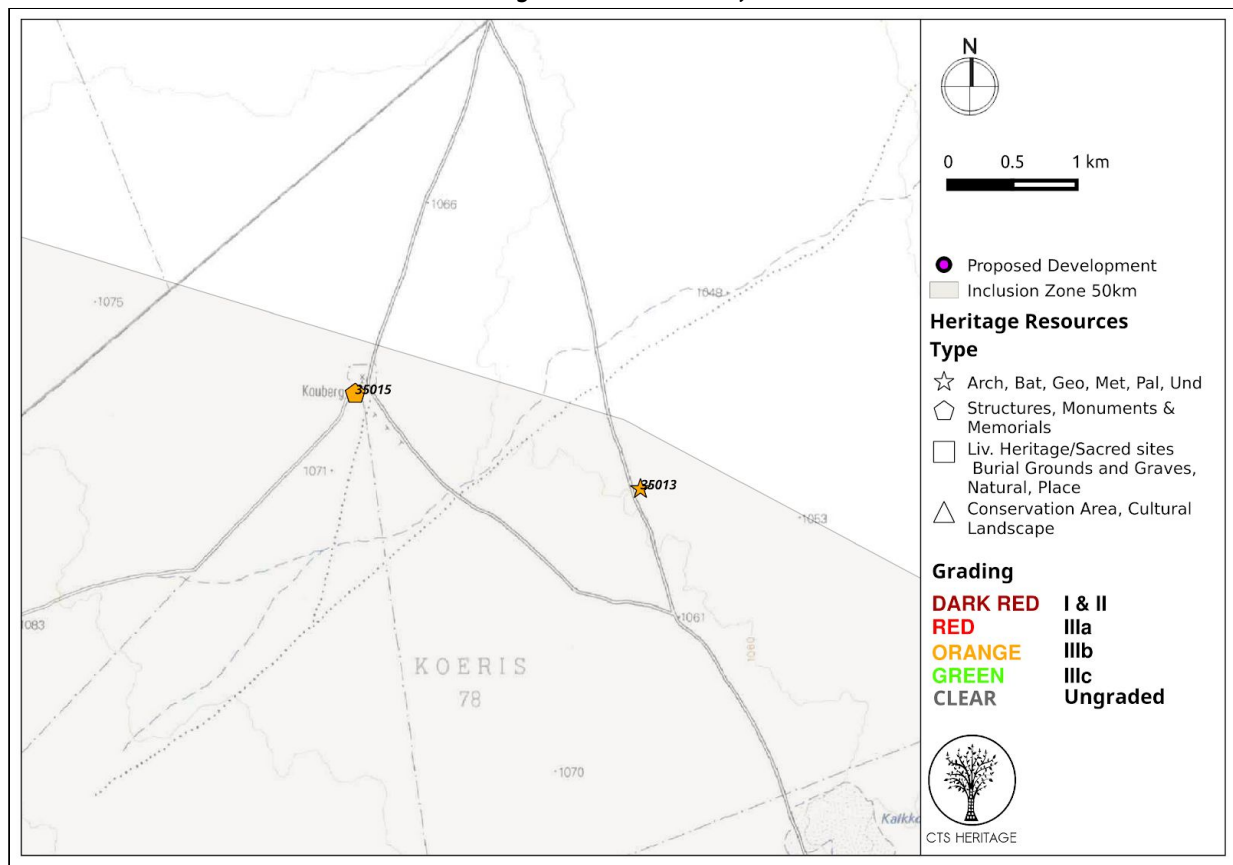


Figure 3a. Inset Map



