

HERITAGE IMPACT ASSESSMENT OF THE PROPOSED ESKOM ROMANSRIVIER TO CERES132kV OVERHEAD POWERLINE

HWC CASE: 17070502AS0706E

DEA CASE: not allocated yet

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act (No. 25 of 1999)
as part of a NEMA Basic Assessment process)

Prepared for

SRK Consulting (South Africa) (Pty) Ltd

On behalf of

Eskom Holdings SOC Limited

August 2017



Prepared by

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INTEGRATED EXECUTIVE SUMMARY (HWC CASE: 17070502AS0706E)

The Integrated Executive Summary conforms to the specific requirements of Heritage Western Cape.

SITE NAME:

Proposed Eskom Romansrivier to Ceres132kv Overhead Powerline

LOCATION:

Logical centrepont S33.421167° E19.282680°

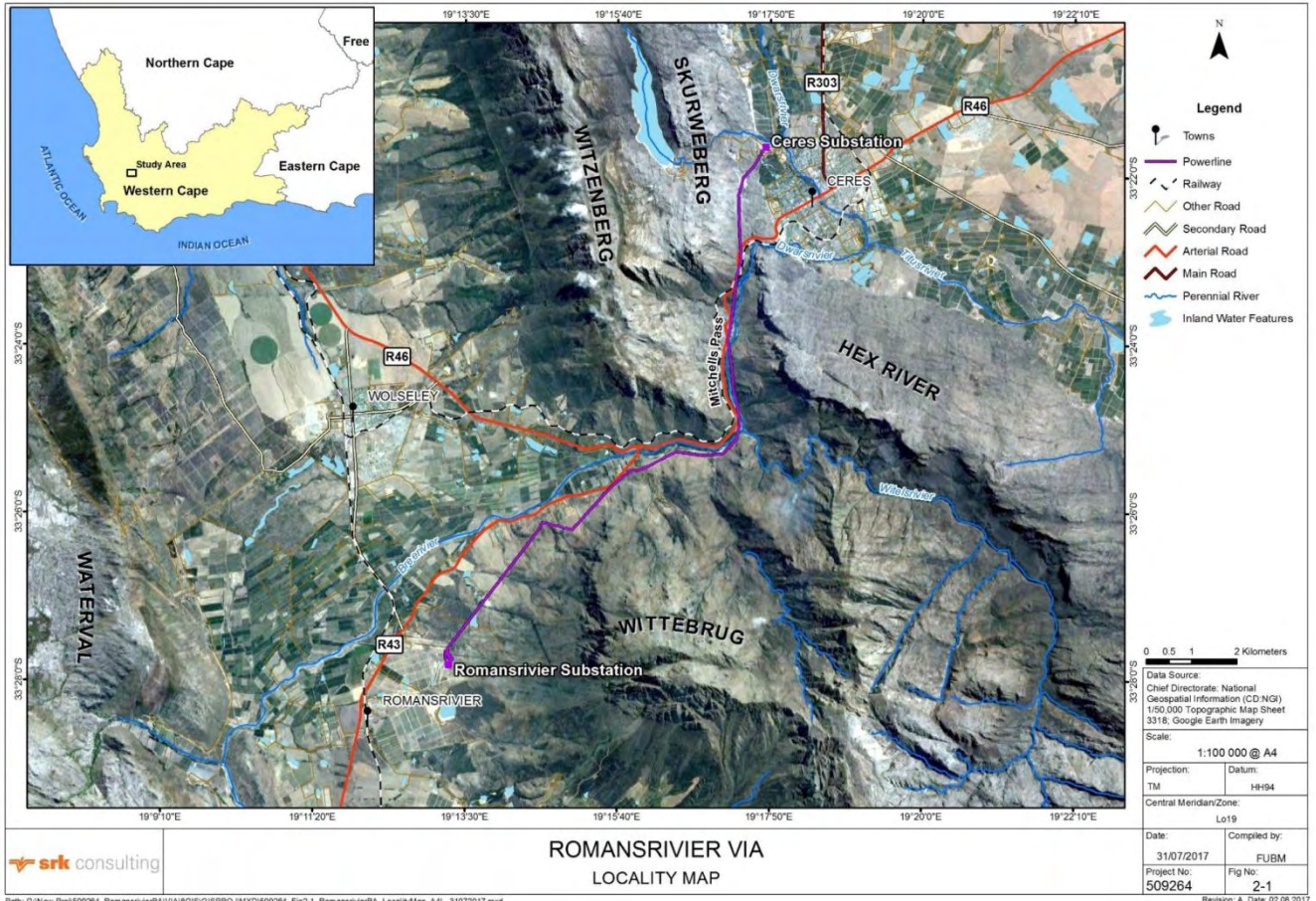


Figure: Location of the project in regional context (Powerline - Purple line)

Table: Proposed powerline crosses the following parcels of land

FARM/ERF NAME	PORTION	ID	OWNER
ROMANSRIVIER NATURE RESERVE	RE/320	C075000000003200000	GRAAFF FRUIT
LA PLAISANT	RE/305	C0750000000030500000	PETER DICEY TRUST
Null	4/301	C0750000000030100004	NEW MUNSTER TRUST
Null	1/301	C0750000000030100001	NEW MUNSTER TRUST
NEW MUNSTER	RE/302	C0750000000030200000	NEW MUNSTER TRUST
Null	421	C0750000000042100000	JACOBUS WILLEM NAUDE
Null	1/294	C0750000000029400001	ROBERT MAY
WATERVAL OUTSPAN	RE/289	C0750000000028900000	PENKELLY TRUST
WHITE BRIDGE	2/291	C0750000000029100002	MATHOF CC
WHITE BRIDGE	RE/291	C0750000000029100000	SAGGEUS CC
WOLVEKLOOF	1/288	C0750000000028800001	WESTERN CAPE

