



## **NGT ESHS Solutions**

### **PROJECT TITLE:**

ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE EAST COAST GAS  
400 KV POWER LINES, LOCATED IN RICHARDS BAY, WITHIN THE  
UMHLATHUZE LOCAL MUNICIPALITY IN THE KING CETSHWAYO DISTRICT  
MUNICIPALITY IN THE KWAZULU-NATAL PROVINCE.

### **PROJECT REFERENCE:**

**DATE OF ISSUE:**  
31 OCTOBER 2018

### **SPECIALIST REPORT:**

Heritage scoping report for the East Coast Gas 400 KV power line, located in Richards Bay, within the Umhlathuze Local Municipality in the King Cetshwayo District Municipality, Kwazulu-Natal Province.

**NGT Holdings (Pty) Ltd**

Registration: 2012/004322/07 V.A.T: 495073401

Tel: 011 888 0209

CEO – Nkosinathi Tomose

E-mail: [nkosinathi@ngtholdings.co.za](mailto:nkosinathi@ngtholdings.co.za)

Website: [www.ngtholdings.co.za](http://www.ngtholdings.co.za)

Postal Address: PostNet Suite # 122, Private Bag X1, Northcliff, 2115

**ACKNOWLEDGEMENT OF RECEIPT**

<b>CLIENT:</b>	<b>EKOINFO CC</b>
<b>CONTACT PERSON</b>	Mr Willem de Frey
<b>FAX NUMBER</b>	012 365 3217
<b>CELL PHONE NUMBER</b>	082 579 5049
<b>E-MAIL ADDRESS:</b>	<a href="mailto:wdefrey@ekoinfo.co.za">wdefrey@ekoinfo.co.za</a>

<b>CONSULTANT:</b>	<b>NGT HOLDINGS (PTY) LTD</b>
<b>AUTHOR</b>	Ms Cherene de Bruyn
<b>REVIEW AND QUALITY CONTROL (INTERNAL)</b>	Mr. Nkosinathi Tomose
<b>TELEPHONE NUMBER</b>	011 888 0209
<b>CELL PHONE NUMBER</b>	072 437 1430
<b>E-MAIL ADDRESS:</b>	<a href="mailto:cherene@ngtholdings.co.za">cherene@ngtholdings.co.za</a>

<b>CONTACT PERSON:</b>	<b>CHIEF EXECUTIVE OFFICER AND PRINCIPAL CONSULTANT</b>
HAND SIGN:	<p>P.P. </p>
<b>CONTACT PERSON:</b>	<b>DIRECTOR- STRATEGY AND BUSINESS DEVELOPMENT</b>
HAND SIGN:	

## **COPYRIGHT**


Copyright for this Heritage Scoping Report (HSR) (including all the associated data, project results and recommendations) whether manually or electronically produced totally vest with NGT Holdings (Pty) Ltd (herewith referred to as NGT). This copyright extends to all documents forming part of the current submission and any other subsequent reports or project documents such as their inclusion in the Environmental Scoping Report (ESR) and the Environmental Impact Assessment Plan of Study (EIA-PS) document for the proposed East Coast Gas 400 KV power lines, located in Richards Bay, in Umhlatuze Local Municipality (ULM) within King Cetshwayo District Municipality (KCDM), Kwazulu-Natal Province (KZN). Therefore, it is the author's views that no parts of this report may be reproduced or transmitted in any form whatsoever for any person or entity without prior written consent and signature of the author or any other representative of NGT. This limitation is with exception to EkoInfo CC (Pty) Ltd (hereafter also referred to as EkoInfo).

The limitation for the transmission of the report, both manually and electronically without changing or altering the reports results and recommendations, shall also be lifted for the purposes of submission, circulation and adjudication purposes by the relevant authorities. These authorities include the Department of Environmental Affairs (DEA), Amafa KwaZulu-Natalie (Amafa), the South African Heritage Resources Agency (SAHRA).

NGT takes full responsibility for specialists working on the project for all heritage related matters based on the information provided by the clients. NGT will not be held responsible for any changes in the design or change of the environmental programme of the proposed project. Furthermore, any changes to the scope of works that may require significant amendments to the current heritage document will result in alteration of the fee schedule agreed upon with EkoInfo.

## DECLARATION OF INDEPENDENCE

Cherene de Bruyn for NGT has compiled this report. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision-making process for the project.

<b>CONSULTANT:</b>	<b>NGT Holdings (Pty) Ltd</b>
<b>SPECIALIST NAME</b>	Cherene de Bruyn
<b>QUALIFICATIONS</b>	<ul style="list-style-type: none"> <li>• MA Archaeology, University College London</li> <li>• BSc (Honours) Physical Anthropology, University of Pretoria</li> <li>• BA (Honours) Archaeology, University of Pretoria</li> <li>• BA General, University of Pretoria</li> </ul>
<b>ASSOCIATION/PROFESSIONAL BODY</b>	Association of South African Professional Archaeologists (ASAPA): Professional Membership
<b>YEARS OF EXPERIENCE IN THE INDUSTRY</b>	1 Year
<b>SIGNATURE (HAND SIGNATURE ON APPROVAL BY CLIENT)</b>	