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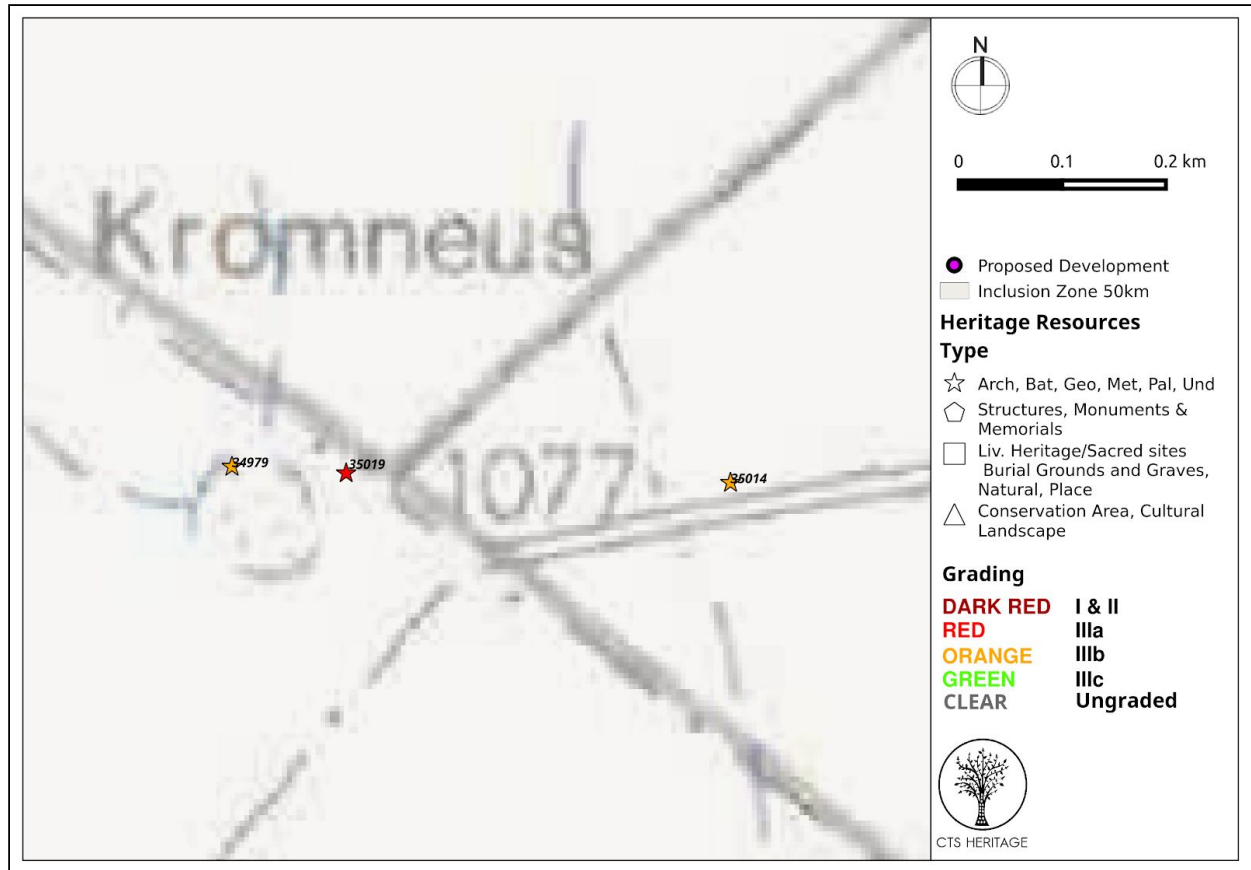