			GOVERNMENT: CAPE WINELANDS
ERF	1886	C01900010000188600000	REPUBLIC OF SA
ERF	1887	C01900010000188700000	WITZENBERG MUNICIPALITY
ERF	RE/1001	C01900010000100100000	WITZENBERG MUNICIPALITY
ERF	1002	C01900010000100200000	WITZENBERG MUNICIPALITY
ERF	5137	C01900010000513700000	WITZENBERG MUNICIPALITY
ROMANSRIVIER NATURE RESERVE	18/320	C07500000000032000018	Romansrivier s/s site
ERF	1498	C01900010000149800000	Ceres s/s site

The regional location of the site is off R43 and R46 near the towns of Ceres and Wolseley as indicated on the figure above in the jurisdiction of Witzenberg Municipality.

DESCRIPTION OF THE PROPOSED DEVELOPMENT:

Eskom proposes to construct a ~12 km double circuit powerline (132/66 kV) from the existing Romansrivier Substation near Wolseley to the existing Ceres Substation. The project is required to provide additional electricity to the region. Key aspects of the project include:

- Installation of a 80MVA 132/66kV transformer at the Romansrivier substation to supply the new 132 kV line to Ceres;
- Construction of a double circuit distribution powerline (132kV and 66kV) between Romansrivier and Ceres substations;
- Installation of 132 kV and 66 kV feeder bays for these lines at the Romansriver and Ceres substations;
- Construction of new access roads;
- Upgrading of various existing roads; and
- Decommissioning of the existing 66 kV line between the Romansriver and Ceres substations.

Access for construction purposes is going to be a major challenge. As such various existing roads will need to be upgraded and new access roads will be constructed. Construction of roads and bridges over/through watercourses may be required.

The positions and layout of roads, and final tower positions have been determined following a baseline study and specialist walkdown.

Design alternatives may include lattice structures, monopoles and wood poles. Due to construction challenges, the current engineering design for the line only caters for lattice structures which is the preferred design alternative. However, there may be (limited) opportunities for monopoles to be used. The use of wood poles is not preferred.

Certain towers will be helicopter assisted builds where environmental sensitivities prevent access by roads.

The scope of electrical works:

- Build Romansrivier-Ceres ~20km Double Circuit 132 & 66kV line;
- 300 meter corridor for the line route;
- 1 x 132kV feeder bay at Romansrivier substation;
- 1 x 66kV feeder bay at Romansrivier and Ceres substation (Test and commission existing 66kV feeder bay at Romansrivier);
- Install 1x80MVA 132/66kV transformer at Romansrivier;
- Various new road constructions and road upgrades for access purposes.

HERITAGE RESOURCES IDENTIFIED

Palaeontology

Dr John Almond provided an email comment at the NID stage: "The 132 kV powerline route traverses the outcrop area of the Table Mountain Group for the most part, most of which is of low palaeontological sensitivity (Ordovician - Early Devonian fluvial to shallow marine sandstones of the Peninsula, Goudini, Skurweberg and Rietvlei Formations plus thin glacial tillites of the Pakhuis Formation). Where the route runs along the Skurweberg mountain front to the north of Ceres, as well as to the southwest of Michell's Pass, it overlies low-sensitivity colluvial deposits (Late Caenozoic scree, sheetwash). The sector close to Romansrivier overlies unfossiliferous, tectonised sediments of the Late Precambrian Malmesbury Group. The only palaeontologically sensitive sector of the powerline route is located in Michell's Pass close to the Ou Tol where the route crosses the narrow outcrop band of the Cederberg Formation (Late Ordovician marine mudrocks, very high palaeontological sensitivity). However, the Cederberg mudrocks here are likely to be mantled with colluvial deposits and weathered near-surface, so I doubt that significant fossil impacts would occur." No assessment was requested as impacts were adjudged to be non-existent to very minimal.

Pre-colonial heritage

A small number of pre-colonial heritage resources were located along the route, primarily in the mountainous section between the northern section of Michell's Pass and the Ceres sub-station. No tower positions will directly impact any significant pre-colonial archaeological resources as these are all located some distance from the proposed alignment. Although some construction access roads were proposed in this area, environmental sensitivity has meant that most tower construction here will be helicopter assisted. The impact of both tower construction and provision of access on pre-colonial resources is assessed to be **Insignificant**. No mitigation is required.

Historic built environment

The built environment is largely limited to surviving sections of the old Michell's Pass that can be found at places alongside the new road. The Old Toll House will not be directly impacted.

Possible old Anglo Boer redoubt

A small stone structure above the pass and to the west of Ceres, is believed to represent a military redoubt. This is a roughly constructed, rectangular dry stone structure (~4x2 meters), with thick walls (~1 meter). There is no evidence of a roof ever having been present. Although the position only offers brief glimpses of the Pass below, the position has good sight of the natural passage in the mountains above the town of Ceres (utilised for the previous powerline and the proposed new). As there are no associated artefacts nor documentary evidence, we cannot say unequivocally what the structure represents. In our opinion, it is an unlikely place for a kraal. Furthermore, it is not unusual to find redoubts such as these guarding mountain passes. Formal blockhouses are usually only used at highly strategic locations (such as railway bridges) where natural cover is not available. Examples of such blockhouses are found south of Wolseley guarding the railway bridge over the Breede River. As we believe this structure represents a redoubt, we have given it a grading of IIIA.