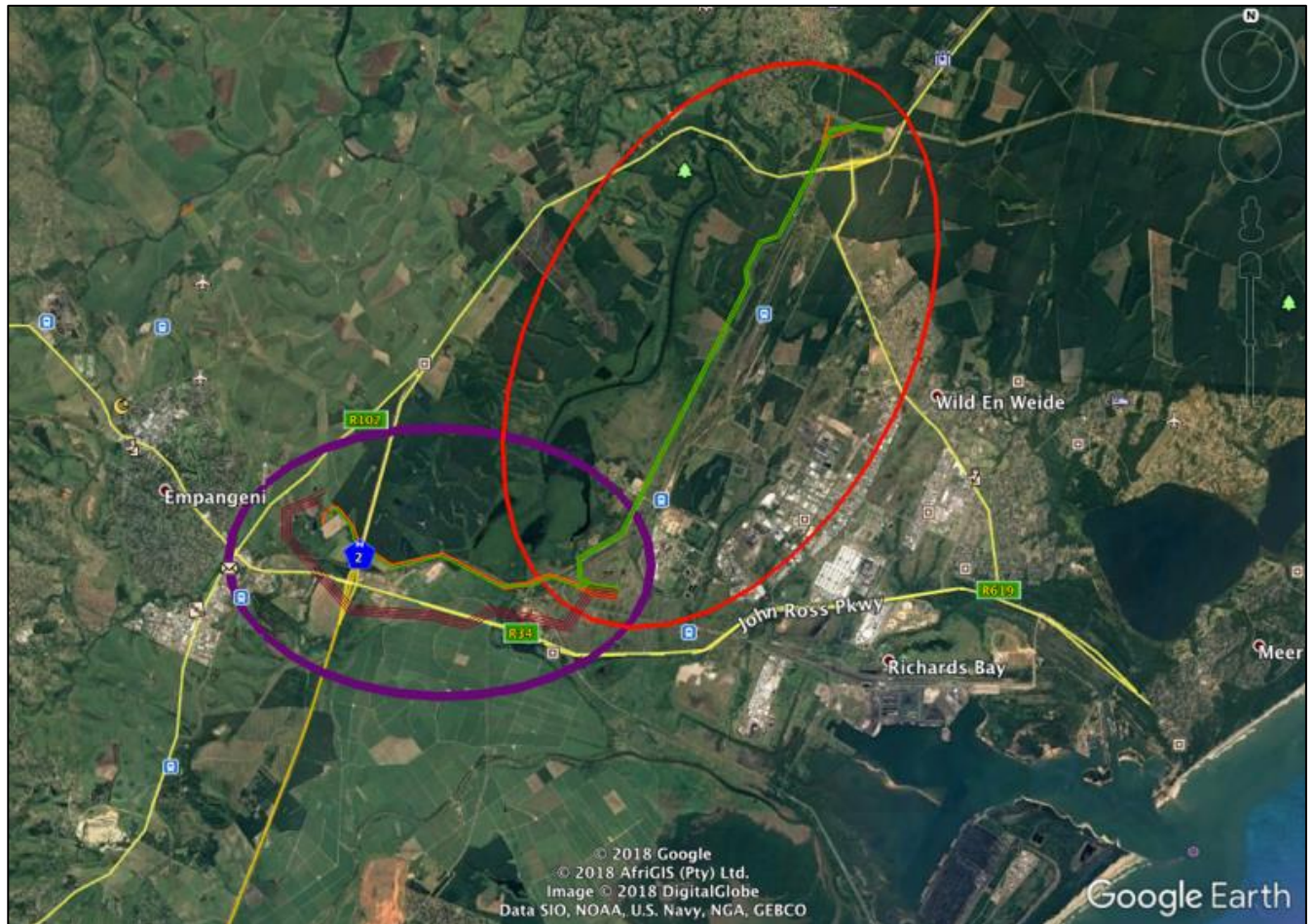
## EXECUTIVE SUMMARY

NGT was appointed by EkoInfo to conduct a HSR for the proposed East Coast Gas 400 KV powerlines, located in Richards Bay, in ULM within KCDM, in the KZN, South Africa. This scoping report forms part of the ESR and EIAPS, it provides inputs on the planning of the Environmental Impact Assessment (EIAs) and it informs the design of proposed powerlines by highlighting heritage sensitive areas and mapping out Go and No-Go-Areas from a heritage resources management perspective. This study is conducted independently in terms of Section 38 of the National Heritage Resources Act (NHRA), No. 25 of 1999.

The standard NGT scoping reporting process entailed conducting a basic desktop study of the receiving environment. The search and assessment of available databases on the receiving environment, previous archaeological and heritage impact assessments and scoping studies conducted in and around the proposed study area. This also includes conducting a preliminary onsite survey of the receiving environment to familiarise the specialist of site conditions, identify and map out any heritage resources within the receiving environment. To map out heritage sensitive areas, Go and No-Go-Areas from heritage perspective to inform the EIA-PS and the selection of viable routes to be taken by the developer and design team which will then undergo a detailed survey and impact assessment during the EIAs phase of the project. Following the assessment of various options give in the Environmental Scoping (ES) phase, conclusions and recommendations are made on the best route that the EIAs should focus on to avoid impacting on sensitive heritage areas.

The preliminary survey of the project area for the scoping study was conducted between Tuesday the 25<sup>th</sup> and Thursday 27<sup>th</sup> of September 2018. The preliminary survey was conducted by Mr Nkosinathi Tomose (Executive Director and Principal Consultant – NGT). The survey was conducted on foot and through the used vehicle. The survey covered two defined study areas i.e. East-West Study Area and East-North-Study Areas as well as the various powerline options that were selected in the initial project planning phase. These powerline options include: Options 01 north and south of the R34 local road linking Richards Bay and Empangeni and Options 02 situate north and west of the Transnet railway line and north of the R34 (situated south of swamps formed by Nseleni River) (*Figure. 1*). Both Option 01 and Option 02 fall within East-West Study Area until where they connect to the proposed Gas Power Station in the east where a small section falls within the East-North Study Area. Option 03 is situated in the East-North Study Area.

Based on the results of literature review, preliminary field survey and the assessment of heritage sensitivity the study areas, the following conclusions and recommendations are made about the project in terms of the of minimum standards for conducting such studies as legislated in the NHRA, No.25 of 1999:



*Figure 1: Map showing the two study areas i.e. In purple is East-West Study Area and in red is North-East Study Area and the proposed Powerlines inside each Study Area*

#### **Conclusions:**

- The Empangeni, Richards Bay area and the KZN region is rich in archaeology, history and palaeontological resources.
- During the preliminary survey of the receiving environment, i.e. East-Wes Study Area and East-North Study Area as well the three powerline Options (Option 1, Option 02 and Options 03) no

archaeological resources were found. A historic Mondi/Transnet Village was found and it contains kraals. The area defined as the East-West Study Area did not yield any areas that could potentially yield archaeological or heritage resources.

- In terms of Palaeontological Sensitivity Layer (PSL) developed by the Council of GeoScience South Africa and the SAHRA shows that the East-West Study Area contains three Palaeontological Sensitive Area (PSA) layers:
  - South of the R34 linking Empangeni and Richards Bay, the Palaeo-Sensitivity layer shows the area as green meaning that it is within a Moderate PSA.
  - The area north of the R34 shows two layers, green and blue. The blue portion of the PSA means that the area has a low palaeontological sensitivity.
  - The western section of East-West Study Area, where both Option 01 and Option 02 connect to the substation and north of the R34 shows yellow/orange of the PSA – this means that the area has a high palaeontological sensitivity.
- The area defined as East-North Study Area which contains Option 3 of the proposed powerlines yielded an Old Mondi/Transnet Village with kraals and an area with the potential to yield burial grounds and graves (BGG).
- In terms of the PSL in the East-North Study Area yielded four PSA and the following results:
  - The eastern section of the East-North Study Area and east of the Nseleni River, the ecological sensitive area and the swamp north of the Transnet railway line and the R34 is predominantly blue. This means that it has low paleontological potential.
  - The western and central section, west of the Nseleni River up to Enseleni Nature Reserve shows a green, yellow/orange layer as well as pockets of grey layer. The green indicates a moderate palaeontological sensitivity; the yellow/orange layer indicates a high palaeontological sensitivity, while the grey layer means insignificant and low palaeontological sensitivity.
  - West and north of the R619 and the N2 intersection a thin layer of PSA in red is shown, meaning that this area is of very high palaeontological sensitivity.

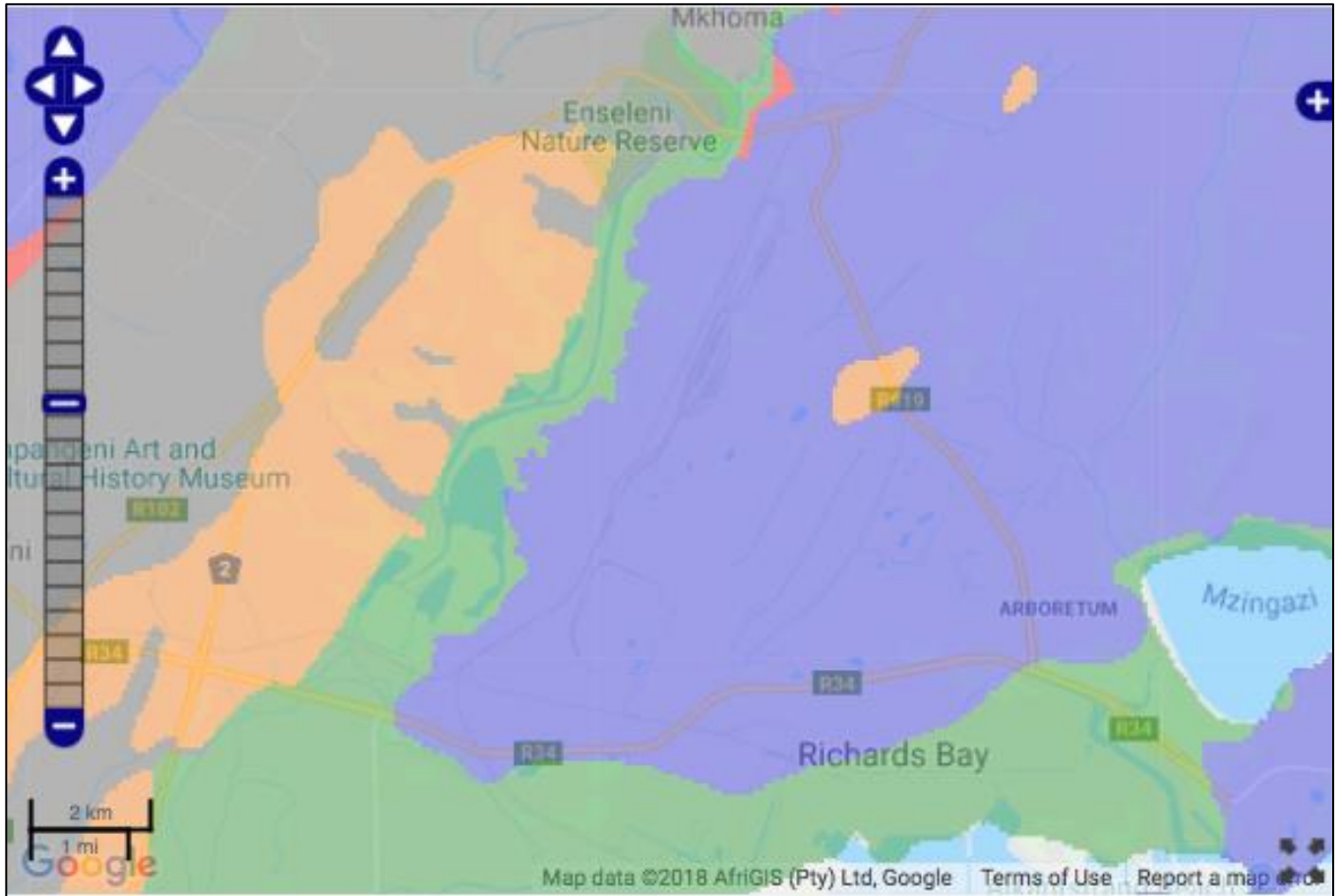


Figure 2: Map showing palaeontological sensitivity area (it should be read in conjunction with Figure 1 above to show the study areas).