Figure 3b. Inset Map

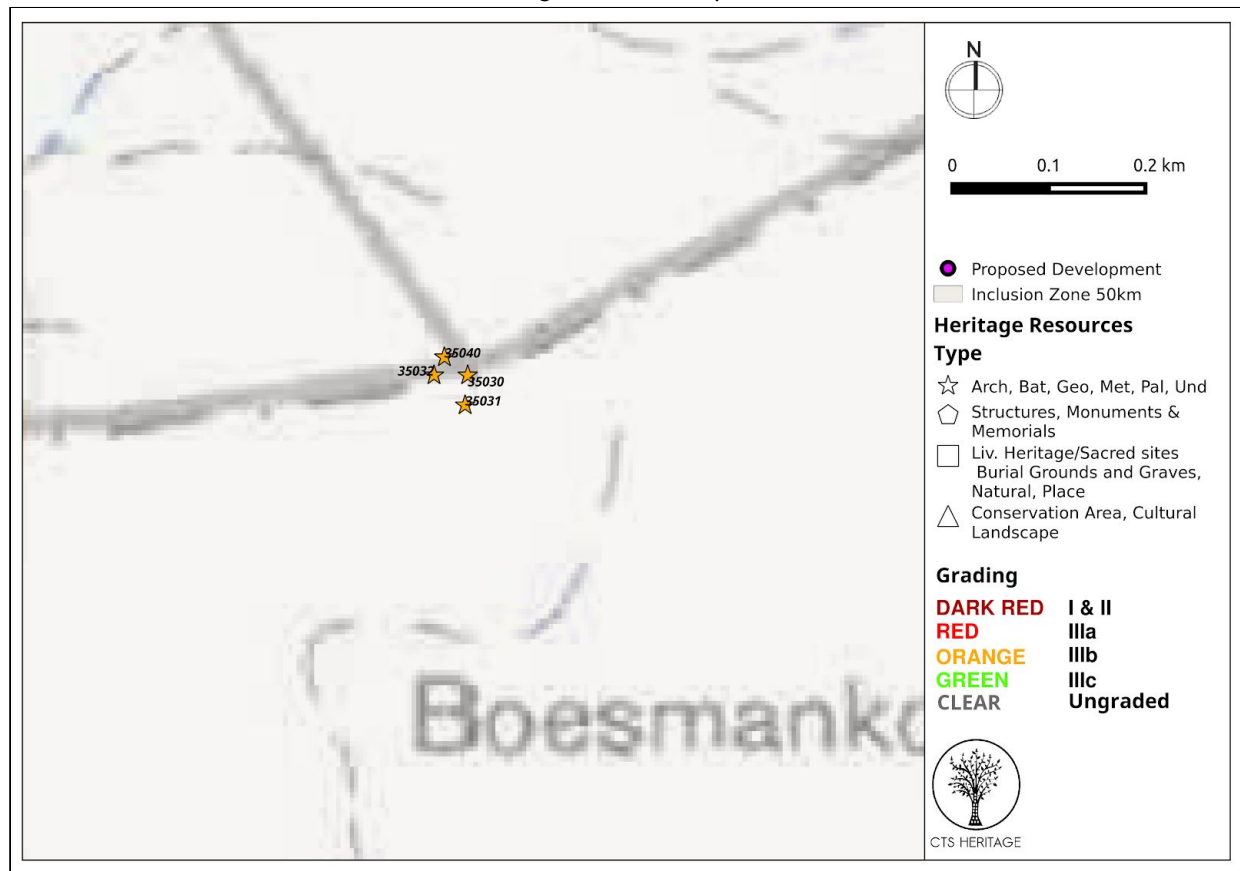


Figure 3c. Inset Map





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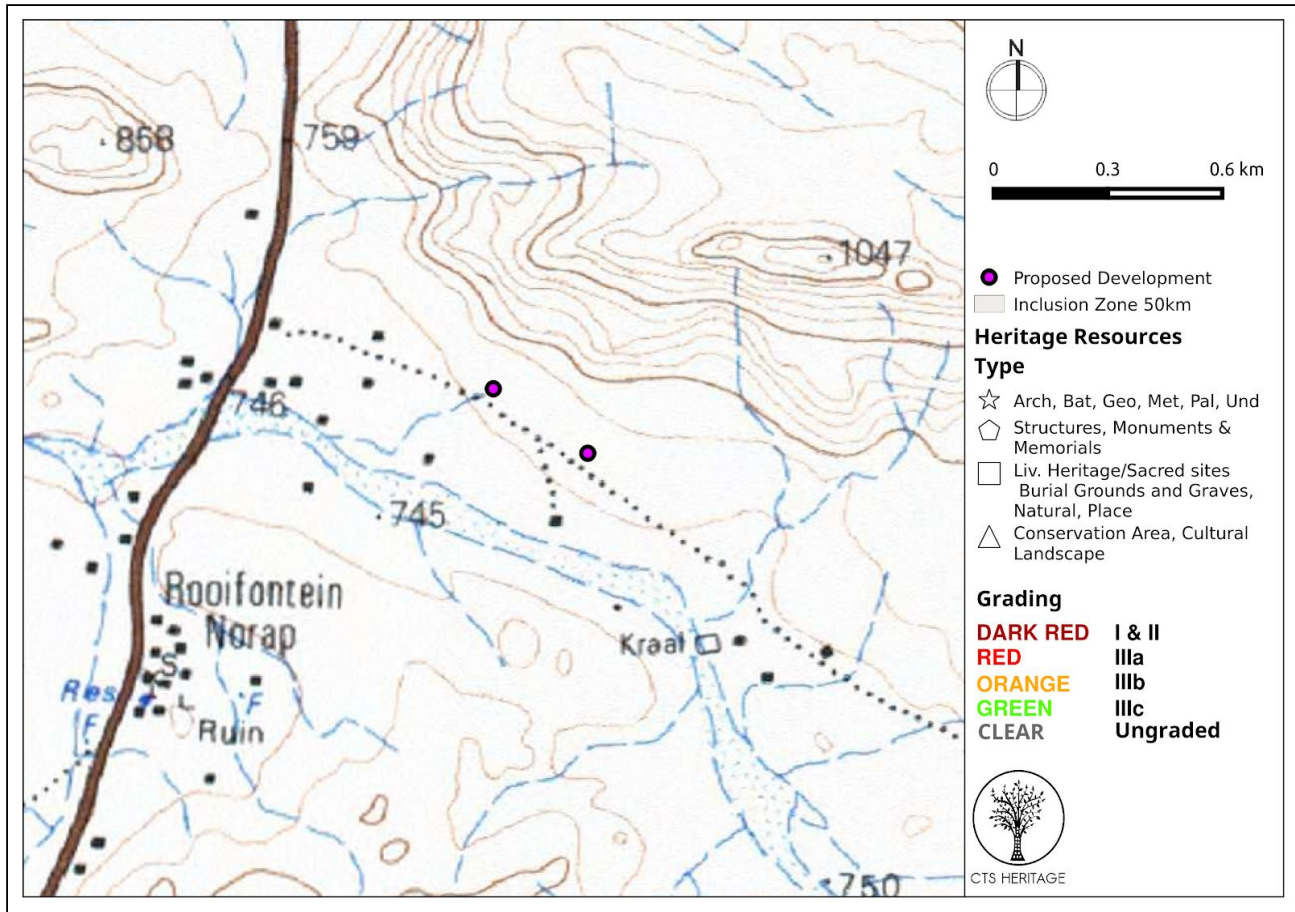


Figure 3e. 1:50 000 Topographical Map of Rooifontein, showing location of ruin and kraal relative to development area.

#### 4. IDENTIFICATION OF HERITAGE RESOURCES

##### 4.1 Field Assessment

Overall, there were no constraints or limitations associated with the study. Access to all the location sites was unrestricted and mobility unhindered.

Dense natural vegetation, however, resulted in poor archaeological visibility, but indications are that the proposed site is not a sensitive archaeological or heritage landscape.



Figure 4.1: Contextual Images - Rooifontein Site 1





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**Figure 4.2: Contextual Images - Rooifontein Site 1**



**Figure 4.3: Contextual Images - Rooifontein Site 2**



**Figure 4.4: Contextual Images - Rooifontein Site 2**





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Figure 4.5: Contextual Images - Rooifontein Pipeline



Figure 4.6: Contextual Images - Rooifontein Pipeline



Figure 4.5: Contextual Images - Rooifontein Desalination Plant

## 4.2 Archaeological Resources identified

No archaeological resources were identified at site 1, or within the area proposed for the desalination plant. A number of possible burials were identified at site 2.

