

**Burlington Citrus Development, Remainder of the Farm Doorndraai 144,
near Cookhouse, Sarah Baartman District Municipality, Eastern Cape**

- 19 October 2020 -

Report to:

Sello Mkhanya (Eastern Cape Provincial Heritage Resources Agency – EC PHRA, APM Unit)
E-mail: smkhanya@ecphra.org.za; Tel: 043 745 0888; Address: N/A

Chris Bradfield (Isi-Xwiba Consulting)
E-mail: isix@lcom.co.za; Tel: 083 441 1189; Address: Private Bag X7055, Queenstown, 5320



Prepared by:

Karen van Ryneveld (ArchaeoMaps)
E-mail: karen@archaeomaps.co.za; Tel: 084 871 1064; Address: Postnet Suite 239, Private Bag X3, Beacon Bay, 5205

Specialist Declaration of Interest

I, Karen van Ryneveld (Company – ArchaeoMaps; Qualification – MSc Archaeology), declare that:

- I act as independent specialist in this application;
- I do not have any financial or personal interest in the application, its' proponent or subsidiaries, aside from fair remuneration for specialist services rendered;
- I am suitably qualified, accredited and experienced to act as independent specialist in this application;
- That work conducted have been done in an objective manner – and that any circumstances that may have compromised objectivity have been reported on transparently;
- That all material information collected for purposes of this application, that may reasonably influence the decision of the competent authority, are transparently disclosed in the report; and
- That work conducted have been done in accordance with relevant heritage legislation, regulations and policy guidelines, and with cognisance to environmental legislation, regulations and policies, including the principle of Integrated Environmental Management (IEM).



Signature –

- 19 October 2020 -

Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape

Executive Summary

Project Description –

Isi-Xwiba Consulting have been appointed as independent Environmental Assessment Practitioner (EAP) by the owner and developer, Burlington (Pty) Ltd, to apply for the Environmental Authorization (EA), including a Basic Assessment Report (BAR) and Environmental Management Plan (EMPr) to the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) for the proposed *Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape*. The *Burlington Citrus Development* is situated at general development co-ordinate S32°43'23.6"; E25°49'40.9" [1:50,000 Map Ref – 3225DB] and comprises an approximate 855ha property of which more or less 520ha is currently under irrigation. The total of the proposed development will be situated on a rough 600ha area, largely overlapping the existing development, and including:

- Citrus orchards; Road network to access citrus and associated infrastructure; Off-stream water storage dam; Single pump station and pipeline to pump water from the Fish River to the storage dam, for gravity irrigation; and Photovoltaic solar power system, approximately 1ha in extent and hydro-electric turbine, in order to generate the required electricity for farming operations.

The Phase 1 Archaeological & Cultural Heritage Impact Assessment –

Project Name & Locality: *Burlington Citrus Development, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape* [1:50,000 Map Ref – 3225DB].

Summary of Findings:

Two archaeological and cultural heritage resources / sites were identified during the assessment namely Site BCD-01 and Site BCD-02, both sites comprising Colonial Period railway bridges, older than 60 years of age and formally protected under the NHRA 1999.

- The proposed development poses no 'fatal flaws' with reference to archaeological and cultural heritage resources.
- From an archaeological and cultural heritage point of view consideration of a 'No-Go' option is irrelevant.
- The developer should comply with recommended temporary conservation measures during the construction phase of the development. Both sites will be permanently conserved within the development framework, implying permanent conservation during the implementation phase of the development without additional prescribed archaeological and cultural heritage compliance mitigation requirements needed.
- The development will have limited positive cumulative (visual) impact on the identified archaeological and cultural heritage resources.
- [In the event of any incidental archaeological and cultural heritage resources, as defined and protected by the NHRA 1999, being identified during the course of development the process described in 'Appendix B: Heritage Protocol for Incidental Finds during the Construction Phase' should be followed. The developer is advised to ensure a sufficient heritage contingency budget to address incidental finds during the course of development.]

Heritage Compliance Summary – Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape				
Map Code	Site	Co-ordinates	Site Significance	Recommendations
Burlington Citrus Development				
BCD-01	Colonial Period – Railway Bridge	S32°44'22.0"; E25°48'43.2"	High Significance Local Grade III-A	1. Temporary conservation fencing and signage during construction phase 2. Permanent conservation during implementation phase (without additional prescribed measures)
BCD-02	Colonial Period – Railway Bridge	S32°43'38.9"; E25°50'24.3"	High Significance Local Grade III-B	1. Temporary conservation fencing and signage during construction phase 2. Permanent conservation during implementation phase (without additional prescribed measures)

Recommendations –

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape* development proceeds as applied for, provided the developer comply with the recommended archaeological and cultural heritage compliance requirements.

The EC PHRA-APM Unit HIA Comment will state legal requirements for development to proceed, or reasons why, from a heritage perspective, development may not be further considered.

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Resumé: Karen van Ryneveld

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1 – Project Description & Terms of Reference

Isi-Xwiba Consulting have been appointed as independent Environmental Assessment Practitioner (EAP) by the owner and developer, Burlington (Pty) Ltd, to apply for the Environmental Authorization (EA), including a Basic Assessment Report (BAR) and Environmental Management Plan (EMPr) to the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) for the proposed *Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape*. The *Burlington Citrus Development* is situated at general development co-ordinate S32°43'23.6"; E25°49'40.9" [1:50,000 Map Ref – 3225DB] and comprises an approximate 855ha property of which more or less 520ha is currently under irrigation. The total of the proposed development will be situated on a rough 600ha area, largely overlapping the existing development, and including:

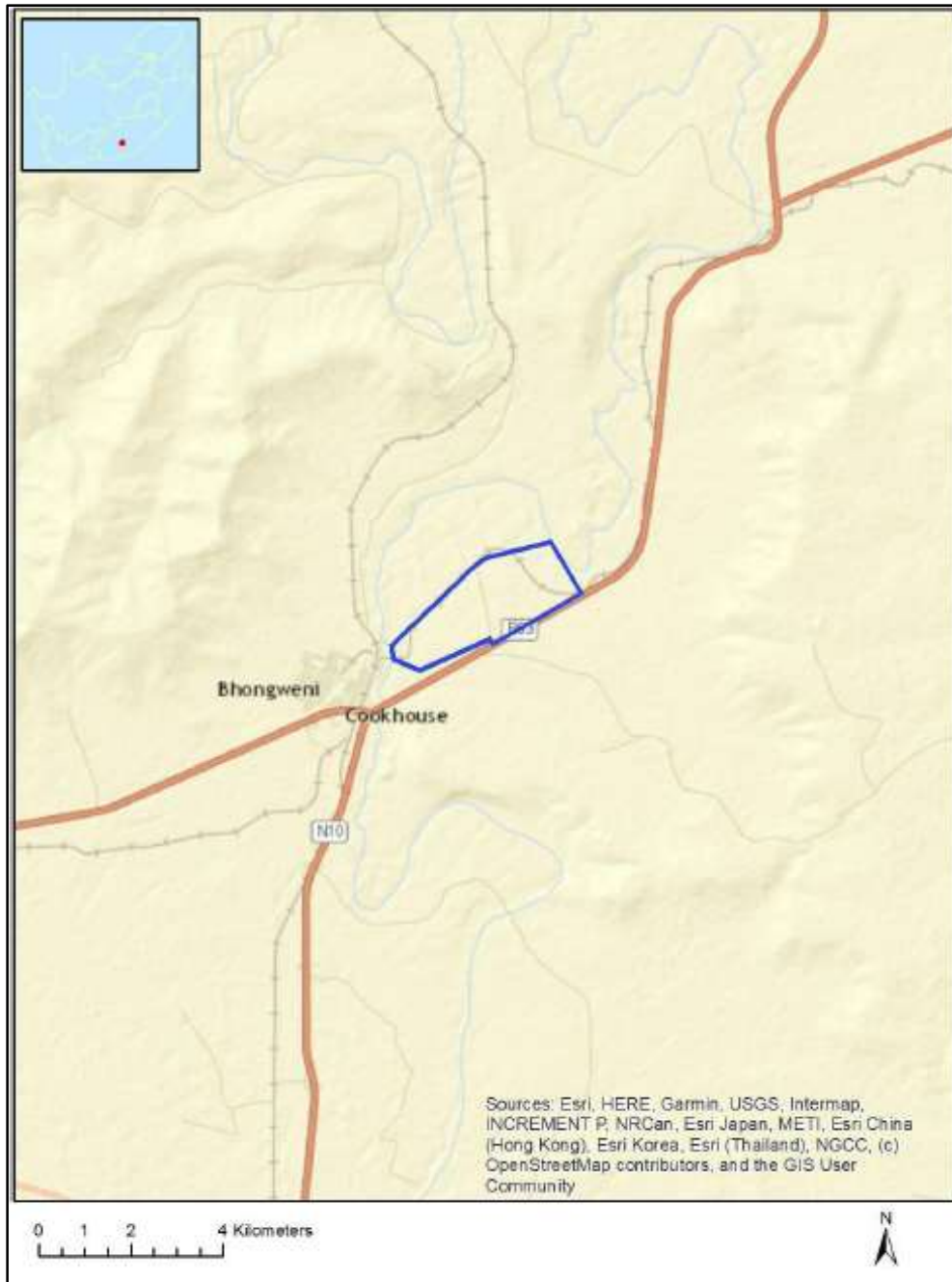
- Citrus orchards;
- Road network to access citrus and associated infrastructure;
- Off-stream water storage dam;
- Single pump station and pipeline to pump water from the Fish River to the storage dam, for gravity irrigation;
- Photovoltaic solar power system, approximately 1ha in extent and hydro-electric turbine, in order to generate the required electricity for farming operations.

ArchaeoMaps have been appointed by Isi-Xwiba Consulting to compile the Phase 1 Archaeological & Cultural Heritage Impact Assessment (AIA) for the development, as specialist component to the application's Heritage Impact Assessment (HIA), and with findings and recommendations thereof to be included in the BAR and EMPr. Terms of Reference (ToR) for the Phase 1 AIA are summarized as:

- Describe the existing area to be directly affected by the proposal in terms of its archaeological and cultural heritage characteristics as formally protected by the National Heritage Resources Act, No 25 of 1999 (NHRA 1999) and the general sensitivity of these components to change;
- Describe the likely scope, scale and significance of impacts (positive and negative) on the archaeological and cultural heritage resources of the area associated with the 1) construction and 2) operation or use phases of the proposal;
- Make recommendations on the scope of any mitigation measures that may be applied during the 1) construction and 2) operation or implementation phases to reduce / avoid the significance of identified related impacts. Mitigation measures could be design recommendations as well as operational controls, monitoring programmes, Phase 2 mitigation, management procedures and the like;
- Broadly describe the implication of a 'No-Go' option;
- Broadly comment on the cumulative impact (positive or negative) on archaeological or cultural heritage resources associated with the 1) construction and 2) operation or use phases of the proposal; and
- Confirm if there are any outright 'fatal flaws' to the proposal at its current location from an archaeological and cultural heritage perspective.



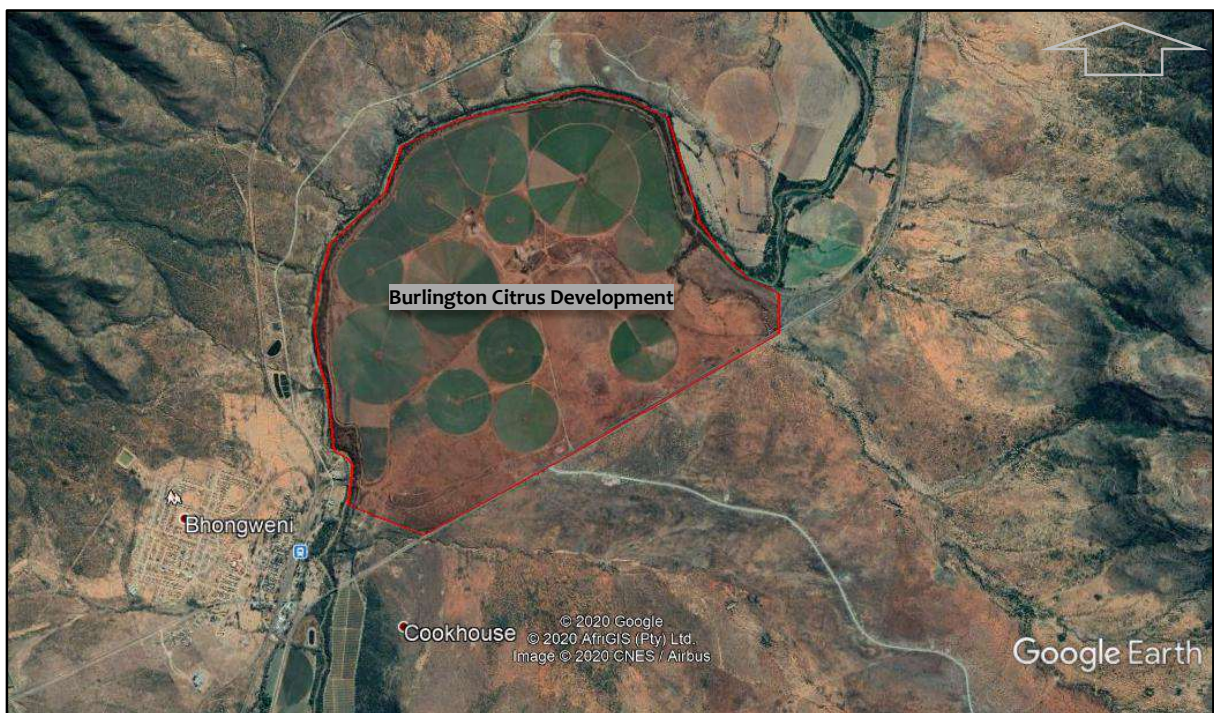
Map 1: General locality of the proposed *Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, EC* (Base Map – MapStudio, 2008)



Map 2: General locality of the proposed Burlington Citrus Development, Remainder of the Farm Doordraai 144, near Cookhouse, Sarah Baartman District Municipality, EC (Isi-Xwiba 2020)



Map 3: Proposed development layout of the Burlington Citrus Development, Remainder of the Farm Doordraai 144, near Cookhouse, Sarah Baartman District Municipality, EC (Pote 2020)



Map 4: General locality of the proposed Burlington Citrus Development, Remainder of the Farm Doordraai 144, near Cookhouse, Sarah Baartman District Municipality, EC

2 – The Phase 1 Archaeological & Cultural Heritage Impact Assessment

2.1) Archaeological & Cultural Heritage Legislative Compliance

The Phase 1 Archaeological & Cultural Heritage Impact Assessment (AIA) for the *Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape*, was requested to meet the Eastern Cape Provincial Heritage Resources Authority's (EC PHRA) requirements with reference to archaeological and basic cultural heritage resources in terms of the National Heritage Resources Act, No 25 of 1999 (NHRA 1999), with specific reference to Section 38(1)(a) and 38(1)(c)(i). This report is submitted in (partial) fulfilment of the NHRA 1999, Section 38(3) requirements, for purposes of a NHRA 1999, Section 38(4) / Section 38(8) Heritage Impact Assessment (HIA) Comment by the EC PHRA.