Based on the above it is concluded that the East-West Study Area is sensitive from a palaeontological sensitivity perspective. However, this study area has low potential to impact on archaeological and heritage resources such as BGG and historic built environment. The East-North Study Area is not sensitive from where the powerline options are proposed, but if these powerlines were to be extended to the western section of this study area it would impact on highly sensitive palaeontological areas. In terms of archaeology and heritage, this study area also contains a historic Mondi/Transnet Village with a potential to yield BGG. The villages can, however, be easily mitigated by constructing the powerlines away from it and this will also avoid impacting on the BGG. From feasibility perspective, the East-North Study Area lines are supported subject that they will not traverse the western section of this study area. The historic village and the area within this village that has high potential to yield BGG can easily be avoided and treated as a No-Go-Area. The East-West Study Area is supported from archaeology and heritage perspective even though it has a layer that is moderate from a palaeontological sensitivity perspective.



**Recommendations:**

- It is recommended that a full heritage impact assessment (HIA) study inclusive of a palaeontological impact assessment (PIA) study (both desktop and field survey) is required as part of the EIAs programme.
- The HIA with PIA will conduct a detailed survey on footprint of the proposed powerlines, record and document any archaeological, heritage and palaeontological resources. These studies will make recommendations on the management of archaeological, palaeontological and heritage resources such as BGG.
- If the East-North Study Area is supported from all other specialist studies conducted as part of this environmental scoping process and from a technical aspect by Eskom (since there are issues technically for the East-West Study Area in terms of connectivity and crossing of the existing powerlines); the HIA survey will need to ensure that the historic Mond/Transnet Village is covered in the survey, its buildings, kraals and BGG documented and mapped out (if any any BGG are found within the historic village).

**TABLE OF CONTENTS**

<b>ACKNOWLEDGEMENT OF RECEIPT .....</b>	<b>2</b>
<b>COPYRIGHT .....</b>	<b>3</b>
<b>DECLARATION OF INDEPENDENCE .....</b>	<b>4</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>5</b>
<b>TABLE OF CONTENTS .....</b>	<b>10</b>
<b>TABLE OF FIGURES .....</b>	<b>11</b>
<b>LIST OF TABLES .....</b>	<b>12</b>
<b>LIST OF ABBREVIATIONS.....</b>	<b>13</b>
<b>TERMS AND DEFINITIONS.....</b>	<b>14</b>
<b>1. INTRODUCTION.....</b>	<b>16</b>
<b>1.1. Background Information of Project .....</b>	<b>16</b>
<b>1.2. Legal Requirements for Completion of this Scoping Study .....</b>	<b>16</b>
<b>1.3. Location of the study area .....</b>	<b>17</b>
<b>1.4. Description of the Affected Environment .....</b>	<b>17</b>
<b>1.4.1. Land Use and History .....</b>	<b>17</b>
<b>1.4.2. East-West Study Area .....</b>	<b>20</b>
<b>1.4.3. North-East Study Area .....</b>	<b>30</b>
<b>2. METHODOLOGY .....</b>	<b>36</b>
<b>2.1. Approach to the Study.....</b>	<b>36</b>
<b>2.2. Step I – Literature Review (Desktop Phase) .....</b>	<b>36</b>
<b>2.3. Step II – Physical Survey .....</b>	<b>36</b>
<b>2.4. Step III – Report Writing and Site Rating .....</b>	<b>37</b>
<b>3. BACKGROUND LITERATURE REVIEW .....</b>	<b>38</b>
<b>4. POTENTIAL IMPACTS .....</b>	<b>39</b>
<b>4.1. Archaeology, Built Environment, Burial Grounds and Graves .....</b>	<b>39</b>
<b>4.2. Paleontological Sensitivity .....</b>	<b>42</b>
<b>5. CONCLUSIONS, RECOMMENDATION AND PLAN FOR THE EIAs .....</b>	<b>43</b>
<b>6. REFERENCES.....</b>	<b>45</b>

## TABLE OF FIGURES

Figure 1: Map showing the two study areas i.e. In purple is East-West Study Area and in red is North-East Study Area and the proposed Powerlines inside each Study Area.....	6
Figure 2: Map showing palaeontological sensitivity area (it should be read in conjunction with Figure 1 above to show the study areas).....	8
<i>Figure 3: Map showing the two study areas in relation to four major towns. In purple is East-West Study Area and in red is North-East Study Area</i> .....	18
Figure 4: Areas marked in green show some of the existing infrastructure within the receiving environment .....	19
Figure 5: Cattle and goat farm in East-West Study Area .....	22
Figure 6: Example of Mondi plantation .....	23
Figure 7: Sugar cane field south of the Transnet railway line.....	24
Figure 8: Sugar cane field in relation to Eskom substation (red arrow) and the Transnet railway line (blue arrow).....	25
Figure 9: Markers of Transnet gas pipeline (see plantations in the background) .....	26
Figure 10: Example of existing Powerlines in East-West Study Area.....	26
Figure 11: Transnet railway line.....	27
Figure 12: Sewer and water pipelines.....	28
Figure 13: Vegetation cover to the area with swamp north of the water pipeline and Transnet railway line.....	28
Figure 14: Proposed line crossing point for the proposed Option 01 over the existing Powerlines .....	29
Figure 15: Water works plant west of the proposed Powerlines and Transnet railway line.....	31
Figure 16: Water infrastructure and servitude along the existing Powerlines and west of the Transnet railway line .....	31
Figure 17: Mondi/Transnet village.....	32
Figure 18: Kraals at the Mondi/Transnet village.....	33
Figure 19: Mondi process plant .....	34
Figure 20: Existing water body (ecological support area) along the proposed and existing Powerlines and west of the Transnet railway line.....	34
Figure 21: Existing Powerlines in the interaction of East-West Study Area and East-North Study Area ...	35
Figure 22: Google Earth image of the East West (in purple circle) and North East (in red circle) project areas, as well as the Old Mondi village (yellow arrow). .....	40
Figure 23: Google Earth image of the Mondi Village with ruins of kraals and possible grave sites. ....	41
<i>Figure 24: Paleo-Sensitivity layer of the East West (in purple circle) and North East (in red circle) project areas proposed for the East Coast Gas 400 KV power line, located near Richards Bay. ....</i>	<i>42</i>

## LIST OF TABLES

Table 1: Summary of economic activities and infrastructure found on site associated with each socio-economic activity within the East-West Study Area.....	20
Table 2: Summary of economic activities and infrastructure found on site associated with each socio-economic activity .....	30
Table 3: Potential impacts on identified archaeological sites and heritage resources in the project area. .....	39

**LIST OF ABBREVIATIONS**

ACRONYMS	DESCRIPTION
<b>AUTHORITIES</b>	
Amafa	Heritage KwaZulu Natali
ASAPA	Association of South African Professional Archaeologists
DEA	Department of Environmental Affairs
KCDM	King Cetshwayo District Municipality
KZN	KwaZulu-Natal Province
NGT	Nurture, Grow, Treasure
SADC	Southern African Developing Community
SAHRA	South African Heritage Resources Agency
ULM	Umhlathuze Local Municipality
<b>DISCIPLINE</b>	
BGG	Burial grounds and graves
CMP	Cultural Management Plan
EIAs	Environmental Impact Assessment
EIA-PS	Environmental Impact Assessment Plan of Study
EMPr	Environmental Management Programme
ES	Environmental Scoping
ESR	Environmental Scoping Report
HCMP	Heritage Cultural Management Plan Report
H-PS	Heritage Plan of Study
HIA	Heritage Impact Assessment
HSR	Heritage Scoping Report
PIA	Palaeontological Impact Assessment
PSA	Palaeontological Sensitive Area
PSL	Palaeontological Sensitivity Layer
RQC	Review and Quality Control
<b>LEGAL</b>	
KZNHA	KwaZulu Natal Heritage Act
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act

## **TERMS AND DEFINITIONS**

### ***Archaeological resources***

These include:

- Material remains resulting from human activities which are 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;
- Rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- Wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- Features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

### ***Palaeontological***

This means 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.

