

HERITAGE IMPACT ASSESSMENT: WALKDOWN OF FINAL LAYOUT OF THE LONGYUAN MULILO DE AAR 2 NORTH WIND ENERGY FACILITY, NORTHERN CAPE PROVINCE

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act as part of an EIA.)

Prepared for

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EXECUTIVE SUMMARY

ACO Associates cc were appointed by Mulilo Renewable Project Developments (Pty) Ltd to undertake a Heritage Impact Assessment for the walkdown of the final layout of the Longyuan Mulilo De Aar 2 North wind energy facility. The project is located on the Eastern Plateau some 20 km east of De Aar, Northern Cape Province.

Initial fieldwork based on an earlier draft layout of the proposed wind energy facility was undertaken in November 2011 and the HIA report completed in March 2012 (Webley & Orton 2012).

Subsequently, a walkdown of the final layout was undertaken by staff of ACO Associates over a six day period in February 2014.

Heritage Indicators

- There is a widespread ephemeral distribution of Middle Stone Age (MSA) artefacts of patinated hornfels across the top of the plateau. In general the artefacts do not appear to represent *in situ* sites and are of low significance. A number of MSA factory sites of medium significance were identified on hornfels outcrops on Portion 7 of Farm 165 (Vendussiekuil) but they are not unique. No impacts are expected;
- A few Later Stone Age sites characterised by freshly flaked hornfels and with long ends scrapers typical of the “Smithfield” of the central Karoo, were identified in both surveys. None of these sites will be negatively impacted;
- A number of stone kraal complexes were identified during both surveys. The kraals may represent seasonal utilisation of the “winterveld” on top of the plateau during the late 19th and early 20th century. They are of medium significance. One such stone kraal was identified on the proposed location of Construction Yard 3, opposite the Enkeldebult farmhouse;
- There are some farm buildings, including sheds, etc on top of the plateau. The old barn, ruins and associated farm structures at Pienaarskloof, as well as the red-brick ruins and rubbish dump of the original farm building at Enkeldebult are of medium significance. No impacts are expected with regard Pienaarskloof. The newly constructed on-site access road will cross the ruins of the old farm “werf” at Enkeldebult;
- No cemeteries or graves were identified although there is a possibility of graves near the ruins of the original house at Enkeldebult and elsewhere in the project area;

Recommendations

- With respect the pre-colonial archaeology, no further mitigation is required;
- A kraal complex has been identified along a little rocky ridge at the initial location of Construction Yard 3. The position of the yard has been moved slightly to the east to avoid this. A desktop review was conducted of these changes and it was concluded that no further mitigation measures are required;
- Mitigation measures were proposed to preserve red brick ruins of the original 19th century farm building and rubbish dump of Enkeldebult. The position of the access road has been changed to accommodate this. The new access road will be moved some 80 m to the west. A desktop review of the alterations confirms that no further mitigation is proposed with the exception that it is recommended that the sites are cordoned off with tape so that they are not accidentally destroyed during construction.

- It is possible that human remains may be uncovered during construction of the on-site access road passed the ruins of the old farmhouse. If any human remains are uncovered anywhere on the site during the construction phase, work in that area should stop immediately and the South African Heritage Resources Association (SAHRA) must be notified.

There are no further heritage issues which may be negatively impacted and it is recommended that the project may continue.

Declaration of Consultants Independence

I Lita Ethel Webley, as the appointed independent specialist hereby declare that I:

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

Signature of the specialist:



Name of company: ACO Associates cc

Date: 17 March 2014

Lita Webley and David Halkett are independent specialist consultants who are in no way connected with the proponent, other than delivery of consulting services.

Lita Webley (PhD) is an archaeologist with 12 years of working experience in heritage throughout southern Africa and joined the Archaeology Contracts Office in 2008. She is accredited with Principal Investigator status with the Association of Professional Archaeologists of Southern Africa.

ACO Associates have considerable experience in assessing the impacts of renewable energy projects on heritage, having completed the specialist studies on no fewer than 25 renewable energy projects in the Eastern, Northern and Western Capes.

GLOSSARY

Archaeology: *Remains resulting from human activity which is in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures.*

Early Stone Age: *The archaeology of the Stone Age between 700 000 and 2 500 000 years ago.*

Fossil: *Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.*

Heritage: *That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999.*

Holocene: *The most recent geological time period which commenced 10 000 years ago.*

Hornfels: *A type of indurated shale used in the production of stone tools in the Karoo.*

Late Stone Age: *The archaeology of the last 20 000 years associated with fully modern people.*

Middle Stone Age: *The archaeology of the Stone Age between 20 000-300 000 years ago associated with early modern humans.*

National Estate: *The collective heritage assets of the Nation.*

Palaeontology: *Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.*

Pleistocene: *A geological time period (of 3 million – 10 000 years ago).*

SAHRA: *South African Heritage Resources Agency – the compliance authority which protects national heritage.*

Smithfield: *This term was coined in 1929 for a number of interior stone tools assemblages, made on indurated shale, and dating to the last 2000 years of the Later Stone Age. Various variants have been identified in different parts of the country but the term has not been clearly defined.*

Structure (historic): *Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith. Protected structures are those which are over 60 years old.*

Wilton: *A Late Stone Age microlithic industry dating to between 6000 and 4000 years ago.*

Acronyms

DEA	Department of Environmental Affairs
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
LSA	Late Stone Age
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

1. INTRODUCTION

ACO Associates cc were appointed by Mulilo Renewable Project Developments (Pty) Ltd to undertake a Heritage Impact Assessment for the walkdown of the final layout of the Longyuan Mulilo De Aar 2 North wind energy facility. The project is located on the Eastern Plateau some 20 km east of De Aar, Northern Cape Province.

Initial fieldwork based on an earlier draft layout of the proposed wind energy facility was undertaken in November 2011 and the Heritage Impact Assessment component of the EIA completed in March 2012 (Webley & Orton 2012). The background information to this walkdown report is derived from the HIA report.

