PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT OF PROPOSED GRAVEL QUARRIES ON PORTIONS 1, 25 AND 17 0F HARTEBEES HOEK 187 AND PORTIONS 5 AND 1 OF NAAUWPOORT 1, NOUPOORT DISTRICT, NORTHERN CAPE PROVINCE, AND KOPPIESKRAAL 6 NEAR MIDDELBURG, EASTERN CAPE PROVINCE.

Dr. Lloyd Rossouw
Department of Archaeology
National Museum Bloemfontein
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Terraworks Environmental Consultants
PO Box 28204
Danhof
9310

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INTRODUCTION

The author of this report has been appointed by Terraworks Environmental Consultants to prepare an Archaeological Impact Assessment (AIA) in accordance with the requirements of National Heritage Resources Act, No 25 of 1999, for the proposed development of 5 old dolerite quarries situated next to the N9 national road near the town of Noupoort in the Northern Cape Province, and 1 dolerite quarry situated next to the N10 national road north of Middelburg, Eastern Cape Province. Material from these quarries will be used for the rehabilitation of the N9 national road.

ARCHAEOLOGICAL BACKROUND

The South African central plateau is distinctive in that it supported Stone Age people who were prolific makers of stone tools until relatively recent times. This can be seen in the high density of Stone Age archaeological traces visible on the landscape today. During the 1960's 70's and early 80's the area south of the Orange River between Bethulie and De Aar, and especially the area along the central and upper Seacow River valley, was extensively surveyed. Several excavations were carried out for stone artefact samples from sealed and surface sites including sites like Riversmead, Glen Elliot, the Zeekoegat localities and Blydefontein near Noupoort (Fig 1). The Blydefontein basin also includes late Pleistocene and Holocene valley fills with associated pollen spectra, and fossil faunal remains. Several consecutive Stone Age industries were recorded from the Seacow River valley, which confirms the archaeological richness of the semi-arid central plateau in the interior of South Africa.

The material from these surveys is housed at the National Museum in Bloemfontein. The range of stone tool industries encountered in the upper Orange River drainage is extensive, in terms of both typology and chronology. This include Early Stone Age Acheulian bifaces and cores; long, high-backed blades from the early Middle Stone Age; typical Florisian retouched blades, trimmed points and Levallois core types; the characteristically large side-scrapers, sub-circular and endscrapers from the

Lockshoek Industry of the terminal Pleistocene; and the microlithic Wilton and Smithfield Industries of the Holocene.

San rock art are abundant in the area, especially along mountainous terrain (Fig. 1). Distribution of Quaternary palaeontological deposits is localized and rare. A 36 000 year old prehistoric human skull, discovered in 1952 in a dry channel bed of the Vlekpoort River near Hofmeyr 50 km south of Steynsburg, corroborates genetic evidence about the African origins of modern humans. A faunal assemblage of mostly extinct, Florisian ungulates (*Syncerus antiquus, Damaliscus niro* and *Antidorcas bondi*) was recorded in a fluvial context at Buysfontein, between Aliwal North and Burgersdorp. Another late Pleistocene faunal assemblage, that contains five extinct taxa, was recovered at a depth of 8m from spring deposits on the farm Driefontein near Cradock.

DESCRIPTION OF THE AFFECTED AREA

Locality data

The affected areas are located on the following 1:50 000 topographic maps (see Table 1):

3124 BB Noupoort

3124 BD Carlton

- Geologically, the region is located within Karoo sediments and areas where intrusive Karoo dolerites and more recent, unconsolidated Quaternary sediments occur. The deposits of the Karoo Supergroup in the south-western part of the Karoo Basin are assigned to the Beaufort Group, which is further subdivided into the Adelaide and Tarkastad subgroups.

Methodology

The baseline study involved a foot survey of each gravel pit and surroundings, including access roads where present. The exposures inside each old borrow pit were also investigated even though that they represent no palaeontological (igneous bedrock) or archaeological impact (prior excavations). A hand model GPS (set to the WGS 84 map datum) and a digital camera were used to record relevant data.