### ***Cultural significance***

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

### ***Development***

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- Construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- Carrying out any works on or over or under a place;

- Subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- Constructing or putting up for display signs or boards; any change to the natural or existing condition or topography of land;
- And any removal or destruction of trees, or removal of vegetation or topsoil.

**Heritage resources:** This means any place or object of cultural significance

## **1. INTRODUCTION**

### **1.1. Background Information of Project**

NGT was appointed by Ekoinfo to conduct an HSR for the proposed East Coast Gas 400 KV powerlines, located in Richards Bay, in ULM within KCDM, in KZN, South Africa (*Figure. 3*). Eskom proposed the construction of four 400kv power lines. These new powerlines will be able to transmit the power generated at the new proposed Combined Cycle Power Plant (CCPP). The aim of the project is to upgrade all applicable 400kv powerlines, install fault limiting reactors at the 132kv side of the transformers at Athene substation as well as loop into Athene- Invubu and Athene – Umfolozi 400 kV lines.

The current heritage scoping study investigates the potential impacts of the proposed powerlines on archaeological, heritage (historic built environment, kraals which have a high significance within the Nguni community, BGG as well as palaeontological resources) within the receiving environment. The overall objective of the HSR is to give expert advice on the management of the archaeological, heritage and palaeontological resources in and around the proposed study areas i.e. East-West Study Area and East-North Study Area as well as the proposed powerline options located within these two study areas. To develop a Heritage Plan of Study (H-PS) for the EIAs process which will be a site-specific survey and assessment of the selected study area and option in terms of the proposed powerlines options. The methodology of the HIA which will include a PIA study will have to follow the latest SAHRA Minimum Standards for conducting an archaeological, HIAs and Palaeontological studies (SAHRA Minimum Standards Published in 2018). These Minimum Standards are in line with the NHRA, No. 25 of 1999 which set norms and standards to the identification, conservation, management and promotion of the Nation Estate in South Africa.

### **1.2. Legal Requirements for Completion of this Scoping Study**

The NHRA, No. 25 of 1999 sets the norms and standards for the management of heritage resources in South Africa. The KwaZulu Natal Heritage Act (KZNHA), No. 10 of 1997 is developed to manage heritage resources at a provincial level. The other applicable legal document that informs the scoping and HIA report is the KwaZulu Natal Heritage Bill of 21 February 2008. Furthermore, the cultural environment in South Africa is managed through Section 24 of the NEMA, No. 107 of 1998.



### **1.3. Location of the study area**

The study area is ensconced between the towns of Richards Bay (in the east), Empangeni (in the west), KwaMbonambi is found in the north and Eskhwawinin in the south. The study area is predominantly situated east of the N2 national road which traverses the site from the north to south (*Figure. 3*). The R102 (provincial road) is situated west of the proposed development area and the N2, joining the N2 north of East-West Study Area and west of the North-East Study Area. The R34 traverses the East-West Study Area from Richards Bay in the east to Empangeni in the west. This provincial road is situated south of the North-East Study Area, joining the R619 north of Richards Bay in the east. The R619 which is another provincial road, traverse the North-East Study Area from the east joining the N2 in the north.

### **1.4. Description of the Affected Environment**

#### **1.4.1. Land Use and History**

The development is located next to the Nseleni River and surrounded by Industrial hubs with urban communities located on the periphery. The receiving environment, both the East-West Study Area and the North-East Study Area, is situated in a landscape that has been predominantly transformed in the past through the development of industrial infrastructure such as the water and sewer pipelines, Transnet railway lines and gas pipelines, national and provincial roads, industrial nodes/hubs, hospital and through agricultural activities such as sugar cane farming and Mondi plantations. There are, however, sections of the receiving environment that have ecological support area such as Nseleni River and the swamps found north of the R34 linking Richards Bay and Empangeni. Below is the summary of socio-economic activities and associated infrastructure found in each of the two study areas i.e. East-West Study Area and East-North Study Area (*Table. 1, Table. 2, see also Figure. 4*).

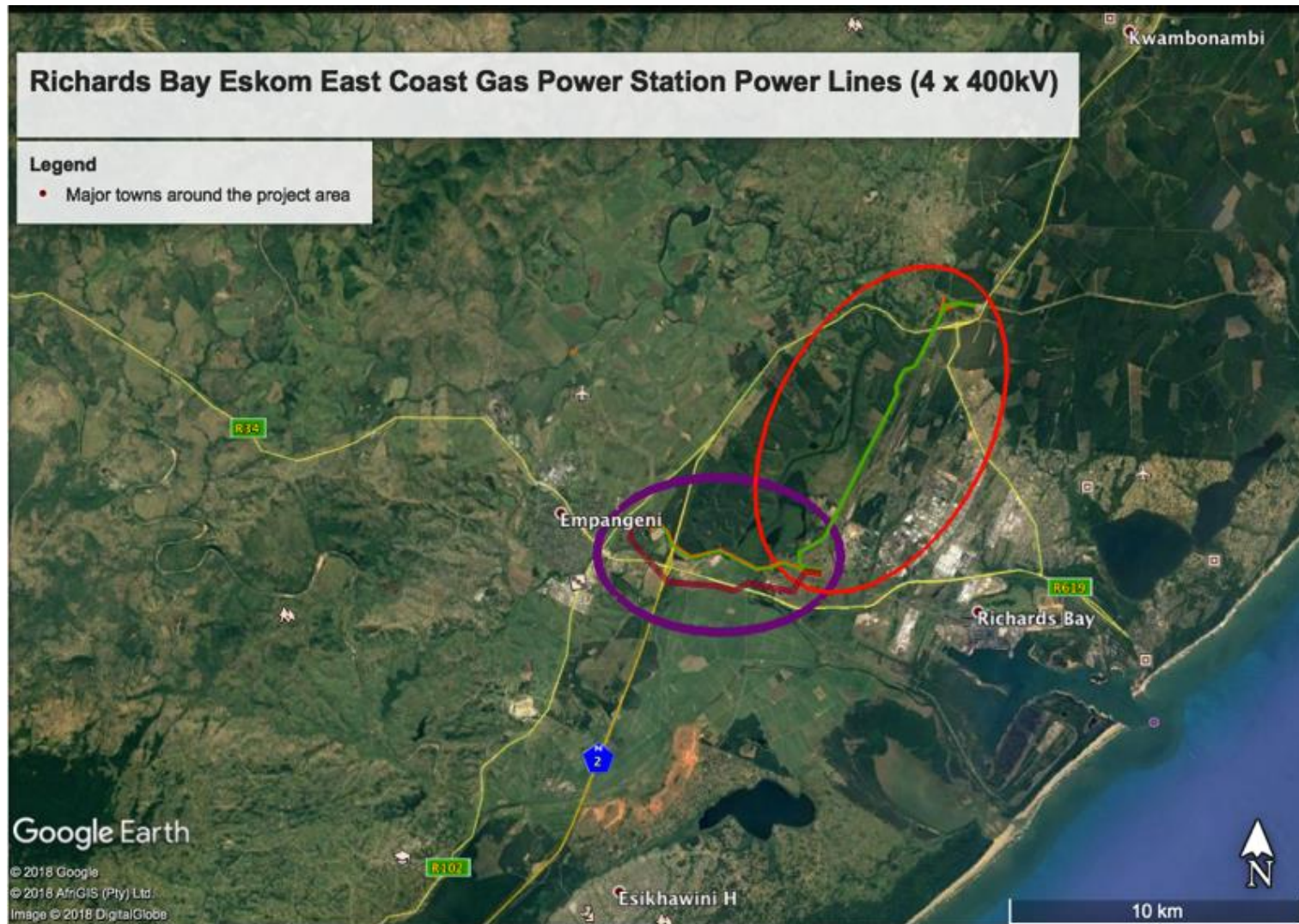


Figure 3: Map showing the two study areas in relation to four major towns. In purple is East-West Study Area and in red is North-East Study Area