2. LEGISLATION

The basis for all heritage impact assessment is the National Heritage Resources Act 25 (NHRA) of 1999. The Act has defined certain kinds of heritage as being worthy of protection, by either specific or general protection mechanisms. In South Africa the law is directed towards the protection of human made heritage, although places and objects of scientific importance are covered. The National Heritage Resources Act also protects intangible heritage such as traditional activities, oral histories and places where significant events happened. Generally protected heritage which must be considered in any heritage assessment includes:

- Buildings and structures (greater than 60 years of age)
- Archaeological sites (greater than 100 years of age)
- Palaeontological sites and specimens
- Shipwrecks and aircraft wrecks
- Graves and grave yards.
- Cultural Landscape

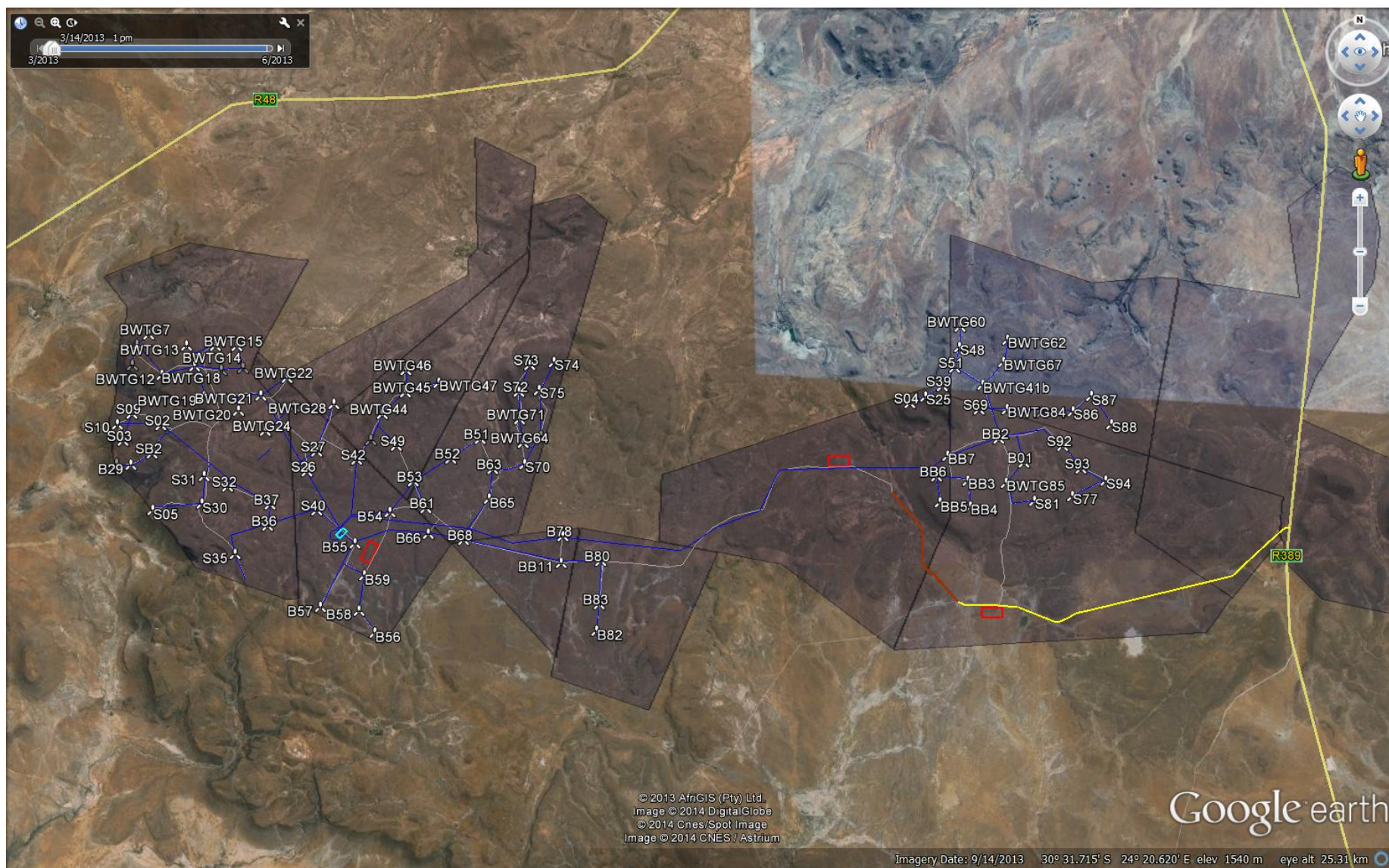
3. METHODOLOGY

The source of information in this report is primarily based on published archaeological reports and unpublished impact assessments for the general area. Much of the background information is derived on the results of an 8 day field trip undertaken by Webley and Orton in November 2011 as part of the EIA process (Webley & Orton 2014). The positions of the turbines, access roads, internal electrical reticulation and construction yards/laydown areas have changed since the initial survey.

The 2014 survey aimed at assessing the impacts to heritage of the proposed alterations to the layout. Particular attention was given to those areas not assessed during the initial survey. A foot survey was undertaken by Webley, Halkett and Lyall-Jennings over a 6 day period from 16-23 February 2014. Heritage sites were recorded, mapped and photographed. No archaeological material was removed from the project area, but recorded and photographed *in situ*. Each site was given a significance rating and assessed in terms of whether it required further mitigation.

3.1 *Restrictions and assumptions*

- The terrain is mountainous and difficult to access by vehicle. Much of the survey of the turbines, access roads and electrical reticulation was undertaken on foot. The coverage of the layout was generally good but there may be areas that were not covered in detail (Figure 2). We are reasonably confident that we have identified the most significant heritage issues and proposed suitable mitigation measures.