NHRA 1999, Section 38	
1)	Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorized as –
a)	The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
b)	The construction of a bridge or similar structure exceeding 50m in length;
c)	Any development or other activity which will change the character of a site –
i.	Exceeding 5,000m² in extent; or
ii.	Involving three or more existing erven or subdivisions thereof; or
iii.	Involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
iv.	The costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
d)	The rezoning of a site exceeding 10,000m ² in extent;
e)	Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
	Must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Table 1: Extract from the NHRA 1999, Section 38

The Phase 1 AIA aimed to locate, identify and assess the significance of archaeological and cultural heritage resources, inclusive of archaeological deposits / sites (Stone Age, Iron Age and Colonial Period), rock art and shipwreck sites, built structures older than 60 years, sites of military history older than 75 years, certain categories of burial grounds and graves, graves of victims of conflict, basic living heritage and cultural landscapes and views as defined and protected by the NHRA 1999, Section 2, 34, 35 and 36, that may be affected by the development.

This report comprises a Phase 1 AIA, including a basic pre-feasibility study and field assessment only. The report was prepared in accordance with the 'Minimum Standards' specifications for Phase 1 AIA reports, as stipulated by SAHRA (2007).

Additional relevant legislation pertaining to the Phase 1 AIA is listed as:

- National Environmental Management Act, No 107 of 1998 (NEMA 1998) and associated Regulations (2017).

2.2) Methodology & Gap Analysis

The Phase 1 AIA includes a basic pre-feasibility study and field assessment:

- The pre-feasibility assessment is based on the Appendix A schematic outline of South Africa's Pre-colonial and Colonial past, associated with introductory archaeological as well as general and scientific literature available and relevant to the study site. Databases consulted include the SAHRA 2009 Mapping Project Database (MPD), the South African Heritage Resources Information System (SAHRIS) and SAHRA database(s) on declared Provincial Heritage Sites (PHS) pertaining to the study site. The study excludes consultation of museum and university databases.

- The field assessment was done over a 1 day period with fieldwork conducted by the author. The assessment was done by vehicle and foot and limited to a Phase 1 surface survey. GPS co-ordinates were taken with Garmin Montana 680 (Datum: WGS84) Photographic documentation was done with a Canon EOS 1300D camera. A combination of Garmap (Base Camp) and Google Earth software was used in the display of spatial information.

The Phase 1 AIA was done according to the system and ‘Minimum Standards’ prescribed for the 3-tiered Phase 1-3 Heritage Impact Assessment (HIA) process (SAHRA 2007):

- Phase 1 HIA – A Phase 1 HIA is compulsory for development types as stipulated in the NHRA 1999, Section 38(1) and Section 38(8), including any other development type or study site as required by the South African Heritage Resources Agency (SAHRA) or relevant Provincial Heritage Resources Authority (PHRA). A Phase 1 HIA comprises at minimum of an archaeological (AIA) and palaeontological (PIA) study, but aims to address all heritage types protected by the NHRA 1999 and to alert developers to additional heritage specialist study requirements, if and where relevant to a development. Phase 1 HIA studies focusses on pre-feasibility and desktop studies, routinely coined with field assessments in order to locate, describe and assign heritage site significance ratings to identified resources that may be impacted by development. The aim of a Phase 1 AIA is to make site specific and general development recommendations regarding identified heritage resources for development planning and implementation purposes and may include recommendations for conservation, heritage site declaration, monitoring, Phase 2 mitigation (excavation), or destruction.
- Phase 2 HIA – Phase 2 HIAs are as a norm required where heritage resources of such significance have been identified during the Phase 1 HIA that mitigation (excavation) thereof is necessary for development purposes. Aside from large scale Phase 2 mitigation (routinely to precede development impact), lower keyed Phase 2 requirements may well include sampling, testing and monitoring during the construction or implementation phase of a development. Phase 2 HIA work is as a norm done under a compulsory heritage permit.
- Phase 3 HIA – As an extension to Phase 2 HIA work or cases where recommendations for heritage declaration formed part of a development’s heritage compliance requirements, heritage resources of such scientific or heritage tourism significance, that their long-term conservation and continued research would be necessary within a development framework is proposed as a Phase 3 HIA.

Archaeological and cultural heritage site significance assessment and associated mitigation recommendations are done according to the combined NHRA 1999, Section 7(1) and SAHRA (2007) system.

SAHRA Archaeological & Cultural Heritage Site Significance System			
Site Significance	Field Rating	Grade	Recommended Mitigation
High Significance	National Significance	Grade I	Heritage site conservation / Heritage site development
High Significance	Provincial Significance	Grade II	Heritage site conservation / Heritage site development
High Significance	Local Significance	Grade III-A	Heritage site conservation or extensive mitigation prior to development / destruction
High Significance	Local Significance	Grade III-B	Heritage site conservation or extensive mitigation prior to development / destruction
High / Medium Significance	Generally Protected A	Grade IV-A	Heritage site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B	Grade IV-B	Heritage site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C	Grade IV-C	On-site sampling, monitoring or no heritage mitigation required prior to or during development / destruction

Table 2: SAHRA archaeological and cultural heritage site significance assessment ratings and associated mitigation recommendations

2.1.1) Pre-feasibility Summary

Based on the Appendix A schematic outline of the Pre-colonial and Colonial Periods in South Africa and background literature and database information, the probability of archaeological and cultural heritage resources affected by, or situated in proximity to the *Burlington Citrus Development, Remainder of Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape* study site can briefly be described as:

Archaeological and Basic Cultural Heritage Probability Assessment – Burlington Citrus Development, Remainder of Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape			
Primary Type / Period	Sub-period	Sub-period type site	Probability
EARLY HOMININ / HOMINID	-	-	None
	Graves / human remains: High scientific significance		
STONE AGE	Earlier Stone Age (ESA)		Medium
	Middle Stone Age (MSA)		Medium
	Later Stone Age (LSA)		Medium
		Rock Art	Low- Medium
		Shel Middens	None
	Graves / human remains: ESA & MSA - High scientific significance; LSA – High scientific & social significance		
IRON AGE	Early Iron Age (EIA)		None
	Middle Iron Age (MIA)		None
	Later Iron Age (LIA)		Medium-High
	Graves / human remains: EIA – High scientific significance; MIA & LIA – High scientific & social significance		
COLONIAL PERIOD	Colonial Period		Medium-High
		LSA – Colonial Period Contact	None
		LIA – Colonial Period Contact	Medium-High
		Industrial Revolution	Medium-High
		Apartheid & Struggle	Medium
	Graves / human remains: Medium-high scientific & high social significance		

Table 3: Archaeological and basic cultural heritage probability assessment

2.1.2) The SAHRA 2009 MPD & SAHRIS

Nine (9) SAHRIS cases have been recorded with project study sites situated within an approximate 10km radius from the *Burlington Citrus Development, Remainder of Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape* study site. One (1) of the SAHRIS cases (SAHRIS CaseID: 5430) comprise a Draft Basic Impact Assessment Report (BAR) only, without an associated AIA; relevant AIA information is however referenced in listed AIA reports and by implication included in the discussion of the general heritage sensitivity of the study site. Applicable SAHRIS case reports are listed as:

- Binneman, J. (EHC). 2012. Basic Archaeological Assessments for the Proposed: 1) Golden Valley-Poseidon 132kV Power Lines (3 Power Lines); 2) Golden Valley-Kopleegte Power Lines (2 Power Lines); The 132kV Golden Valley Substation (250m x 250m) (2 Options), Bedford District, Blue Crane Route Local Municipality, Eastern Cape. (SAHRIS CaseID 1785).
- Binneman, J. (EHC). 2013. A Phase 1 Archaeological Impact Assessment of the Proposed New Substation and 132kV Power Line at the Nojoli Wind Farm near Cookhouse, Blue Crane Route Local Municipality, Cacadu District Municipality, Eastern Cape Province. (SAHRIS CaseID: 4125).
- Binneman, J. & Reickert, K. (EHC). 2015. An Archaeological Assessment and Walkthrough Survey of the Proposed Construction of a Facility Substation Complex, Metering Station and 132kV Overhead Power Line within the Authorized Development Envelope of the Nxuba Wind Farm near Cookhouse, Blue Crane Local Municipality, Sarah Baartman District Municipality, Eastern Cape Province. (SAHRIS CaseID: 8365).
- Binneman, J. & Reickert, K. (EHC). 2016. A Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Impact Assessment for the Proposed Construction of the Acciona Nxuba Temporary Concrete Plant on Portion 0 of the Farm Van Wyks Kraal No 73, near Cookhouse, Blue Crane Route Local Municipality, Sarah Baartman District Municipality, Eastern Cape Province. (SAHRIS CaseID: 9207).
- Nel, J. (Archaic Heritage Project Management). 2008. Final Report. Heritage Scoping Survey and Preliminary Assessment – Transnet Freight Line EIA, Eastern Cape and Northern Cape. (SAHRIS CaseID: 1355).

- Savannah Environmental. 2014. Environmental Impact Assessment Process Draft Basic Assessment Report – Proposed Access Roads and Watercourse Crossings within the Authorized Nojoli Wind Farm near Cookhouse, Eastern Cape Province. (SAHRIS CaseID: 5430).
- Prins, F. (Active Heritage). 2011. Shell International Exploration and Production B.V. Draft Technical Report in Support of the EMP for the South Western Karoo Basin Gas Exploration Application Project. Cultural Heritage: Eastern Precinct. (SAHRIS CaseID: 1941).
- Smuts, K & Lavin, J. (CTS Heritage). 2017. Heritage Impact Assessment in terms of Section 38(8) of the NHRA for a Proposed Spitskop WEF 132kV Power Lines. (SAHRIS CaseID 10804).
- Orton, J. (Asha Consulting). 2015. Golden Valley Wind Energy Facility – Proposed Road and Cable Alignment, Eastern Cape. (SAHRIS CaseID 7461).

2.1.3) SAHRA Provincial Heritage Site Database – Eastern Cape

No geo-referenced declared Provincial Heritage Sites (PHS) are recorded in the SAHRA – Eastern Cape database (https://en.wikipedia.org/wiki/List_of_heritage_sites_in_Eastern_Cape) and situated within a 10km radius from the proposed *Burlington Citrus Development, Remainder of Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape* study site, with the nearest PHS located roughly 20km west towards Somerset-East or 25km eastwards to Bedford.



Map 5: Spatial distribution of geo-referenced PHSs in the SAHRA – Eastern Cape database in relation to the *Burlington Citrus Development, Remainder of Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape* study site (https://en.wikipedia.org/wiki/List_of_heritage_sites_in_Eastern_Cape)

2.1.4) General Discussion

Stone Age sites and occurrences are reasonably reported on and including Earlier (ESA), Middle (MSA) and Later Stone Age (LSA) finds at the Shell Exploration study site (Prins 2011), the Golden Valley Wind Energy Facility Road and Cable study site (Orton 2015), the Spitskop Power Lines study site (Smuts & Lavin 2017) and near Cookhouse during the Transnet Freight Line assessment (Nel 2008). The best Stone Age context with high densities of lithic artefacts was reported on during the Transnet Freight Line assessment where artefacts were identified within a quarry context, being a primarily MSA site, with lesser quantities of ESA and LSA material (Nel 2008). The remainder of reports on Stone Age material, and including again ESA, MSA and LSA artefacts, are described as low-density surface occurrences, without a

specific site or member / lense context and uniformly assigned Low Significance heritage ratings (Orton 2015; Prins 2011; Smuts & Lavin 2017). Reported on Rock Art sites (paintings) are limited to the Shell Exploration study site (Prins 2011).

Iron Age resources reported on are limited to the Later Iron Age (LIA) and exclusively reported on in proximity to and directly associated with Colonial Period sites, including a LIA cemetery near the Klipfontein Railway station along the Transnet Freight Line (Nel 2008) and further thereto including workers villages and cemeteries associated with farmsteads, reported on by Binneman (2012) during assessment of the Bedford District Power Lines and Substation development and Prins (2011) with reference to the Shell Exploration study site.

Colonial Period sites are the most prominent type sites identified, comprising farmsteads, including residences, farming infrastructure and outbuildings, kraals, and gravesites and cemeteries, recorded at the Bedford District Power Lines and Substation study site (Binneman 2012), the Shell Exploration study site (Prins 2011), the Golden Valley Wind Energy Facility Road and Cable study site (Orton 2015), and including the Klipfontein railway station reported on during the Transnet Freight Line assessment (Nel 2008).

Cookhouse, the nearest town to the *Burlington Citrus Development*, was founded as a small Settlers settlement in the 1770s by Frans Johannes van Aardt on the Farm Roodewal. Approximately 100 years thereafter, during the 1870s, the then British government under Prime Minister John Molteno constructed the Cape Railway system, with the northwards route from Port Elizabeth via Port Alfred to De Aar passing through Cookhouse. Cookhouse is home to the Slachter's Nek Monument (1916), commemorating the hanging of five burgher rebels during the Slachter's Nek Rebellion of 1816, the Thomas Pringle's Cairn, the Fallen Heroes Memorial (2007) dedicated to those who have fallen during the Apartheid struggle and the Fairworld Fine Wool Museum (en.wikipedia.org/wiki/Cookhouse).

Two archaeological or cultural heritage resources (Sites BCD-01 and BCD-02), as defined and protected by the NHRA 1999, were identified during the field assessment of the *Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape*. Both identified sites comprise Colonial Period railway bridges (older than 60 years of age and formally protected by the NHRA 1999), with the associated railway line crossing the property by implication constituting an extension to this heritage line route.

A stone cluster feature (F-BCD-03: S32°43'32.0"; E25°49'39.1"), reported on to ArchaeoMaps and inferred to be a possible grave site, is not a heritage resource: The feature is indicative of former site clearing of large stones, most possibly directly related to a nearby cell phone mast development.

With the large majority of the study site already developed, a low density of Stone Age lithics were found in the limited intersecting virgin areas; lithic densities were however extremely low, described as $\geq 1:100$ (artefacts: m²), of a rough Middle Stone Age (MSA) and macrolithic Later Stone Age (LSA) typology, of mixed, dolerite, granite and to a lesser degree quartzitic raw material. A high density of Stone Age material (MSA artefacts of lydianite / baked shale) was found used in the ballast of the railway line. These artefacts were not sourced from the study site, and are reflective of the quarry material used in construction of the line route, the localities of which are no longer known.

Colonial Period infrastructure, including a weir and jetty, is present in the Fish River near the off-stream water storage dam area; being municipal property that will not be impacted by development these heritage resources (older than 60 years of age and formally protected under the NHRA 1999) are not further discussed in this report. Similarly, Colonial Period structures, in the general vicinity of the above mentioned, on the opposite side of the river are formally protected, but do not form part of the scope of work of this assessment.