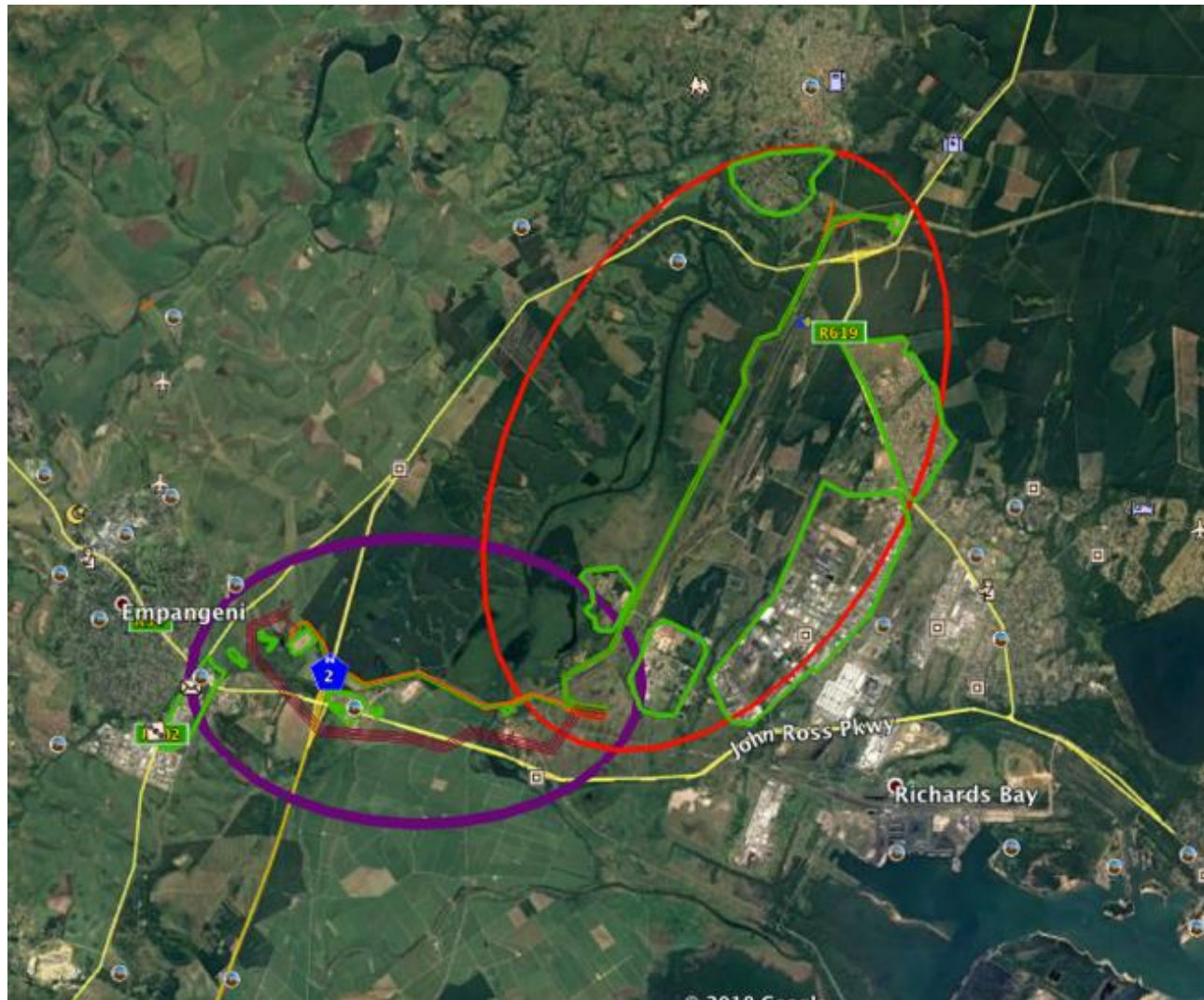


Figure 4: Areas marked in green show some of the existing infrastructure within the receiving environment

### 1.4.2. East-West Study Area

Below are economic activities and infrastructure found on site associated with each socio-economic activity (*Table. 1*).

*Table 1: Summary of economic activities and infrastructure found on site associated with each socio-economic activity within the East-West Study Area*

ACTIVITY	TYPE OF IDENTIFIED INFRASTRUCTURE
<b>Farming</b>	<ul style="list-style-type: none"> <li>• Cattle and goat farm north of the R34 and west of Nseleni River and the swamp (<i>Figure 5</i>)</li> <li>• This study area is characterised by plantations north of the R34 and the Transnet railway line and sugar cane fields south of the railway line which stretch to the south of the R34 (<i>Figures. 6 -9</i>).</li> </ul>
<b>Energy</b>	<ul style="list-style-type: none"> <li>• Eskom Powerlines and substation (existing) (e.g. <i>Figure. 10</i>)</li> <li>• Transnet gas pipeline north and south of the railway line (<i>Figure. 9</i>)</li> <li>• The proposed Option 01 and Option 02 of the proposed Powerlines from the proposed Gas Power Station in the east are situated within this study area.</li> <li>• Option 01 of the proposed Powerlines from the Gas Power Station to the substation in the west travels from the Gas Power Station north and along the R34, traverse across the the R34 approximately 2.66km from the power station (<i>Figure. 14</i>). It travels across sugar cane fields, traversing the R34 at approximately 3.24km from where it first crosses the R34 north of the R34 to make a bend before connecting to the substation in the west (<i>Figure. 4</i>).</li> <li>• Option 02 is situated north of the R34 and along the Transnet railway line and south of the ecological area formed by Nseleni River – an area defined by a swamp and indigenous plant species. This line further travels south-east, south and south-west of the Mondi plantation before it connects to the substation in the west (<i>Figure. 4</i>).</li> </ul>
<b>Transportation and Rail Infrastructure</b>	<ul style="list-style-type: none"> <li>• The Transnet railway line (north of the R34), the N2 (National Road) and the R34 (local road) (<i>Figure. 11</i>)</li> </ul>

<b>Social Infrastructure</b>	<ul style="list-style-type: none"> <li>• Private hospital south of the R34 from Richards Bay to Empangeni</li> <li>• A sewer pipeline from the water works plant in the east to the west (<i>Figure. 12</i>)</li> <li>• Water works plant in the north-eastern section East-West Study Area</li> </ul>
<b>Towns and Communities</b>	<ul style="list-style-type: none"> <li>• North of the R34 and west of the N2 Zendele Village</li> <li>• The community of Mpangele is found both north and south of the R34 (<i>Figure. 4</i>)</li> </ul>
<b>Industrial Parks</b>	<ul style="list-style-type: none"> <li>• East of the N2 and north of the R34 another industrial park and plant hire site are found.</li> <li>• North of the R34 and west of the N2 ZSM Industrial area found (<i>Figure. 4</i>)</li> </ul>
<b>Ecological Support Area</b>	<ul style="list-style-type: none"> <li>• A swamp formed by Nseleni River is found in both East-West Study Area and the North-East Study Area (on the south-western section) (e.g. <i>Figure. 13 north of the pipeline</i>).</li> </ul>



*Figure 5: Cattle and goat farm in East-West Study Area*



*Figure 6: Example of Mondi plantation*



*Figure 7: Sugar cane field south of the Transnet railway line*





*Figure 8: Sugar cane field in relation to Eskom substation (red arrow) and the Transnet railway line (blue arrow)*



*Figure 9: Markers of Transnet gas pipeline (see plantations in the background)*



*Figure 10: Example of existing Powerlines in East-West Study Area*



*Figure 11: Transnet railway line*



Figure 12: Sewer and water pipelines



Figure 13: Vegetation cover to the area with swamp north of the water pipeline and Transnet railway line



*Figure 14: Proposed line crossing point for the proposed Option 01 over the existing Powerlines*

### 1.4.3. North-East Study Area

Below are economic activities and infrastructure found on site associated with each socio-economic activity within North-East Study Area (*Table. 2*).