The structure (redoubt) is located sufficiently far from the powerline not to experience any direct or indirect impacts.

The Toll House

The Old Toll house is the only historic structure on the pass (with the restaurant behind being the only other structure). The Toll House is a simple four-bay thatched house between straight gables built between 1846 and 1848. Originally declared a National Monument in 1972 under the old National Monuments Act of 1969, it is now a declared Grade II Provincial Heritage building.

The Toll House will not be directly impacted by the proposed powerline activities. The site is separated from the valley by the busy Pass with 3 lanes traffic.

Michell's Pass

The rough road built in 1765 by Jan Mostert was known as the Mostertshoek Pass, and greatly improved access to the Ceres district in colonial times¹. Access was made even easier when Michell's Pass and Gydo Pass were built in 1848, followed shortly thereafter by Bain's Kloof Pass in 1853. The founding of Ceres in 1854, indicated the rapidly increasing population of the area (Fransen 2004:377).

Michell's Pass is perhaps the most significant built environment resource identified on the powerline route.

While sections of the road are indeed preserved in places, they are largely unacknowledged except by a very basic sign at the Toll House. There are a few lay byes where the original road and dry stone embankments/culverts are present and visible, but most sections are difficult to access as the pass carries a lot of fast moving traffic. Additional signage would be informative and could be placed at the more accessible lay-byes.

Cultural landscape

Winter and Oberholzer (2014) have assessed the area through which the powerline runs. Michell's Pass (Ws.2) is considered to be a scenic mountain pass, while the roads bypassing Wolseley (R43 and R46) are considered to be major scenic routes. Wnl.5 and Wnl.8 are defined as wilderness/natural landscapes. The light green polygon section to the west of Ceres town is the edge of Wcl.12, the Ceres Valley/Warm Bokkeveld cultural landscape. The landscape around Wolseley has not been defined as a cultural landscape in the study.

The powerline route can logically be divided into 3 sections following those defined by Masson (2017) in the VIA and the cultural landscape of each is defined by the various natural and man-made factors in each area.

- **Southern section - the Tulbagh-Wolseley Valley:** The south-facing Tulbagh-Wolseley Valley is a narrow valley enclosed by the Witzenberg Mountains to the east, the Waterval and Obiekwaberg Mountains to the west and the Groot Winterhoek Mountains at the head of the valley. The town of Wolseley is situated on a natural watershed that divides the Berg River flowing north-west, and the Bree River flowing south into the Breede River. The Wittebrug Mountain juts out at this point, splitting the valley into two distinct areas.

The western slopes of the Wittebrug mountains have been utilised for agriculture where the topography allows between steeply incised river courses. Ploughed land, farm roads, fences, dams, the Romansrivier sub-station and powerlines are the typical land use here, with farm houses located on, or close to the R43. Intensive agriculture is predominantly to the north west between the R46 and the R43, along the Breede River. The town of Wolseley is located in the midst of this agriculture.

Proposed landscape grading: IIIC

- **Central section - The Michell's Pass (Bree River) Valley:** Michell's Pass (R46) is a scenic route from Tulbagh and Wolseley through the Witzenberg Mountains to Ceres following the narrow valley of the Bree River. From its southern entrance near Wolseley, the pass ascends 190 metres to the summit at an elevation of 490 m before descending a short distance into Ceres (Wikipedia, 2017). A mountainous natural area exists to the west of Ceres between the upper part of the Pass and the sub-station.

The section from the intersection of the R46 and R43 roads is largely a natural landscape with human intervention in the form of powerlines, tracks, fences, access gates/booms, pipelines, weirs and occasional small areas of agriculture. The dominant interventions are the R46 road (Michell's Pass) which carries high volumes of commercial and conventional traffic, and the

¹ And it is likely that it followed the route used later by Bain

railway (which carries occasional freight and tourist trains). The only structures are located at the Old Toll house (declared Grade II building -1972), a simple four-bay thatched house between straight gables built between 1846 and 1848. A restaurant in a separate building is found to the rear of the Toll House. There are the usual road signs and informal advertising boards and flags have proliferated at the Toll House. A few lay-bys built during the most recent road upgrade, permit stopping to enjoy the view. The railway crosses the road towards the top of the pass from where it runs below (east) of the road at a gentle gradient before passing through a tunnel into the town of Ceres.

Most of the central section passes through the extensive Ceres Mountain Fynbos Nature Reserve and the smaller Wittebrug Nature Reserve. Where the road swings east towards Ceres at the top of the pass, the proposed powerline continues through a natural "pass" in the mountains west of Ceres at the foot of the Skurweburg. Here there are occasional traces of abandoned powerlines (footings, bases of old metal poles set in the ground), tracks and walking paths. There is a tangible Late Stone Age archaeological layer in this area characterised by rock shelters and overhangs with rock paintings and artefacts. Characteristic artefacts of the Middle Stone Age were also observed. A single stone walled structure on the ridge above the pass is believed to be an informal redoubt, a remnant of the Anglo Boer war. Other reminders of this period are found just south of Wolseley where two formal blockhouses guarded the bridges crossing the Breede River.

