

CULTURAL HERITAGE IMPACT ASSESSMENT OF THE PROPOSED THOMBO COMMUNITY ACCESS ROADS IN THE PORT ST JOHNS MUNICIPALITY, EASTERN CAPE



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May 2012

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Frans received his MA (Archaeology) from the University of Stellenbosch and is presently a PhD candidate on social anthropology at Rhodes University. His PhD research topic deals with indigenous San perceptions and interactions with the rock art heritage of the Drakensberg.

Frans was employed as a junior research associate at the then University of Transkei, Botany Department in 1988-1990. Although attached to a Botany Department he conducted a palaeoecological study on the Iron Age of northern Transkei - this study formed the basis for his MA thesis in Archaeology. Frans left the University of Transkei to accept a junior lecturing position at the University of Stellenbosch in 1990. He taught mostly undergraduate courses on World Archaeology and research methodology during this period.

From 1991 – 2001 Frans was appointed as the head of the department of Historical Anthropology at the Natal Museum, Pietermaritzburg. His tasks included academic research and publication, display conceptualization, and curating the African ethnology collections of the Museum. He developed various displays at the Natal Museum on topics ranging from Zulu material culture, traditional healing, and indigenous classificatory systems. During this period Frans also developed a close association with the Departments of Fine Art, Psychology, and Cultural and Media Studies at the then University of Natal. He assisted many post-graduate students with projects relating to the cultural heritage of South Africa. He also taught post-graduate courses on qualitative research methodology to honours students at the Psychology

Department, University of Natal. During this period he served on the editorial boards of the *South African Journal of Field Archaeology* and *Natalia*.

Frans left the Natal Museum in 2001 when approached by a Swiss funding agency to assist an international NGO (Working Group for Indigenous Minorities) with the conceptualization of a San or Bushman museum near Cape Town. During this period he consulted extensively with various San groupings in South Africa, Namibia and Botswana. During this period he also made major research and conceptual contributions to the Kamberg and Didima Rock Art Centres in the Ukhahlamba Drakensberg World Heritage Site.

Between 2003 and 2007 Frans was employed as the Cultural Resource Specialist for the Maloti Drakensberg Transfrontier Project – a bilateral conservation project funded through the World Bank. This project involved the facilitation with various stakeholders in order to produce a cultural heritage conservation and development strategy for the adjacent parts of Lesotho and South Africa. Frans was the facilitator for numerous heritage surveys and assessments during this project. This vast area included more than 2000 heritage sites. Many of these sites had to be assessed and heritage management plans designed for them. He had a major input in the drafting of the new Cultural Resource Management Plan for the Ukhahlamba Drakensberg World Heritage site in 2007/2008. A highpoint of his career was the inclusion of Drakensberg San indigenous knowledge systems, with San collaboration, into the management plans of various rock art sites in this world heritage site. He also liaised with the tourism specialist with the drafting of a tourism business plan for the area.

During April 2008 Frans accepted employment at the environmental agency called Strategic Environmental Focus (SEF). His main task was to set-up and run the cultural heritage unit of this national company. During this period he also became an accredited heritage impact assessor and he is rated by both Amafa and the South African Heritage Resources Agency (SAHRA). He completed almost 50 heritage impact assessment reports nation-wide during an 18th month period.

Frans left SEF and started his own heritage consultancy called “Active Heritage cc” in July 2009. Although mostly active along the eastern seaboard his clients also include international companies such as Royal Dutch Shell through Golder Associates, and UNESCO. He has now completed almost 100 heritage conservation and management reports for various clients since the inception of “Active Heritage cc”. Amongst these was a heritage study of the controversial fracking gas exploration of the Karoo Basin and various proposed mining developments in South Africa and proposed developments adjacent to various World Heritage sites. Apart from heritage impact assessments (HIA's) Frans also assist the National Heritage Council (NHC) through Haley Sharpe Southern Africa, with heritage site data capturing and analysis for the proposed National Liberation Route World Heritage Site and the national intangible heritage audit. In addition, he is has done background research and conceptualization of the proposed Dinosaur Interpretative Centre at Golden Gate National Park and the

proposed Khoi and San Interpretive Centre at Camdeboo, Eastern Cape Province. During 2009 he also produced the first draft dossier for the nomination of the Sehlabathebe National Park, Lesotho as a UNESCO inscribed world heritage site.

Frans was appointed as temporary lecturer in the department of Heritage and Tourism, UKZN in 2011. He is also a research affiliate at the School of Cultural and Media Studies in the same institution.

Frans's research interests include African Iron Age, paleoecology, rock art research, San ethnography, traditional healers in South Africa, and heritage conservation. Frans has produced more than forty publications on these topics in both popular and academic publications. He is frequently approached by local and international video and film productions in order to assist with research and conceptualization for programmes on African heritage and culture. He has also acted as presenter and specialist for local and international film productions on the rock art of southern Africa. Frans has a wide experience in the fields of museum and interpretive centre display and made a significant contribution to the conceptual planning of displays at the Natal Museum, Golden Horse Casino, Didima Rock Art Centre and !Khwa tu San Heritage Centre. Frans is also the co-founder and active member of "African Antiqua" a small tour company who conducts archaeological and cultural tours world-wide. He is a Thetha accredited cultural tour guide and he has conducted more than 50 tours to heritage sites since 1992.

Declaration of Consultants independence

Frans Prins is an independent consultant to CCA Environmental (Pty) Ltd and has no business, financial, personal or other interest in the activity, application or appeal in respect of which he was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances whatsoever that compromise the objectivity of this specialist performing such work.

EXECUTIVE SUMMARY

A heritage survey of the proposed Thombo Community Access Roads near Port St Johns in the Eastern Cape Province identified no palaeontological or archaeological sites and features of any significance. This is in line with the conclusions drawn in 2008 from the heritage study undertaken as part of the N2 Wild Coast Toll Highway EIA that also covered the study area at Tombo. However, the palaeontological study suggests that a palaeontological inspection must be undertaken close to completion of the works, prior to cleaning and rehabilitation. In addition, five modern grave sites do occur in the study area. These are all located in the general vicinity of the proposed road upgrades but only two of these are situated directly adjacent to the existing road network. A buffer of at least 5m must be strictly maintained around each grave. However, should the developers see a need to relocate a grave then a second phase heritage impact assessment, by a grave relocation expert, must be conducted. Attention is drawn to the South African Heritage Resources Act, 1999 (Act No. 25 of 1999) which, requires that operations that expose archaeological or historical remains should cease immediately, pending evaluation by the provincial heritage agency.

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LIST OF ABBREVIATIONS AND ACRONYMS

ESA	Early Stone Age
HISTORIC PERIOD	Since the arrival of the white settlers - c. AD 1820 in this part of the country
IRON AGE	Early Iron Age AD 200 - AD 1000 Late Iron Age AD 1000 - AD 1830
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998 and associated regulations (2010).
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999) and associated regulations (2000)
SAHRA	South African Heritage Resources Agency
STONE AGE	Early Stone Age 2 000 000 - 250 000 BP Middle Stone Age 250 000 - 25 000 BP Late Stone Age 30 000 - until c. AD 200

1 INTRODUCTION

1.1 Background and Brief

In 2011 Goba appointed CCA to undertake a Basic Assessment for the proposed Thombo Community Access Roads Project in the Port St Johns Municipality, Eastern Cape Province. The South African Heritage Resources Agency (SAHRA), requested that “a new Heritage Impact Assessment (HIA), including an archaeological and a palaeontological component”, be undertaken. CCA indicated that the HIA would need to ensure compliance with the following:

- SAHRA Minimum Standards for the compilation of archaeological and palaeontological impact assessments.
- NEMA EIA Regulations, 2010 (as amended) - in particular, Regulations 17 and 32
- Graves must be clearly assessed – their position must be clearly indicated on a map, and images and a description of the burial grounds must be included in the report.
- Application of a Convention for assigning significance ratings to potential impacts.

Active Heritage cc was subsequently appointed by CCA to a) complete the archaeological impact assessment (AIA) for the present phase of the project and b) compiled a consolidated HIA report which will include the findings, impact assessments and recommendations of both the archaeological impact assessment and the palaeontological impact assessment. A brief synopsis of the background to this Basic Assessment is provided in Table 1.

Table 1. Background information

<p>Type of development:</p>	<p>SANRAL is proposing to construct new feeder community access roads, reconstruct existing community access roads and close off existing unsafe access points onto the R61 at Thombo. This would be done by consolidating access to the R61 at two intersections from the north and four from the south between km 66 and km 68. The R61 is largely located on a higher lying ridge and effectively forms a watershed along this section. Due to this terrain, some of the existing access roads have steep grades. In constructing the proposed new access roads and reconstructing sections of the existing access roads the steep grades would, where possible, be reduced. To reduce scour and maintenance of the new access roads a hard-wearing surface with adequate drainage measures would be required. For this reason, a jointed concrete pavement is proposed. Depending on the volumes of traffic expected, the typical surfaced width would be 4.5 m for low volume roads and 6.5 m for sections with greater traffic volumes.</p> <p>The proposed project would comprise the following components:</p> <ol style="list-style-type: none"> (1) Upgrading of the Road to Rela (400 m), joining the R61 at an upgraded intersection at km 66.42; (2) Construction of a new Western Access Road (304 m) to link two existing access roads to the proposed upgraded Road to Rela; (3) Construction of the new Southern Community Access Road (819 m) incorporating a section of existing road parallel and to the south of the R61. The new Southern Community Access Road would join the R61 at two upgraded intersections at km 66.42 and km 66.92; (4) Construction of the new Northern Community Access Road (832 m) parallel to the north of the R61. This would include the closure of four existing access points on the R61 and consolidation into one upgraded intersection at km 66.92; (5) Construction of a new Northern Access Road (279 m) to link the eastern-most residential properties and mosque to the proposed new Northern Community Access Road; (6) Slight realignment and upgrading of the DR08029/R61 intersection at km 67.26 and upgrading of 400 m of the DR08029. This would also include the addition of lay-by areas along the northern most 100 m of DR08029 to serve as a taxi/bus embayment to replace the current informal taxi rank area as part of a new Thombo Public Transport Interchange (PTI). A traffic circle is also proposed along DR08029
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	<p>approximately 150 m south of the R61, to allow for ease of traffic flow onto the proposed Thombo Access Road to the east;</p> <p>(7) Construction of a new Thombo Access Road (640 m) which would include a new road link (350 m) from the proposed traffic circle on DR08029 and upgrading of the existing Thombo Access Road from the point where it currently joins the R61. The existing access onto the R61 would be closed off and re-positioned eastward at a new intersection position at km 67.72. A new traffic circle is also proposed along the upgraded section of the existing Thombo access road which would link to the proposed new intersection point at km 67.72 and the proposed Post Office/Tower Access Road; and</p> <p>(8) Construction of the new Post Office/Tower Access Road (292 m) in a south-westerly direction from the proposed new Thombo Access Road traffic circle and R61 intersection (km 67.72).</p> <p>The alignment of the proposed community access roads has taken the current residential property layouts into account and all inhabited structures were avoided. The proposed Thombo Access Road to the south of the R61 would require the relocation of one informal trade building located adjacent to the R61 at km 67.5. General acceptance of the proposed routes has been received from the local tribal authority. The proposed Thombo PTI has also been designed so as not to affect any of the existing businesses in the area.</p>
Rezoning or subdivision:	na
Terms of reference	To carry out a Heritage Impact Assessment
Legislative requirements:	The Heritage Impact Assessment was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999)

1.2. The Study Area:

The study area is situated along the R61 between Mthaththa and Port St Johns in the Eastern Cape Province. It covers the area from approximately 66km to 68km along the R61 travelling from west to east. The GPS coordinates for the starting point is given as: S 31° 37' 09.29" E 29° 21' 19.10" and the end point as: S 31° 37' 13.12" E 29° 23' 23.72". The upgrading includes this section of the R61 with particular emphasis on the various access roads such as a section of the DR08029 to the south of the R61 (Figs 1 & 2). It must be clarified that the upgrading of the existing R61 is not the focus in this report as the upgrading of the R61 at Thombo was addressed in a previous study that was subsequently approved as part of the environmental authorisation for the N2 Wild Coast Toll Highway (Van Schalkwyk 2008). The study area refers to the proposed new community access roads adjacent to the existing R61 (Figs 1 & 2).

