

# **McGregor Museum**

## **Department of Archaeology**



### **Scoping Phase Heritage Impact Assessment for the proposed AGGENEIS – PAULPUTS 400kV DC Powerline and Substations Upgrade, Northern Cape**

**David Morris  
August 2016**

**Scoping Phase Heritage Impact Assessment for the proposed  
AGGENEIS – PAULPUTS 400kV DC Powerline and Substations Upgrade,  
Northern Cape**

**for Mokgope Consulting**

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## **1. INTRODUCTION**

This report pertains to a proposed project entailing the construction of a 97 km long 400 kV transmission DC powerline with three alternative corridors from Aggeneis and Paulputs substations. It would involve upgrades of the two substations to accommodate the 400kV powerline.

### **1.1 Focus and Content of Specialist Report: Archaeology**

The archaeology specialist study with comments on the broader heritage component (but excluding palaeontology) will focus on the development footprint of the proposed Transmission Line in general, to make a recommendation with respect to the three alternatives, noting that it would be desirable, as a phase 2 survey, to assess specific tower positions in more sensitive parts of the route once these are established.

A previous 220kV line project was carried out in the region in 2010 (Morris 2011) which this scoping phase report draws upon.

### **1.2 Archaeology Specialist**

The author of this report is an archaeologist (PhD, UWC) accredited as a Principal Investigator by the Association of Southern African Professional Archaeologists and has

previously carried out surveys in the vicinity of the proposed activity (Morris 1999a-b, 2000a-c, 2001, 2009, 2011, 2016).

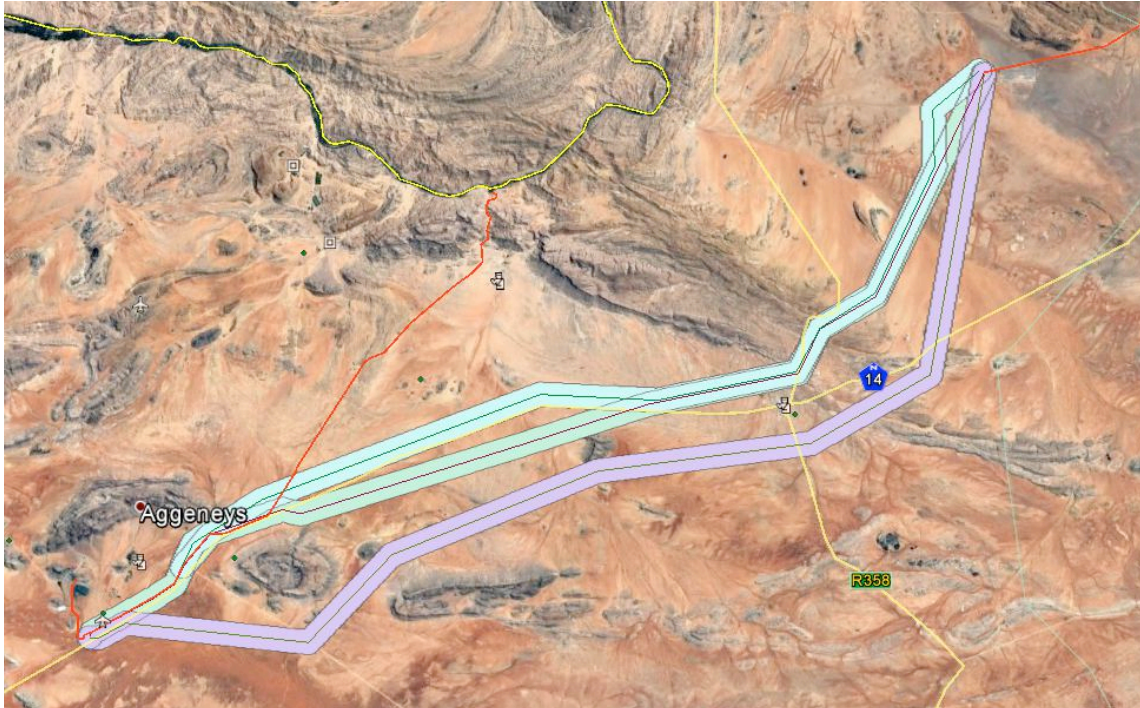
In addition, the author has a comprehensive knowledge of Northern Cape history and built environment, and received recent UCT-accredited training at a workshop on Architectural and Urban Conservation: researching and assessing local (built) environments (S. Townsend, UCT). He is also Chairman of the Historical Society of Kimberley and the Northern Cape, and is appointed as an Extraordinary Professor (School of Humanities), Sol Plaatje University (Kimberley).