*Table 2: Summary of economic activities and infrastructure found on site associated with each socio-economic activity*

ACTIVITY	TYPE OF IDENTIFIED INFRASTRUCTURE
<b>Farming</b>	<ul style="list-style-type: none"> <li>• Mondi plantations and pockets of sugar cane fields west of Nseleni River are found.</li> </ul>
<b>Energy</b>	<ul style="list-style-type: none"> <li>• Eskom Powerlines and substation (in the north of the study area where the proposed Option 03 is to connect) (<i>Figure. 21</i>)</li> </ul>
<b>Transportation and Rail Infrastructure</b>	<ul style="list-style-type: none"> <li>• The Transnet railway line north of the R34 and west of the R619 (<i>see Figure. 11 and Figure. 3/4</i>)</li> <li>• The R619 local road which connects from the R34 north of Richards Bay to the N2 north of the receiving environment</li> </ul>
<b>Social Infrastructure</b>	<ul style="list-style-type: none"> <li>• Water works plant in the south-west section of the study area i.e North-East Study Area (<i>Figure. 15, see also Figure. 16</i>)</li> </ul>
<b>Towns and Communities</b>	<ul style="list-style-type: none"> <li>• A small Mondi Village is situated in the north of the study area, east of Option 03 and east of the Transnet railway line (as well as its depots/sidings) (<i>Figure 17. and 18</i>)</li> <li>• The communities of Aquadene and Brackenhams are found on the eastern section of the study area north of the industrial parks</li> <li>• North of the N2 and on the northern section of the study area, the southern section of Nseleni A is found (<i>Figure. 4</i>).</li> </ul>
<b>Industrial Parks</b>	<ul style="list-style-type: none"> <li>• The southern and eastern sections of this study area is characterised by the following industries:               <ul style="list-style-type: none"> <li>○ Mondi processing plant (<i>Figure. 19</i>)</li> <li>○ Alton Industrial Park</li> </ul> </li> </ul>

<b>Ecological Support Area</b>	<ul style="list-style-type: none"> <li>• Nseleni River (and a section of the swamp formed by this River) is found in the western section of the study area.</li> <li>• A small water body was also found to be one of the ecological support areas (<i>Figure. 20</i>).</li> </ul>
--------------------------------	--



*Figure 15: Water works plant west of the proposed Powerlines and Transnet railway line*



*Figure 16: Water infrastructure and servitude along the existing Powerlines and west of the Transnet railway line*



Figure 17: Mondi/Transnet village





*Figure 18: Kraals at the Mondli/Transnet village*



*Figure 19: Mondi process plant*



*Figure 20: Existing water body (ecological support area) along the proposed and existing Powerlines and west of the Transnet railway line*



*Figure 21: Existing Powerlines in the interaction of East-West Study Area and East-North Study Area*

## **2. METHODOLOGY**

### **2.1. Approach to the Study**

Cherene de Bruyn (Archaeologist and Heritage Consultant – NGT), is responsible for the compilation of the current scoping report. The Review and Quality Control (RQC) process involved reviewing the First Draft (Revision 01) and revising the Second Draft (Revision 02); the RQC was completed by Mr Nkosinathi Tomose (Executive Director and Principal Archaeologist – NGT). The RQC is a standard process at NGT; in the case that the Director and Principal Consultant is responsible for the report – another consultant has to undertake the RQC process. This Scoping report is conducted for a proposed East Coast Gas 400 KV power line, located in Richards Bay, within the ULM in the KCDM, KZN, South Africa.

### **2.2. Step I – Literature Review (Desktop Phase)**

Background information search for the proposed development took place following the receipt of appointment letter from the client. Sources used included, but not limited to published HIA studies, academic books, academic journal articles and the internet about the site and the broader area in which it is located. Interpretation of legislation (the NHRA, No. 25 of 1999) and local bi-laws forms, form the backbone for the study.

### **2.3. Step II – Physical Survey**

The preliminary survey of the project area for the scoping study was conducted between Tuesday the 25<sup>th</sup> and Thursday 27<sup>th</sup> of September 2018. The survey was conducted by Mr. Nkosinathi Tomose. These findings are discussed in detail in this Scoping report. The aim of the survey was to identify archaeological and heritage sites and resources, along with the challenges these sites possess within the area proposed for development activities as well as within the 500m radius.

- The survey of the proposed development area was conducted on foot and the site was accessed using a bakkie;
- The aim of the surveys was to identify archaeological, burial grounds and graves, and built environment heritage sites and resources in and around the area proposed for development;
- To record and document the sites using applicable tools and technology;

The following technological tools were used for documenting and recording identified resources on site:

36

- Garmin GPS (i.e. Garmin 62s) – to take Latitude and Longitude coordinates of the identified sites and to track the site.
- Canon SLR – to take photos of the affected environment and the identified sites.

#### **2.4. Step III – Report Writing and Site Rating**

The final step involves compilation of the scoping report using the desktop research as well as the preliminary survey results. Potential archaeological resources, graves and paleontological sites found in the project area are identified.

### **3. BACKGROUND LITERATURE REVIEW**

In southern Africa, the archaeology is divided into the Stone Age, Iron Age and the Historical Period. During these periods diverse groups of people settled on the southern African landscape. Several archaeological sites have been identified in the KwaZulu-Natal Province. The greater Richards bay area and surroundings regions have a long history of occupation by Stone Age hunter gather groups, Iron Age Farming communities and Colonial settlers. Most of the research on the culture, archaeology, rock art in and around the KwaZulu-Natal Province has been conducted by Davies (1976); Mason (1968, 1982, 1986); Huffman (2002, 2007) and Wadley (2007). Previous HIA's of Richards bay region have been conducted by Anderson (2008); Anderson & Anderson (2009); Wahl & Van Schalkwyk (2012, 2013); Prins (2015); Van der Walt (2017) and Maitland (2017).

#### 4. POTENTIAL IMPACTS

##### 4.1. Archaeology, Built Environment, Burial Grounds and Graves

The potential impacts of each of the four options on Archaeological Sites, Built Environment Features, and graves identified during the scoping phase of the project area were identified and summarised in Table. 3.

Table 3: Potential impacts on identified archaeological sites and heritage resources in the project area.

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
ARCHAEOLOGICAL SITES	No archaeological sites were identified.	No archaeological sites were identified.	A Historic Kraal was observed near Option 3 in the Mondi village (Figure. 22 and 23). The kraal could be damaged or destroyed during the construction and operation phases of the project.	A Historic Kraal was observed near Option 4 in the Mondi village (Figure. 22 and 23). The kraal could be damaged or destroyed during the construction and operation phases of the project.
BUILT ENVIRONMENT FEATURES	No Built Environmental features of heritage significance were identified. Impacts to any structures of heritage significance could occur during the construction and operation phase of the project.	No Built Environmental features of heritage significance were identified. Impacts to any structures of heritage significance could occur during the construction and operation phase of the project.	No Built Environmental features of heritage significance were identified. Impacts to any structures of heritage significance could occur during the construction and operation phase of the project.	No Built Environmental features of heritage significance were identified. Impacts to any structures of heritage significance could occur during the construction and operation phase of the project.
BURIAL GROUNDS AND GRAVES	No burials or graves were identified. However, unmarked graves and informal cemeteries are subterranean in nature and might not be visible, thus they can be expected anywhere on the landscape.	No burials or graves were identified. However, unmarked graves and informal cemeteries are subterranean in nature and might not be visible, thus they can be expected anywhere on the landscape.	A possible burial site located in the old Mondi Village near Option 3 was identified preliminary survey in the Scoping phase of the project. The village could have graves associated with the workers who previously occupied the area and who also worked for Mondi. There is a very high possibility that graves will be located within the village as Nguni speaking communities usually bury their dead close to their household compounds. This has been observed by Huffman (2007) at Iron Age sites in KwaZulu-Natal. During the construction and operation phase the graves and burials could be disturbed or destroyed during the construction and operational phases of the project.	A possible burial site located in the old Mondi Village near Option 3 was identified preliminary survey in the Scoping phase of the project. The village could have graves associated with the workers who previously occupied the area and who also worked for Mondi. There is a very high possibility that graves will be located within the village as Nguni speaking communities usually bury their dead close to their household compounds. This has been observed by Huffman (2007) at Iron Age sites in KwaZulu-Natal. During the construction and operation phase the graves and burials could be disturbed or destroyed during the construction and operational phases of the project.