1.3. Cultural Heritage legislation

According to Section 3 (2) of the NHRA, the heritage resources of South Africa include:

- a. places, buildings, structures and equipment of cultural significance;
- b. places to which oral traditions are attached or which are associated with living heritage;
- c. historical settlements and townscapes;
- d. landscapes and natural features of cultural significance;
- e. geological sites of scientific or cultural importance;
- f. archaeological and palaeontological sites;
- g. graves and burial grounds, including:
 - ancestral graves;
 - ii. royal graves and graves of traditional leaders;
 - iii. graves of victims of conflict;
 - iv. graves of individuals designated by the Minister by notice in the Gazette;
 - v. historical graves and cemeteries; and
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- h. sites of significance relating to the history of slavery in South Africa;

- i. movable objects, including objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
- ii. objects to which oral traditions are attached or which are associated with living heritage;
- iii. ethnographic art and objects;
- iv. military objects;
- v. objects of decorative or fine art;
- vi. objects of scientific or technological interest; and
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).”

In terms of section 3 (3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of:

- “a. its importance in the community, or pattern of South Africa's history;
- b. its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- c. its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- d. its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- e. its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- f. its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- g. its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h. its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- i. sites of significance relating the history of slavery in South Africa.”

The NHRA regulations of 2000 refer for the most part to the processes allowing for permits to be issued for the alteration, destruction or modification of heritage sites and features. These include the following:

- Protected areas
- Burial grounds and graves
- Wrecks
- Exportation of heritage objects
- Reproduction of national heritage sites
- Archaeological and palaeontological sites
- National heritage sites, provincial heritage sites, provisionally protected place, structures older than 60 years

2 BACKGROUND TO HERITAGE AND HISTORY OF AREA

The Eastern Cape contains both palaeontological and archaeological sites and areas of significance.

The proposed study area is underlain by strata belonging to the Karoo Supergroup. These consist of mudstones and sandy mudstones of the **Ecce Group (Karoo Supergroup)** and dolerite intrusions implaced during extrusion of the **Drakensberg Group (Karoo Supergroup)**. Dolerite, being an igneous rock contains no fossils. The Karoo Supergroup strata are between 310 and 182 million years old and span the Upper Carboniferous to Middle Jurassic Periods. Probably due to the lack of good outcrop in the Eastern Cape, animal body fossils have as yet not been found in rocks of the lowermost **Ecce Group, (Karoo Supergroup)**, though invertebrate trace fossils are known. Within the Eastern Cape plant fossils have been recovered from higher in the Ecce sequence including *Glossopteris*, an early genus of seed plant, which may ultimately have included the ancestors of flowering plants. Actinoptergian fish body fossils and traces are also known (Appendix 3)

The archaeological history of the Eastern Cape Province dates back to about 2 million years and possibly older, which marks the beginning of the Stone Age. The Stone Age in the Eastern Cape Province was extensively researched by archaeologists attached to the Albany Museum in Grahamstown, the University of Stellenbosch, the then University of Transkei (UNITRA), and Fort Hare University and more recently by rock art researchers attached to the Rock Art Research Institute at the University of the

Witwatersrand. The Stone Age period has been divided into three periods namely: Early Stone Age dating between 2 million years ago to about 200 000 years ago, Middle Stone Age dating between 200 000 years ago to about 30 000 years ago, and the Later Stone Age which dates from 30 000 to about 2 000 year ago. The Stone Age period ends around approximately 2 000 years ago when Bantu speaking Age farmers from the north arrived in southern Africa. The Iron Age is also divided into three periods, namely: Early Iron Age dating between AD 200 and AD 900, Middle Iron Age dating between AD 900 and AD 1300, Late Iron Age dating between AD 1 300 and 1 820. Not all archaeologists refer to the three distinct periods of the Iron Age. It has been common practise for many years to divide the Iron Age along the eastern seaboard into two periods only namely the Early and Later Iron Age. The Early Iron Age refers to the period before 1000 AD and the Middle Iron Age refer to the period after 1000 AD (Maggs 1989). The background study to the archaeological impact assessment (AIA) indicates that some archaeological sites of significance do occur in the greater Port St Johns area (Appendix 2), but none are known from the actual study area.

3 STUDY APPROACH

3.1 Methodology

A desktop study was conducted of the archaeological databases housed in the KwaZulu-Natal Museum, the available records of the Albany Museum in Grahamstown and the SAHRA inventory of heritage sites in the Eastern Cape Province. In addition, the available archaeological and historical literature covering the Eastern Cape was also consulted (Appendix 2). A separate palaeontological study was conducted by Dr Robert Gess. The results of this study are reported in Appendix 3.

A site visit was made to the study area by Mr Prins on the 9th of April 2012. Prior to the ground survey aerial photographs of the study area was studied to indicate any potential heritage hot spots. A ground survey, following standard and accepted archaeological procedures, was conducted during the site visit. The study area was surveyed by foot all relevant access roads, as indicated in Fig 2, were visited to search for grave sites. All road cuttings and relevant features that could indicate archaeological remains were visited and investigated (Appendix 2).

Dr Gess conducted the palaeontological survey of the study area on 14th April 2012. Although the geological map was found to be generally accurate it was found to be slightly inaccurate in detail. An exhaustive survey was conducted from west to east (Appendix 3).

3.2 Restrictions encountered during the survey

3.2.1 Visibility

Visibility was relatively good in most of the study area.

3.2.2 Disturbance

No disturbance of any heritage features was noted.

3.3 Details of equipment used in the survey

GPS: Garmin Etrek

Digital cameras: Canon Powershot A460

All readings were taken using the GPS. Accuracy was to a level of 5 m.

4 DESCRIPTION OF SITES AND MATERIAL OBSERVED

4.1 Locational data

Province: Eastern Cape Province

Municipality: Port St Johns Local Municipality

Town: Port St Johns

Village: Thombo

4.2 Description of the general area surveyed

The 2km R61 section is located on a higher lying ridge and effectively forms a watershed along this section. However, the R61 does not form part of this study as this

road has already been covered in a previous heritage impact assessment (Van Schalkwyk 2008). Due to this terrain, some of the existing access roads have steep grades. Rural homesteads are situated along most of the existing access roads but not along the steep grades. The implication is that most relevant cultural sites, such as graves, are situated some distance from the R61. Shops, community tourism ventures, a post office, and various small-scale commercial enterprises are also situated along the R61 and adjacent to the Thombo Access road to the south east of the study area (Figs 1 & 2).

5 HERITAGE SITES AND THEIR SIGNIFICANCE (HERITAGE VALUE)

No archaeological sites (Appendix 2) and palaeontological sites (Appendix 3) of significance were located in the study area. In fact, a previous heritage impact assessment of the proposed N2 wild Coast Toll Highway, which included the section of the existing R61 at Thombo, came to the same conclusion (Van Schalkwyk 2008).

However, various modern homesteads in the area contain family graves. Five graves occurred in the study area in close vicinity of relevant access roads (Fig 4). However, only one of these graves (grave site 5) is situated directly adjacent to an access road and may need mitigation. The four remainder graves are situated in the close vicinity of the R61 but not in the immediate vicinity of any access road. Various other graves were observed but none of these occur closer than 100 m to the relevant access roads. They were therefore not documented as the proposed development will have no impact on them. A description and relevant context for each grave is presented in Table 2.

Table 2. Modern graves in near vicinity to relevant access roads.

No	Heritage Site	Estimated Age	Significance (see Table 3)	Requires Mitigation?	Type of Mitigation	GPS Latitude and Longitude
1	Grave indicated by prominently marked grave stone. The site measures approximately 2m x 1.6 m. This site is well maintained by the present homestead residents. It is situated approximately 60m from the R61 (Fig 5)	Younger than 60 years	High significance locally	No, but maintain 20m buffer around grave site	Not applicable. However, should the developers wish to translocate the grave then a phase 2 heritage impact assessment, by a grave relocation expert, will be necessary (Appendix 1).	31° 37' 33.54" S 29° 22' 27.31" E
2	Grave indicated by prominently marked grave stone and railing. The site measures approximately 2m x 1.8 m. This site is maintained by the present homestead residents. It is situated approximately 90m from the R61 (Fig 6)	Younger than 60 years	High significance locally	No, but maintain 20m buffer around grave site	Not applicable. However, should the developers wish to translocate the grave then a phase 2 heritage impact assessment, by a grave relocation expert, will be necessary (Appendix 1).	31° 37' 31.72" S 29° 22' 25.45" E
3	Grave indicated by prominently marked grave stone and railing. The site measures approximately 2m x 1.6 m. This site is well maintained by the present homestead residents. It is situated approximately 20m from the R61 (Fig 7)	Younger than 60 years	High significance locally	No, but maintain 5 m buffer around grave site	Not applicable. However, should the developers wish to translocate the grave then a phase 2 heritage impact assessment, by a grave relocation expert, will be necessary (Appendix 1).	31° 37' 34.46" S 29° 22' 23.90" E
4	Grave indicated by prominently marked grave stone. The site measures approximately 2m x 1.6 m. This site is	Younger than 60 years	High significance locally	No, but maintain 20 m buffer around grave site	Not applicable. However, should the developers wish to translocate the grave then a phase 2 heritage	31° 37' 24.30" S 29° 21' 56.09" E

	well maintained by the present homestead residents. It is situated approximately 35m from the R61 (Fig 8)				impact assessment, by a grave relocation expert, will be necessary (Appendix 1).	
5	Grave indicated by prominently marked grave stone and fence. The site measures approximately 2m x 1.6 m. This site is well maintained by the present homestead residents. It is situated approximately 8m from the adjacent access road (Fig 9)	Younger than 60 years	High significance locally	No, but maintain 5 m buffer around grave site	Not applicable. However, should the developers wish to translocate the grave then a phase 2 heritage impact assessment, by a grave relocation expert, will be necessary (Appendix 1).	31° 37' 29.58" S 29° 23' 12.69" E

5.1 Field Rating

A rating method developed by SAHRA was applied to evaluate the significance of each grave site (Table 3). The results are also presented in Table 2.

Table 3. Field rating and recommended grading of sites (SAHRA 2005)

Level	Details	Action
National (Grade I)	The site is considered to be of National Significance	Nominated to be declared by SAHRA
Provincial (Grade II)	This site is considered to be of Provincial significance	Nominated to be declared by Provincial Heritage Authority
Local Grade IIIA	This site is considered to be of HIGH significance locally	The site should be retained as a heritage site
Local Grade IIIB	This site is considered to be of HIGH significance locally	The site should be mitigated, and part retained as a heritage site
Generally Protected A	High to medium significance	Mitigation necessary before destruction
Generally Protected B	Medium significance	The site needs to be recorded before destruction
Generally Protected C	Low significance	No further recording is required before destruction

6 RECOMMENDATIONS

- There is no archaeological reason why the proposed development may not proceed as planned (Appendix 2).
- Dr Gess likewise reported that no significant palaeontological features are in any danger of being destroyed or altered. Monitoring of the works by a palaeontologist is therefore not required. However, near the end of the works, prior to cleaning and rehabilitation of new cuttings and spoil heaps, a palaeontologist should carry out an inspection to ascertain whether palaeontological material has been exposed in fresh outcrops (Appendix 3).
- Care must be taken not to disturb or alter any of the modern grave sites identified close to the relevant access roads. Ideally a buffer of at least 20m must be maintained around each grave site. However, this may not be possible for graves no 3 and 5 as these are situated in close proximity to the adjacent roads. It would, however, be possible to maintain a buffer of at least 5m around each of these grave sites. Should the developers deem it wise to move these graves then a phase 2 heritage impact assessment, by a

registered grave relocation expert, would be necessary. The process outlying grave exhumation and relocation is presented in Appendix 1. No stone robbing or removal of any material from these sites for construction purposes is allowed. Any disturbance or alteration of these sites would be illegal and punishable by law.

- It should also be pointed out that the South African National Heritage Act requires that operations exposing palaeontological, archaeological, and historical residues should cease immediately pending an evaluation by the heritage authorities.