2.2.1) Site BCD-01 – Colonial Period – Railway Bridge: S32°44'22.0"; E25°48'43.2"

Site BCD-01 comprises a Colonial Period steel railway bridge, constructed in the 1870s, but with the exact date of construction unknown. The railway bridge forms part of the Colonial Period Port Elizabeth via Port Alfred to De Aar railway line. The railway line is no longer in use; neither is the bridge. The bridge has deteriorated over the years; it is poorly conserved and considered a health and safety risk. The bridge crosses over to the development study site, but will not be impacted on by development – the Site BCD-01 railway bridge will by implication be conserved.

- **Site Significance and Recommendations:** Site BCD-01 is ascribed a SAHRA High Significance with a Local Grade III-A Field Rating. Temporary conservation measures during the construction phase is recommended, including a temporary conservation fence (wire or construction netting) prohibiting access to the site and temporary signage indicating the site as a 'No Entry – Heritage Site' zone. All temporary conservation measures should be removed upon completion of construction work in the area. Site BCD-01 will be permanently conserved within the development framework.

2.2.2) Site BCD-02 – Colonial Period – Railway Bridge: S32°43'38.9"; E25°50'24.3"

Site BCD-02 comprises a Colonial Period stone railway bridge. Similar to Site BCD-01 the site dates to the 1870s, but without the exact date of construction known. The site is in a fair state of conservation, - but no longer in use. Development will not impact on the bridge; the site will thus be conserved within the development framework.

- **Site Significance and Recommendations:** Site BCD-02 is ascribed a SAHRA High Significance with a Local Grade III-B Field Rating. Temporary conservation measures including a temporary fence with a minimum 5m conservation buffer around the site and temporary signage indicating the site as a 'No Entry – Heritage Site' zone should be in place for the duration of construction work in the vicinity of the site. All temporary conservation measures should be removed once construction work is completed. Site BCD-02 will be permanently conserved within the development framework.



Plate 1: View of the Site BCD-01 railway bridge [1]



Plate 3: View from the Site BCD-01 railway bridge over the Fish River



Plate 2: View of the Site BCD-01 railway bridge [2]



Plate 4: View of the existing pump station and outlet near Site BCD-01



Plate 5: View of the proposed new site for a pump station and outlet near Site BCD-01



Plate 7: View of the Site BCD-02 railway bridge [2]



Plate 6: View of the Site BCD-02 railway bridge [1]



Plate 8: View of the stone feature – F-BCD-03



Plate 9: General view of the proposed photovoltaic solar power facility area [1]



Plate 10: General view of the proposed photovoltaic solar power facility area [2]



Plate 11: General view of the off-stream water storage dam area [1]



Plate 12: General view of the off-stream water storage dam area [2]



Plate 13: Existing infrastructure in the vicinity of the off-stream water storage dam [1]



Plate 15: Existing development to be replaced by orchards [1]



Plate 14: Existing infrastructure in the vicinity of the off-stream water storage dam [2]



Plate 16: Existing development to be replaced by orchards [2]



Plate 17: Existing development to be replaced by orchards [3]



Plate 19: General view of virgin areas to be included in orchard development [2]



Plate 18: General view of virgin areas to be included in orchard development [1]



Plate 20: General view of virgin areas to be included in orchard development [3]



Plate 21: Anthropogenic sterile quarry sections at the study site [1]



Plate 23: Anthropogenic sterile sections along the Fish River [1]



Plate 22: Anthropogenic sterile quarry sections at the study site [2]



Plate 24: Anthropogenic sterile sections along the Fish River [2]



Map 6: Phase 1 AIA field assessment results for the Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape study site

3 – Environmental Impact Assessment Rating

Identified archaeological and cultural heritage resources are ascribed an Environmental Impact Assessment (EIA) rating, based on the outline presented below to provide a significance rating of development impact on resources, both during the 1) construction and 2) operation and use phases of development (in accordance with NEMA 1998, Regulations 2014):

Overall Nature:	1) Negative (negative impact on affected biophysical or human environment), or 2) Positive (benefit to the affected biophysical or human environment).
Type:	1) Direct (caused by the action and occur at the same time and place), 2) Indirect or secondary (caused by the action and are later in time or further removed in distance but reasonably foreseeable), or 3) Cumulative (impact which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions; can result from individually minor, but collectively significant actions taking place over a period of time).
Spatial Extent:	1) Site (immediate area of activity, incorporating a 5m zone from the edge of the affected area), 2) Local (area up to and/or within 10km from the 'site' as defined above), 3) Regional (entire community, basin or landscape), or 4) National (South Africa).
Duration:	1) Short-term (impact would last for the duration of activities; quickly reversible), 2) Medium-term (impact would affect project activity; reversible over time), 3) Long-term (impact would continue beyond project activity), or 4) Permanent (impact would continue beyond decommissioning).
Severity:	1) Low , 2) Medium , or 3) High , being +) Positive , or -) Negative (based on separately described categories examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functionality or slightly alters the environment itself).
Reversibility:	1) Completely reversible (completely reversible impact with implementation of correct mitigation measures), 2) Partly reversible (partly reversible impact with implementation of correct mitigation measures), or 3) Irreversible (impact cannot be reversed, regardless of mitigation or rehabilitation measures).
Replaceability:	1) Resource will not be lost (resource will not be lost provided mitigation measures are implemented), 2) Resource will be partly lost (partial loss or destruction of the resource will occur even though management and mitigation measures are implemented), or 3) Resource cannot be replaced (resource is irreplaceable no matter which management or mitigation measures are implemented).
Probability:	1) Unlikely (<40% probability), 2) Possible (40% probability), 3) Probable (>70% probability), or 4) Definite (>90% probability).
Mitigation potential:	1) High or completely mitigatable (relatively easy and cost effective to manage. Specialist expertise and equipment generally not required. Nature of impact easily understood and may be mitigated through implementation of a management plan or 'good housekeeping', including regular monitoring and reporting regimes. Significance of the impact after mitigation is likely to be low or negligible), 2) Moderate or partially mitigatable (management requires higher level of expertise and resources to maintain impacts with acceptable levels. Mitigation can be tied up in the design of the project. Significance of the impacts after mitigation is likely to be low to moderate. It may not be possible to mitigate the impact entirely, with residual impacts resulting), or 3) Low or un-mitigatable (will not be possible to mitigate the impact entirely, regardless of expertise and resources. Potential to manage the impacts may be beyond the scope of the project. Management of the impact is not likely to result in a measurable change in the level of significance).
Impact significance:	1) Negligible , 2) Low (largely of HIGH mitigation potential, after consideration of other criteria), 3) Moderate (largely of MODERATE or partial mitigation potential, after consideration of other criteria), or 4) Substantial (largely of LOW mitigation potential, after consideration of other criteria).

Environmental Impact Assessment Rating: Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape												
Potential Impacts	Overall nature	Type	Spatial extent	Duration	Severity	Reversibility	Replaceability	Probability	MITIGATION POTENTIAL	IMPACT SIGNIFICANCE		MITIGATION MEASURES
										Without mitigation	With mitigation	
SITES: BCD-01 & BCD-02												
Construction phase	Positive	Indirect	Site	Short Term	Low (-)	Completely reversable	Resource will not be lost	Definite	High or completely mitigatable	Substantial	Negligible	Temporary Conservation fencing and signage
Operational phase	Positive	N/A	Site	Permanent	High (+)	Irreversible	Resource will not be lost	N/A	N/A	Substantial	Substantial	Permanent Conservation
Mitigation details: Sites BCD-01 and BCD-02 will not be impacted by development – Temporary conservation measures including a temporary fence (ex. construction netting) and temporary signage indicating the sites as 'No Entry – Heritage Site' should be in place for the duration of construction work in the vicinity of these sites. All temporary conservation measures should be removed upon completion of work. Both sites will be permanently conserved within the development framework.												