4. BACKGROUND

This part of the Northern Cape is characterised by wide open plains interspersed with koppies. The facilities are proposed for a large flat plateau to the east of De Aar. The plateau rises at least 100 m above the surrounding plains. The plateau is generally flat and covered in typical Karoo scrub and grasses, but there are more dense clusters of trees in some of the deeply incised valleys. There are a number of dry stream beds which may flow periodically after summer rains.

4.1 *The Archaeological Context*

The archaeological background of the area has been summarised in Webley & Orton (2012). Briefly we know from work in the Zeekoe River Valley (Seacow River Valley), about 30 km to the west of the proposed facility, that the full range of Early, Middle and Later Stone Age material may be expected in the area (Sampson 1985 & 1992). MSA artefacts are widely distributed across the landscape, in the form of “ancient litter” and are frequently found on the edges of pans, streams and at the base of small hills or koppies. Sampson (1985) also recorded thousands of Later Stone Age sites (LSA) which are attributed to the ancestors of the San peoples and after 2000 years ago, by Khoekhoen pastoralists. San rock engravings occur on dolerite boulders in the area.

Both pre-colonial and colonial archaeological material was documented during the 2012 survey by Webley & Orton of the North Plateau. No Early Stone Age material was recovered from the project area. Middle Stone Age material was found scattered throughout the project area and may be described as the dominant Stone Age archaeological material. The raw material on which the artefacts are made is heavily patinated, weathered indurated shale (hornfels).

The finds include smaller numbers of Late Stone Age archaeological sites. The LSA artefact assemblages are all made on hornfels and include endscrapers, on long flakes, which are typical of the “Smithfield Industry” (Sampson 1985).

A few San (Bushmen) engraving/s were identified on dolerite boulders on Zwagershoek, below the plateau and are therefore not at risk.

4.2 *The Historical Context*

The first Trekboers arrived in the area around the 1770s but they were prevented from settling permanently by San hunter-gatherer attacks. From about the beginning of the 19th century, stock farmers started moving in the direction of the De Aar area in search of better winter grazing – thus the name “Wintersveld”. While the Loan farms were listed, they were not mapped and no diagrams of the earlier Loan Farm allocations were lodged until after 1824. In time increasing numbers of San settled on Dutch farms and became herders and servants. In 1881, Parliament took the important decision that two important railway lines would meet on the farm De Aar. The line was finished in 1884 and became an important impetus to the establishment of the town which eventually occurred in 1902. The railway junction was an important site during the Anglo-Boer War and historical remains from this period have been recovered from farms below the plateau.

During the Webley & Orton (2012) survey, a number of late 19th century and early 20th century farm building complexes (older than 60 years) were identified. In terms of this report, the most significant farm buildings include those on Pienaarskloof and the ruins on Enkeldebult.

The Webley and Orton (2012) report also recorded a number of historic stone kraal complexes. They were observed in valleys in extremely isolated localities and they were difficult to date because of an absence of associated occupational debris. Some include small ruined shepherd's huts built of stone. A number of kraals have associated historic material such as 19th century and early 20th century ceramics, glass and metal. Many of the stone features consist of walling comprising packed inner and outer skins with rubble infill. The majority of kraals were rectangular or square suggesting they date to the historical period. A few circular (or oblong) kraals were recorded and it is conceivable that they may date to the pre-colonial period but there is little substantive evidence, in the form of associated artefacts, for this.

4.3 *Graves, stone cairns and features*

No farm graveyards or isolated graves were recorded during the 2012 survey although any farms which have been settled for 150 years are likely to contain the graves of the farm owners and their family as well as farm workers.

4.4 *Cultural landscape*

The 2012 report by Webley and Orton described the Karoo landscape of vast open plains covered in low scrub and grasses. They also commented on the dense distribution of archaeological material suggesting that the landscape was also an archaeological landscape of significance to prehistoric peoples. Finally, the settlement of the area by colonial Trekboers resulted in a landscape characterised by farm boundaries and isolated farm settlements.

5. SURVEY RESULTS

Our tracks during the 2014 survey are shown on Figure 2. A list of heritage sites recorded during the field survey is attached as Table 1.

5.1 *Turbines*

At least 90% of all revised turbine locations were visited and assessed during the field survey (Figure 2). Very few significant issues were identified. Ephemeral scatters of Middle Stone Age artefacts on weathered hornfels were found across the landscape. They are considered to be of low significance. A number of MSA factory sites were identified in proximity to Turbines B80 and B83. These sites are located on bands of good quality hornfels (generally on the slopes of small hills) which contain very high percentages of cores and chunks. It would appear that Middle Stone Age inhabitants of the area targeted these hornfels deposits for the production of stone artefacts. Factory sites are more site specific and have higher information value than general artefact scatters. They are considered to have low to medium significance. No mitigation is required as only small portions of these factory sites will be impacted and there will be considerable areas left untouched.