7 RISK PREVENTATIVE MEASURES ASSOCIATED WITH CONSTRUCTION

Maintain a 20m buffer zone around graves sites 1, 2, and 4 and a 5m buffer around grave sites 3 and 5. No dumping of construction material is allowed within this buffer zone and no alteration or damage of these graves may occur. However, should it not be possible to maintain these buffer zones then a second phase heritage impact assessment, by a grave relocation expert, must be called for.

8 MAPS AND FIGURES

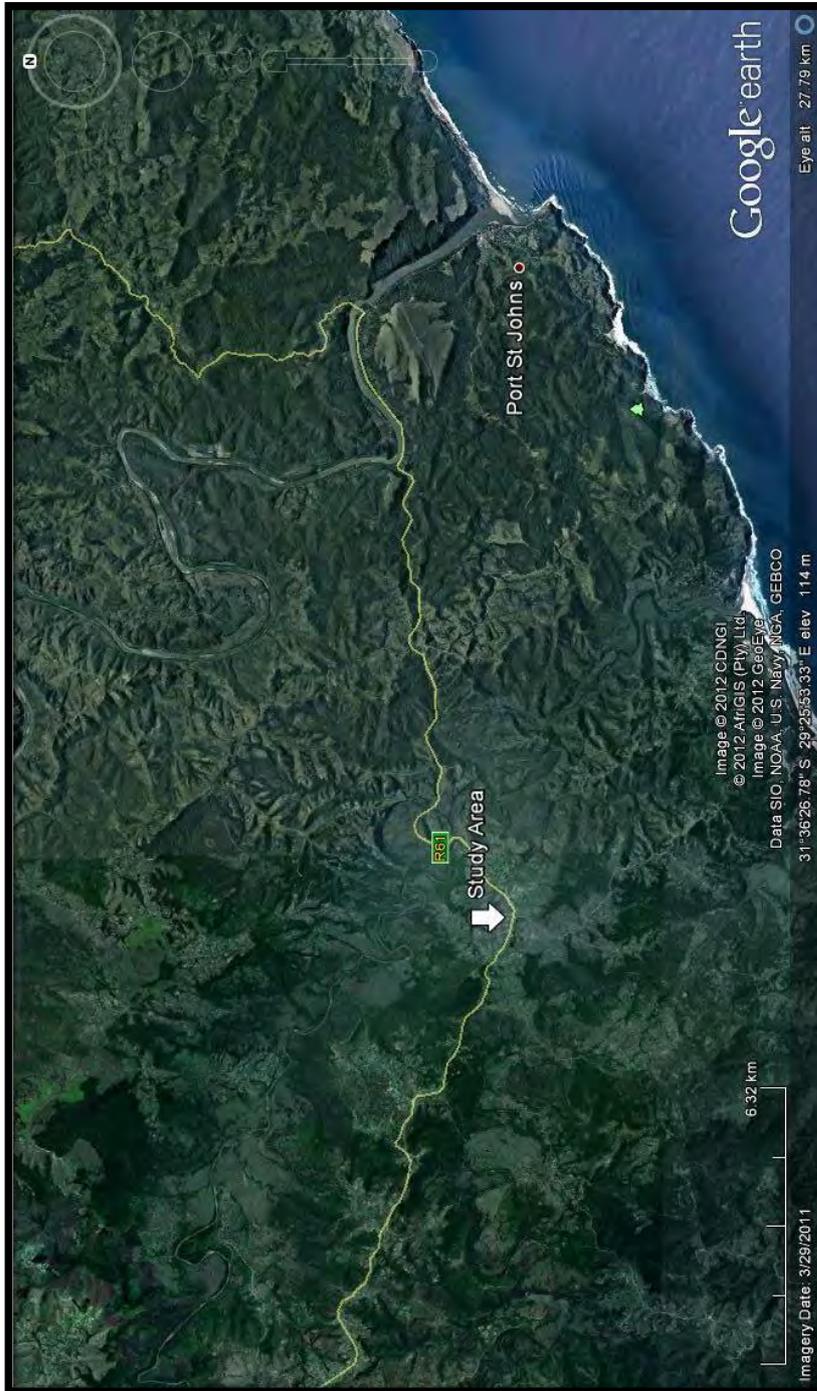


Figure 1. Google aerial photograph showing the locality of the study area relative to Port St Johns, Eastern Cape Province.

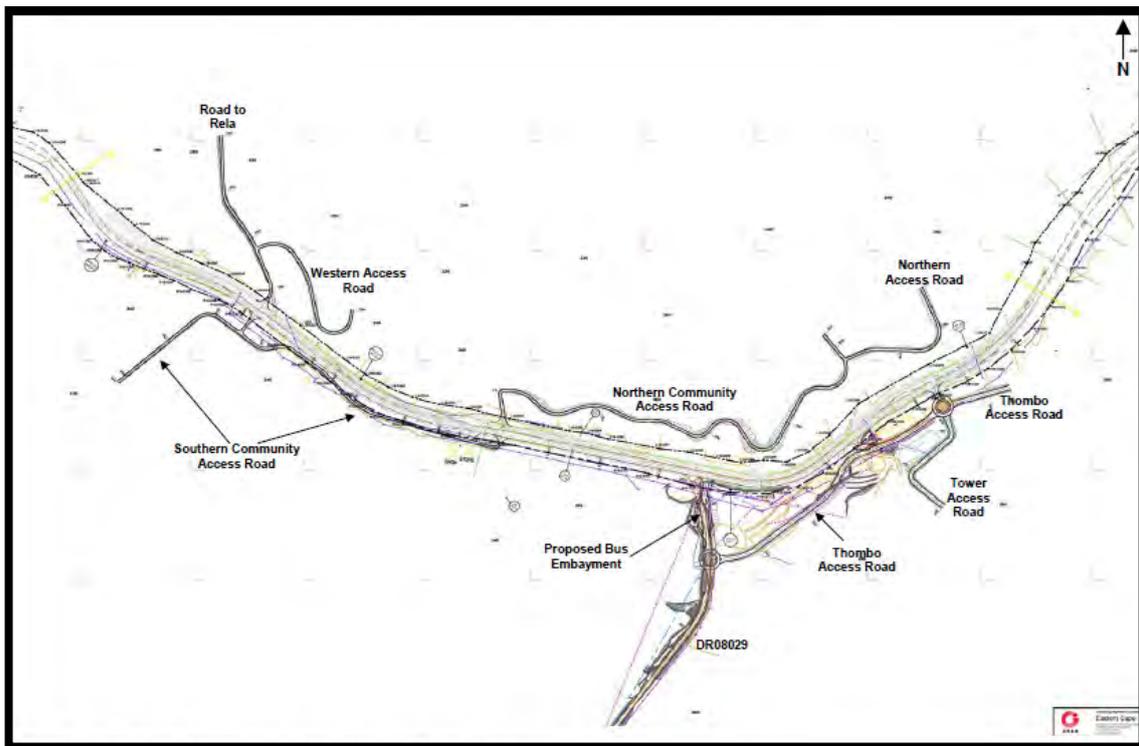


Figure 3. Thombo community access roads layout plan.

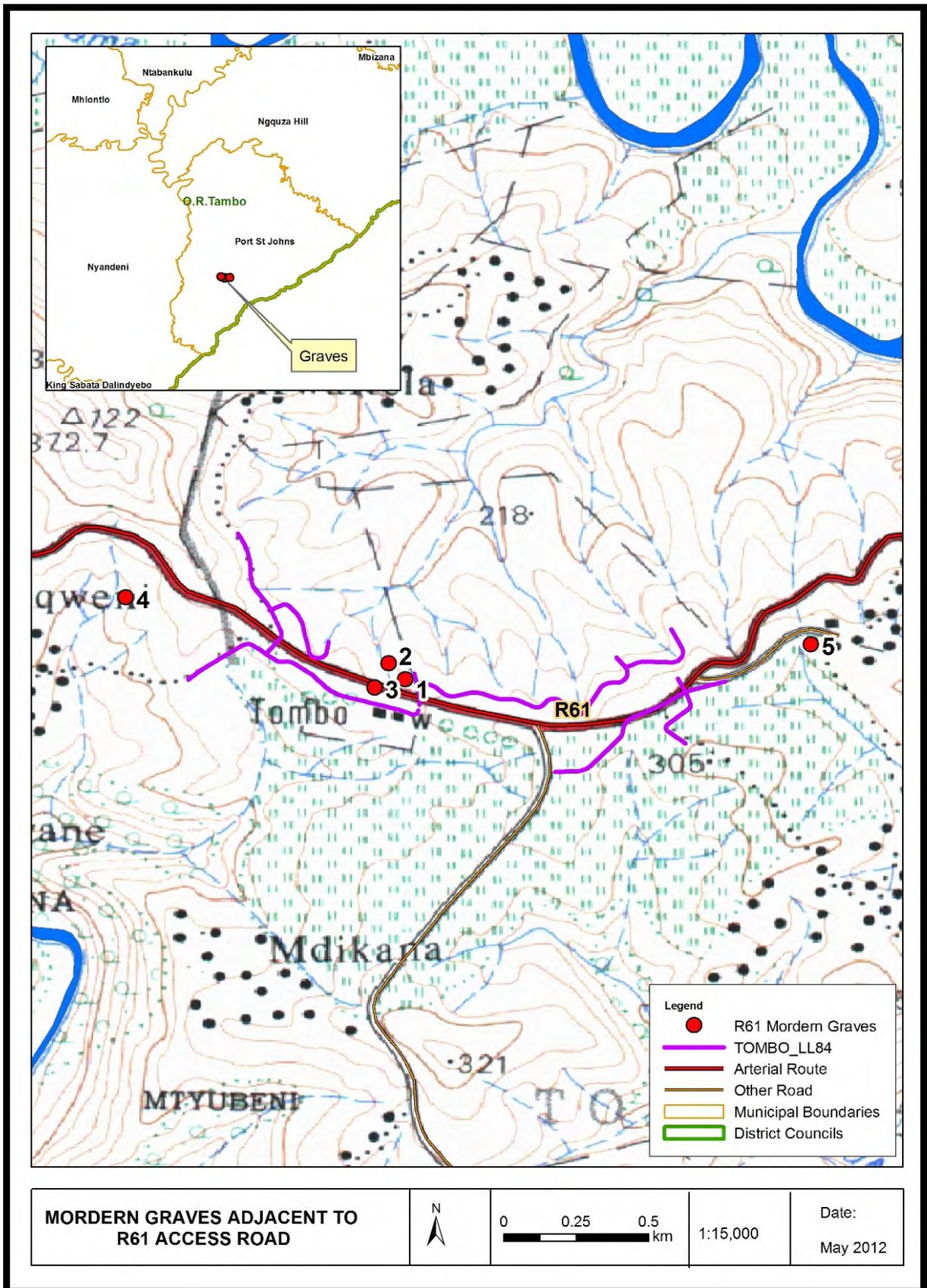


Figure 4. Map showing the distribution of modern grave sites relative to the access roads in the study area.



Figure 5. Grave site 1.



Figure 6. Grave site 2



Figure 7. Grave site 3.



Figure 8. Grave site 4.