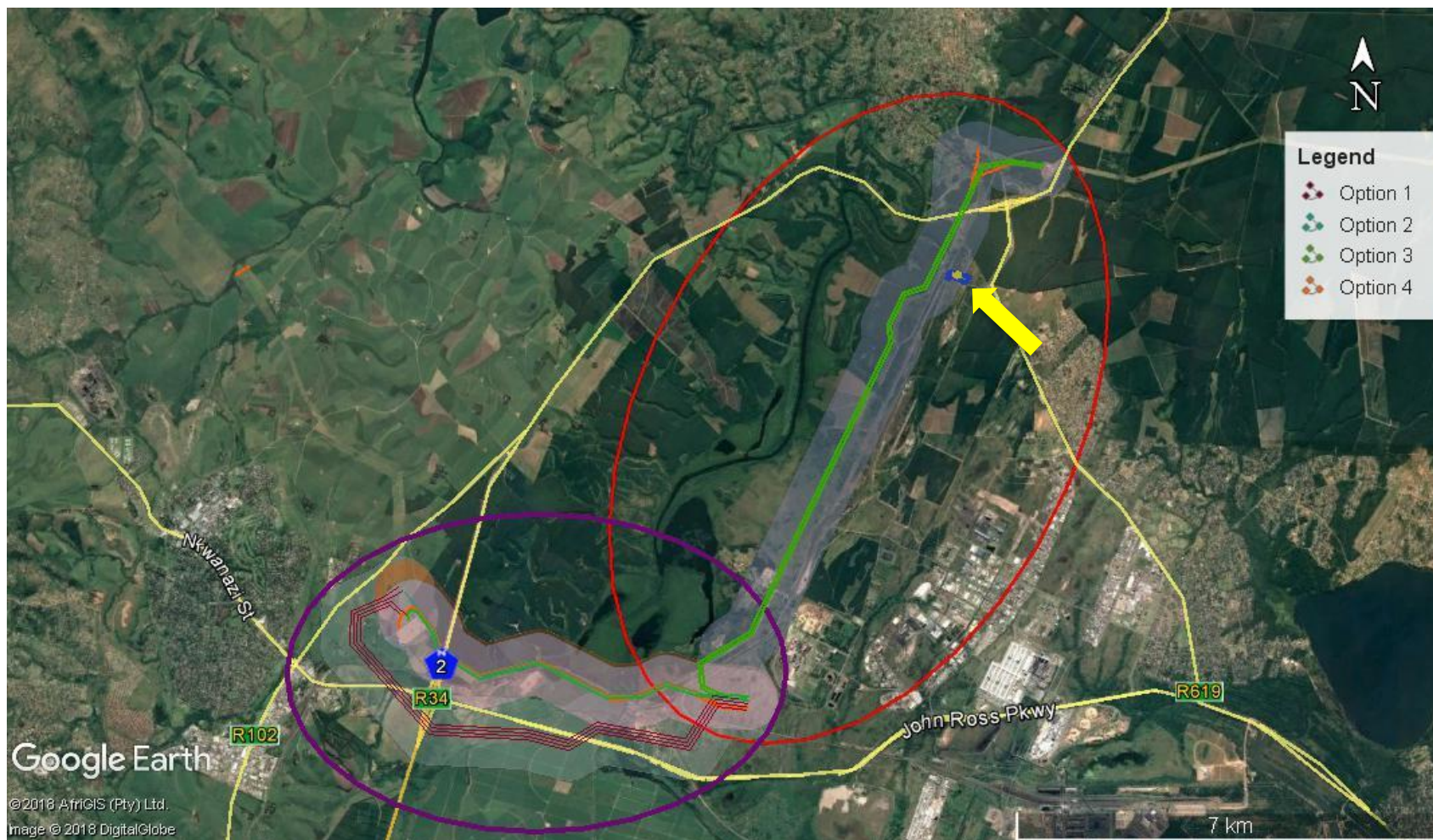


Figure 22: Google Earth image of the East West (in purple circle) and North East (in red circle) project areas, as well as the Old Mondri village (yellow arrow).

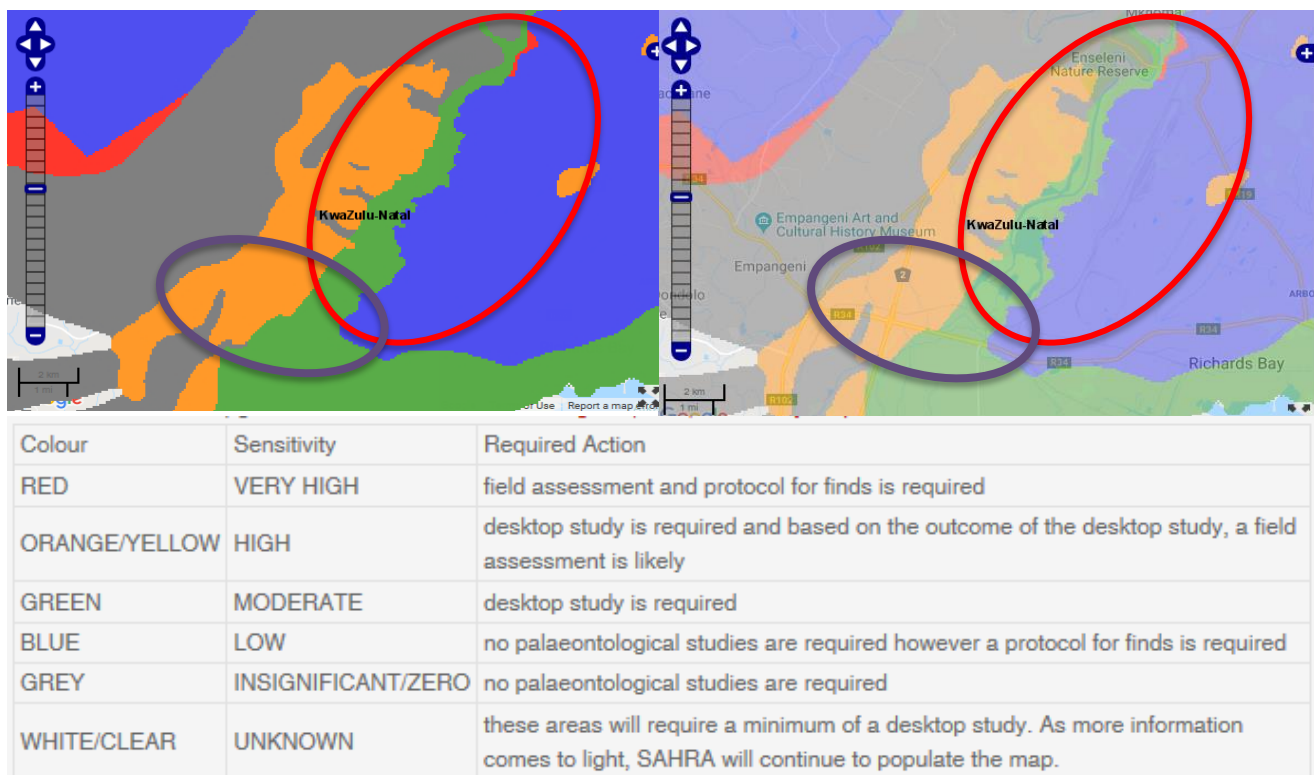




Figure 23: Google Earth image of the Mondri Village with ruins of kraals and possible grave sites.