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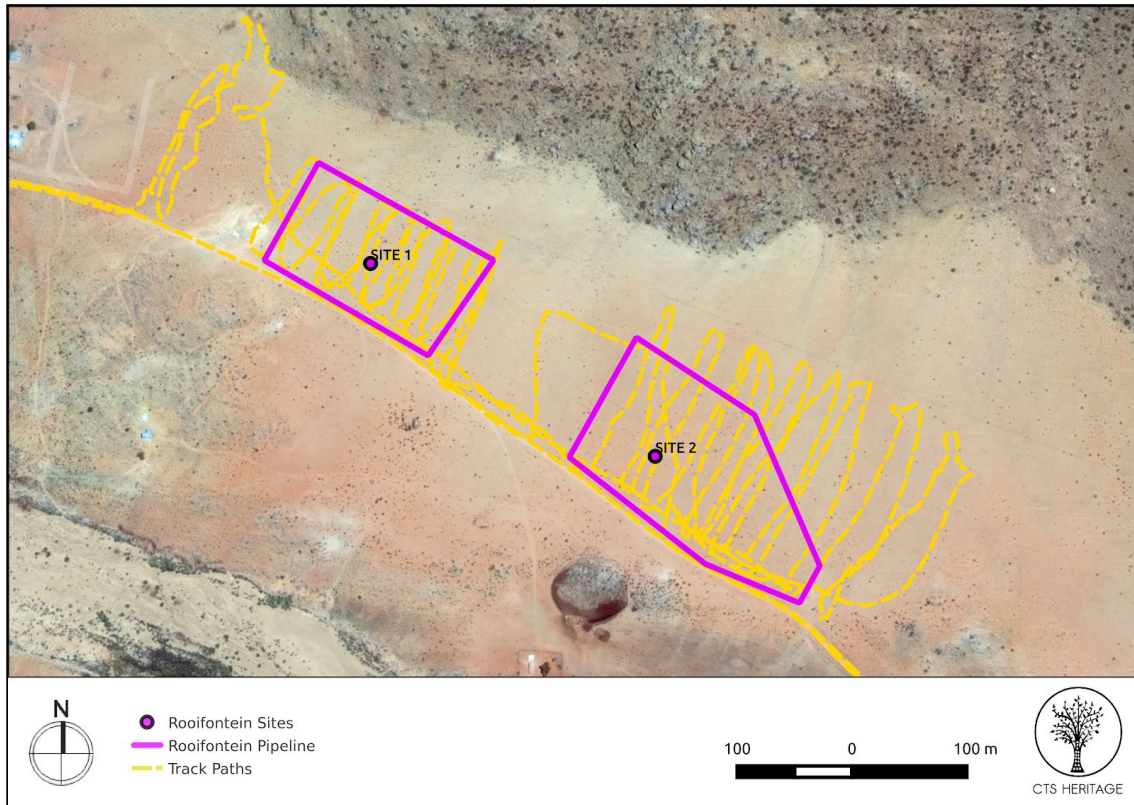


Figure 5: Overall track paths of foot survey

Table 2: Artefacts identified during the field assessment

SAHRIS ID	Site Number	Description	Latitude	Longitude	Grading	Mitigation
128409	RFN1	Fragment of coarse tempered, undecorated Cape Coastal pottery	S30° 03.607'	E18° 16.283'	IIIC	None required
128410	RFN2	Possible grave	S30° 03.642'	E18° 16.317'	IIIA	15m buffer
128411	RFN3	Patch of concrete building foundation, broken glass, some rusted metal bit	S30° 03.648'	E18° 16.322'	IIIC	None required
128412	RFN4	Possible grave	S30° 03.654'	E18° 16.327'	IIIA	15m buffer
128413	RFN5	Possible grave	S30° 03.648'	E18° 16.329'	IIIA	15m buffer
128414	RFN6	Possible grave	S30° 03.657'	E18° 16.329'	IIIA	15m buffer
128415	RFN7	Quartz pebble hammerstone	S30° 03.634'	E18° 16.363'	IIIC	None required
128416	RFN8	Possible grave	S30° 03.647'	E18° 16.442'	IIIA	None required – outside study area
128417	RFN9	Bleached cattle bone & quartz hammerstone	S30° 03.625'	E18° 16.460'	IIIC	None required – outside study area
128418	RFN10	Possible grave	S30° 03.628'	E18° 16.479'	IIIA	None required – outside study area