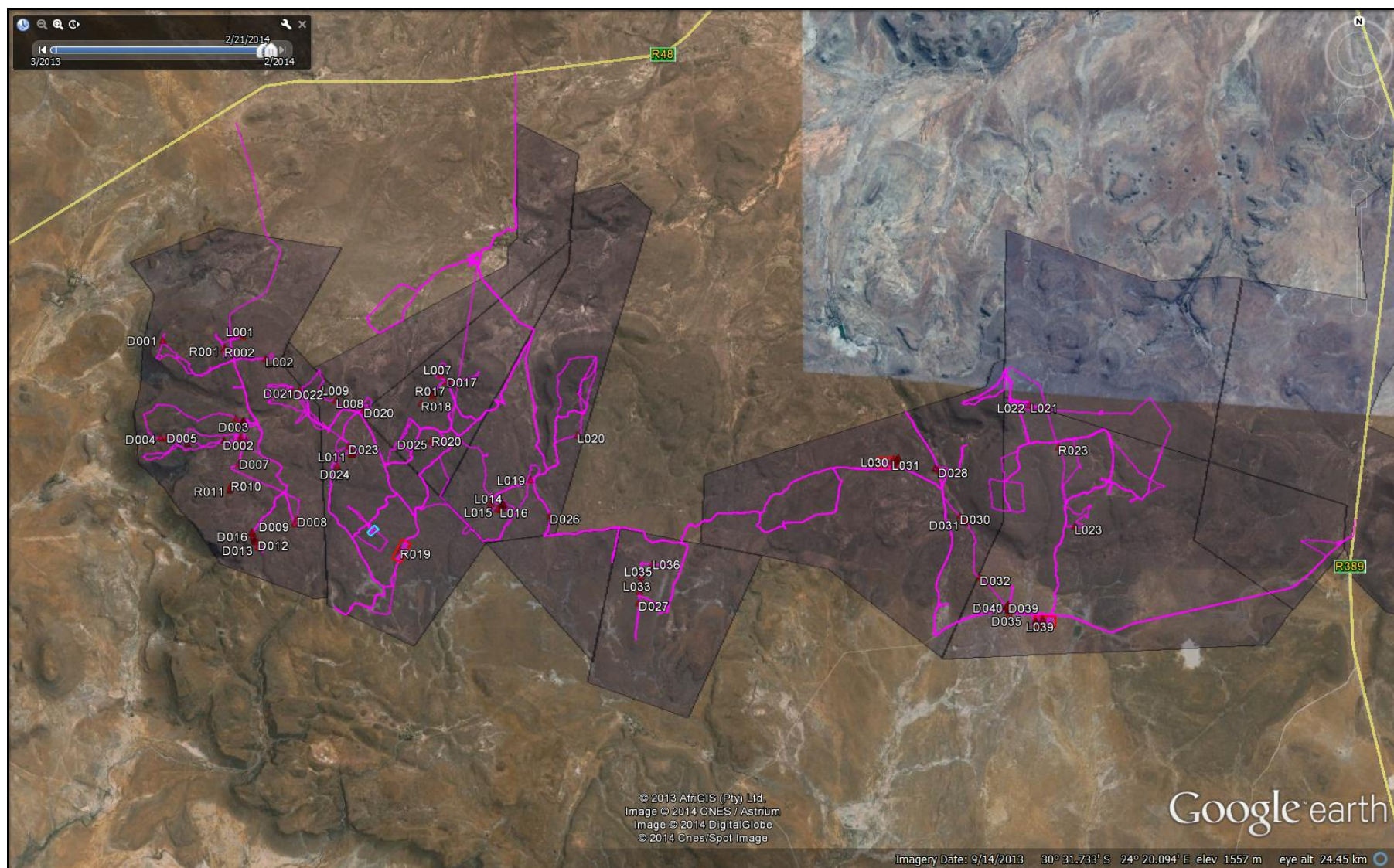


Figure 2: Map showing farm boundaries, construction yards (red rectangles), substation (turquoise), survey tracks (pink) and heritage sites (red circles).

5.2 Construction Yards /Laydown Areas

The location of the construction yards and substation is shown in Figure 3.

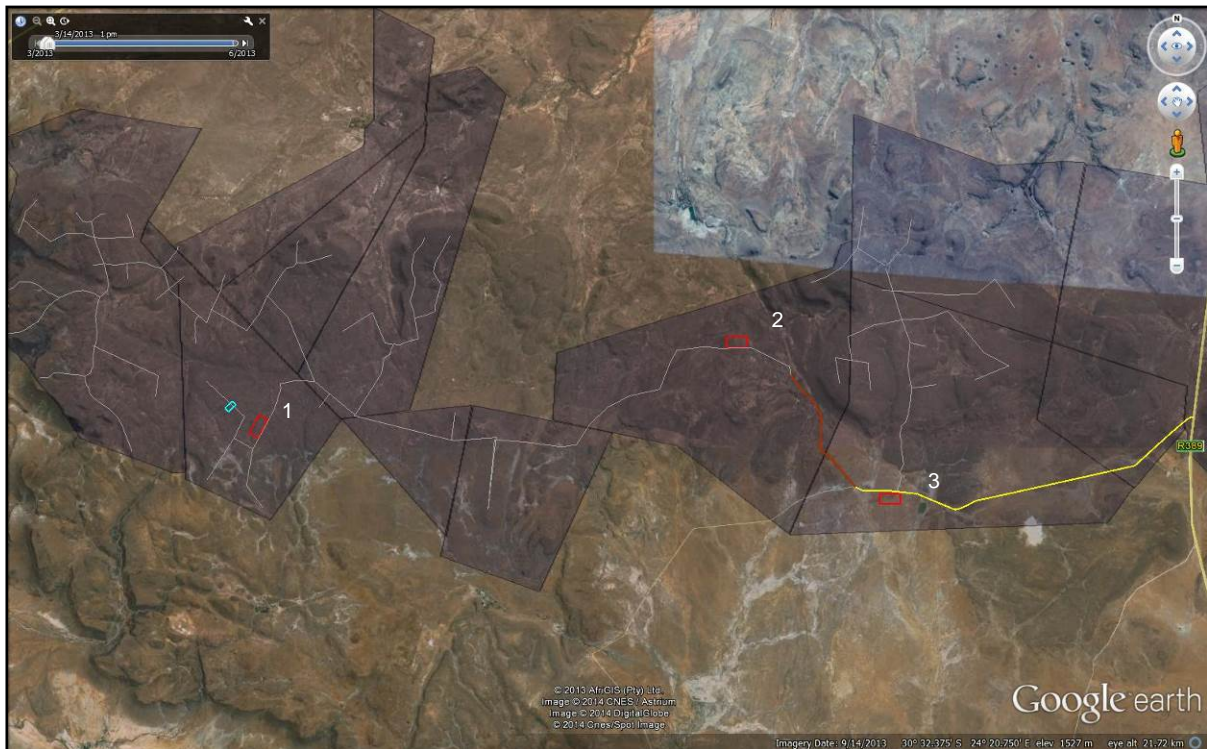


Figure 3: The substation is shown in turquoise and the three construction yards in red. The yellow line represents the existing road which will be upgraded, while the brown line will be a new road which will connect to the existing farm tracks (in white). Small alterations were made to this infrastructure after the field survey.