Figure 9. Grave site 5

9 REFERENCES

- Carter, P.L. 1976. 'The Effect of Climatic Change on Settlement in Eastern Lesotho during the Middle and Later Stone Age.' *World Archaeology*, 8, 198 – 206.
- Derricourt, R. 1977. *Prehistoric Man in the Ciskei and Transkei*. Struik Publishers. Cape Town
- Esterhuysen, A., 2007. The Earlier Stone Age. In Bonner, P., Esterhuysen, A., Jenkins, T. (eds.): *A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'*. Johannesburg: Wits University Press. Pg 110 -121.
- Feely, J. M. 1987. *Final Report for the Ecology of the Iron Age Project: March 1983 to March 1987*. Unpublished report. University of Transkei, Botany Department.
- Feely, J. M. & Bell-Cross, S.M. 2011. The Distribution of Early Iron Age settlement in the eastern Cape: some historical and ecological implications. *South African Archaeological Bulletin*. 66 (194): 105-112.
- Henry, L. 2010. *Rock art and the contested landscape of the North Eastern Cape*. Unpublished MA thesis. University of the Witwatersrand.
- Huffman, T. 2007. *Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa*. University of KwaZulu-Natal Press, Pietermaritzburg.
- Maggs, T. 1989. The Iron Age farming communities. In Duminy, A. & Guest, B.(eds). *Natal and Zululand: From Earliest Times to 1910 – A New History*: 28 - 48. University of KwaZulu-Natal Press.
- Mazel, A. 1989. The Stone Age peoples of Natal. In Duminy, A & Guest, B.(eds). *Natal and Zululand: From Earliest Times to 1910 – A New History*: 1 - 27. University of KwaZulu-Natal Press.
- Opperman, H. 1987. The Later Stone Age of the Drakensberg Range and its Foothills. *Cambridge Monographs in African Archaeology 19*. BAR International Series 339.
- Mallen, L. 2008. *Rock art and identity in the North Eastern Cape*. Unpublished MA thesis. University of the Witwatersrand.
- Peires, J. 1981. *The House of Phalo. A History of the Xhosa People in the days of their Independence*. Ravan Press: Johannesburg
- SAHRA, 2005. *Minimum Standards for the Archaeological and the Palaeontological Components of Impact Assessment Reports*, Draft version 1.4.
- Van Schalkwyk, L. 2008. *Heritage Impact Assessment of the proposed N2 Wild Coast Toll Highway. For CCA Environmental (Pty)Ltd*. Unpublished report.
- Wadley, L & Jacobs, Z. 2006. Sibudu Cave:background to the excavations, stratigraphy and dating. *Southern African Humanities*. 18 (1): 1-26.
- Wadley, L., 2007. The Middle Stone Age and Later Stone Age. In Bonner, P.,

Esterhuysen, A., Jenkins, T. (eds.): *A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'*. Johannesburg: Wits University Press. Pg 122 -135.

Wright, J. and Hamilton, C. 1989. Tradition and transformations – The Phongolo-Mzimkhulu region in the late eighteenth and early nineteenth centuries. In Duminy, A &

APPENDIX1: RELOCATION OF GRAVES

Burial grounds and graves are dealt with in Article 36 of the NHR Act, no 25 of 1999. Below follows a broad summary of how to deal with grave in the event of proposed development.

- If the graves are younger than 60 years, an undertaker can be contracted to deal with the exhumation and reburial. This will include public participation, organising cemeteries, coffins, etc. They need permits and have their own requirements that must be adhered to.
- If the graves are older than 60 years old or of undetermined age, an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. This is a requirement by law.

Once it has been decided to relocate particular graves, the following steps should be taken:

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
- Notices of the intention needs to be placed in at least two local newspapers and have the same information as the above point. This is a requirement by law.
- Local radio stations can also be used to try contact family members. This is not required by law, but is helpful in trying to contact family members.
- During this time (60 days) a suitable cemetery need to be identified close to the development area or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account. This is a requirement by law.
- Once the 60 days has passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been received, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any items found in the grave.

APPENDIX 2. ARCHAEOLOGICAL IMPACT ASSESSMENT

ARCHAEOLOGICAL IMPACT ASSESSMENT OF THE PROPOSED THOMBO COMMUNITY ACCESS ROADS IN THE PORT ST JOHNS MUNICIPALITY, EASTERN CAPE



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Frans was employed as a junior research associate at the then University of Transkei, Botany Department in 1988-1990. Although attached to a Botany Department he conducted a palaeoecological study on the Iron Age of northern Transkei - this study formed the basis for his MA thesis in Archaeology. Frans left the University of Transkei to accept a junior lecturing position at the University of Stellenbosch in 1990. He taught mostly undergraduate courses on World Archaeology and research methodology during this period.

From 1991 – 2001 Frans was appointed as the head of the department of Historical Anthropology at the Natal Museum, Pietermaritzburg. His tasks included academic research and publication, display conceptualization, and curating the African ethnology collections of the Museum. He developed various displays at the Natal Museum on topics ranging from Zulu material culture, traditional healing, and indigenous classificatory systems. During this period Frans also developed a close association with the Departments of Fine Art, Psychology, and Cultural and Media Studies at the then University of Natal. He assisted many post-graduate students with projects relating to the cultural heritage of South Africa. He also taught post-graduate courses

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Frans left the Natal Museum in 2001 when approached by a Swiss funding agency to assist an international NGO (Working Group for Indigenous Minorities) with the conceptualization of a San or Bushman museum near Cape Town. During this period he consulted extensively with various San groupings in South Africa, Namibia and Botswana. During this period he also made major research and conceptual contributions to the Kamberg and Didima Rock Art Centres in the Ukhahlamba Drakensberg World Heritage Site.

Between 2003 and 2007 Frans was employed as the Cultural Resource Specialist for the Maloti Drakensberg Transfrontier Project – a bilateral conservation project funded through the World Bank. This project involved the facilitation with various stakeholders in order to produce a cultural heritage conservation and development strategy for the adjacent parts of Lesotho and South Africa. Frans was the facilitator for numerous heritage surveys and assessments during this project. This vast area included more than 2000 heritage sites. Many of these sites had to be assessed and heritage management plans designed for them. He had a major input in the drafting of the new Cultural Resource Management Plan for the Ukhahlamba Drakensberg World Heritage site in 2007/2008. A highpoint of his career was the inclusion of Drakensberg San indigenous knowledge systems, with San collaboration, into the management plans of various rock art sites in this world heritage site. He also liaised with the tourism specialist with the drafting of a tourism business plan for the area.

During April 2008 Frans accepted employment at the environmental agency called Strategic Environmental Focus (SEF). His main task was to set-up and run the cultural heritage unit of this national company. During this period he also became an accredited heritage impact assessor and he is rated by both Amafa and the South African Heritage Resources Agency (SAHRA). He completed almost 50 heritage impact assessment reports nation-wide during an 18th month period.

Frans left SEF and started his own heritage consultancy called “Active Heritage cc” in July 2009. Although mostly active along the eastern seaboard his clients also include international companies such as Royal Dutch Shell through Golder Associates, and UNESCO. He has now completed almost 100 heritage conservation and management reports for various clients since the inception of “Active Heritage cc”. Amongst these was a heritage study of the controversial fracking gas exploration of the Karoo Basin and various proposed mining developments in South Africa and proposed developments adjacent to various World Heritage sites. Apart from heritage impact assessments (HIA’s) Frans also assist the National Heritage Council (NHC) through Haley Sharpe Southern Africa’, with heritage site data capturing and analysis for the proposed National Liberation Route World Heritage Site and the national intangible heritage audit. In addition, he is has done background research and conceptualization

of the proposed Dinosaur Interpretative Centre at Golden Gate National Park and the proposed Khoi and San Interpretive Centre at Camdeboo, Eastern Cape Province. During 2009 he also produced the first draft dossier for the nomination of the Sehlabathebe National Park, Lesotho as a UNESCO inscribed world heritage site.

Frans was appointed as temporary lecturer in the department of Heritage and Tourism, UKZN in 2011. He is also a research affiliate at the School of Cultural and Media Studies in the same institution.

Frans's research interests include African Iron Age, paleoecology, rock art research, San ethnography, traditional healers in South Africa, and heritage conservation. Frans has produced more than forty publications on these topics in both popular and academic publications. He is frequently approached by local and international video and film productions in order to assist with research and conceptualization for programmes on African heritage and culture. He has also acted as presenter and specialist for local and international film productions on the rock art of southern Africa. Frans has a wide experience in the fields of museum and interpretive centre display and made a significant contribution to the conceptual planning of displays at the Natal Museum, Golden Horse Casino, Didima Rock Art Centre and !Khwa tu San Heritage Centre. Frans is also the co-founder and active member of "African Antiqua" a small tour company who conducts archaeological and cultural tours world-wide. He is a Theta accredited cultural tour guide and he has conducted more than 50 tours to heritage sites since 1992.

Declaration of Consultants independence

Frans Prins is an independent consultant to CCA Environmental (Pty) Ltd and has no business, financial, personal or other interest in the activity, application or appeal in respect of which he was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances whatsoever that compromise the objectivity of this specialist performing such work.

EXECUTIVE SUMMARY

An archaeological survey of the proposed Thombo Community Access Roads near Port St Johns in the Eastern Cape Province identified no archaeological sites and features of any significance. A previous heritage impact assessment of the proposed N2 wild Coast Toll Highway, which included the section of the existing R61 at Thombo, came to the same conclusion (Van Schalkwyk 2008). There is no archaeological reason why the proposed development may not proceed as planned. However, attention is drawn to the South African Heritage Resources Act, 1999 (Act No. 25 of 1999) which, requires that operations that expose archaeological or historical remains should cease immediately, pending evaluation by the provincial heritage agency.

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LIST OF ABBREVIATIONS AND ACRONYMS

ESA	Early Stone Age
HISTORIC PERIOD	Since the arrival of the white settlers - c. AD 1820 in this part of the country
IRON AGE	Early Iron Age AD 200 - AD 1000 Late Iron Age AD 1000 - AD 1830
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998 and associated regulations (2010).
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999) and associated regulations (2000)
SAHRA	South African Heritage Resources Agency
STONE AGE	Early Stone Age 2 000 000 - 250 000 BP Middle Stone Age 250 000 - 25 000 BP Late Stone Age 30 000 - until c. AD 200

1 INTRODUCTION

1.1 Background and Brief

In 2011 Goba appointed CCA to undertake a Basic Assessment for the proposed Thombo Community Access Roads Project in the Port St Johns Municipality, Eastern Cape Province. The South African Heritage Resources Agency (SAHRA), requested that “a new Heritage Impact Assessment (HIA), including an archaeological and a palaeontological component”, be undertaken. CCA indicated that the HIA would need to ensure compliance with the following:

- SAHRA Minimum Standards for the compilation of archaeological and palaeontological impact assessments.
- NEMA EIA Regulations, 2010 (as amended) - in particular, Regulations 17 and 32
- Graves must be clearly assessed – their position must be clearly indicated on a map, and images and a description of the burial grounds must be included in the report.
- Application of a Convention for assigning significance ratings to potential impacts

Active Heritage cc was subsequently appointed by CCA to complete the archaeological impact assessment (AIA) for the present phase of the project. A brief synopsis of the background to this Basic Assessment is provided in Table 1.

Table 1. Background information

Type of development:	<p>SANRAL is proposing to construct new feeder community access roads, reconstruct existing community access roads and close off existing unsafe access points onto the R61 at Thombo. This would be done by consolidating access to the R61 at two intersections from the north and four from the south between km 66 and km 68. The R61 is largely located on a higher lying ridge and effectively forms a watershed along this section. Due to this terrain, some of the existing access roads have steep grades. In constructing the proposed new access roads and reconstructing sections of the existing access roads the steep grades would, where possible, be reduced. To reduce scour and maintenance of the new access roads a hard-wearing surface with adequate drainage measures would be required. For this reason, a jointed concrete pavement is proposed. Depending on the volumes of traffic expected, the typical surfaced width would be 4.5 m for low volume roads and 6.5 m for sections with greater traffic volumes.</p> <p>The proposed project would comprise the following components:</p> <ol style="list-style-type: none"> (1) Upgrading of the Road to Rela (400 m), joining the R61 at an upgraded intersection at km 66.42; (2) Construction of a new Western Access Road (304 m) to link two existing access roads to the proposed upgraded Road to Rela; (3) Construction of the new Southern Community Access Road (819 m) incorporating a section of existing road parallel and to the south of the R61. The new Southern Community Access Road would join the R61 at two upgraded intersections at km 66.42 and km 66.92; (4) Construction of the new Northern Community Access Road (832 m) parallel to the north of the R61. This would include the closure of four existing access points on the R61 and consolidation into one upgraded intersection at km 66.92; (5) Construction of a new Northern Access Road (279 m) to link the eastern-most residential properties and mosque to the proposed new Northern Community Access Road; (6) Slight realignment and upgrading of the DR08029/R61 intersection at km 67.26 and upgrading of 400 m of the DR08029. This would also include the addition of lay-by areas along the northern most 100 m of DR08029 to serve as a taxi/bus embayment to replace the current informal taxi rank area as part of a new Thombo Public Transport Interchange (PTI). A traffic circle is also proposed along DR08029
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	<p>approximately 150 m south of the R61, to allow for ease of traffic flow onto the proposed Thombo Access Road to the east;</p> <p>(7) Construction of a new Thombo Access Road (640 m) which would include a new road link (350 m) from the proposed traffic circle on DR08029 and upgrading of the existing Thombo Access Road from the point where it currently joins the R61. The existing access onto the R61 would be closed off and re-positioned eastward at a new intersection position at km 67.72. A new traffic circle is also proposed along the upgraded section of the existing Thombo access road which would link to the proposed new intersection point at km 67.72 and the proposed Post Office/Tower Access Road; and</p> <p>(8) Construction of the new Post Office/Tower Access Road (292 m) in a south-westerly direction from the proposed new Thombo Access Road traffic circle and R61 intersection (km 67.72).</p> <p>The alignment of the proposed community access roads has taken the current residential property layouts into account and all inhabited structures were avoided. The proposed Thombo Access Road to the south of the R61 would require the relocation of one informal trade building located adjacent to the R61 at km 67.5. General acceptance of the proposed routes has been received from the local tribal authority. The proposed Thombo PTI has also been designed so as not to affect any of the existing businesses in the area.</p>
Rezoning or subdivision:	na
Terms of reference	To carry out an Archaeological Impact Assessment
Legislative requirements:	The Archaeological Impact Assessment was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999)