The author works independently of the organization commissioning this specialist input, and provides observations within the framework of the National Heritage Resources Act (No 25 of 1999).

The National Heritage Resources Act no. 25 of 1999 (NHRA) protects heritage resources which include archaeological and palaeontological objects/sites older than 100 years, graves older than 60 years, structures older than 60 years, as well as intangible values attached to places. The Act requires that anyone intending to disturb, destroy or damage such sites, objects and/or structures may not do so without a permit from the relevant heritage resources authority. This means that a Heritage Impact Assessment should be performed, resulting in a specialist report as required by the relevant heritage resources authority/ies to assess whether authorisation may be granted for the disturbance or alteration, or destruction of heritage resources.

## **2. DESCRIPTION OF THE AFFECTED ENVIRONMENT**

The environment in question is arid, comprising relatively flat drainage plains with dunes and mountainous features at a few points along the transmission line routes. The landscape is sparsely vegetated, therefore making any surface archaeological and heritage traces highly visible.



Google Earth Map indicating the region with three alternative transmission line routes.

## 2.1 Description of heritage features of the region

A previous EIA & Servitude Project Investigation Report (Makhanya & Jizana 2010) identified heritage issues as a major concern in terms of risks:

“The Northern Cape holds serious historical value with relation to the Voortrekker movement and human settlement associated to that. The development of diamond and copper mines also resulted in the influx of workers coming from as far as Namibia. Amongst these people there were also the San people who were rich in terms of stone-age tools.”

Some of the particular issues mentioned here and in Makhanya & Jizana’s (2010) Table 02 (“Risk Identification and Proposed Mitigation”) tend to be relevant in only very broad terms. The table is reproduced here with an additional column of comments (indicated in bold type) by the present author:

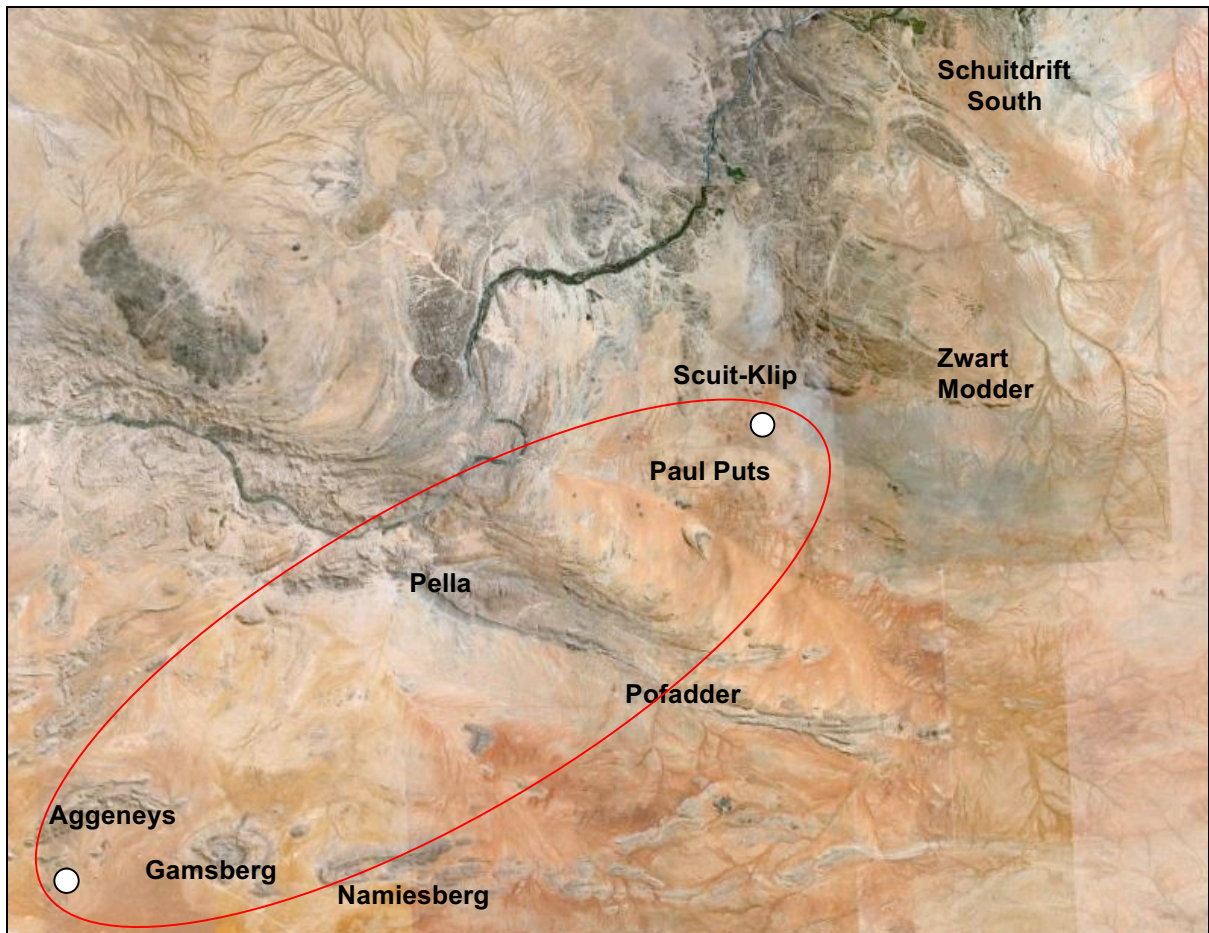
Risks Identified	Probability	Impact	Proposed Mitigation	Comment
Many sites across the province, mostly in open air locales or in sediments alongside rivers or pans, document Earlier, <u>Middle and Later Stone Age</u> habitation. The proposed development will have adverse effects on the historical sites.	High	High	Heritage specialist will have to form part of the team and all the necessary applications to relevant government departments will have to be processed accordingly.	<b>Such sites are known in the specific study area but previous work has indicated that their density is generally fairly low compared with other parts of the Northern Cape.</b>
The Northern Cape is also the home of over 1,000 <u>San</u> who immigrated from <u>Namibia</u> following the independence of the country; they had served as trackers and scouts for the South African government <u>during the war</u> , and feared reprisals from their former foes. San are associated with rich historical and heritage background that can be disturbed by the development.	High	High	Settlement site of the San people will have to be properly identified, studied and documented. These will be avoided during construction should they fall within an approved servitude	<b>This is irrelevant.</b>  <b>The !Xun and Khwe San are settled at Platfontein outside Kimberley, some 700 km east of the proposed development.</b>
The copper mines of <u>Namaqualand</u> and the diamond rush to the Kimberley area resulted in industrial archaeological landscapes in those areas which herald the modern era in South African history.	High	High	These site will reveal historical significance and should be treated as such during the study and avoided during construction	<b>The historic industrial landscapes referred to lie some 150 km west (copper) and 700 km east (diamonds) of the proposed development.</b>
All archaeological traces in the Northern Cape that are greater than 100 years old are automatically protected by the <u>South African Heritage Resources Act</u> , while some are formally protected by	High	High	SAHRA, Provincial Heritage department should be involved as part of the stakeholders.	<b>The heritage report would need to be approved by SAHRA and Ngwao Bošwa ya Kapa Bokone (Heritage Northern Cape).</b>  <b>There are no as yet declared sites along any of the alternative routes of the transmission line. The</b>

<p>declaration as either Provincial Heritage Sites or National Heritage Sites. The study area is characterised by the archaeological traces that can hinder construction.</p>				<p><b>proposed project lies beyond the buffer zone of the proposed Namaqualand Copper industrial landscape World Heritage Site (but other parts of Eskom’s Northern Cape Strengthening project may encroach into that heritage landscape.</b></p> <p><b>Archaeological sites along the route would be automatically protected as stated.</b></p> <p><b>Heritage landscapes here do include areas of frontier conflict /struggle history and nearby are notable colonial features such as Pofadder, the Pella Mission and the traces of farmer settlement (including graves and memorials).</b></p>
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### 2.1.1 Colonial frontier

The eighteenth- and nineteenth-century records for this region (Penn 2005) include the travelogues of George Thompson (1827) and E.J. Dunn (1931, Robinson 1978), who visited the area in 1824 and 1872 respectively. Place names were becoming fixed in this colonial frontier period (in a cadastral sense, on maps and in farm names), many such names having Khoe-San origins encapsulating vestiges of precolonial/indigenous social geography. A much more prominent appreciation is now emerging concerning the history of genocide against the Bushmen in this area (Anthing 1863), with certain mountainous areas (like Gamsberg near Aggeneys) being likely massacre sites, referred to by Dunn in 1872 (Robinson 1978) and, more obliquely, by Anthing (1863; Jose Manuel de Prada-Samper pers. comm. 2009).