Table 4: Environmental Impact Assessment Rating: Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape* development proceeds as applied for, provided the developer comply with the recommended archaeological and cultural heritage compliance requirements.

Two archaeological and cultural heritage resources / sites were identified during the assessment namely Site BCD-01 and Site BCD-02, both sites comprising Colonial Period railway bridges, older than 60 years of age and formally protected under the NHRA 1999.

- The proposed development poses no ‘fatal flaws’ with reference to archaeological and cultural heritage resources.
- From an archaeological and cultural heritage point of view consideration of a ‘No-Go’ option is irrelevant.
- The developer should comply with recommended temporary conservation measures during the construction phase of the development. Both sites will be permanently conserved within the development framework, implying permanent conservation during the implementation phase of the development without additional prescribed archaeological and cultural heritage compliance mitigation requirements needed.
- The development will have limited positive cumulative (visual) impact on the identified archaeological and cultural heritage resources.
- [In the event of any incidental archaeological and cultural heritage resources, as defined and protected by the NHRA 1999¹, being identified during the course of development the process described in ‘Appendix B: Heritage Protocol for Incidental Finds during the Construction Phase’ should be followed. The developer is advised to ensure a sufficient heritage contingency budget to address incidental finds during the course of development.]

Heritage Compliance Summary – Burlington Citrus Development, Remainder of the Farm Doorndraai 144, near Cookhouse, Sarah Baartman District Municipality, Eastern Cape				
Map Code	Site	Co-ordinates	Site Significance	Recommendations
Burlington Citrus Development				
BCD-01	Colonial Period – Railway Bridge	S32°44’22.0”; E25°48’43.2”	High Significance Local Grade III-A	1. Temporary conservation fencing and signage during construction phase 2. Permanent conservation during implementation phase (without additional prescribed measures)
BCD-02	Colonial Period – Railway Bridge	S32°43’38.9”; E25°50’24.3”	High Significance Local Grade III-B	1. Temporary conservation fencing and signage during construction phase 2. Permanent conservation during implementation phase (without additional prescribed measures)

Table 5: Heritage compliance summary

The EC PHRA-APM Unit HIA Comment will state legal requirements for development to proceed, or reasons why, from a heritage perspective, development may not be further considered.

¹ Simplified Guide to the Identification of Archaeological Sites:

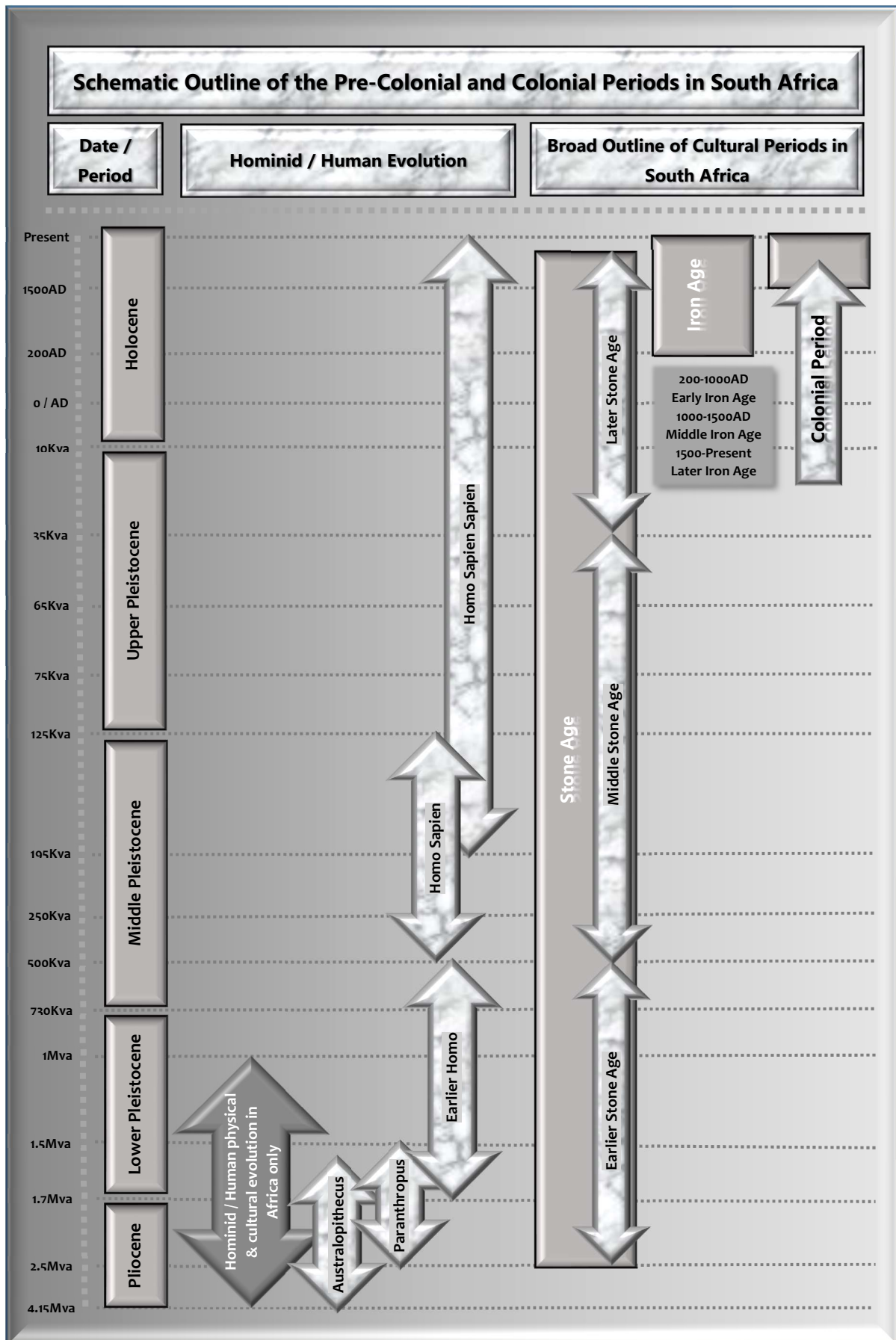
- ❖ **Stone Age** – Knapped stone display flakes and flake scars that appear unnatural and may result in similar type ‘shaped’ stones often concentrated in clusters or forming a distinct layer in the geological stratigraphy. ESA shapes may represent ‘pear’ or oval shaped stones, often in the region of 10cm or larger. Typical MSA types include blade-like or rough triangular shaped artefacts, often associated with randomly shaped lithics or flakes that display use- or edge-wear around the rim of the artefact. LSA types are similar to MSA types, but generally smaller (≤3cm in size), often informally shaped, and are frequently found in association with bone, pieces of charcoal, ceramic shards and food remains.
 - **Rock Art** – Includes both painted and engraved images.
 - **Shell Middens** – Include compact shell lenses that may be quite extensive in size or small ephemeral scatters of shell food remains, often associated with LSA artefact remains, but may also be of MSA and Iron Age cultural association.
- ❖ **Iron Age** – Iron Age sites are often characterized by stone features, i.e. the remains of former livestock enclosures or typical household remains; huts are identified by either mound or depression hollows. Typical artefacts include ceramic remains, farming equipment, beads and trade goods, metal artefacts (including jewellery) etc. Remains of the ‘Struggle’ – events, histories and landmarks associated therewith are often, based on cultural association, classed as part of the Iron Age heritage of South Africa.
- ❖ **Colonial Period** – Built environment remains, either urban or rural, are of a Western cultural affiliation with typical artefacts representing early Western culture, including typical household remains, trade and manufactured goods, such as old bottle, porcelain and metal artefacts. War memorial remains, including the vast array of associated graves and the history of the Industrial Revolution form important parts of South Africa’s Colonial Period heritage.
- ❖ **Grave and Cemetery Sites** – Marked grave and cemetery sites are routinely associated with the Iron Age and Colonial Period. Unmarked grave sites associated with the Stone Age, Iron Age and Colonial Period may be uncovered during the course of development.