Construction Yard 1 is located Portion 6 of the Farm 136 to the east of the on-site substation. No archaeological remains were recorded on this site.

Construction Yard 2 is located on Portion 1 of Farm 149 and next to the on-site access road which will access the western portion of the wind energy facility. The entire plain (Plate 1) is covered with a litter of very weathered MSA artefacts of low significance.



Plates 1 & 2: View over Construction Yard 2 and a sample of weathered MSA artefacts.

Construction Yard 3 is located on the Remainder of Farm 150, on the opposite side of the current road from the farmhouse at Enkeldebult. In its current location, it spans a very small rocky ridge. There is evidence for a small kraal complex below this ridge (Figure 4 and Plates 3-5).



Figure 4: Construction Yard 3 with view of tracks and sites recorded during survey.

The kraal complex consists of a number of small chambers constructed of roughly packed stone walling below a rocky ledge (Plate 3). There is a large number of both pre-colonial stone artefacts and historic material in and around the stone walling. Apart from the ubiquitous MSA stone artefact background scatter, there is also a half a bored stone and two pieces of flaked opaline (Plate 5). The bored stone is made from a soft schist-like material and it has broken in cross section as well as in half. Bored stones are not common in this area and its discovery is most unusual.



Plates 3-5: View of stone kraal below the rocky ledge in Construction Yard 3 with mix of stone age material (half a bored stone and two piece of flaked opaline) and 19th century historic material.

As a consequence of consultation with the client, the position of Construction Yard 3 was moved to preserve the heritage resources. The new location of the construction yard is shown below:

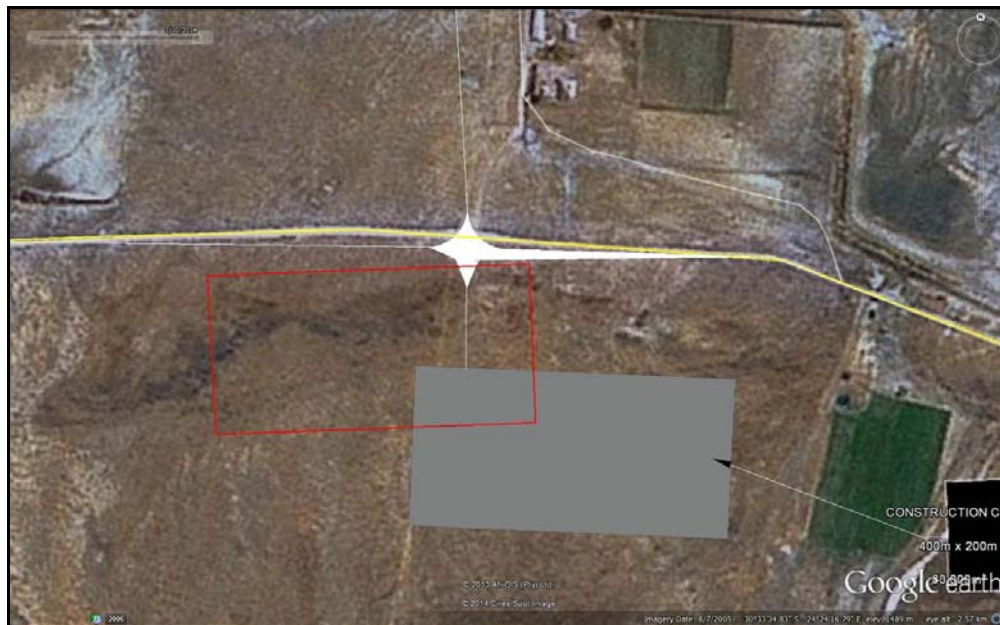


Figure 5: The new location of Construction Yard 3 is shown in grey.

5.3 On-site substation

The proposed on-site substation is located on Portion 6 of the Farm 136 in close proximity to Construction Yard 1. No significant heritage remains were found on the substation location.

5.4 On-Site Access Roads and Internal Project Roads

The current gravel access road from the R389 will be upgraded (Figure 3). There are no heritage issues which regards the upgrade of the road. A new road will be constructed from the gravel road to the turbines on the western side of the plateau (Figure 3) utilizing a route over Portion 1 of Farm 149 (Washbank).

The red-brick ruins of an 19th century house and outbuildings, an historic rubbish dump and evidence for an old kraal were identified at the intersection of the gravel road and the proposed new road (Figure 6 and Plates 4-6). They will be bisected by the proposed on-site access road.

The original farmhouse was deliberately demolished at some stage in the past. According to Mr van der Walt, the landowner of Enkeldebult, the ruins are all that remain of the original farmhouse. He indicated that the house was still standing in the 1950's. On top of the ruins is a recently constructed white cross, and the remains of a drill bit.



Figure 6: View of the proposed access road (brown line) and the location of the ruined farmhouse at the intersection of the current gravel road and the proposed road.

Nearby is a second, ruined red-brick structure, possibly a shed or outbuilding.

The rubbish dump associated with the ruins is at least 10 m in diameter and is consists of a circular ash heap littered with 19th century glass, ceramics, metal items and bone. The ceramic decorations suggest a late 19th century date for the settlement (Plate 8).

On the other side of the gravel road is a large area of weathered dung, suggesting an old kraal accumulation. This area is also littered with historic material.