Regional focus: the study area relative to Aggeneys and Paul Puts and some other places mentioned.

### 2.1.2 Later Stone Age

Late Holocene Later Stone Age (LSA) sites are the predominant archaeological trace noted in surveys in the Aggeneys-Pofadder region (Morris 1999a-b, 2000a-c, 2001, 2009). Beaumont *et al.* (1995) have shown, with reference to the LSA, that “virtually all the Bushmanland sites so far located appear to be ephemeral occupations by small groups in the hinterland on both sides of the [Orange] river” (1995:263). This was in sharp contrast to the substantial herder encampments along the Orange River floodplain itself (Morris & Beaumont 1990), which reflected the “much higher productivity and carrying capacity of these bottom lands.” “Given choice, the optimal exploitation zone for foragers would have been the Orange River.” The appearance of herders in the Orange River Basin, Beaumont *et al.* argue, led to competition over resources and ultimately to

marginalisation of hunter-gatherers, some of whom then occupied Bushmanland, probably mainly in the last millennium, and focused their hunting and gathering activities around the limited number of water sources in the region. Surveys have located signs of human occupation mainly in the shelter of granite inselbergs, on red dunes which provided clean sand for sleeping, or around the seasonal pans (Beaumont *et al.* 1995:264). Possibly following good rains, herders moved into the Orange River hinterland, as attested archaeologically at sites with ample pottery near Aggeneys and, east of Pofadder, at Schuitdrift South – Morris 1999a). However, Thompson (1824) refers to herder groups settled at the stronger springs such as Pella dispersing during periods of drought to smaller springs in the region, which could equally well account for the traces referred to here. At such times competition between groups over resources and stress within an already marginalised hunter-gatherer society, must have intensified.

### **2.1.3 Pleistocene: Middle and Earlier Stone Age**

Beaumont *et al.* (1995:240-1) note a widespread low density stone artefact scatter of Pleistocene age across areas of Bushmanland to the south where raw materials, mainly quartzite cobbles, were derived from the Dwyka till. Systematic collections of this material made at Olyvenkolk, south west of Kenhardt and Maans Pannen, and east of Gamoep, could be separated out by abrasion state into a fresh component of Middle Stone Age (MSA) with prepared cores, blades and points, and a large aggregate of moderately to heavily weathered Earlier Stone Age (ESA).

Beaumont *et al.* have shown that “substantial MSA sites are uncommon in Bushmanland” (1995:241): and those that have been documented thus far have generally yielded only small samples (Morris & Beaumont 1991; Smith 1995).

The ESA included Victoria West cores on dolerite, long blades, and a very low incidence of handaxes and cleavers. The Middle (and perhaps in some instances Lower) Pleistocene occupation of the region that these artefacts reflect must have occurred at times when the environment was more hospitable than today. This is suggested by the known greater reliance of people in Acheulean times on quite restricted ecological ranges, with proximity to water being a recurrent factor in the distribution of sites.



No substantial sites have been found previously in the survey area. Only very sparse localized scatters of stone tools have been seen in places, with limited traces in the hills or at the bases of hills.

## **2.2 Description and evaluation of environmental issues and potential impacts identified in the scoping phase**

Heritage resources including archaeological sites are in each instance unique and non-renewable resources. Area and linear developments such as those envisaged can have a permanent destructive impact on these resources. The objective of an EIA would be to assess the sensitivity of such resources where present to assess the significance of potential impacts on these resources and to recommend no-go areas and measures to mitigate or manage said impacts.

Area impacts are possible in the case of the development project envisaged in terms of localized extension of the substation. The power transmission line routes with access roads would represent linear impacts.