RESULTS OF SURVEY

2. Hartebees Hoek 187 Portion 1, Northern Cape Province:

Excavations from older borrow pits are clearly visible at the site, showing marked alterations to the natural landscape (Fig. 2). The underlying geology comprises igneous rock (dolerite) partially covered by more resistant hornfels outcrops (Fig. 2, 3). An extensive Middle Stone Age stone tool "quarry" is located on top and along the western slope of the kopje. The locality, with a surface area of about 5000m^{2,} is characterized by an exceptionally high concentration of stone tools and evidently represents a stone tool "quarry". The assemblage is made up of super-abundant flaking debris, retouched blades, blade fragments, trimmed points, discoid and single-platform cores (Fig 4). Basically all the artifacts were made of hornfels, a thermal metamorphic rock created by the contact between intrusive dolerites and previously emplaced shales and mudstones of the Beaufort Group. Hornfels is a homogeneous, isotropic rock with excellent flaking characteristics and its relative abundance made it the preferred raw material in the region.

Impact Statement and Recommendation for Hartebees Hoek 187 Portion 1

In accordance with the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999):

- the terrain at Hartebees Hoek 187 Portion 1 contains abundant material of cultural significance which undoubtedly constitutes an intact Stone Age archaeological locality;
- the **terrain is archaeologically sensitive** and of **high overall archaeological significance**; the original locus of the site is still intact with little or no horizontal displacement;
- the stone tool "quarry" at **Hartebees Hoek 187 Portion 1 represents a valuable archeological record** of prehistoric human activities in the South African central interior;
- proposed development at the site will severely and negatively impact on the archeological remains; destruction of this site will be as effective as the burning of an official archives building.

The Hartebees Hoek 187 Portion 1 locality is of conservation and research interest and every effort should be made to conserve the terrain *in situ.* The findings of **this assessment strongly advise against the proposed development within the confines or in the immediate vicinity of the demarcated area**.

3. Hartebees Hoek 187 Portion 25, Northern Cape Province:

The pedestrian survey revealed an underlying geology that exclusively comprises igneous (dolerite) rock partially covered by localized metasediments and colluvial soils.

No evidence of Stone Age archaeological material, capped or distributed as surface scatters on the landscape was recorded. There are also no indications of prehistoric structures or remains within or in the immediate vicinity of the survey area. There is no evidence of graves, graveyards or historical structures and rock art within the survey area.

Impact Statement and Recommendation for Hartebees Hoek 187 Portion 25

In accordance with the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), there is no evidence of building structures or material of cultural significance, places which are associated with living heritage, or archaeological sites within the demarcated area. **The terrain is not archaeologically vulnerable and represents no archaeological significance. The site has been sufficiently recorded, mapped and documented in terms of conditions necessary for a Phase 1 archaeological impact assessment and can be accessed for further development.**

4. Hartebees Hoek 187 Portion 17, Northern Cape Province:

The pedestrian survey revealed an underlying geology that exclusively comprises igneous (dolerite) rock partially covered by fine-grained sandstone cappings. There are no hornfels outcrops found at the site.

The survey indicated no evidence of Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no indications of prehistoric structures or remains within or in the immediate vicinity of the survey

area. There is no evidence for the accumulation and preservation of intact fossil material within the Quaternary sediments. There is no evidence of graves, graveyards or historical buildings and structures within the survey area.

Impact Statement and Recommendation for Hartebees Hoek 187 Portion 17

In accordance with the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), there is no evidence of building structures or material of cultural significance, places which are associated with living heritage, or archaeological sites within the demarcated area. **The terrain is not archaeologically vulnerable and represents no archaeological significance. The site has been sufficiently recorded, mapped and documented in terms of conditions necessary for a Phase 1 archaeological impact assessment and can be accessed for further development.**

5. Naauw Poort 1 Portion 5, Northern Cape Province:

The pedestrian survey revealed an underlying geology that exclusively comprises igneous (dolerite) rock partially covered by medium-grained sandstones and colluvial soils. Tracks of an old roadway bisect the survey area in a north-south direction.