1.2. The Study Area:

The study area is situated along the R61 between Mthathta and Port St Johns in the Eastern Cape Province. It covers the area from approximately 66km to 68km along the R61 travelling from west to east. The GPS coordinates for the starting point is given as: S 31° 37' 09.29" E 29° 21' 19.10" and the end point as: S 31° 37' 13.12" E 29° 23' 23.72". The upgrading includes this section of the R61 with particular emphasis on the various access roads such as a section of the DR08029 to the south of the R61 (Figs 1 & 2). It must be clarified that the upgrading of the existing R61 is not the focus in this report as the upgrading of the R61 at Thombo was addressed in a previous study that was subsequently approved as part of the environmental authorisation for the N2 Wild Coast Toll Highway (Van Schalkwyk 2008). The study area refers to the proposed new community access roads adjacent to the existing R61 (Figs 1 & 2).

1.3. Cultural Heritage legislation

According to Section 3 (2) of the NHRA, the heritage resources of South Africa include:

- a. places, buildings, structures and equipment of cultural significance;
- b. places to which oral traditions are attached or which are associated with living heritage;
- c. historical settlements and townscapes;
- d. landscapes and natural features of cultural significance;
- e. geological sites of scientific or cultural importance;
- f. archaeological and palaeontological sites;
- g. graves and burial grounds, including:
 - ancestral graves;
 - ii. royal graves and graves of traditional leaders;
 - iii. graves of victims of conflict;
 - iv. graves of individuals designated by the Minister by notice in the Gazette;
 - v. historical graves and cemeteries; and
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- h. sites of significance relating to the history of slavery in South Africa;

- i. movable objects, including objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
- ii. objects to which oral traditions are attached or which are associated with living heritage;
- iii. ethnographic art and objects;
- iv. military objects;
- v. objects of decorative or fine art;
- vi. objects of scientific or technological interest; and
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).”

In terms of section 3 (3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of:

- “a. its importance in the community, or pattern of South Africa's history;
- b. its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- c. its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- d. its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- e. its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- f. its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- g. its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h. its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- i. sites of significance relating the history of slavery in South Africa.”

The NHRA regulations of 2000 refer for the most part to the processes allowing for permits to be issued for the alteration, destruction or modification of heritage sites and features. These include the following:

- Protected areas
- Burial grounds and graves
- Wrecks
- Exportation of heritage objects
- Reproduction of national heritage sites
- Archaeological and palaeontological sites
- National heritage sites, provincial heritage sites, provisionally protected place, structures older than 60 years

2 BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA

The archaeological history of the Eastern Cape Province dates back to about 2 million years and possibly older, which marks the beginning of the Stone Age. The Stone Age in the Eastern Cape Province was extensively researched by archaeologists attached to the Albany Museum in Grahamstown, the University of Stellenbosch, the then University of Transkei (UNITRA), Fort Hare University and more recently by rock art researchers attached to the Rock Art Research Institute at the University of the Witwatersrand. The Stone Age period has been divided into three periods namely: Early Stone Age dating between 2 million years ago to about 200 000 years ago, Middle Stone Age dating between 200 000 years ago to about 30 000 years ago, and the Later Stone Age which dates from 30 000 to about 2 000 year ago. The Stone Age period ends around approximately 2 000 years ago when Bantu speaking Age farmers from the north arrived in southern Africa. The Iron Age is also divided into three periods, namely: Early Iron Age dating between AD 200 and AD 900, Middle Iron Age dating between AD 900 and AD 1300, Late Iron Age dating between AD 1 300 and 1 820. Not all archaeologists refer to the three distinct periods of the Iron Age. It has been common practise for many years to divide the Iron Age along the eastern seaboard into two periods only namely the Early and Later Iron Age. The Early Iron Age refers to the period before 1000 AD and the Middle Iron Age refer to the period after 1000 AD (Maggs 1989).

2.1 Stone Age

2.1.1 Early Stone Age (ESA)

The ESA is considered as the beginning of the stone tool technology. It dates back to over 2 million years ago until 200 000 years ago. This period is characterised by the Oldowan and Acheulean industries. The Oldowan Industry, dating to approximately between over 2 million years and 1.7 million years predates the later Acheulean. The Oldowan Industry consists of very simple, crudely made core tools from which flakes are struck a couple of times. To date, there is no consensus amongst archaeologists as to which hominid species manufactured these artefacts. The Acheulean Industry lasted from about 1.7 million years until 200 thousand years ago. Acheulean tools were more specialized tools than those of the earlier industry. They were shaped intentionally to carry out specific tasks such as hacking and bashing to remove limbs from animals and marrow from bone. These duties were performed using the large sharp pointed artefacts known as hand axes. Cleavers, with their sharp, flat cutting edges were used to carry out more heavy duty butchering activities (Esterhuysen, 2007). The ESA technology lasted for a very long time, from early to middle Pleistocene and thus seems to have been sufficient to meet the needs of early hominids and their ancestors. Although not identified on the footprint, ESA tools occurrence have been reported in other sites in the Transkei (Derricourt 1977: Feely 1987). Apart from stone artefacts, the ESA sites in the Transkei have produced very little as regards other archaeological remains. This has made it difficult to make inferences pointing to economical dynamics of the ESA people in this part of the world (Mazel 1989).

2.1.2 Middle Stone Age (MSA)

The MSA dates to between 200 000 and 30 000 years ago, and is generally associated with the emergence of anatomically modern humans. The MSA technology is therefore believed to have been manufactured by fully modern humans known as *Homo sapiens* who emerged around 250 000 years ago. While some of the sites belonging to this time period occur in similar contexts as those of ESA, most of the MSA sites are located in rock shelters. Palaeoenvironmental data suggest that the distribution of MSA sites in the high lying Drakensberg and surrounding areas was influenced by the climate conditions, specifically the amount and duration of snow (Carter, 1976). In general, the MSA stone tools are smaller than those of the ESA. Although some MSA tools are made from prepared cores, the majority of MSA flakes

are rather irregular and are probably waste material from knapping exercises. A variety of MSA tools include blades, flakes, scrapers and pointed tools that may have been hafted onto shafts or handles and used as spearheads. Between 70 000 and 60 000 years ago new tool types appear known as segments and trapezoids. These tool types are referred to as backed tools from the method of preparation. Residue analyses on the backed tools from South African MSA sites including those in KZN indicate that these tools were certainly used as spear heads and perhaps even arrow points (Wadley, 2007). Derricourt (1977) reported a few MSA sites in the Transkei and some sites investigated by Opperman (1987) in the 1970's and 1980's occur near Maclear directly to the east of the project area.

2.1.3 Late Stone Age (LSA)

Compared to the earlier MSA and ESA, more is known about the LSA which dates from around 30 000 to 2 000 (possibly later) years ago. This is because LSA sites are more recent than ESA and MSA sites and therefore achieve better preservation of a greater variety of organic archaeological material. The Later Stone Age is usually associated with the San (Bushmen) or their direct ancestors. The tools during this period were even smaller and more diverse than those of the preceding Middle Stone Age period. LSA tool technology is observed to display rapid stylistic change compared to the slower pace in the MSA. The rapidity is more evident during the last 10 000 years. The LSA tool sequence includes informal small blade tradition from about 22 000 – 12 000 years ago, a scraper and adze-rich industry between 12 000 – 8 000 years ago, a backed tool and small scraper industry between 8 000 – 4 000 years and ending with a variable set of other industries thereafter (Wadley, 2007). Adzes are thought to be wood working tools and may have also been used to make digging sticks and handles for tools. Scrapers are tools that are thought to have been used to prepare hides for clothing and manufacture of other leather items. Backed tools may have been used for cutting as well as tips for arrows. It was also during Later Stone Age times that the bow and arrow was introduced into southern Africa – perhaps around 20 000 years ago. Because of the extensive use of the bow and arrow and the use of traps and snares, Later Stone Age people were far more efficient in exploiting their natural environment than Middle Stone Age people. Up until 2 000 years ago Later Stone Age people dominated the southern African landscape. However, shortly after 2 000 years ago the first Khoi herders and Bantu-speaking agro pastoralists immigrated into southern Africa from the north. This led to major demographic changes in the population distribution of the subcontinent. San hunter-gatherers were either

assimilated or moved off to more marginal environments such as the Kalahari Desert or some mountain ranges unsuitable for small-scale subsistence farming and herding. The San in the coastal areas of the Eastern Cape Province were the first to have been displaced by incoming African agro pastoralists. However, some independent and sometimes hybrid groups continue to practice their hunter gatherer lifestyle in the foothills of the Drakensberg until the period of white colonialisation around the 1840's (Opperman 1987; Wright & Mazel, 2007; Mallen 2008; Henry 2010). Later Stone Age artefacts have been reported from the coastal areas near Port St Johns (Derricourt 1977; Feely 1987), however, none are known from the project area. Nevertheless, a suite of rock shelters with Later Stone Age deposits and even rock paintings are known to occur on the coastal areas to the north of Port St Johns close to the Msikaba and Mkambati Rivers. More recently rock shelters with typical LSA artefacts and rock paintings were found in the Mnyameni and Kulumbe river valleys (Van Schalkwyk 2008). These discoveries suggest that LSA hunter-gatherers may have been exploiting intertidal resources close to the project area as recently as the 16th, 17th and 18th centuries.

2.2 Iron Age

2.2.1 Early Iron Age

Unlike the Stone Age people whose life styles were arguably egalitarian, Iron Age people led quite complex life styles. Their way of life of greater dependence on agriculture necessitated more sedentary settlements. They cultivated crops and kept domestic animals such as cattle, sheep, goats and dogs. Pottery production is also an important feature of Iron Age communities. Iron smelting was practised quite significantly by Iron Age society as they had to produce iron implements for agricultural use. Although Iron Age people occasionally hunted and gathered wild plants and shellfish, the bulk of their diet consisted of the crops they cultivated as well as the meat of the animals they kept. EIA villages were relatively large settlements strategically located in valleys beside rivers to take advantage of the fertile alluvial soils for growing crops (Maggs,1989. Huffman 2007). The EIA sites in the Eastern Cape Province dates back between AD 600 to AD 900. Based on extensive research on EIA sites in the eastern seaboard they can be divided along the following typological criteria and time lines according to ceramic styles (Maggs, 1989; Huffman 2007):

- _ Msuluzi (AD 500-700);
- _ Ndongondwane (AD 700 – 800);
- _ Ntshekane (AD 800 – 900).

However, no known Early Iron Age sites occur in the immediate vicinity of the footprint as this area has never been systematically surveyed for archaeological sites. Nevertheless Early Iron Age sites are known to occur along the middle reaches of the Umzimvubu River about 80km upstream from the project area. Here, as in KwaZulu-Natal the vast majority of Early Iron Age sites occur below the 1000m contour along areas in the large river valleys with a rainfall of less than 700mm a year (Prins 1992; Feely 2011). Two coastal cave sites with typical Early Iron Age pottery have been located by Derricourt in the 1970's about 20km from the project area (Derricourt 1977). It is therefore most likely that Early Iron Age sites will occur in the close vicinity of the project area along the Umzimvubu River Valley.