The valley with its transport associations has had an important role to play in the establishment of Ceres and access to the interior. There is a combination of natural and man-made features.

Proposed landscape grading: IIIA

- **Northern section - The Ceres Valley:** The Ceres Valley (also known as the Warm Bokkeveld Valley) is enclosed by the Skurweberg Mountains to the west, the Hex River Mountains to the south and the Gydoberg Mountains and Waboomberg Mountains to the north. The landscape rises gently across the western and central portions of the valley (with Ceres at approximately 460 m above sea level), then rising sharply at the foothills in the east. Gydo Pass (R303) in the north of Ceres Valley connects the Warm Bokkeveld with the higher altitude Koue Bokkeveld. The Ceres sub-station is located on the north western end of Ceres, immediately north of the Pine Forest camping and caravan park with its dense pine plantation remnant. This is a transitional area between the town and mountain slopes to the west, and the intensive agricultural areas along the Dwars River to the north. Waterworks infrastructure and roads leading up to the Koekedouw/Ceres Dam can be found above the substation. 66 kV powerlines from the Witsenberg s/s and Romansrivier s/s converge here.

Proposed landscape grading: IIIB

SITE SENSITIVITY

The baseline study and impact assessment has indicated that the powerline "site" contains Archaeological, Built environment and Visual resources. For the most part, pre-colonial archaeological sites will not be impacted by the activities due to distance. One tower (057) may impact a small section of the old Mitchell's Pass road but we believe this can be mitigated. Access during the construction along the old road may result in impacts if mitigation is not implemented. Visual impacts will be experienced in Mitchell's Pass due to visual exposure and proximity to receptors. In other areas, there is much greater capacity to absorb the activity due to natural and man-made screening.

FINDINGS AND RECOMMENDATIONS

In general, powerline and access road activities proposed by ESKOM will not have high impact on identified archaeological resources, or physical heritage resources in general. The position of Tower 57 was moved from the originally proposed position in order not to directly impact a section of the old road. While we believe that the old road can be used during construction of Tower 57, no modification

may occur other than pruning vegetation and moving loose rubble. The archaeologist will be appointed to oversee the excavation of the tower footprint and use of the old road for access. A short secondary construction road to link the old road and the tower footprint (57) is not supported.

There are however Visual issues where the line goes through Michell's Pass. As alternative routes are screened out, mitigation of the visual impacts is limited to using lattice towers which have a softer profile than other types. Some monopole use may be required at strategic points. Lattice towers do blend into mountain backdrops to some degree.

The use of lattice towers as far as possible in Michell's Pass is preferred.

ENVIRONMENTAL ACCEPTABILITY

In our opinion, the 132/66kV powerline as proposed (alternatives having been screened out) can be supported from an archaeological, palaeontological and built environment perspective provided that the proposed mitigation is carried out. Some visual impacts in Michell's Pass will be unavoidable as there is little mitigation possible. Use of metal Lattice towers may achieve some blending with mountainous backdrops, and a softening of the overall appearance. In the Tulbagh/Wolseley valley, the activity is consistent with existing powerline use, and natural screening on the northern section mitigate visual issues from Ceres and the Pass.....

CONSULTATION

There is no registered Heritage conservation body for this area. The comments of the municipality will be canvassed via the PPP process and will be presented along with comments of other I&AP's.

AUTHORS

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Archaeological Specialist study, ACO Associates cc, David Halkett (2017);
Palaeontological comment at NID stage - Mr John Almond (2016/2017);
Environmental Impact Assessment – SRK Consulting (South Africa) (Pty) Ltd, Ms Amy Hill, Mr Matthew Law;
Visual Impact Assessment – Mr Scott Masson, SRK Consulting.

DECLARATIONS OF INDEPENDENCE

Declarations by the authors of the Specialist reports can be found in the respective reports.

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GLOSSARY

Archaeological	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.
Baseline	Information gathered at the beginning of a study which describes the environment prior to development of a project and against which predicted changes (impacts) are measured.
Construction Phase	The stage of project development comprising site preparation as well as all construction activities associated with the development.
Cumulative Impacts	Direct and indirect impacts that act together with current or future potential impacts of other activities or proposed activities in the area/region that affect the same resources and/or receptors.
Environment	The external circumstances, conditions and objects that affect the existence of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Environmental Authorisation	Permission granted by the competent authority for the applicant to undertake listed activities in terms of the NEMA EIA Regulations, 2014.
Environmental Impact Assessment	A process of evaluating the environmental and socio-economic consequences of a proposed course of action or project.
Environmental Impact Assessment Report	The report produced to relay the information gathered and assessments undertaken during the Environmental Impact Assessment.
Environmental Management Programme	A description of the means (the environmental specification) to achieve environmental objectives and targets during all stages of a specific proposed activity.
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
Impact	A change to the existing environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities.
Mitigation measures	Design or management measures that are intended to minimise or enhance an impact, depending on the desired effect. These measures are ideally incorporated into a design at an early stage.
Operational Phase	The stage of the works following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation.
Palaeontological	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.
Scoping	A procedure to consult with stakeholders to determine issues and concerns and for determining the extent of and approach to an EIA and EMP (one of the phases in an EIA and EMP). This process results in the development of a scope of work for the EIA, EMP and specialist studies.
Specialist study	A study into a particular aspect of the environment, undertaken by an expert in that discipline.
Stakeholders	All parties affected by and/or able to influence a project, often those in a position of authority and/or representing others.