### **2.2.1 *Direct, indirect and cumulative impacts (in terms of nature, magnitude and extent)***

The destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. In the long term, the proximity of operations in a given area could result in secondary indirect impacts resulting from the movement of people or vehicles in the immediate or surrounding vicinity.

With respect to the magnitude and extent of potential impacts, it has been noted that the erection of power lines would have a relatively small impact on Stone Age sites, in light of Sampson's (1985) observations during surveys beneath power lines in the Karoo (actual modification of the landscape tends to be limited to the footprint of each pylon), whereas a road could tend to be far more destructive (modification of the landscape surface would be within a continuous strip), albeit relatively limited in spatial extent, i.e. width. The '*twee spoor*' roadways generally made for erection and maintenance of power

lines tend to have a minimal impact on Stone Age sites. Where these intersect features such as stone walling or a grave, obviously the impact can be highly negative.

### **3. METHODOLOGY**

A site visit will be carried out to inspect various parts of the terrain on foot and by road. This report is a Scoping Phase assessment setting out assumptions and likely anticipated limitations. Field observations will be presented in the next phase of the project once the alternative routes have been assessed. It is further anticipated that in some sensitive parts of the environment it would be recommended that, once tower positions are known, such specific parts of the chosen route might require to be inspected in greater detail. Heritage traces would be evaluated in terms of their archaeological significance (see tables below).

#### **3.1 Assumptions and limitations**

It was assumed that, by and large in this landscape, with its sparse vegetation and shallow soil profiles, some sense of the archaeological traces to be found in the area would be readily apparent from surface observations (including assessment of places of erosion that expose erstwhile below-surface features). It is not considered necessary to conduct excavations as part of the EIA to establish the potential of sub-surface archaeology.

A proviso is routinely given, that should sites or features of significance be encountered during construction (this could include an unmarked burial, an ostrich eggshell water flask cache, or a high density of stone tools, for instance), specified steps are necessary (cease work, report to heritage authority).

This study will not assess palaeontology.

#### **3.2 Predictions: Potential areas of sensitivity**

Based on previous experience in the area, it is estimated that the terrain close to hills or rocky features, particularly sandy spots near sheltering rocks, may tend to have traces of precolonial Stone Age occupation/activity. The range of hills north east of Pofadder may tend to have more sites than other places in this landscape.

While places in the open plains have been found to have (usually very) sparsely scattered artefacts (such as on the dunes east of the Paulputs Substation site – Morris 1999a), these areas are expected to be less significant. An exception to this is where rocky outcrops at the surface on the plains provide places where water pools exist after rains. Such places often attracted people in the past with traces of this including artificial grinding grooves in the bedrock and ample evidence of stone artefacts and pottery. An example near the proposed routes of the powerline is to the north of the national road near Gamsberg (Morris 2001; 2009).

The belt of sand dunes between Paul Puts and Pofadder may also have been a focus for past human occupation.

Colonial era sites or features within the study area include stone walled farming infrastructure, homesteads and graves.

### **3.3 Potentially significant impacts to be assessed in the EIA process**

Any area or linear, primary and secondary, disturbance of surfaces in the development locales could have a destructive impact on heritage resources, where present. In the event that such resources are found, they are likely to be of a nature that potential impacts could be mitigated by documentation and/or salvage following approval and permitting by the South African Heritage Resources Agency and, in the case of any built environment features, by Ngwao Bošwa ya Kapa Bokone (the Northern Cape Heritage Authority). Although unlikely, there may be some that could require preservation *in situ* and hence modification of intended placement of development features.

Disturbance of surfaces includes any construction: of a road, a pipeline, erection of a pylon, or preparation of a site for a sub-station, or plant, or building, or any other *clearance of*, or *excavation* into, a land surface. In the event of archaeological materials being present such activity would alter or destroy their context (even if the artefacts themselves are not destroyed, which is also obviously possible). Without context, archaeological traces are of much reduced significance. It is the contexts as much as the individual items that are protected by the heritage legislation.

Sampson (1985) has shown that powerlines tend to be less destructive on Stone Age sites than roads since access along the route of the line during construction and maintenance tends to be by way of a 'twee-spoor' temporary roadway (not scraped, the

surface not significantly modified). Individual tower positions might be of high archaeological significance (e.g. a grave, or an engraving). The impact of a 'twee-spoor' could be far greater on Iron Age sites in other parts of South Africa, where stone walling might need to be breached.