Plates 6-8: View of the red brick ruins of the original farmhouse at Enkeldebult, the historic 19th century dump and ceramic remains from the surface. Note the heap of stones in the middle of the dump.

As a consequence of consultation with the client, the position of the new access road has been shifted slightly to the west, to preserve the heritage resources. The new location of the proposed access road is shown below:



Figure 7: The position of the revised access road is shown as a white line. The previous access road is shown as a brown line.

5.5 Internal electrical reticulation

While the electrical cabling for the turbines does not always follow the on-site access roads, the impact is likely to be significantly less.

6. IMPACTS DURING CONSTRUCTION PHASE

The following physical impacts to the landscape can be expected:

- Establishment of at least three construction yards
- Bulldozing of roads to turbines sites with a possibility of cut and fill operations in places
- Upgrading of existing farm roads and tracks
- Creation of working and lay-down areas close to each turbine site
- Excavation of foundations for each tower
- Excavation of many kilometers of linear trenches for underground cables/overhead cables
- Erection of a 22 kV power line from the on-site substation
- Construction of an on-site substation

6.1 Impacts to Pre-Colonial and Colonial Archaeology

The fieldwork which was undertaken during the walkdown has identified a wide-spread distribution of MSA material of relatively low significance and the overall impacts to this material will be relatively small. Furthermore that sheer volume of scattered artefacts on this vast landscape means that the combined overall impact of roads, turbines and infrastructure is in terms of the broader picture, relatively small.

The historic kraal complexes represent an unrecorded slice of the 19th century farming settlement pattern in this part of the Karoo. These kraal complexes have not been studied or described and their destruction would result in a loss of heritage. The kraal complex in Construction Yard 3, to the south of the farmhouse on Enkeldebult will be avoided through a small shift in the location of the construction yard.

There is always a chance that below-ground archaeological material may be exposed during excavations for the wind energy facility. All archaeological material over 100 years of age is protected and may only be altered or removed from its place of origin under a permit issued by SAHRA. In the event of anything unusual being encountered, SAHRA must be consulted immediately so that mitigation action can be determined and be implemented if necessary. Mitigation is at the cost of the developer, while time delays and diversion of machinery/plant may be necessary until mitigation in the form of conservation or archaeological/palaeontological sampling is completed.

6.2 Impacts to the Built Environment

In the absence of clearly established guidelines in the Northern Cape for the minimum distance between turbines and buildings/structures older than 60 years, this report supports the guidelines of the Western Cape Provincial Government. They recommend that turbines are placed at least 500m from occupied farm buildings. This buffer may be reduced if the building is unoccupied. No farm buildings are threatened by the revised wind farm layout with the exception of the ruins at Enkeldebult.

6.3 *Impacts to Cemeteries and graves*

While there are no visible farm cemeteries which are directly threatened by the proposed facility, there may be graveyards belonging to farm workers on Pienaarskloof and Washbank which may be difficult to identify as they may lack headstones and fences. Exhumation of graves is generally not recommended due to the legal processes which are required and it is preferable that they are avoided. Should any unmarked human remains be disturbed, exposed or uncovered during excavations and earthworks for the proposed project, these should immediately be reported to the SAHRA Burials Unit. Burial remains should not be disturbed or removed until inspected by an archaeologist.

6.4 *Impacts to the Cultural Landscape*

The cultural landscape around De Aar is representative of the great Karoo. It is a natural landscape with some vestiges of agricultural activities in the form of isolated farmhouses, fences and wind pumps. There are vast tracts of Karoo landscape and the development of a portion of it for the development of a wind energy facility will not result in the loss of a significant portion of the Karoo Cultural Landscape.

7. IMPACTS DURING THE OPERATIONAL PHASE

During the operational life of the wind farm, it is expected that physical impacts to heritage will diminish or cease. Impacts to intangible heritage are expected to occur. Such impacts relate to changes to the feel, atmosphere and identity of a place or landscape. Such changes are evoked by visual intrusion, noise, changes in land use and population density.

8. CONCLUSIONS AND RECOMMENDATIONS

With reference to the walk down survey, the heritage resources that have been identified include MSA and LSA archaeological sites, Colonial period stone kraal complexes and the ruins of 19th century farm complex on Enkeldebult.

With respect the pre-colonial archaeology, no further mitigation is required.

Mitigation measures were proposed to preserve a stone kraal complex in the original location of Construction Yard 3. The location of the construction yard has been moved further to the east. A desktop review was conducted of these changes and it was concluded that no further mitigation measures are required.

Mitigation measures were proposed to preserve red brick ruins of the original 19th century farm building and rubbish dump of Enkeldebult. The position of the access road has been changed to accommodate this. The new access road will be moved some 80 m to the west. A desktop review of the alterations confirms that no further mitigation is proposed with the exception that it is recommended that the sites are cordoned off with tape so that they are not accidentally destroyed during construction.

It is possible that human remains may be uncovered during construction of the on-site access road passed the ruins of the old farmhouse. If any human remains are uncovered anywhere on the site during the construction phase, work in that area should stop immediately and the South African Heritage Resources Association (SAHRA) must be notified.

There are no further heritage issues and it is concluded that development can proceed.

9. REFERENCES

Aurecon. 2012. Proposed Wind Energy Facility (North & South) situated on the Eastern Plateau near De Aar, Northern Cape: Draft Scoping Report, Report No.5755.

Provincial Government of the Western Cape, 2006. Strategic Initiative to Introduce Commercial Land Based Wind Energy Development in the Western Cape. Towards a Regional Methodology for wind energy site selection. Dated May 2006.

Sampson, C.G. 1985. Atlas of Stone Age settlement in the Central and Upper Seacow Valley. Memoirs van die Nasionale Museum Bloemfontein No 20: 1-116.

Sampson, C.G., 1992. Stylistic boundaries among mobile hunter-gatherers in the Zeekoe Valley, Eastern Cape. Washington, Smithsonian Institution Press.