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. Generally protected structures are those which are over 60 years old.
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ACRONYMS AND ABBREVIATIONS

BA	Basic Assessment Process
CRM	Cultural Resource Management
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age >~3000 0000 years –~ 1.1 Million years
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape – Provincial Heritage Authority
kV	Kilo Volt
LSA	Late Stone Age <~20 000 years
MOU	Memorandum of Understanding
MSA	Middle Stone Age – between ~300 000 and ~20 000 years
MVA	Megavolt amperes
NEMA	National Environmental Management Act 107 of 1998, as amended
NHRA	National Heritage Resources Act of 1999
NID	Notice of intent to Develop – application to HWC at inception of the project
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency – the National Heritage Authority
SAHRIS	South African Heritage Resources Information System
S&EIR	Scoping and Environmental Impact Reporting
SRK	SRK Consulting (South Africa) (Pty) Ltd
ToR	Terms of Reference
VIA	Visual Impact Assessment

1. INTRODUCTION

1.1 Background

ACO Associates cc has been requested by SRK Consulting on behalf of Eskom Holdings SOC Limited to undertake a Basic Assessment Report of the impacts on heritage resources from the proposed Eskom Romansrivier to Ceres 132/66kV overhead powerline, south west of Ceres and to the east of the R43 and along the R46 routes in the Western Cape (Figure 1.1). A "Notice of Intent to Develop" (NID) application was submitted to Heritage Western Cape on the 6th July 2017 and in their response of 27th July, (Appendix C), HWC requested that an HIA be conducted consisting of a Visual Impact Assessment and Archaeological Impact Assessment with integrated findings. Having looked at the proposed activity during compilation of the NID, the Palaeontologist Dr John Almond concluded that no significant impacts on Palaeontological resources would result from the activity and hence no Specialist Palaeontological assessment was required for the HIA. The comments of the municipality and the registered conservation body for the area were also requested. No registered heritage conservation bodies are listed on HWC's website for the affected area when consulted on 1 August 2017. The AIA and VIA are included as an Annexures to the HIA (Appendices E and F).

ACO Associates cc was appointed to compile an Integrated Heritage Impact Assessment and an Archaeological Specialist study of the project to inform the Basic Assessment process.

While the project was initially also intended to also include a 132/66kV powerline from Ceres s/s through to the Witzenberg s/s near Gydo Pass, ESKOM have decided to treat each of the route sections to separate Basic Assessment processes and additional reports will be compiled.

1.2 Project description, motivation and technical data

Eskom proposes to construct a ~12 km double circuit powerline (132/66 kV) from the existing Romansrivier Substation near Wolseley to the existing Ceres Substation (Figures 1.1, 1.4-1.7). The project is required to provide additional electricity to the region. Key aspects of the project include:

- Installation of a 80MVA 132/66/11kV transformer at the Romansrivier substation to supply the new 132 kV line to Ceres;
- Construction of a double circuit distribution powerline (132kV and 66kV) between Romansrivier and Ceres substations;
- Installation of a 132 kV and 66kV feeder[1] bays at Romansriver substation and a 66kV feeder bay at Ceres substation to accommodate these lines;
- Construction of new access roads;
- Upgrading of various existing roads; and
- Decommissioning of the existing 66 kV line between the Romansriver and Ceres substations.

Access for construction purposes will be a major challenge. As such various existing roads will need to be upgraded and new access roads will be constructed. Construction of roads and bridges over/through watercourses may be required. The positions and layout of roads, and final tower positions have been determined following a baseline study and specialist walkdown.

Design alternatives may include lattice structures, monopoles and wood poles. Due to construction challenges, the current engineering design for the line only caters for lattice structures which is the preferred design alternative. However, there may be (limited) opportunities for monopoles to be used. The use of wood poles is not preferred.

Certain towers will be helicopter assisted builds where environmental sensitivities prevent access by roads.