2.2.2 Late Iron Age (LIA)

The LIA is not only distinguished from the EIA by greater regional diversity of pottery styles but is also marked by extensive stone wall settlements. However, in this part of the world, stone walls were not common as the Nguni people used thatch and wood to build their houses (Derricourt 1977). This explains the failure to obtain sites from the aerial photograph investigation of the study area. Trade played a major role in the economy of LIA societies. Goods were traded locally and over long distances. The main trade goods included metal, salt, grain, cattle and thatch. This led to the establishment of economically driven centres and the growth of trade wealth. Keeping of domestic animals, metal work and the cultivation of crops continued with a change in the organisation of economic activities (Maggs, 1989; Huffman 2007).

LIA sites in the Eastern Cape Province occur adjacent to the major rivers in low lying river valleys but also along ridge crests above the 800m contour. The LIA in the project area can be ascribed to the Mphondo or their immediate predecessors (Feely 1987). A feature which distinguished Mphondo architecture during the historical period of the LIA, was the use of clay plaster on the interior of their hemi-spherical, thatch-on wooden-frame dwellings (Hunter 1979; Shaw & Van Warmelo 1972). Feely (1987) reported archaeological traces of this practise on sites to the north and west of the project area where dwellings had been fired. Such a fate was a widespread occurrence during the Zulu raids on Pondoland around the 1820's (Hunter 1979) and subsequent raids by Bhaca and Xesibe peoples (Stanford 1962).

No Later Iron Age sites are known from existing data bases to occur in the immediate vicinity of the project area. However, the inhabitants of this area has been known to be

Mphondo since at least 1687 (Wilson 1959), if not earlier. They fall under the paramouncy of East Pondoland which came under Cape colonial rule in 1894 (Stanford 1962). Interestingly, the “great place” of the Mphondo Paramount chief Faku, who was a prominent local leader during colonial times, was located by an archaeological consulting company in 2007 (Van Schalkwyk pers com). This site occurs near the Mngazi River approximately 40km from the project area.

2.3 Historic Period

Oral tradition is the basis of the evidence of historical events that took place before written history could be recorded. This kind of evidence becomes even more reliable in cases where archaeology could be utilised to back up the oral records. Sources of evidence for socio political organization during the mid-eighteenth to early nineteenth century in the study area and the Transkei suggest that the people here existed in numerous small-scale political units of different sizes, population numbers and political structures (Feely 1987; Wright & Hamilton, 1989). This period was largely characterised by rage and instability as political skirmishes broke due to the thirst for power and resources between chiefdoms. During the 2nd half of the eighteenth century, stronger chiefdoms and paramouncies emerged. However, these were not fully grown states as there was no proper formal central political body established. This changed in the 1780's when a shift towards a more centralized political state occurred in parts of northern KwaZulu-Natal. The Zulu kingdom, established by King Shaka however became the most powerful in KwaZulu-Natal in the early years of the 19th century and had a marked influence on the local Southern Nguni chiefdoms of the project area (Feely 1987). Refugees from north of the Umtavuna River such as the Bhaca and Qwabe tribes moved into the Transkei and asked the Mphondo paramount chief Faku for permission to settle in adjacent parts. These refugees were collectively called amaMfengu and many of these people were settled near Umtata, Qumbu and Mount Frere to the west of the project area. English traders who settled at Port Natal (Durban) during the 1820's also visited Faku and traded with him for elephant ivory. Chief Faku was well known to the colonial authorities in Cape Town and Port Natal. He outlived most of his adversaries such as King Shaka and King Dingane of the amaZulu. Despite being harassed by the expansionistic Zulu kingdom for many decades the Mphondo were never subjugated by the former.

3 STUDY APPROACH

3.1 Methodology

A desktop study was conducted of the archaeological databases housed in the KwaZulu-Natal Museum, the available records of the Albany Museum in Grahamstown and the SAHRA inventory of heritage sites in the Eastern Cape Province. In addition, the available archaeological and historical literature covering the Eastern Cape was also consulted.

A site visit was made to the study area on the 9th of April 2012. Prior to the ground survey aerial photographs of the study area was studied to indicate any potential heritage hot spots. A ground survey, following standard and accepted archaeological procedures, was conducted during the site visit. The study area was surveyed by foot from east to west. All relevant access roads, as indicated in Figs 2 & 3 and front cover picture, were visited to search for archaeological sites in strips of approximately 20m on each side of the access road. Road cuttings and relevant features that could indicate archaeological remains were visited and investigated.

3.2 Restrictions encountered during the survey

3.2.1 Visibility

Visibility was relatively good in most of the study area.

3.2.2 Disturbance

No disturbance of any archaeological sites was noted.

3.3 Details of equipment used in the survey

GPS: Garmin Etrek

Digital cameras: Canon Powershot A460

All readings were taken using the GPS. Accuracy was to a level of 5 m.

4 DESCRIPTION OF SITES AND MATERIAL OBSERVED

4.1 Locational data

Province: Eastern Cape Province

Municipality: Port St Johns Local Municipality

Town: Port St Johns

Village: Thombo

4.2 Description of the general area surveyed

The 2km R61 section is located on a higher lying ridge and effectively forms a watershed along this section. However, the R61 does not form part of this study as this road has already been covered in a previous heritage impact assessment (Van Schalkwyk 2008). Due to this terrain, some of the existing access roads have steep grades. Rural homesteads are situated along most of the existing access roads but not along the steep grades. The implication is that most relevant cultural sites, such as graves, are situated some distance from the R61. Shops, community tourism ventures, a post office, and various small-scale commercial enterprises are also situated along the R61 and adjacent to the Thombo Access road to the south east of the study area (Figs 1 & 2).

5 ARCHAEOLOGICAL SITES AND THEIR SIGNIFICANCE (HERITAGE VALUE)

No archaeological sites were located in the study area. In fact, a previous heritage impact assessment of the proposed N2 wild Coast Toll Highway, which included the section of the existing R61 at Thombo, came to the same conclusion (Van Schalkwyk 2008).

5.1 Field Rating

A rating method developed by SAHRA was applied to evaluate the significance of relevant archaeological sites (Table 2). However, no archaeological sites were identified in the study area..

Table 2. Field rating and recommended grading of sites (SAHRA 2005)

Level	Details	Action
National (Grade I)	The site is considered to be of National Significance	Nominated to be declared by SAHRA
Provincial (Grade II)	This site is considered to be of Provincial significance	Nominated to be declared by Provincial Heritage Authority
Local Grade IIIA	This site is considered to be of HIGH significance locally	The site should be retained as a heritage site
Local Grade IIIB	This site is considered to be of HIGH significance locally	The site should be mitigated, and part retained as a heritage site
Generally Protected A	High to medium significance	Mitigation necessary before destruction
Generally Protected B	Medium significance	The site needs to be recorded before destruction
Generally Protected C	Low significance	No further recording is required before destruction

6 RECOMMENDATIONS

There is no archaeological reason why the proposed development may not proceed as planned. However, it should be pointed out that the South African National Heritage Act requires that operations exposing archaeological and historical residues should cease immediately pending an evaluation by the heritage authorities.

7 RISK PREVENTATIVE MEASURES ASSOCIATED WITH CONSTRUCTION

Not applicable from a purely archaeological perspective.

8 MAPS AND FIGURES

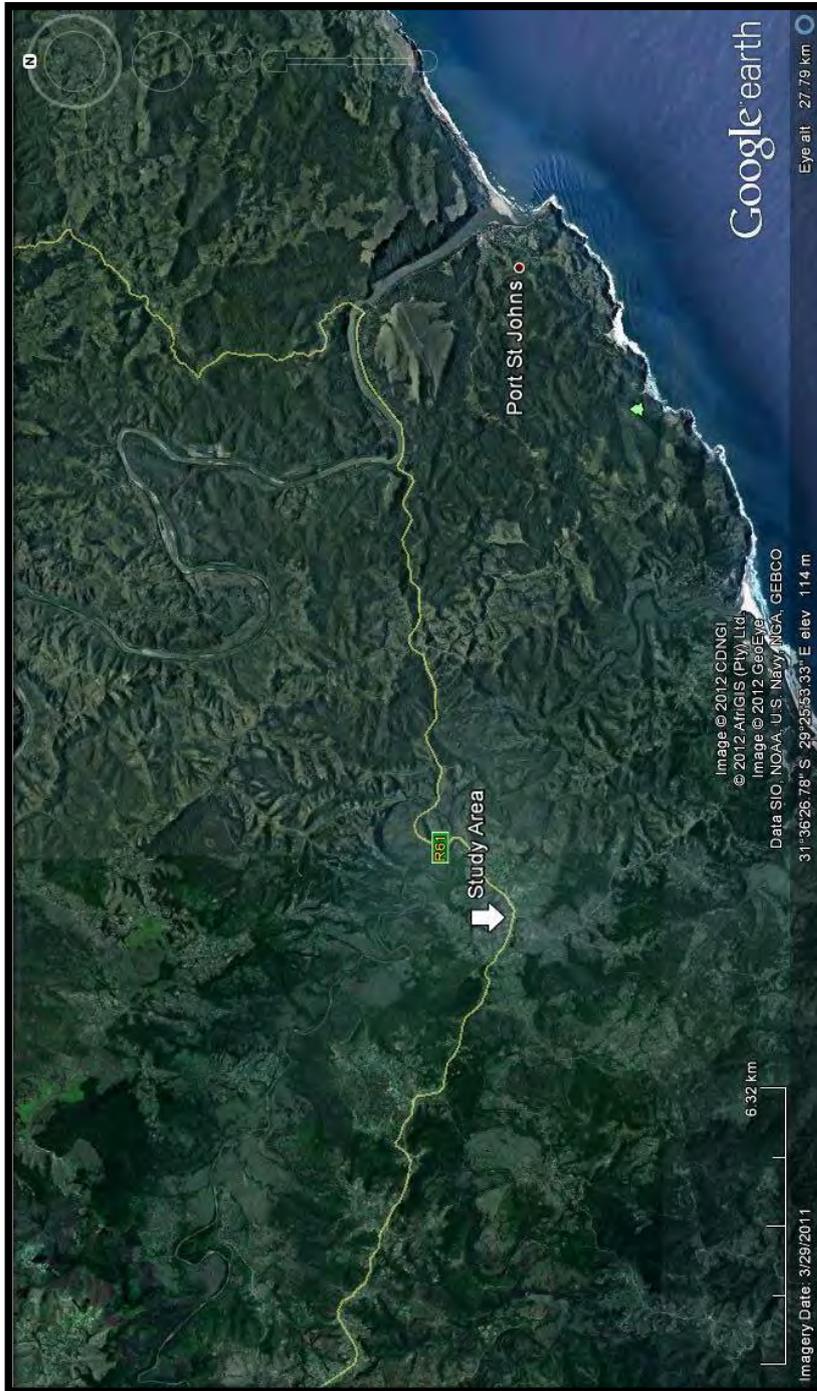


Figure 1. Google aerial photograph showing the locality of the study area relative to Port St Johns, Eastern Cape Province.



Figure 2. Locality map showing the construction limits for the proposed Thombo community access roads.