Table 1: List of Heritage Sites

Site Name	GPS Co-ordinates Lat/Long	Description	Significance	Mitigation
L001	-30.51136103 24.24360802	Two lines scratched in a weathered dolerite flat rock, near T14. But is this deliberate?	Low?	No
L002	-30.51514797 24.24814699	Spread of 5 weathered hornfels flakes – 2 are clearly MSA. Spread over about 10m ² in a weathered area	Low	No
L003	-30.52905003 24.24436600	Stone lined circular dam. Walls packed to form a V. Base of dam calcrete?	Low	No
L004	-30.52900996 24.24315498	In a deflated area near the old farmhouse, in an area of no vegetation – possibly tramped out by livestock. Spread of weathered MSA artefacts on hornfels. One bladelet with retouch. Photos.	Low	No
L005	-30.52912798 24.23994002	Two large hornfels cores in the construction area	Low	No
L006		Error		
L007	-30.51784996 24.28269804	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and flakes – triangular.	Low	No
L008	-30.52223898 24.26212398	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and flakes – triangular.	Low	No
L009	-30.52050702 24.25927497	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and flakes – triangular	Low	No
L010	-30.53144298 24.26520299	Little stone shepherd's structure of roughly packed stone comprising a small circle around 3mx2m. No roof. Small cleared area outside the front door (porch) and a little (1mx1m) collapsed back room. Scatter of glass, iron and 20 th century ceramics around the building. Also metal spear point.	Medium	Not threatened
L011	-30.53133602 24.26514398	Around 30m from the shepherds building is a small round stone kraal. About 2m x 2m in size. Single course of rocks, quite large.	Low-Med	Not threatened
L012	-30.53135698 24.26523300	Near the kraal is a large round boulder with scratches. Consisting of 17 parallel stripes and 2 stripes at a diagonal. Possibly a tally rock?	Medium	Not threatened
L013	-30.53110803 24.26526804	Semi-circular stone structure. About 5m in length.	Low	Not threatened
L014		Error		
L015	-30.54080003 24.29412198	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and flakes – triangular. This scatter is around a large flat rock with a natural hollow containing rain water (i.e. klipbak)	Low	No
L016	-30.54087203 24.29457301	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and flakes – triangular. Photo.	Low	No
L017	-30.54070297 24.29512404	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and flakes – triangular	Low	No
L018	-30.53980200 24.29492597	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and	Low	No

		flakes – triangular		
L019	-30.53580802 24.30062600	Scatter of MSA artefacts; weathered and on hornfels. Usually chunks, cores and flakes – triangular	Low	No
L020	-30.52816297 24.30993604	Single small, very weathered handaxe – possibly Fauresmith	Low	No
L021		Error		
L022		Error		
L023	-30.54364401 24.40857897	Singe, large weathered hornfels scraper	Low	No
L024-032	-30.53279397 24.37343398	In the proposed construction yard. The entire site is covered in artefacts, at least 3 artefacts per square metres. All very weathered MSA artefacts on hornfels. Few cores, but mainly blade like elements rather than triangular flakes	Low	No
L033	-30.55479001 24.32229004	Vendussiekuil, last 3 turbine locations. Very dense spread of weathered MSA in an area of sheet wash. Base of hill	Low-Medium	No – not unique
L034	-30.55331597 24.32253303	Extremely dense scatter of chunks and cores. Maybe a factory site.	Low-Medium	No – not unique
L035	-30.55226002 24.32255700	At the top of the hill, large chunks and cores of weathered hornfels. At least 10% of freshly flaked material. Probably also factory site	Low-Medium	No – not unique
L036	-30.55016697 24.32484400	On slope of hill, rocky outcrop with large flakes	Low	No
L037	-30.55038398 24.32852802	On the lee of a small koppie, a small section of roughly built stone walling, forming a semi-circle. No historic or archaeological material nearby to date.	Low	No
L038	-30.55963500 24.40250100	Proposed construction site opposite Enkeldebult. A small rocky ridge with a number of freshly flaked cores, no flakes.	Low	No
L039	-30.55946703 24.40244702	Proposed construction site opposite Enkeldebult. A small rocky ridge with a number of freshly flaked cores, no flakes.	Low	No
L040	-30.55990599 24.40112603	Kraal Complex on the side of the rocky ridge. Spread of historic material including earthenware, spongware, glass, 2 pieces of white opaline and ½ bored stone	Medium-High	Yes
L041	-30.55785301 24.39570604	Ruins of a red brick building, completely demolished, just slight rise in ground. Drill hole on top of ruins. Some 19 th century historic material along one side. According to landowner, this was the site of the original farmhouse	Medium	Yes
R001	-30.51336296 24.24013096	Single weathered hornfels flake	Low	No
R002	-30.51350897 24.24004002	Scatter of hornfels artefacts	Low	No
R003	-30.52950902 24.24352597	Scatter of hornfels artefacts on pan	Low	No
R004-006	-30.52608501 24.24359897	Stone walls/kraals	Medium	No threat
R008	-30.52583599	Large layout of walls in rectangular shape.	Medium	No threat