No evidence of Stone Age archaeological material, capped or distributed as surface scatters on the landscape, was recorded. There are also no indications of prehistoric structures or remains within or in the immediate vicinity of the survey area. There is no evidence of graves, graveyards or historical structures and rock art within the survey area.

Impact Statement and Recommendation for Naauw Poort 1 Portion 5

In accordance with the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), there is no evidence of building structures or material of cultural significance, places which are associated with living heritage, or archaeological sites within the demarcated area. **The terrain is not archaeologically vulnerable and represents no archaeological significance. The site has been sufficiently recorded, mapped and documented in terms of**

conditions necessary for a Phase 1 archaeological impact assessment and can be accessed for further development.

6. Naauw Poort 1 Portion 1, Northern Cape Province:

The pedestrian survey revealed an underlying geology that exclusively comprises igneous (dolerite) rock partially covered by medium-grained sandstones and colluvial soils. No evidence of Stone Age archaeological material, capped or distributed as surface scatters on the landscape was recorded. There are also no indications of prehistoric structures or remains within or in the immediate vicinity of the survey area. There is no evidence of graves, graveyards or historical structures and rock art within the survey area.

Impact Statement and Recommendation for Naauw Poort 1 Portion 1

In accordance with the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), there is no evidence of building structures or material of cultural significance, places which are associated with living heritage, or archaeological sites within the demarcated area. **The terrain is not archaeologically vulnerable and represents no archaeological significance. The site has been sufficiently recorded, mapped and documented in terms of conditions necessary for a Phase 1 archaeological impact assessment and can be accessed for further development.**

7. Koppieskraal 6, Eastern Cape Province:

The pedestrian survey revealed an underlying geology that exclusively comprises igneous (dolerite) rock partially covered by colluvial soils and gravels. Three singular stone tools, identified as flaking debris and distributed as surface scatters on the landscape were recorded, but clear indications of colluvial sheet wash and lag deposits suggest that the material cannot be regarded as *in situ* occurrences (Fig. 3). No other stone tool artifacts were found in the survey area. There are no indications of prehistoric structures or remains within or in the immediate vicinity of the survey area. There is no evidence of graves, graveyards or historical structures and rock art within the survey area.

Impact Statement and Recommendation for Koppieskraal 6

In accordance with the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), there is no evidence of building structures or material of cultural significance, places which are associated with living heritage, or archaeological sites within the demarcated area. **The terrain is not archaeologically vulnerable and represents no archaeological significance. The site has been sufficiently recorded, mapped and documented in terms of conditions necessary for a Phase 1 archaeological impact assessment and can be accessed for further development.**