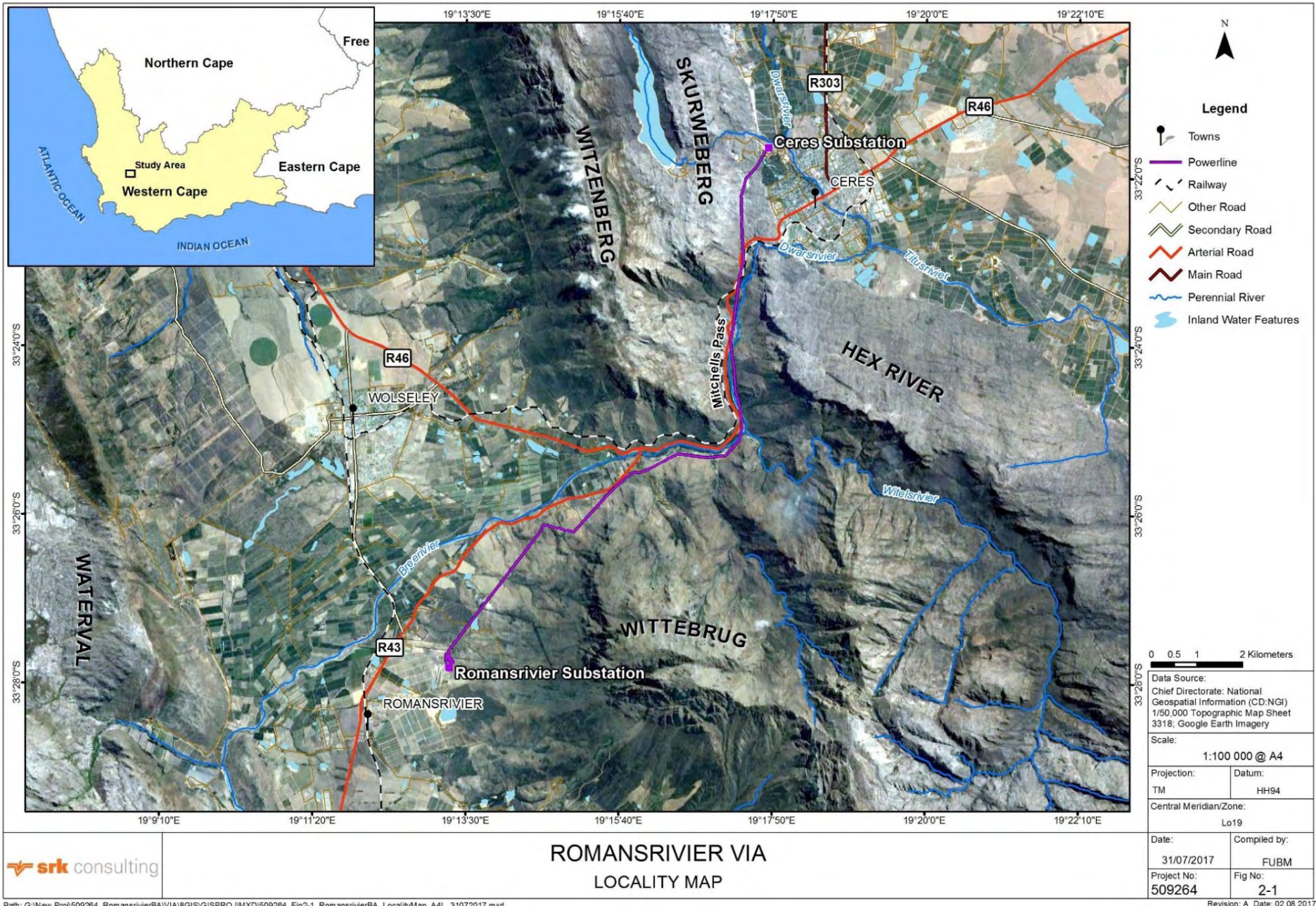


Figure 1.1: The location of the proposed powerline route and sub-stations in local context.

1.3 The scope of electrical works

- Build Romansrivier-Ceres ~20km Double Circuit 132 & 66kV line
- 300 meter corridor for the line route
- 1 x 132kV feeder bay at Romansrivier substation
- 1 x 66kV feeder bay at Romansrivier and Ceres substation (Test and commission existing 66kV feeder bay at Romansrivier)
- Install 1x80MVA 132/66/11kV transformer at Romansrivier
- Various new road constructions and road upgrades for access purposes.

1.4 Need for the project

The Witzenberg 132/66kV 2x80MVA substation provides a 66kV input point to agricultural, residential and commercial loads in the Witzenberg area. The main and only supply into Witzenberg substation is from Romansrivier substation via a single circuit 132kV Bear line. Three 66kV feeders out of Witzenberg supply several 66/11kV and 66/22kV substations. There is also a 11kV supply point at Witzenberg itself.

1.5 List of affected properties

A list of affected erven/farm portions was provided by ESKOM is shown in Table 1.1. The cadastral boundaries of relevant farm portions and erven are shown in Figures 1.2 and 1.3.

Table 1.1: List of affected properties and associated information

FARM/ERF NAME	PORTION	ID	OWNER
ROMANSRIVIER NATURE RESERVE	RE/320	C07500000000032000000	GRAAFF FRUIT
LA PLAISANT	RE/305	C07500000000030500000	PETER DICEY TRUST
Null	4/301	C07500000000030100004	NEW MUNSTER TRUST
Null	1/301	C07500000000030100001	NEW MUNSTER TRUST
NEW MUNSTER	RE/302	C07500000000030200000	NEW MUNSTER TRUST
Null	421	C07500000000042100000	JACOBUS WILLEM NAUDE
Null	1/294	C07500000000029400001	ROBERT MAY
WATERVAL OUTSPAN	RE/289	C07500000000028900000	PENKELLY TRUST
WHITE BRIDGE	2/291	C07500000000029100002	MATHOF CC
WHITE BRIDGE	RE/291	C07500000000029100000	SAGGEUS CC
WOLVEKLOOF	1/288	C07500000000028800001	WESTERN CAPE GOVERNMENT: CAPE WINELANDS
ERF	1886	C01900010000188600000	REPUBLIC OF SA
ERF	1887	C01900010000188700000	WITZENBERG MUNICIPALITY
ERF	RE/1001	C01900010000100100000	WITZENBERG MUNICIPALITY
ERF	1002	C01900010000100200000	WITZENBERG MUNICIPALITY
ERF	5137	C01900010000513700000	WITZENBERG MUNICIPALITY
ROMANSRIVIER NATURE RESERVE	18/320	C07500000000032000018	Romansrivier s/s site
ERF	1498	C01900010000149800000	Ceres s/s site

1.6 Powerline alternatives

Two routes were originally evaluated by Eskom i.e. a Mountain route and a River route. Eskom is applying for the river option as this was judged to be the only feasible route. The mountain route was screened out but due to feedback from Cape Nature and the relevant land owners and is not being considered or applied for.