#### 4.3 Selected photographic record





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Figure 6.1 RFN2 and RFN3



Figure 6.2 RFN4 and RFN5

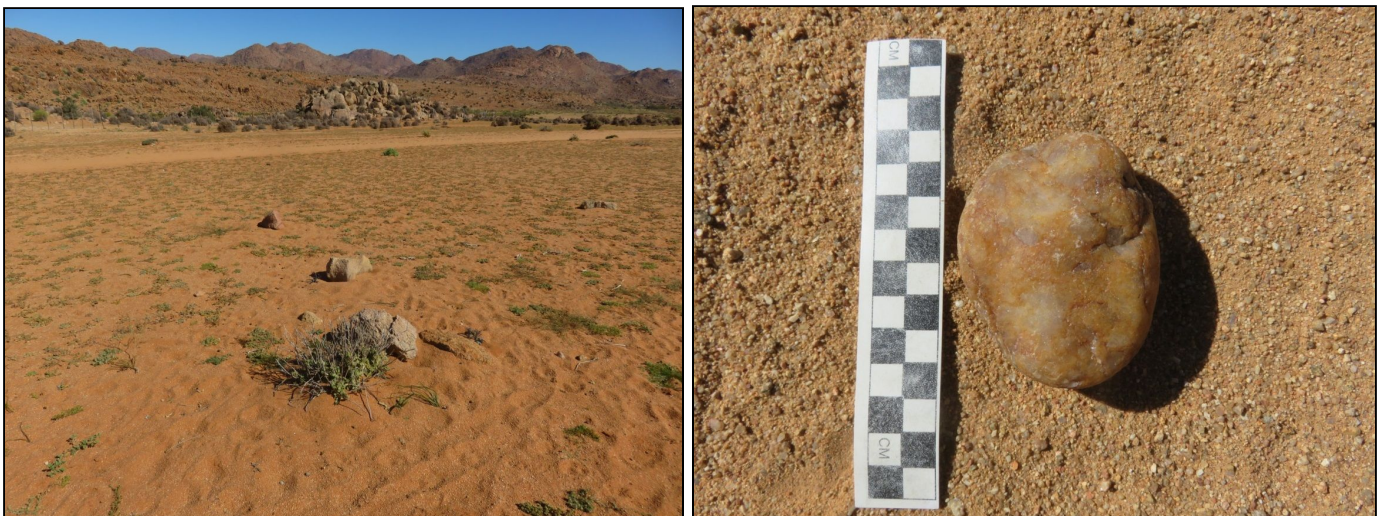


Figure 6.3 RFN6 and RFN7

## 5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

### 5.1 Assessment of impact to Archaeological Resources

Indications are that the proposed activities will not impact on significant archaeological heritage on site 1. Possible graves were identified in the Rooifontein WWTW Site 2 footprint area and have been graded as having high local (Grade IIIA) significance.





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The overall impact significance, however, is rated as being low, and there are no objections to the proposed development should site 1 be pursued.