### **3.4 Determining archaeological significance**

In addition to guidelines provided by the National Heritage Resources Act (Act No. 25 of 1999), a set of criteria based on Deacon (nd) and Whitelaw (1997) for assessing archaeological significance has been developed for Northern Cape settings (Morris 2000a). These criteria include estimation of landform potential (in terms of its capacity to contain archaeological traces) and assessing the value to any archaeological traces (in terms of their attributes or their capacity to be construed as evidence, given that evidence is not given but constructed by the investigator).

#### *Estimating site potential*

Table 1 (below) is a classification of landforms and visible archaeological traces used for estimating the potential of archaeological sites (after J. Deacon nd, National Monuments Council). Type 3 sites tend to be those with higher archaeological potential, but there are notable exceptions to this rule, for example the renowned rock engravings site Driekopseiland near Kimberley which is on landform L1 Type 1 – normally a setting of lowest expected potential. It should also be noted that, generally, the older a site the poorer the preservation, so that sometimes *any* trace, even of only Type 1 quality, can be of exceptional significance. In light of this, estimation of potential will always be a matter for archaeological observation and interpretation.

#### *Assessing site value by attribute*

Table 2 is adapted from Whitelaw (1997), who developed an approach for selecting sites meriting heritage recognition status in KwaZulu-Natal. It is a means of judging a site's archaeological value by ranking the relative strengths of a range of attributes (given in the second column of the table). While aspects of this matrix remain qualitative, attribute assessment is a good indicator of the general archaeological significance of a site, with Type 3 attributes being those of highest significance.

**Table 1. Classification of landforms and visible archaeological traces for estimating the potential for archaeological sites (after J. Deacon, National Monuments Council).**

<b>Class</b>	<b>Landform</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>
L1	Rocky surface	Bedrock exposed	Some soil patches	Sandy/grassy patches
L2	Ploughed land	Far from water	In floodplain	On old river terrace
L3	Sandy ground, inland	Far from water	In floodplain or near feature such as hill	On old river terrace
L4	Sandy ground, Coastal	>1 km from sea	Inland of dune cordon	Near rocky shore
L5	Water-logged deposit	Heavily vegetated	Running water	Sedimentary basin
L6	Developed urban	Heavily built-up with no known record of early settlement	Known early settlement, but buildings have basements	Buildings without extensive basements over known historical sites
L7	Lime/dolomite	>5 myrs	<5000 yrs	Between 5000 yrs and 5 myrs
L8	Rock shelter	Rocky floor	Sloping floor or small area	Flat floor, high ceiling
<b>Class</b>	<b>Archaeo-logical traces</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>
A1	Area previously excavated	Little deposit remaining	More than half deposit remaining	High profile site
A2	Shell or bones visible	Dispersed scatter	Deposit <0.5 m thick	Deposit >0.5 m thick; shell and bone dense
A3	Stone artefacts or stone walling or other feature visible	Dispersed scatter	Deposit <0.5 m thick	Deposit >0.5 m thick

**Table 2. Site attributes and value assessment (adapted from Whitelaw 1997)**

<b>Class</b>	<b>Attribute</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>
1	Length of sequence/context	No sequence Poor context Dispersed distribution	Limited sequence	Long sequence Favourable context High density of arte/ecofacts
2	Presence of exceptional items (incl regional rarity)	Absent	Present	Major element
3	Organic preservation	Absent	Present	Major element
4	Potential for future archaeological investigation	Low	Medium	High
5	Potential for public display	Low	Medium	High
6	Aesthetic appeal	Low	Medium	High
7	Potential for implementation of a long-term management plan	Low	Medium	High

## **4. CONCLUSION AND WAY FORWARD**

This Scoping Phase report indicates the nature of the receiving environment from an archaeological and cultural heritage perspective. It makes predictions for segments of the environment that may need particular focus during the field assessment when the alternative routes would be evaluated by way of site visits.

### **4.1 Characterising the archaeological significance**

The significance matrices in Tables 1 and 2 under 3.4 above would be used to evaluate the archaeological observations made during site visits.

### **4.2 Characterising the significance of impacts**

The Environmental Impact Assessment to characterise the significance of direct, indirect and cumulative impacts would be calculated in terms of ratings on the nature, extent, duration, magnitude and probability of occurrence of impacts.

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