The preferred river route was proposed by ESKOM and it was evaluated in May 2017 as part of a Baseline study by various specialists. A number of issues with respect to environmental and heritage

sensitivity were raised with respect to proposed layout of infrastructure. Subsequently, a walkdown of the proposed route was undertaken by specialists and Eskom representatives on 23 and 24 May

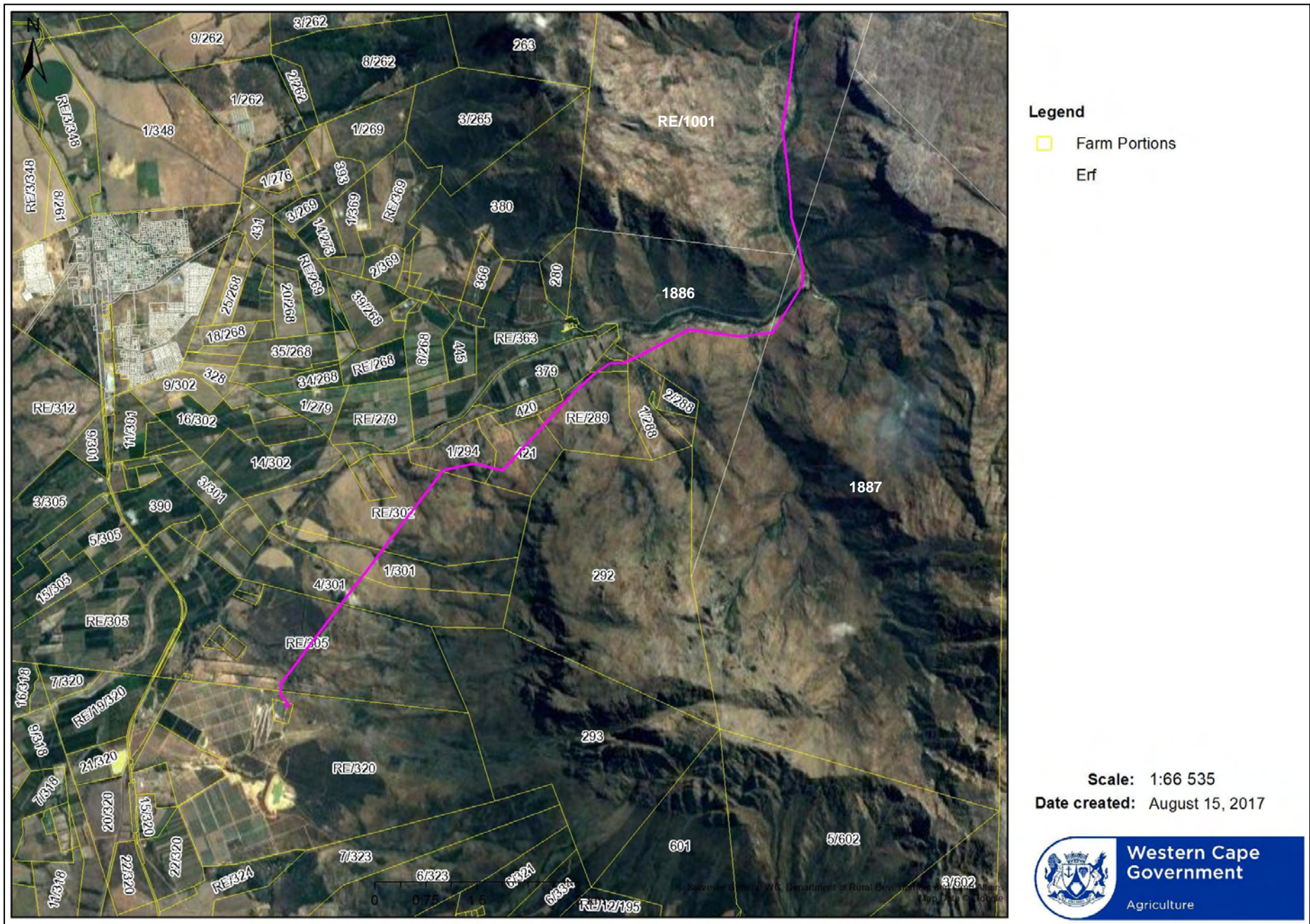


Figure 1.2: Cadstral boundaries, southern section (refer to Table 1.1). Powerline - purple