ACKNOWLEDGEMENTS

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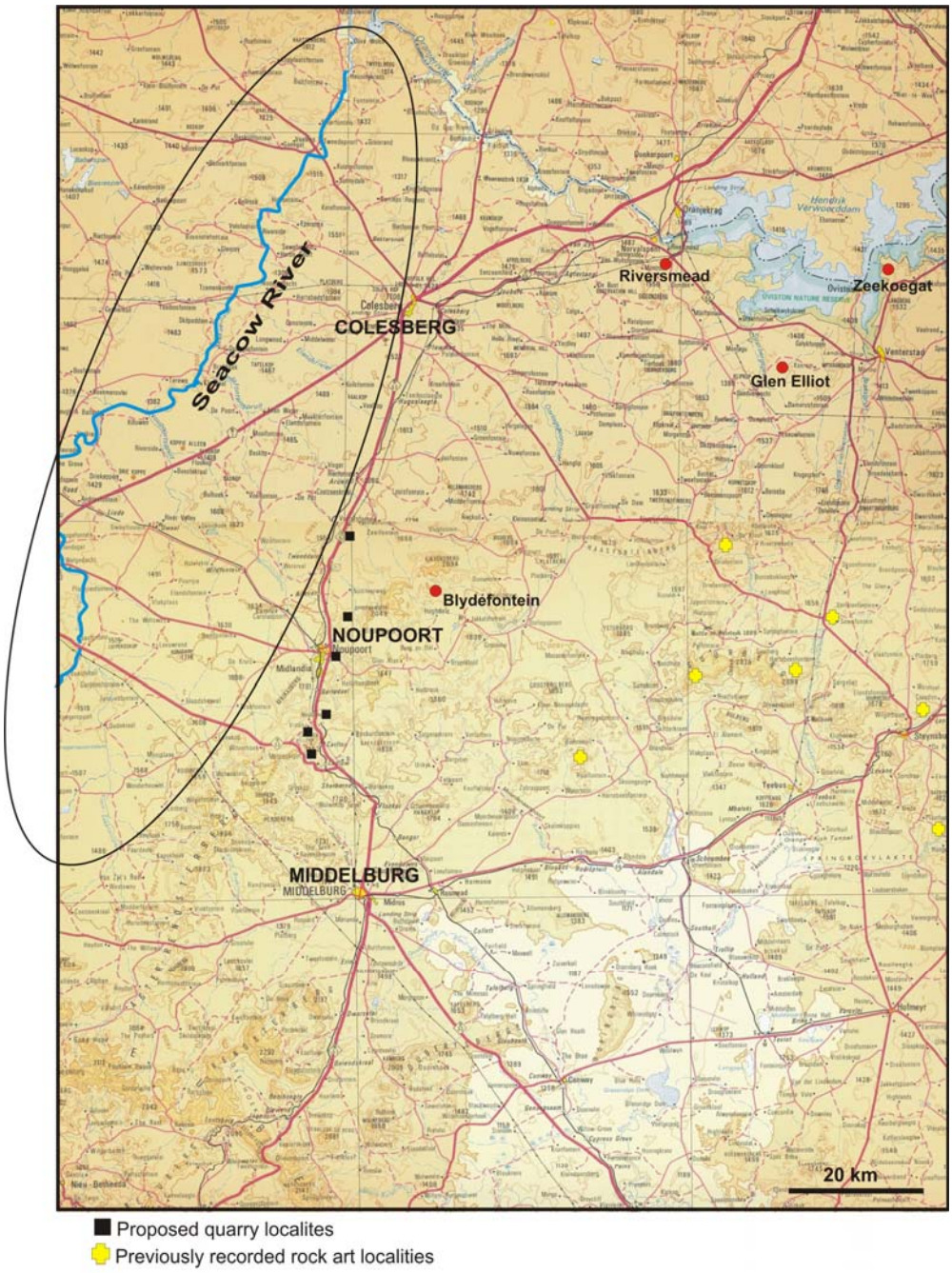

Figure 1. Position of proposed quarries in relation to the archaeological footprint of the region.

Table 1. Locality information of the 6 quarries surveyed.

Farm / Portion	Borrow Pit	Survey area	Locality	Coordinates of Survey
Hartebees Hoek 187 Portion 1	7	1.25 ha	Dolerite outcrop (kopje) about 2km south of the local farmstead and 475m east of the N9 main road.	S31 16 22.4 E24 56 06.1
				S31 16 19.3 E24 56 09.9
				S31 16 16.9 E24 56 06.4
				S31 16 20.3 E24 56 03.1
Hartebees Hoek 187 Portion 25	5	3 ha	Dolerite outcrop (kopje) approximately 2.2km north northeast of the town of Noupoort and 720m east of the N9.	S31 09 15.8 E24 58 09.6
				S31 09 19.6 E24 58 14.6
				S31 09 20.4 E24 58 18.1
				S31 09 24.3 E24 58 17.9
				S31 09 23.3 E24 58 13.3
				S31 09 17.1 E24 58 07.7
Hartebees Hoek 187 Portion 17	n/a	6.6 ha	Dolerite ridge, approximately 400m east of the N9 and the Hartebees Hoek/Oorlogspoort gravel road intersect.	S31 11 14.5 E24 58 00.0
				S31 11 14.5 E24 58 00.0
				S31 11 07.6 E24 58 04.1
				S31 11 12.2 E24 58 14.2
				S31 11 18.0 E24 58 10.3
Naauw Poort 1 Portion 5	3	8 ha	Dolerite outcrop (kopje) next to the N9, approximately 8km south of the town of Noupoort.	S31 09 15.8 E24 58 09.6
				S31 09 19.6 E24 58 14.6
				S31 09 20.4 E24 58 18.1
				S31 09 24.3 E24 58 17.9
				S31 09 23.3 E24 58 13.3
				S31 09 17.1 E24 58 07.7
Naauw Poort 1 Portion	2	1.5	Dolerite ridge, approximately 10km south of the town of Noupoort and 370m west of the N9	S31 16 22.4 E24 56 06.1
				S31 16 19.3 E24 56 09.9
				S31 16 16.9 E24 56 06.4
				S31 16 20.3 E24 56 03.1
Koppieskraal 6	1	5.3 ha	Dolerite outcrop (kopje) next to the N10, approximately 22km northwest of the town of Middelburg.	S31 19 06.2 E24 55 29.2
				S31 19 02.5 E24 55 22.3
				S31 19 03.3 E24 55 12.8
				S31 19 03.4 E24 55 12.8
				S31 19 07.3 E24 55 13.2
				S31 19 08.5 E24 55 15.1