	24.24382403	Two entrances		
R009	-30.52573700 24.24380802	3 large hornfels flakes	Low	No
R010	-30.53682198 24.24126402	Small scatter of patinated hornfels flakes about 5m x 5 m	Low	No
R011	-30.53724401 24.24107996	Medium scatter of patinated hornfels flakes eroding downhill about 10m x 10m	Low	No
R012	-30.53754802 24.24112304	Scatter of fresh hornfels cores with cortex attached (Photos 61-70)	Low	None
R013	-30.54474698 24.24529304	Dense large scatter of patinated hornfels flakes, MSA	Low	None
R014- R016	-30.52077902 24.28155500	Multiple records in large amphitheater with large hornfels scatter overlooking river valley. Mostly LSA, Smithfield scrapers present. Small section of walling on SE side. Site open towards river. Photos of sites and walling: 71-138	Low-Medium	No
R017	-30.52146197 24.28123799	Scatter in boulder channel about 6 m x 7m. Broken cobbles. Facing ENE to amphitheater at R014-R016 across river. Photos 139-155	Medium	No threat
R018	-30.52272596 24.27894101	Small scatter of patinated hornfels, about 5m x 5m	Low	No
R019	-30.54787603 24.27482801	Small scatter of patinated hornfels around 2m x 2m	Low	No
R020	-30.52914399 24.28100397	Large scatter of patinated hornfels along top of koppie	Low	No
R021	-30.54008899 24.29545403	Scatter of large pieces of patinated hornfels, flaked	Low	No
R022	-30.54000501 24.29520400	Very dense scatter of patinated hornfels over 20 m square. A 1 square metre area contained 76 artefacts	Low	No
R023	-30.53009198 24.40528496	Slightly denser scatter than normal of heavily patinated MSA artefacts (close to B80). Cores of hornfels flaked – factory site	Low-Medium	No – not unique
R024	-30.55994002 24.40108001	Stone kraal with mixture of historical, LSA and MSA material. Photos 71-155	Medium	Yes - avoid
D001	-30.51202504 24.22784099	Extensive scatter of patinated hornfels artefacts on open rocky surface, some retouch. MSA? In proposed road	Low	No
D002	-30.52850302 24.24324702	Small scatter of hornfels flakes, MSA on edge of laydown area	Low	No
D003	-30.52538202 24.24236197	Scatter of MSA hornfels, patinated blades	Low	No
D004	-30.52861802 24.22754302	Fresh hornfels on saddle, could be LSA. Small flakes, 1 blade with utilization	Low	No
D005	-30.52862498 24.22865798	Small scatter of patinated hornfels	Low	No
D006	-30.52960097 24.23266696	Small scatter of patinated hornfels	Low	No
D007	-30.53306504 24.24287603	Dense scatter of patinated MSA in wind test mast. Cores and flakes with some retouch	Low	No
D008	-30.54245696 24.25426997	Handful of patinated hornfels artefacts	Low	No
D009	-30.54330999 24.25374501	Some patinated MSA but also some fresh looking Smithfield flakes? LSA	Low	No
D010- D016	-30.54556397 24.24550099	Dense patch of patinated MSA, extensive could be a source of raw material nearby	Low	No

		as very dense		
D017	-30.51905301 24.28395800	Handful of patinated MSA artefacts in open flat area at base of hill	Low	No
D018	-30.51920003 24.28584100	Few chunks, flakes and cores of patinated MSA	Low	No
D019	-30.51920900 24.28462503	Extensive scatter of patinated hornfels MSA, at base of hill near stream bed	Low	No
D020	-30.52381502 24.26758898	Scatter of patinated hornfels MSA artefacts in a jeep track	Low	No
D021	-30.52051197 24.25488998	Evidence of an old road?	Low	No
D022	-30.52071397 24.25372398	Dense scatter of patinated MSA	Low	No
D023	-30.53007497 24.26456697	3 x Smithfield type artefacts type artefacts; semi-patinated hornfels with fresh flaking. Also some very patinated red MSA artefacts	Low-Medium	Not threatened
D024	-30.53345497 24.26231702	Handful of Smithfield artefacts	Low-Medium	Not threatened
D025	-30.52923904 24.28121000	Extensive scatter of patinated hornfels MSA. Cores, chunks and flakes also some with fresh scarring and fresh looking flakes. Possible LSA re-use of MSA material	Low	No
D026	-30.54192798 24.30447296	Stone walled kraal complex (historical) against the side of a koppie. Lots of stone walling extending around the front of koppie. The older walling may be older, while the front is historical with glass, metal, etc	Medium	Not threatened
D027	-30.55682204 24.32208602	Side of hill. Whole area covered in patinated chunks of hornfels. Lots of cores. Obviously a source of raw material. Scatter extends to Turbine 82 and beyond. No obvious hammerstones or bifacial artefacts	Low-Medium	No – only a portion of the site will be impacted
D028	-30.53399200 24.38156099	Spot where electrical cable crossed the farm road. Huge scatter of hornfels. Quarry type site. Lots of chunks and cores. Flakes and blades less common. No bifacial material	Low-Medium	No – sites not unique.
D029	-30.53375697 24.38104701	Big quarry site	Low- Medium	No – sites not unique
D030	-30.54195003 24.38592000	Big quarry site	Low- Medium	No – sites not unique
D031	-30.54295099 24.38688803	Hornfels outcrop with debitage	Low-medium	No – site not unique
D032	-30.55245800 24.38996603	Hornfels outcrop with debitage	Low-Medium	No – site not unique
D033	-30.55750701 24.39517999	Large historical midden, mid-19 th century	Medium	Yes – avoid
D034	-30.55992301 24.40110499	Stone kraal complex in construction yard 3	Medium	Yes – avoid
D035	-30.55850898 24.39580402	Large “circular” area of whitish deposit (dung?) with some 19 th century ceramics on surface	Medium	Yes – avoid
D036	-30.55810899 24.39558299	Small stone rectangular sub kraal	Low-Medium	Yes-avoid
D037	-30.55748697 24.39566002	Old brick and stone structure, completely flattened with minimal 19 th century	Medium	Yes- avoid

		ceramics and pink glass		
D038	-30.55735001 24.39566698	Small mound of stone and red brick with ceramics and glass – unknown use	Low-Medium	Yes - avoid
D039	-30.55718296 24.39562096	Area of stone – possibly a grave	Medium	Yes - avoid
D040	-30.55713401 24.39557604	Small stone structure, grave? With medicinal bottle base	Medium	Yes – avoid
D041	-30.55733501 24.39547000	Small pile of stone and brick with fragments of ceramics and glass	Low-Medium	Yes - avoid