## 4.2. Paleontological Sensitivity

The SAHRA Palaeo-Sensitivity Layer (*Figure. 24*) shows that the project area that is in a low to high sensitivity area. The East-West Study Area contains three Palaeontological Sensitive Area (PSA) layers. South of the R34 linking Empangeni and Richards Bay, is a green area meaning that it has Moderate PSA; the area north of the R34 shows two layers, green and blue indicating it has low to moderate palaeontological sensitivity; the western section of East-West Study Area, falls within a yellow/orange area which has a high palaeontological sensitivity. The East-North Study Area on the other hand yielded four PSA. The eastern section of the East-North Study Area and east of the Nseleni River, falls in an area that is predominantly blue and has low paleontological potential; the western and central section, west of the Nseleni River up to Enseleni Nature Reserve shows a green, yellow/orange layer as well as pockets of grey layer, which indicates an insignificant to high palaeontological sensitivity, the west and north of the R619 and the N2 intersection a thin layer of PSA in red is shown, meaning that this area is of very high palaeontological sensitivity.



*Figure 24: Paleo-Sensitivity layer of the East West (in purple circle) and North East (in red circle) project areas proposed for the East Coast Gas 400 KV power line, located near Richards Bay.*

## 5. CONCLUSIONS, RECOMMENDATION AND PLAN FOR THE EIAs

### Conclusions:

- The Empangeni, Richards Bay area and the KZN region is rich in archaeology, history and palaeontological resources.
- During the preliminary survey of the receiving environment, i.e. East-Wes Study Area and East-North Study Area as well the three powerline Options (Option 1, Option 02 and Options 03) no archaeological and heritage resources were found. The area defined as the East-West Study Area did not yield any areas that could potentially yield archaeological and heritage resources.
- In terms of Palaeontological Sensitivity Layer (PSL) developed by the Council of GeoScience South Africa and the SAHRA shows that the East-West Study Area contains three Palaeontological Sensitive Area (PSA) layers:
  - South of the R34 linking Empangeni and Richards Bay, the Palaeo-Sensitivity layer shows the area as green meaning that it is within a Moderate PSA.
  - The area north of the R34 shows to layers, green and blue. The blue portion of the PSA means that the area is has a low palaeontological sensitivity.
  - The western section of East-West Study Area, where both Option 01 and Option 02 connect to the substation and north of the R34 shows yellow/orange of the PSA – this means that the area has a high palaeontological sensitivity.
- The area defined as East-North Study Area which contains Option 3 and Option 04 of the proposed powerlines yielded an Old Mondi/Transnet Village with kraals and an area with the potential to yield burial grounds and graves (BGG).
- In terms of the PSL in the East-North Study Area yielded four PSA and the following results:
  - The eastern section of the East-North Study Area and east of the Nseleni River, the ecological sensitive area and the swamp north of the Transnet railway line and the R34 is predominantly blue. This means that it has low paleontological potential.
  - The western and central section, west of the Nseleni River up to Enseleni Nature Reserve shows a green, yellow/orange layer as well as pockets of grey layer. The green indicates a moderate palaeontological sensitivity; the yellow/orange layer indicates a high palaeontological sensitivity, while the grey layer means insignificant and low palaeontological sensitivity.

- West and north of the R619 and the N2 intersection a thin layer of PSA in red is shown, meaning that this area is of very high palaeontological sensitivity.

Based on the above it is concluded that the East-West Study Area is sensitive from a palaeontological sensitivity perspective. However, this study has low potential to impact on archaeological and heritage resources such as graves and historic built environment. The East-North Study Area is not sensitive from where the powerline options are proposed but if these powerlines were to be extended to the western section of this study area it would impact on highly sensitive palaeontological areas. In terms of archaeology and heritage, this study area also contains a historic Mondi/Transnet Village with a potential to yield BBG. The villages can, however, be easily mitigated by constructing the powerlines away from it and this will also avoid impacting on the BBG. From viability perspective, the East-North lines are supported subject that they will not traverse the western section of this study area. The historic village and the area within this village that has high potential to yield BBG can easily be avoided and treated as a No-Go-Area. The East-West Study Area is supported from archaeology and heritage even though it has a layer that is moderate from a palaeontological sensitivity perspective.

**Recommendations:**

- It is recommended that a full heritage impact assessment (HIA) study inclusive of a palaeontological impact assessment (PIA) study (both desktop and field survey) is required as part of the EIAs programme.
- The HIA with PIA will conduct a detailed survey on footprint of the proposed powerline, record and document any archaeological, heritage and palaeontological resources; make recommendations on the management of archaeological, palaeontological and heritage resources such as BGG.
- If the East-North Study Area is supported from all other specialist studies conducted as part of this scoping assessment and from a technical aspect from Eskom site (since they are issues technically for the East-West Study Area in terms of connectivity and crossing of the existing powerlines); the HIA survey will need to ensure that the historic Mondi/Transnet Village is covered in the survey mapping out kraals and burial grounds and graves (if any such are found within the historic village).

## 6. REFERENCES

Anderson, G. 2008. *Archaeological survey of the proposed new infrastructure at the arrival yard at the Richards Bay Coal Terminal for Cymbian environmental enviro-social consulting services*. Heritage Impact Assessment Report.

Anderson, G. and Anderson, L. 2009. *Heritage survey of the proposed expansion to the Transnet National Ports Authority, Richards Bay for MSA Environmental, Legal & Mining Services*. Heritage Impact Assessment Report.

Davies, O. 1974. Excavations at the walled Early Iron-Age site in Moor Park near Estcourt, Natal. *Annals of the Natal Museum*. 22(1):289-323.

Huffman, T. 2002. Regionality in the Iron Age: the case of the Sotho-Tswana. *Southern African Humanities*, 14: 1–22.

Huffman, T. 2007. *Handbook to the Iron Age*. Pietermaritzburg: University of Kwazulu-Natal Press

Maitland, V. 2017. *Heritage impact assessment for the proposed construction of a floating dry dock, Port of Richard's Bay, Kwazulu-Natal*. Heritage Impact Assessment Report.

Mason, R. 1968. Transvaal and Natal Iron Age settlements revealed by aerial photography and excavation. *African Studies*, 27: 167-180.

Mason, R. 1982. Prehistoric mining in South Africa, and Iron Age copper mines in the Dwarsberg, Transvaal. *Journal of the South African Institute of Mining and Metallurgy*, 82: 134-144.

Mason, R. 1986. Origins of black people of Johannesburg and the southern western central Transvaal, AD 350-1880. *Occasional Paper No. 16 of the Archaeological Research Unit*. Johannesburg: Witwatersrand University Press.

Prins, F. & Hall, S. 2013. *Cultural Heritage Impact Assessment of the Proposed Ngomankulu/Nsuze Bridge, Ward 11, Nkandla Municipality*. Heritage Impact Assessment for Terratest, Sunninghill.

Prins, F. 2015. *Cultural heritage impact assessment of phase if of the Richards Bay Industrial Development Zone (IDZ)*. Heritage Impact Assessment Report.

Seliane, M. 2016. *Proposed Upgrading of Main Road P231 Between the Nseleni Interchange (N2- 29) and Richards Bay, KwaZulu- Natal*. Phase I Cultural Heritage Impact Assessment for Henwood & Nxumalo Consulting Engineers.

Tomose, N. 2018. *Prospecting Right and Environmental Authorization for the Proposed WRE Nkunzana Prospecting Right Project*. Heritage Impact Assessment for Shango Solutions (PTY) LTD, Randburg.

Van der Walt, J. 2016. *Richards Bay- Phase 1 AIA Exemption Recommendation*. Environmental Management Programme for SE Solutions, Centurion.

Van der Walt, J. 2017. *Archaeological scoping report for the proposed development of the Richards Bay combined cycle power plant (CCPP) and associated infrastructure on a site near Richards Bay, Kwazulu-Natal Province*. Heritage Impact Assessment Report.

Wadley, L., 2007. The Middle Stone Age and Later Stone Age. In Bonner, P. & Esterhuysen, A. & Jenkins, T. A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'. Johannesburg: Wits University Press. Pg 122 -135.

Wahl, E. and Van Schalkwyk, L. 2012. *Phase 1 Heritage Impact Assessment Report: East Central Arterial / Richards Bay Minerals Link Road, City of uMhlatuze, uMhlatuze Local Municipality, Uthungulu District Municipality, KwaZulu-Natal*. Heritage Impact Assessment Report.

Wahl, E. & Van Schalkwyk, L. 2013. *Baseline Heritage Study: Proposed Richards Bay Port Expansion, uMhlatuze Local Municipality, uThungulu District, KwaZulu-Natal*. Baseline Heritage Study for AECOM, Port Elizabe