Notes: Should any registered Interested & Affected Party (I&AP) wish to be consulted in terms of Section 38(3)(e) of the NHRA 1999 (socio-cultural consultation / SAHRA SIA) it is recommended that the developer / EAP ensures that the consultation be prioritized within the timeframe of the Environmental Impact Assessment (EIA) process.

List of Acronyms and Abbreviations	
AD	Anno Domini (the year o)
AIA	Archaeological (and Cultural Heritage) Impact Assessment
AMAFA	Amafa aKwaZulu-Natali (Natal PHRA)
ASAPA	Association of Southern African Professional Archaeologists
BAR	Basic Assessment Report
BC	Before the Birth of Christ (the year o)
BCE	Before the Common Era (the year o)
BID	Background Information Document
BP	Before the Present (the year o)
Cm	Centimetre
CMP	Conservation Management Plan
CRM	Cultural Resources Management
DAC	Department of Arts and Culture
DEAT	Department of Environmental Affairs and Tourism
DME	Department of Minerals and Energy
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
ELO	Environmental Liaison Officer
EC PHRA	Eastern Cape Provincial Heritage Resources Agency
EIA ₁	Environmental Impact Assessment
EIA ₂	Early Iron Age
EMPr	Environmental Management Plan / Programme Report
ESA	Earlier Stone Age
Ha	Hectare
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
ICOMOS	International Council on Monuments and Sites
IEM	Integrated Environmental Management
Km	Kilometre
Kya	Thousands of years ago
LIA	Later Iron Age
LSA	Later Stone Age
M	Metre
m ²	Square metre
MIA	Middle Iron Age
Mm	Millimetre
MPRDA 2002	Mineral and Petroleum Resources Development Act, No 28 of 2002
MSA	Middle Stone Age
Mya	Millions of years ago
NEMA 1998	National Environmental Management Act, No 107 of 1998
NHRA 1999	National Heritage Resources Act, No 25 of 1999
PIA	Palaeontological Impact Assessment
PHRA	Provincial Heritage Resources Agency
PSSA	Palaeontological Society of Southern Africa
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SIA	Social Impact Assessment

Table 6: List of Acronyms and Abbreviations

1. Binneman, J. (ECHC). 2012. Basic Archaeological Assessments for the Proposed: 1) Golden Valley-Poseidon 132kV Power Lines (3 Power Lines); 2) Golden Valley-Kopleegte Power Lines (2 Power Lines); The 132kV Golden Valley Substation (250m x 250m) (2 Options), Bedford District, Blue Crane Route Local Municipality, Eastern Cape.
2. en.wikipedia.org/wiki/Cookhouse [Accessed: October 2020].
3. en.wikipedia.org/wiki/List_of_heritage_sites_in_Eastern_Cape [Accessed: October 2020].
4. Isi-Xwiba. 2020. Screening Report for an Environmental Authorization or for a Part Two Amendment of an Environmental Authorization as Required by the 2014 EIA regulations – proposed Site Environmental Sensitivity – Burlington Citrus Development.
5. Nel, J. (Archaic Heritage Project Management). 2008. Final Report. Heritage Scoping Survey and Preliminary Assessment – Transnet Freight Line EIA, Eastern Cape and Northern Cape.
6. Pote, J. 2020. Terrestrial Biodiversity Assessment. Proposed Burlington Citrus Development.
7. Prins, F. (Active Heritage). 2011. Shell International Exploration and Production B.V. Draft Technical Report in Support of the EMP for the South Western Karoo Basin Gas Exploration Application Project. Cultural Heritage: Eastern Precinct.
8. Smuts, K & Lavin, J. (CTS Heritage). 2017. Heritage Impact Assessment in terms of Section 38(8) of the NHRA for a Proposed Spitskop WEF 132kV Power Lines.
9. South African Government. (No. 107 of) 1998. *National Environmental Management Act*.
10. South African Government. (No. 25 of) 1999. *National Heritage Resources Act*.
11. South African Heritage Resources Agency. 2007. *Minimum Standards for the Archaeological and Heritage Components of Impact Assessments*. (Unpublished guidelines.)
12. Orton, J. (Asha Consulting). 2015. Golden Valley Wind Energy Facility – Proposed Road and Cable Alignment, Eastern Cape.





Heritage Impact Assessment (HIA) – Burlington Citrus Development, Remainder of the Farm Doordraai 144, near Cookhouse, Sarah Baartman Cacadu District Municipality, Eastern Cape

Heritage Protocol for Incidental Finds during the Construction Phase

Should any palaeontological, archaeological or cultural heritage resources, including human remains / graves, as defined and protected by the NHRA 1999, be identified during the construction phase of development (including as a norm during vegetation clearing, surface scraping, trenching and excavation phases), it is recommended that the process described below be followed.

➤ On-site Reporting Process:

1. The identifier should immediately notify his / her supervisor of the find.
2. The identifier's supervisor should immediately (and within 24 hours after reporting by the identifier) report the incident to the on-site SHE / SHEQ officer.
3. The on-site SHE / SHEQ officer should immediately (and within 24 hours after reporting by the relevant supervisor) report the incident to the appointed ECO / ELO officer. [Should the find relate to human remains the SHE / SHEQ officer should immediately notify the nearest SAPS station informing them of the find].
4. The ECO / ELO officer should ensure that the find is within 72 hours after the SHE / SHEQ officers report reported on SAHRIS and that a relevant heritage specialist is contacted to make arrangements for a heritage site inspection. [Should the find relate to human remains the ECO / ELO officer should ensure that the archaeological site inspection coincides with a SAPS site inspection, to verify if the find is of forensic, authentic (informal / older than 60 years), or archaeological (older than 100 years) origin].
5. The appointed heritage specialist should compile a 'heritage site inspection' report based on the site-specific findings. The site inspection report should make recommendations for the destruction, conservation or mitigation of the find and prescribe a recommended way forward for development. The 'heritage site inspection' report should be submitted to the ECO / ELO, who should ensure submission thereof on SAHRIS.
6. SAHRA / the relevant PHRA will state legal requirements for development to proceed in the SAHRA / PHRA Comment on the 'heritage site inspection' report.
7. The developer should proceed with implementation of the SAHRA / PHRA Comment requirements. SAHRA / PHRA Comment requirements may well stipulate permit specifications for development to proceed.
 - Should permit specifications stipulate further Phase 2 archaeological investigation (including grave mitigation) a suitably accredited heritage specialist should be appointed to conduct the work according to the applicable SAHRA / PHRA process. The heritage specialist should apply for the permit. Upon issue of the SAHRA / PHRA permit the Phase 2 heritage mitigation program may commence.
 - Should permit specifications stipulate destruction of the find under a SAHRA / PHRA permit the developer should immediately proceed with the permit application. Upon the issue of the SAHRA / PHRA permit the developer may legally proceed with destruction of the palaeontological, archaeological or cultural heritage resource.
 - Upon completion of the Phase 2 heritage mitigation program the heritage specialist will submit a Phase 2 report to the ECO / ELO, who should in turn ensure submission thereof on SAHRIS. Report recommendations may include that the remainder of a heritage site be destroyed under a SAHRA / PHRA permit.
 - Should the find relate to human remains of forensic origin the matter will be directly addressed by the SAPS: A SAHRA / PHRA permit will not be applicable.