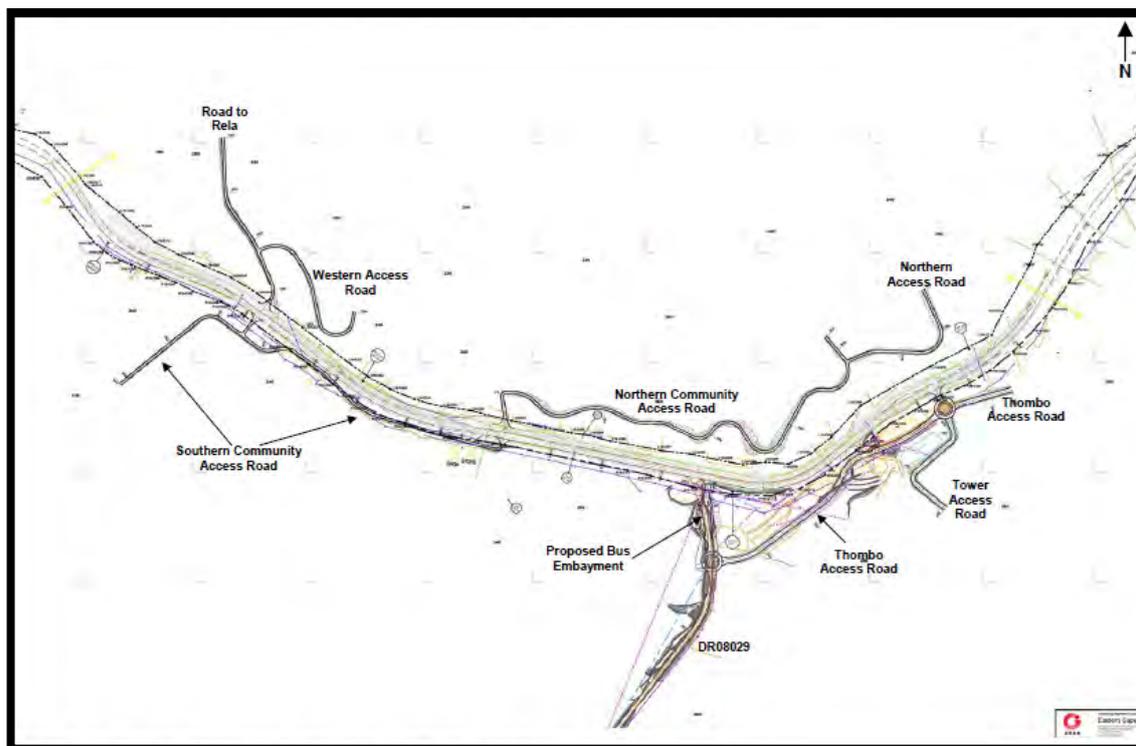


Figure 3. Thombo community access roads layout plan.

9 REFERENCES

- Carter, P.L. 1976. 'The Effect of Climatic Change on Settlement in Eastern Lesotho during the Middle and Later Stone Age.' *World Archaeology*, 8, 198 – 206.
- Derricourt, R. 1977. *Prehistoric Man in the Ciskei and Transkei*. Struik Publishers. Cape Town
- Esterhuysen, A., 2007. The Earlier Stone Age. In Bonner, P., Esterhuysen, A., Jenkins, T. (eds.): *A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'*. Johannesburg: Wits University Press. Pg 110 -121.
- Feely, J. M. 1987. *Final Report for the Ecology of the Iron Age Project: March 1983 to March 1987*. Unpublished report. University of Transkei, Botany Department.
- Feely, J. M. & Bell-Cross, S.M. 2011. The Distribution of Early Iron Age settlement in the eastern Cape: some historical and ecological implications. *South African Archaeological Bulletin*. 66 (194): 105-112.
- Henry, L. 2010. *Rock art and the contested landscape of the North Eastern Cape*. Unpublished MA thesis. University of the Witwatersrand.
- Huffman, T. 2007. *Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa*. University of KwaZulu-Natal Press, Pietermaritzburg.
- Maggs, T. 1989. The Iron Age farming communities. In Duminy, A. & Guest, B.(eds). *Natal and Zululand: From Earliest Times to 1910 – A New History*: 28 - 48. University of KwaZulu-Natal Press.
- Mazel, A. 1989. The Stone Age peoples of Natal. In Duminy, A & Guest, B.(eds). *Natal and Zululand: From Earliest Times to 1910 – A New History*: 1 - 27. University of KwaZulu-Natal Press.
- Opperman, H. 1987. The Later Stone Age of the Drakensberg Range and its Foothills. *Cambridge Monographs in African Archaeology 19*. BAR International Series 339.
- Mallen, L. 2008. *Rock art and identity in the North Eastern Cape*. Unpublished MA thesis. University of the Witwatersrand.
- Peires, J. 1981. *The House of Phalo. A History of the Xhosa People in the days of their Independence*. Ravan Press: Johannesburg
- SAHRA, 2005. *Minimum Standards for the Archaeological and the Palaeontological Components of Impact Assessment Reports*, Draft version 1.4.
- Van Schalkwyk, L. 2008. *Heritage Impact Assessment of the proposed N2 Wild Coast Toll Highway. For CCA Environmental (Pty)Ltd*. Unpublished report.
- Wadley, L & Jacobs, Z. 2006. Sibudu Cave:background to the excavations, stratigraphy and dating. *Southern African Humanities*. 18 (1): 1-26.
- Wadley, L., 2007. The Middle Stone Age and Later Stone Age. In Bonner, P.,

Esterhuysen, A., Jenkins, T. (eds.): *A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'*. Johannesburg: Wits University Press. Pg 122 -135.

Wright, J. and Hamilton, C. 1989. Tradition and transformations – The Phongolo-Mzimkhulu region in the late eighteenth and early nineteenth centuries. In Duminy, A &

APPENDIX 3: PALAEOLOGICAL IMPACT ASSESSMENT

PROPOSED THOMBO COMMUNITY ACCESS ROADS IN THE PORT ST JOHNS LOCAL MUNICIPALITY PALAEOLOGICAL IMPACT ASSESSMENT

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Robert Gess has more than 15 years experience in Palaeontological research in the Eastern Cape, and is currently South Africa's primary researcher on South African Devonian Palaeoichthyology and Palaeobotany. He has published numerous papers in international peer-reviewed journals, including a description of the oldest fossil lamprey, published in *Nature*. He lectures in palaeontology at Rhodes University.

In addition he has extensive experience in EIA work. This includes long term consultancy and mitigation at Waterloo Farm near Grahamstown as well as numerous surveys including those for the Thyspunt Melkhout transmission lines, Eastern Cape Fibreco network, Albany Regional Water Scheme, Amathole District borrow pits, Chris Hani District borrowpits, Amanzi Estates, Coega Chlor alkali Plant, Thornhill Housing project, Sarah Baartman Park, Kwanobuhle Extension, Nieu Betheda Water Plant works, Fort Brown Agrivillage, Waainek Windfarm, Wesley Windfarm, upgrade of R61 section 6, and National route 10 section 3.

Palaeontological Papers in Peer-reviewed Journals include:

Gess, R.W. (2012). The oldest animals (*comment and opinion*), *South African Journal of Science* **108,1**: 1.

Gess, R. & Coates M. (2008) *Vertebrate Diversity of the Late Devonian (Famennian) Deposit near Grahamstown, South Africa*. *Journal of Vertebrate Paleontology* **28** (3)

Coates, M.I. and **Gess, R.W.** (2007). A new reconstruction of *Onychoselache traquairi*, comments on early chondrichthyan pectoral girdles, and hybodontiform phylogeny, *Palaeontology* **50, 6**: 1421-1446.

Gess, R.W., Coates, M.I. & Rubidge, B.S. (2006). A lamprey from the Devonian period of South Africa. *Nature* **443**: 981-984.

Gess, R.W. (2001). A new species of *Diplacanthus* from the Late Devonian (Famennian) of South Africa. *Annales de Paléontologie* **87**: 49-60

Anderson, M.E., Long, J.A., **Gess, R.W.** and Hiller, N. (1999). An unusual new fossil shark (Pisces: Chondrichthyes) from the Late Devonian of South Africa. *Records of the Western Australian Museum* **57**: 151-156.

Long, J.A., Anderson, M.E., **Gess, R.W.** and Hiller, N. (1997). New placoderm fishes from the Late Devonian of South Africa. *Journal of Vertebrate Palaeontology* **17**: 253-268.

Hiller, N and **Gess, R.W.** (1996). Marine algal remains from the Upper Devonian of South Africa. *Review of Palaeobotany and Palynology* **91**: 143-149.

Anderson, H.M., Hiller, N. and **Gess, R.W.** (1995). *Archaeopteris* (Progymnospermopsida) from the Devonian of southern Africa. *Botanical Journal of the Linnean Society* **117**: 305-320.

Gess, R.W. and Hiller, N. (1995b). Late Devonian charophytes from the Witteberg Group, South Africa. *Review of Palaeobotany and Palynology* **89**: 417-428.

Gess, R.W. and Hiller, N. (1995a). A preliminary catalogue of fossil algal, plant, arthropod, and fish remains from a Late Devonian black shale near Grahamstown, South Africa. *Annals of the Cape Provincial Museums (Natural History)* **19**: 225-304.

Anderson, M.E., Hiller, N. and **Gess, R.W.** (1994). The first *Bothriolepis*-associated Devonian fish fauna from Africa. *South African Journal of Science* **90**: 397-403.

Declaration of Consultants independence

Dr R.W. Gess is an independent consultant to CCA Environmental (Pty) Ltd and has no business, financial, personal or other interest in the activity, application or appeal in respect of which he was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances whatsoever that compromise the objectivity of this specialist performing such work.

Executive summary

SANRAL is proposing to construct new feeder community access roads, reconstruct existing community access roads and close off existing unsafe access points onto the R61 at Thombo.

CCA Environmental were contracted by Goba, the engineers acting on behalf of SANRAL, to carry out a Basic Assessment the project. CCA Environmental subcontracted Rob Gess Consulting in March 2012 to conduct a Palaeontological Impact Assessment.

A desk top preliminary assessment and a full site survey of existing outcrops were conducted.

It was established that as a general rule the sediment was fairly sandy and contained only fragmentary plant fossil remains. Significant palaeontological heritage being disturbed during this development therefore seems unlikely. No monitoring will therefore be necessary.

It is however recommended that near the end of the works, prior to cleaning and rehabilitation of new cuttings and spoil heaps, a palaeontologist should carry out an inspection to ascertain whether palaeontological material has been exposed in fresh outcrops. A report on this inspection should be submitted to SAHRA for their archive.

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- Figure 15: Route of south-central community access road: view west from point 5 (fig.1).
- Figure 16: Route of south-eastern community access road: view north-east from point 8 (fig.1).

Background

SANRAL is proposing to construct new feeder community access roads, reconstruct existing community access roads and close off existing unsafe access points onto the R61 at Thombo. This would be done by consolidating access to the R61 at two intersections from the north and four from the south between km 66 and km 68. The R61 is largely located on a higher lying ridge and effectively forms a watershed along this section. Due to this terrain, some of the existing access roads have steep grades. In constructing the proposed new access roads and reconstructing sections of the existing access roads the steep grades would, where possible, be reduced.

To reduce scour and maintenance of the new access roads a hard-wearing surface with adequate drainage measures would be required. For this reason, a jointed concrete pavement is proposed. Depending on the volumes of traffic expected, the typical surfaced width would be 4.5 m for low volume roads and 6.5 m for sections with greater traffic volumes.

The proposed project would comprise the following components:

- (1) Upgrading of the Road to Rela (400 m), joining the R61 at an upgraded intersection at km 66.42;
- (2) Construction of a new Western Access Road (304 m) to link two existing access roads to the proposed upgraded Road to Rela;
- (3) Construction of the new Southern Community Access Road (819 m) incorporating a section of existing road parallel and to the south of the R61. The new Southern Community Access Road would join the R61 at two upgraded intersections at km 66.42 and km 66.92;
- (4) Construction of the new Northern Community Access Road (832 m) parallel to the north of the R61. This would include the closure of four existing access points on the R61 and consolidation into one upgraded intersection at km 66.92;
- (5) Construction of a new Northern Access Road (279 m) to link the eastern-most residential properties and mosque to the proposed new Northern Community Access Road;
- (6) Slight realignment and upgrading of the DR08029/R61 intersection at km 67.26 and upgrading of 400 m of the DR08029. This would also include the addition of lay-by areas along the northern most 100 m of DR08029 to serve as a taxi/bus embayment to replace the current informal taxi rank area as part of a new Thombo Public Transport Interchange (PTI). A traffic circle is also proposed

along DR08029 approximately 150 m south of the R61, to allow for ease of traffic flow onto the proposed Thombo Access Road to the east;

- (7) Construction of a new Thombo Access Road (640 m) which would include a new road link (350 m) from the proposed traffic circle on DR08029 and upgrading of the existing Thombo Access Road from the point where it currently joins the R61. The existing access onto the R61 would be closed off and re-positioned eastward at a new intersection position at km 67.72. A new traffic circle is also proposed along the upgraded section of the existing Thombo access road which would link to the proposed new intersection point at km 67.72 and the proposed Post Office/Tower Access Road; and
- (8) Construction of the new Post Office/Tower Access Road (292 m) in a south westerly direction from the proposed new Thombo Access Road traffic circle and R61 intersection (km 67.72).