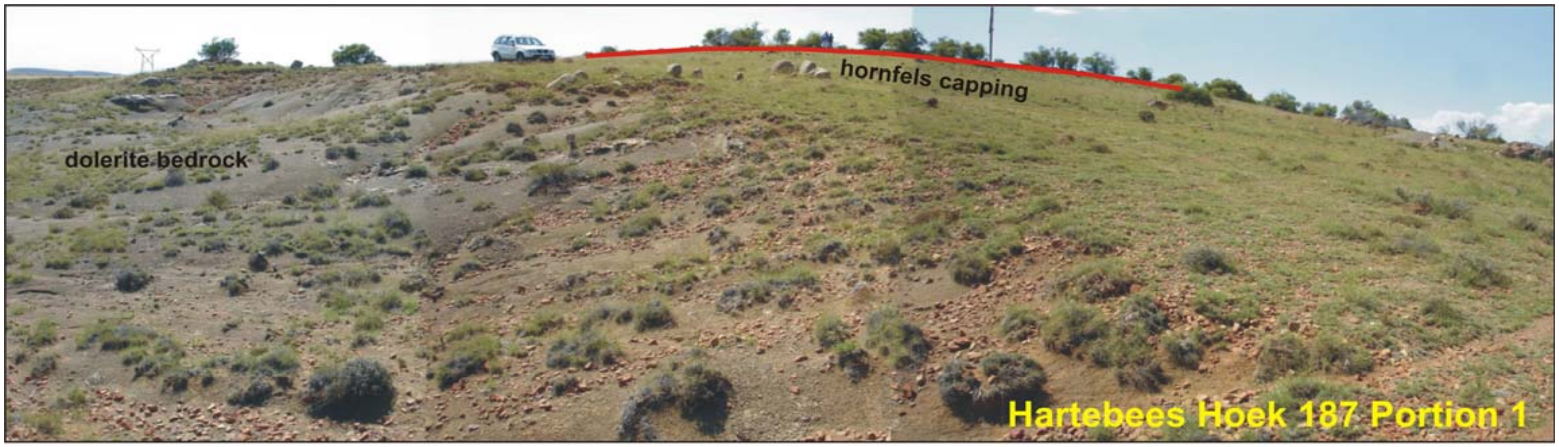

Figure 2. General view of the survey area. The site is made up of a low kopje covered by resistant hornfels outcrop. Dolerite bedrock is exposed (left corner) as a result of earlier excavations related to the construction of the N9 national road.

Figure 3. Extensive hornfels outcrops located on top and along the western slope of the kopje (A). The area is marked by an exceptionally high concentration of stone tools (B).

Figure 4. An example of the type of stone age lithics found at the site, including retouched blades, blade fragments, trimmed points, discoid and single-platform cores.