NOTE: Note that SAHRA / PHRA permit and process requirements relating to the mitigation of human remains requires suitable advertising of the find, a consultation, mitigation and re-interment / deposition process.

➤ **Duties of the Supervisor:**

1. The supervisor should immediately upon reporting by the identifier ensure that all work in the vicinity of the find is ceased.
2. The supervisor should ensure that the location of the find is immediately secured (and within 12 hours of reporting by the identifier), by means of a temporary conservation fence (construction netting) allowing for a 5-10m heritage conservation buffer zone around the find. The temporary conserved area should be sign-posted as a 'No Entry – Heritage Site' zone.
3. Where development has impacted on the resource, no attempt should be made to remove artefacts / objects / remains further from their context, and artefacts / objects / remains that have been removed should be collected and placed within the conservation area or kept for safekeeping with the SHE / SHEQ officer. It is imperative that where development has impacted on palaeontological, archaeological and cultural heritage resources the context of the find be preserved as good as possible for interpretive and sample testing purposes.
4. The supervisor should record the name, company and capacity of the identifier and compile a brief report describing the events surrounding the find. The report should be submitted to the SHE / SHEQ officer at the time of the incident report.

➤ **Duties of the SHE / SHEQ Officer:**

1. The SHE / SHEQ officer should ensure that the location of the find is recorded with a GPS. A photographic record of the find (including implementation of temporary conservation measures) should be compiled. Where relevant a scale bar or object that can indicate scale should be inserted in photographs for interpretive purposes.
2. The SHE / SHEQ officer should ensure that the supervisors report, GPS co-ordinate and photographic record of the find be submitted to the ECO / ELO officer. [Should the find relate to human remains the SHE / SHEQ officer should ensure that the mentioned reporting be made available to the SAPS at the time of the incident report].
3. Any retrieved artefacts / objects / remains should, in consultation with the ECO / ELO officer, be deposited in a safe place (preferably on-site) for safekeeping.

➤ **Duties of the ECO / ELO officer:**

1. The ECO / ELO officer should ensure that the incident is reported on SAHRIS. (The ECO / ELO officer should ensure that he / she is registered on the relevant SAHRIS case with SAHRIS authorship to the case at the time of appointment to enable heritage reporting].
2. The ECO / ELO officer should ensure that the incident report is forwarded to the heritage specialist for interpretive purposes at his / her soonest opportunity and prior to the heritage site inspection.
3. The ECO / ELO officer should facilitate appointment of the heritage specialist by the developer / construction consultant for the heritage site inspection.
4. The ECO / ELO officer should facilitate access by the heritage specialist to any retrieved artefacts / objects / remains that have been kept in safekeeping.
5. The ECO / ELO officer should facilitate coordination of the heritage site inspection and the SAPS site inspection in the event of a human remains incident report.
6. The ECO / ELO officer should facilitate heritage reporting and heritage compliance requirements by SAHRA / the relevant PHRA, between the developer / construction consultant, the heritage specialist, the SHE / SHEQ officer (where relevant) and the SAPS (where relevant).

➤ **Duties of the Developer / Construction Consultant:**

The developer / construction consultant should ensure that an adequate heritage contingency budget is accommodated within the project budget to facilitate and streamline the heritage compliance process in the event of identification of incidental palaeontological, archaeological and cultural heritage resources during the course of development, including as a norm during vegetation clearing, surface scraping, trenching and excavation phases, when resources not visible at the time of the surface assessment may well be exposed.

Resumé
Karen van Ryneveld
2020

Name: Karen van Ryneveld

Contact Details:

- 1) Mobile – 084 871 1064
- 2) E-mail – karen@archaeomaps.co.za
- 3) Website – www.archaeomaps.co.za
- 4) Postal address – Postnet Suite 239, Private Bag X3, Beacon Bay, 5205

Company: ArchaeoMaps cc

Occupation: Archaeologist

Qualification: MSc Archaeology (WITS University – 2003)

Accreditation:

- 1) Association of Southern African Professional Archaeologists (ASAPA) accredited Cultural Resources Management CRM practitioner [member nr – 163]
 - o 2010 – ASAPA CRM Section: Principle Investigator – Stone Age
 - o 2005 – ASAPA CRM Section: Field Director – Iron Age & Colonial Period
- 2) SAHRA, AMAFA, EC PHRA and HWC listed ASAPA accredited CRM archaeologist

Tertiary Education

2010 **University of South Africa (UNISA), Pretoria** (Project Management 501)

2006 – 2007 **Nelson Mandela Metropolitan University (NMMU), Port Elizabeth** (Undergraduate Certificate in Geographical Information Systems – GIS)

2001 – 2003 **University of the Witwatersrand (WITS), Johannesburg** (MSc Archaeology)

1999 – 2000 **University of Pretoria (UP), Pretoria** (BA Hons. Archaeology)

1991 – 1993 **University of Pretoria (UP), Pretoria** (BA Archaeology & History of Art)

Courses

2016/01 SPA (Safety Passport Alliance) – Petrol Retail [SA Safety Management Training Services – SMST]

Employment – Professional Archaeology

2007/04 – Present ArchaeoMaps [Self-employed] (Archaeologist – CRM)

2006/06 – 2007/03 National Museum, Bloemfontein (Archaeologist – CRM, Dept. of Archaeology)

2005/04 – 2006/05 McGregor Museum, Kimberley (Archaeologist – CRM / Research, Dept. of Archaeology)

2004/04 – 2005/01 Amafa aKwaZulu-Natali (HoD: Archaeology, Palaeontology & Meteorites Unit – APM Unit)

2002/09 – 2004/03 McGregor Museum, Kimberley (Archaeologist – CRM / Research, Dept. of Archaeology)

Employment – Freelance: Ground Penetrating Radar

2015/10 – Present Terra Scan assistant (BCM area, EC) – GPR & underground utilities focussing on petrol retail (oil & gas) industry

Archaeology – Summary

Karen has been involved in CRM archaeology since 2003 and has been the author (including selected co-authored reports) of approximately 500 Phase 1 AIA studies. Phase 1 AIA work is centred in South Africa, focussing on the Northern and Eastern Cape provinces and the Free State. She has also conducted Phase 1 work in Botswana (2006 / 2007). In 2007 she started ArchaeoMaps, an independent archaeological and heritage consultancy. In 2010 she was awarded ASAPA CRM Principle Investigator (PI) status based on large scale Phase 2 Stone Age mitigation work (De Beers Consolidated Mines – Rooipoort, Northern Cape, 2008 / 2009) and has also been involved in a number of other Phase 2 projects including Stone Age, Shell Middens, Grave / Cemetery projects and Iron Age sites.

In addition to CRM archaeology she has been involved in research, including the international collaborations at Maloney's Kloof and Grootkloof, Ghaap Plateau, Northern Cape (2005 / 2006). Archaeological compliance experience includes her position as Head of the Archaeology, palaeontology and Meteorites (APM) Unit at AMAFA aKwaZulu-Natali (2004).

Company Profile

Company Name : ArchaeoMaps cc

Registration Number : 2005/180719/23

VAT Number : Not VAT Registered

Accountant : AZIMA Financial Services

Members / Shareholders : Karen van Ryneveld (100%)

BBBEE Status : Exempted Micro Enterprise (EME)