The alignment of the proposed community access roads has taken the current residential property layouts into account and all inhabited structures were avoided. The proposed Thombo Access Road to the south of the R61 would require the relocation of one informal trade building located adjacent to the R61 at km 67.5. General acceptance of the proposed routes has been received from the local tribal authority.

CCA Environmental were contracted by Goba, the engineers acting on behalf of SANRAL, to carry out a full Basic Assessment for the project. CCA Environmental subcontracted Rob Gess Consulting in March 2012 to conduct a Palaeontological Impact Assessment.

Geology and Palaeontology

The proposed development area is underlain by strata belonging to the Karoo Supergroup. These consist of mudstones and sandy mudstones of the **Ecça Group (Karoo Supergroup)** and dolerite intrusions implaced during extrusion of the **Drakensberg Group (Karoo Supergroup)** (Figure 1). Dolerite, being an igneous rock contains no fossils.

The strata of the **Karoo Supergroup** were deposited within the Karoo sedimentary Basin, which resulted from shortening and thickening of the southern margin of Africa, with coeval folding and uplift of the Cape Supergroup strata along its southern margin. Lowermost Karoo strata of the Dwyka and lower Ecça Groups were affected by folding in the vicinity of the Cape Fold Belt. Deposition was shifted from the northern edge of the Agulhas Sea to the increasingly freshwater, inland Karoo Basin. The Karoo Supergroup strata are between 310 and 182 million years old and span the Upper Carboniferous to Middle Jurassic Periods. During this interval the basin evolved from an inland sea flooded by a melting ice cap, to a giant lake fed by seasonal meandering (and at times braided) rivers. This lake steadily shrank as it filled with sediment and the basin's rate of subsidence stabilised. The land became increasingly arid and was covered with wind blown sand towards the end of its cycle. Finally the subcontinent was inundated with basaltic lava that issued from widespread linear cracks within the crust, to form the capping basalts of the Drakensberg Group.

The Dwyka Group, lowermost subdivision of the Karoo Supergroup, consists almost exclusively of diamictite known as the Dwyka tillite. This was deposited, beginning in the Late Carboniferous, as southern Africa emerged from under the South Pole. Glaciers flowing into the flooded Karoo basin broke up, melted and discharged a mixture of finely ground rock flour and rough chunks of rock. These formed the matrix and clasts of the Dwyka tillite.

Early in the Permian period the ice sheets retreated and sediment carried into the Ecça Lake by rivers draining the recently upthrust Cape Mountains formed the deposits of the **Ecça Group (Karoo Supergroup)**. These rivers formed deltas where they flowed into the Ecça Lake. Proximally the deltas tended to be sandy. Mud accumulating on the more distal front of the deltas periodically slumped and cascaded down into deep water, spreading out and depositing large layered fan shaped turbidite deposits.

In the eastern part of the basin the Ecça Group continued to be deposited long after the Beaufort Group (Karoo Supergroup) had begun to be deposited by fluvial systems in the west. The lake, in the west, had become filled with sediment.

Probably due to the lack of good outcrop in the Eastern Cape, animal body fossils have as yet not been found in rocks of the lowermost **Ecça Group, (Karoo Supergroup)**, though invertebrate trace fossils are known. In other parts of the country the Whitehill Formation (lowermost Ecça) has, however, yielded some exquisite fossils. These include Africa's earliest known reptile, the aquatic *Mesosaurus*, early crustaceans, and scarce but beautifully preserved ray-finned fish. Within the Eastern Cape plant fossils have been recovered from higher in the Ecça

sequence including *Glossopteris*, an early genus of seed plant, that may ultimately have included the ancestors of flowering plants. Actinoptergian fish body fossils and traces are also known.

For historical reasons the Transkei region has not been extensively surveyed from a palaeontological point of view and remained until recently a data vacuum. Field surveys are therefore vital within this region.

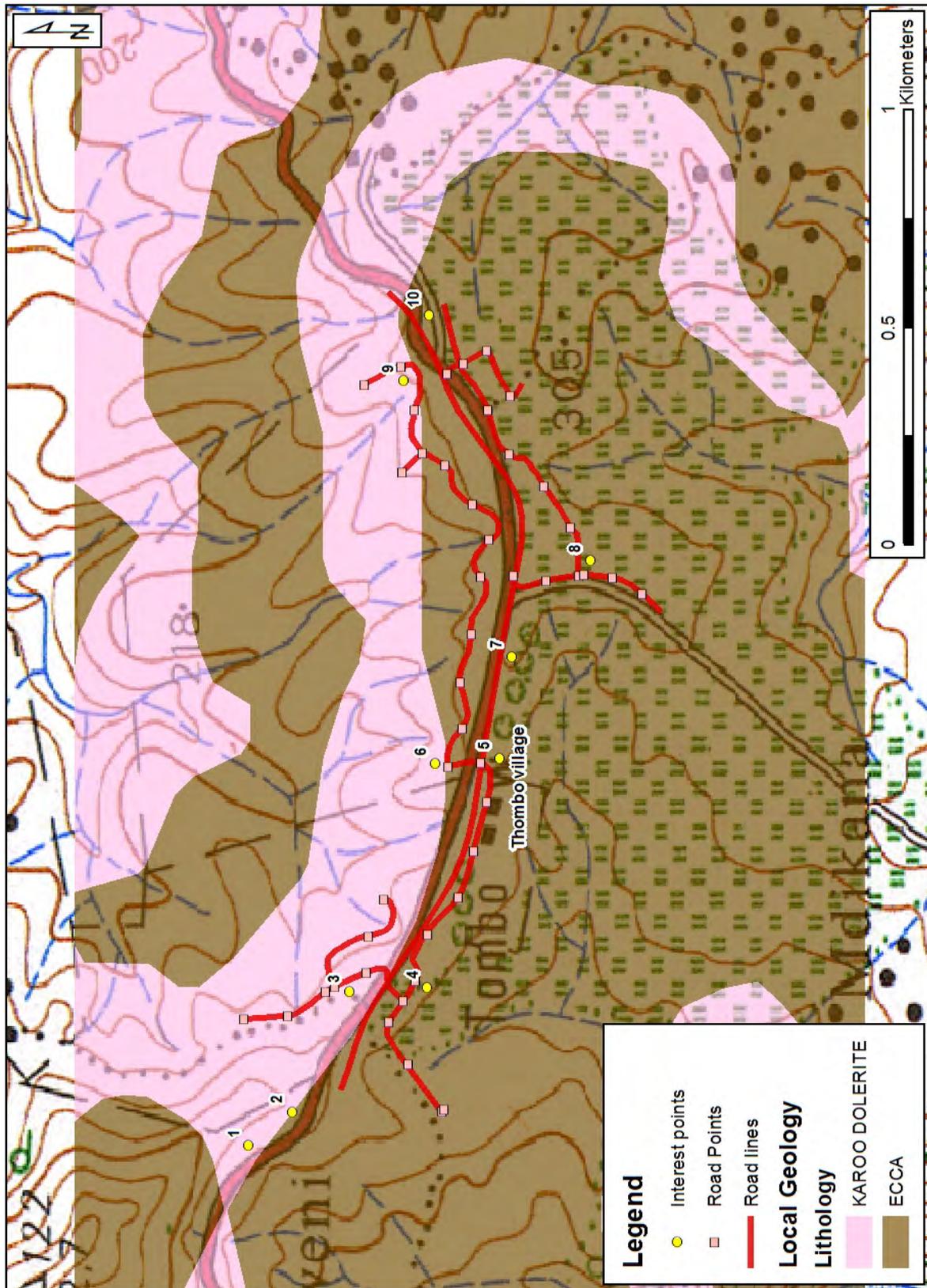


Figure 1: Proposed Thombo Community Access road system superimposed on geological and topographic map data.

Site Visit Observations

The proposed locale of the development was surveyed by the palaeontologist on the 14th April 2012. As stated above, the area is underlain by Ecca Group mudstones intruded with dolerite. Only the Ecca Group rocks are potentially palaeontologically sensitive. Although the geological map was found to be generally accurate it was found to be slightly inaccurate in detail.

An exhaustive survey was conducted from west to east.

In the extreme west of the area weathered Ecca mudstones and sandy mudstones are exposed in a road cutting to the north of the main road (fig. 1, pt. 1, fig. 2). These were carefully examined and found to contain scarce plant fossil fragments (fig. 3).



Figure 2: Weathered Ecca Group (Karoo Supergroup) mudstones exposed in a road cutting in the extreme west of the area at point 1 (fig. 1).



Figure 3: Plant fragments preserved in sandy Eccca Group mudstone in extreme west of study area point 1 (fig. 1). Scale bar = 4cm.

Slightly further to the east (fig. 1. pt. 2, fig. 4), where the road cutting has been more recently trimmed the unweathered appearance of the strata is apparent.



Figure 4: Freshly exposed sandy Eccca Group mudstones at point 2 (fig.1).

These Eccca Group sediments extend further to the north than is suggested by the geological survey map, being further exposed in a number of drains up to point 3 (fig. 1)(fig. 5)



Figure 5: Eccca Group sediments exposed in a drain at point 3 (fig. 1).

Along the main road freshly exposed Eccca Group sediments were also examined at point 7 (fig. 1) (fig. 6) and a large outcrop of weathered mudstone was examined at point 10 (fig.1) (fig. 8). Plant fragments were noted at point 7 (fig. 1) (fig. 6, 7).



Figure 6: Eccca Group mudstone exposed at point 7 (fig. 1).



Figure 7: Plant fragments exposed in Eccca Group mudstone at point 7 (fig. 1). Scale bar = 4cm.



Figure 8: Weathered Ecca Group mudstones at point 10 (fig. 1).

A large spoil heap of material recently disturbed by work along the main road was examined at point 8 (fig.1) (fig. 9). This provided a useful sample of material. No palaeontological material of any significance was identified, material noted being poorly preserved plant fragments.



Figure 9: Spoil heap at point 8 (fig. 1): *left*: spoil, *right*: fossil plant fragments. Scale bar = 4 cm

No outcrop was found along the routes of the proposed community access roads (figs. 10- 16)



Figure 10: Route of north western community access road: view south-east from near point 3 (fig. 1).



Figure 11: Route of the north central community access road: view east-south-east of point 6 (fig. 1).



Figure 12: North-easterly-most extent of northern community access road: view north of point 9 (fig.1).



Figure 13: South-western community access: view west of point 4 (fig. 1). Note thick black soil indicative of underlying dolerite (*contra* geological map).



Figure 14: South western community access: view west-south-west of point 4 (fig. 1).



Figure 15: Route of south-central community access road: view west from point 5 (fig. 1).



Figure 16: Route of south-eastern community access road: view north-east from point 8 (fig.1).

Conclusions and Recommendations

Ecca mudstones tend to rapidly weather to a crumbly outcrop making sampling difficult. Recent exposure of fresh material was therefore useful from a palaeontological perspective. Both weathered and fresher outcrop were carefully examined.

As a general rule the sediment was fairly sandy and contained only fragmentary plant fossil remains.

Significant palaeontological heritage being disturbed during this development therefore seems extremely unlikely.

It is therefore **recommended** that:

1. Monitoring of the works by a palaeontologist is not required.
2. **Near the end of the works, prior to cleaning and rehabilitation of new cuttings and spoil heaps, a palaeontologist should carry out an inspection to ascertain whether palaeontological material has been exposed in fresh outcrops.**

A report on this inspection should be submitted to SAHRA for their archive.

References

- Anderson, J.M. and Anderson, H.M. 1985. *The Palaeoflora of Southern Africa: Prodrum of Southern African megaflores, Devonian to Lower Cretaceous*. Rotterdam: Balkema.
- McCarthy, T. and Rubidge, B. 2005. *The Story of Earth and Life*. Struik Publishers, Cape Town
- Rubidge, B.S. (Ed) 1995. Biostratigraphy of the Beaufort Group (Karoo Supergroup), South Africa. South African Committee for Stratigraphy (SACS), *Biostratigraphic Series No. 1*. Council for Geosciences, Dept. of Mineral and Energy Affairs S.A.
- Evans, F.J. 2005. *Taxonomy, Palaeoecology and Palaeobiogeography of some Palaeozoic Fish of Southern Gondwana*. PhD thesis. Stellenbosch University.