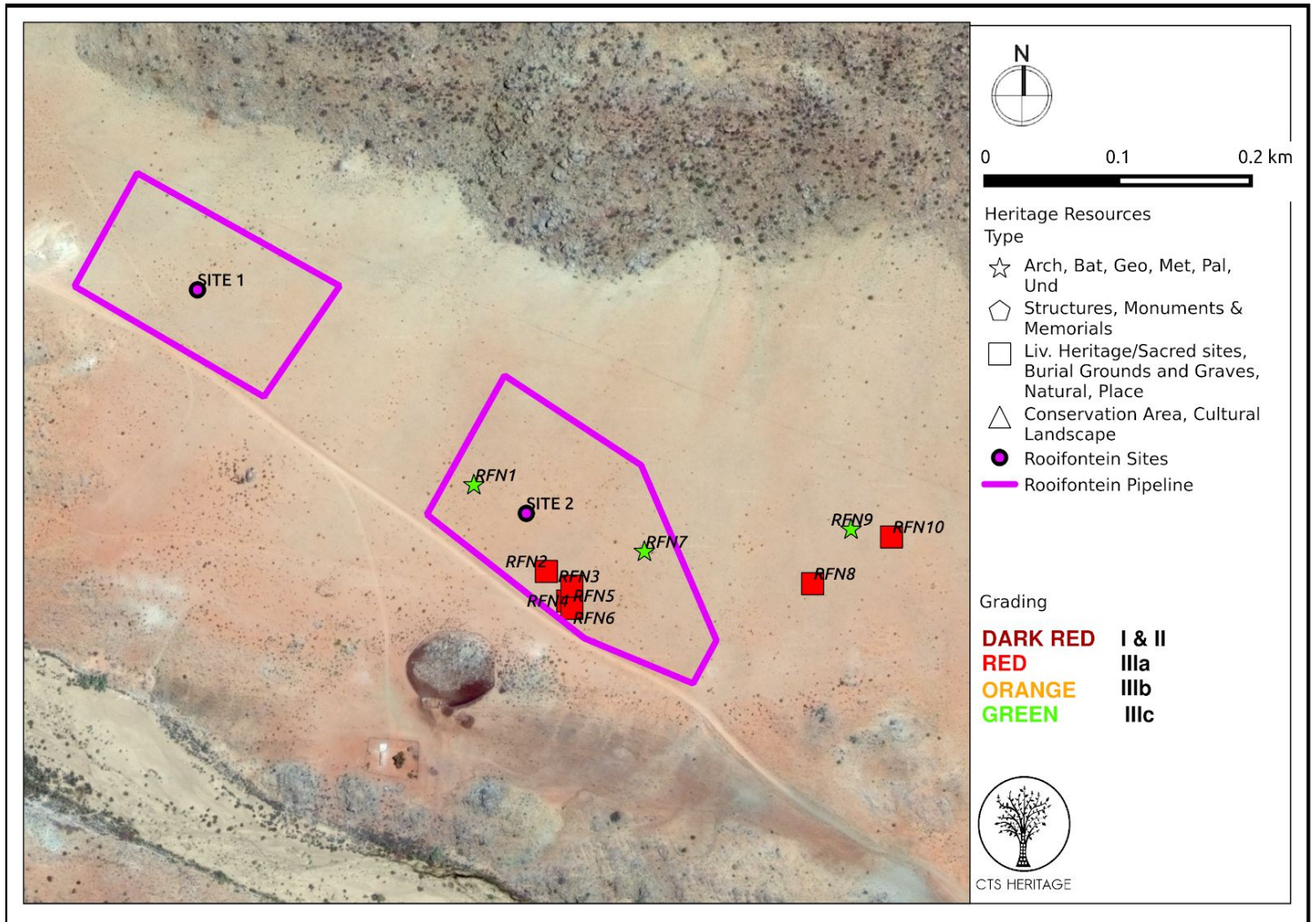


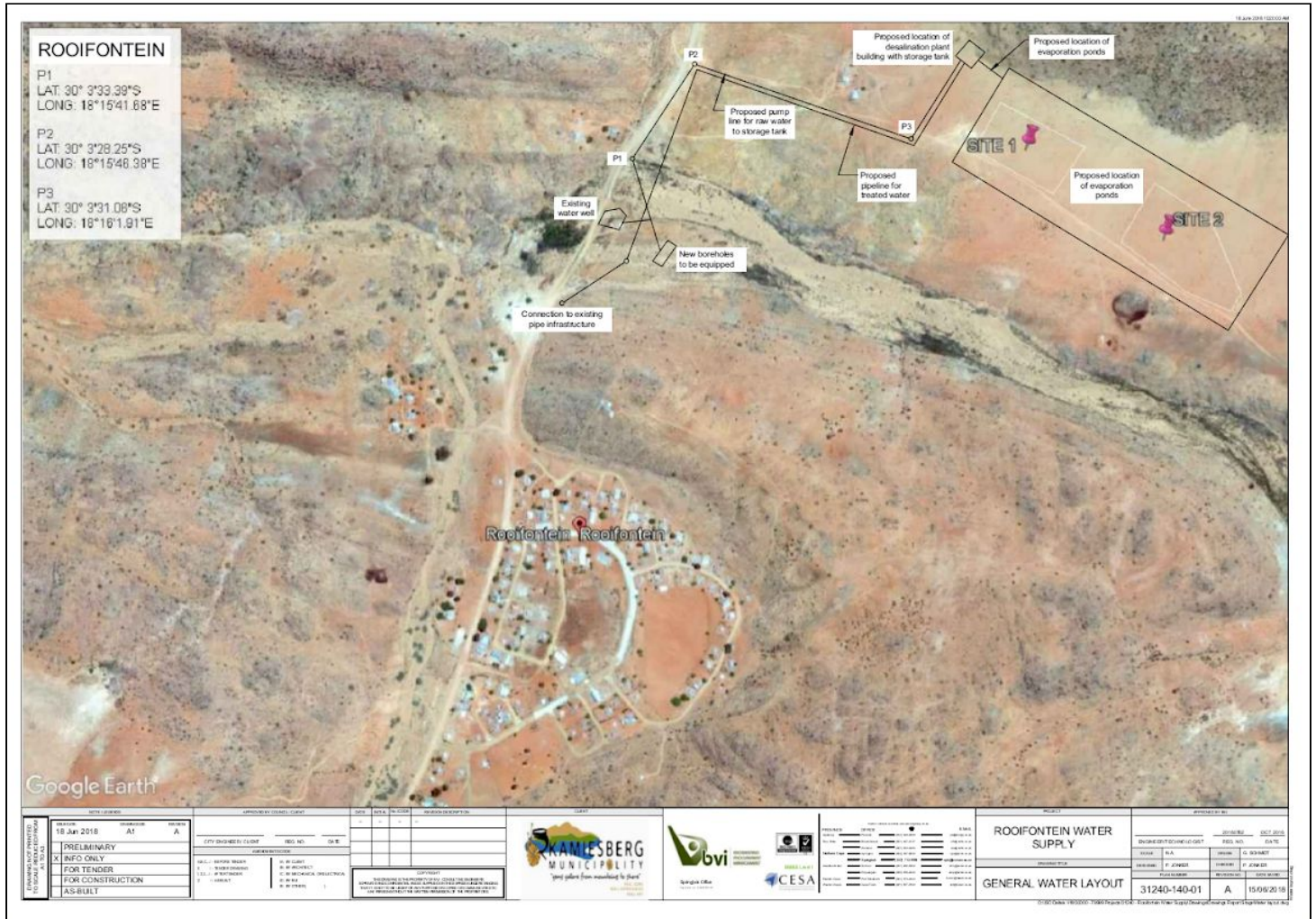
Figure 7: Map of heritage resources identified during the field assessment relative to the proposed development

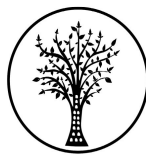


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## 5.2 Proposed development alternatives

The developer has provided Site 1 and Site 2 as the proposed alternatives for this development. Site 1 is preferred from a heritage perspective.





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## 7. REFERENCES

Impact Assessment References				
Nid	Report Type	Author/s	Date	Title
8471	AIA	Hilary Deacon	26/05/2003	Naroeshuis Report
108533	HIA	Jayson Orton, Lita Webley	21/08/2012	Heritage Impact Assessment for the Proposed Kangnas Wind and Solar Energy Facilities, Namakwa Magisterial District, Northern Cape
26814	HIA	Stephan Gaigher	02/05/2012	Heritage Impact Assessment Report Basic Assessment: Proposed Establishment of the Brax Energy Photovoltaic Solar Park on a Portion of the Farm Mesklip 259 near Springbok in the Northern Cape Province