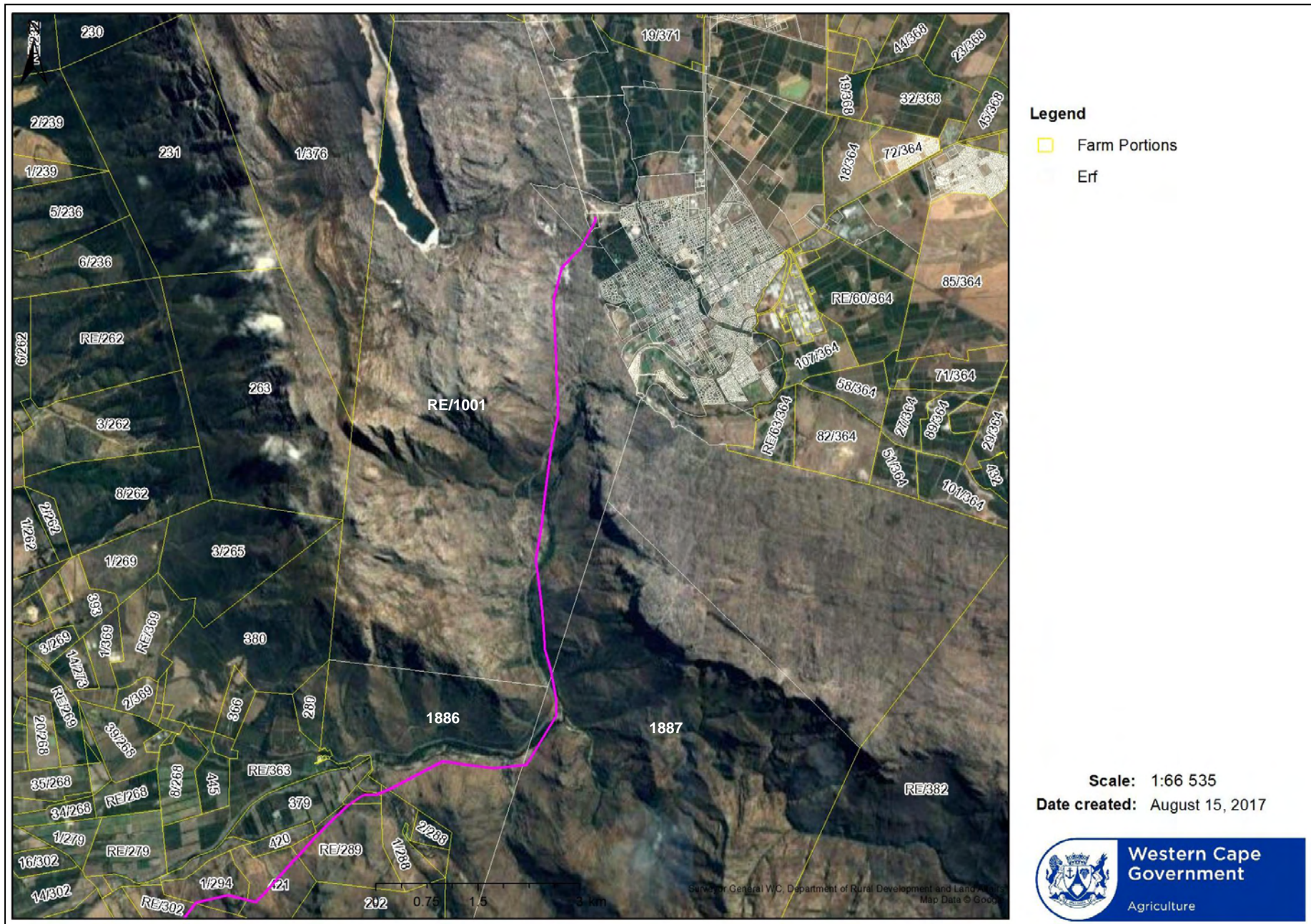


Figure 1.3: Cadstral boundaries, northern section (refer to Table 1.1). Powerline - purple

2017. The issues raised in the baseline study were discussed on site and alternative infrastructure positions were proposed in sensitive areas. Most of the issues were to do with botanical and freshwater resources, while heritage issues were raised in relation to infrastructure build in proximity to surviving sections of the old Michell's Pass built by Andrew Geddes Bain in 1848.

The proposed alternate positions recommended by specialists were evaluated by the engineering division to determine where changes could technically be accommodated. Finally in July, ESKOM provided a new set of plans which encapsulated proposed specialist changes that could be accommodated. These included shifting tower positions and changing alignments of proposed construction roads. In some cases, access roads were done away with altogether in favour of helicopter assisted builds in sensitive areas.

1.6.1 The No-Go Alternative

The No-Go Alternative will retain the *status quo* and involve no construction of a powerline. Ceres will experience power supply issues if the current supply from Witzenberg is interrupted due to the old 66kV Romansrivier to Ceres powerline being out of action after being damaged by fire.

1.7 Existing powerlines

A number of powerlines are present in the study area (see Figures 1.4 to 1.7). The turquoise line on Figures 1.4 and 1.5 indicates the existing 132kV Romansrivier to Tulbagh powerline and servitude. The existing, damaged 66kV Romansrivier to Ceres powerline can be seen in Figures 1.5 to 1.7 (dark blue and red hatched lines). The proposed and existing powerlines follow a very similar route up to the Wittebrug Nature Reserve (Figure 1.5) and are virtually indistinguishable, whereas they are more distinct in Figures 1.6 and 1.7.

1.8 Terms of Reference

The generic ToR and principal objectives for each specialist study are to:

- Describe the existing baseline characteristics of the study area and place this in a regional context;
- Identify and assess potential impacts of the project and the alternatives, including impacts associated with the construction and operation phases, using SRK's prescribed impact rating methodology;
- Indicate the acceptability of alternatives and recommend a preferred alternative (where applicable);
- Identify and describe potential cumulative impacts of the proposed development in relation to proposed and existing developments in the surrounding area;
- Recommend mitigation measures to avoid and/or minimise impacts and/or optimise benefits associated with the proposed project; and
- Recommend and draft a monitoring campaign, if applicable.

The main deliverable from each specialist will be an impact assessment report with appropriate maps, drawings and figures. Reports will consist of the following components:

- Baseline description: a description of the environment of the study area in its current state, relevant to the specialist's field of study; and
- Impact assessment: an assessment of how the proposed project will alter the *status quo* as described in the baseline description, and recommended measures to mitigate and monitor impacts.

Specialists should determine the spatial scope of their assessments using their professional judgment.

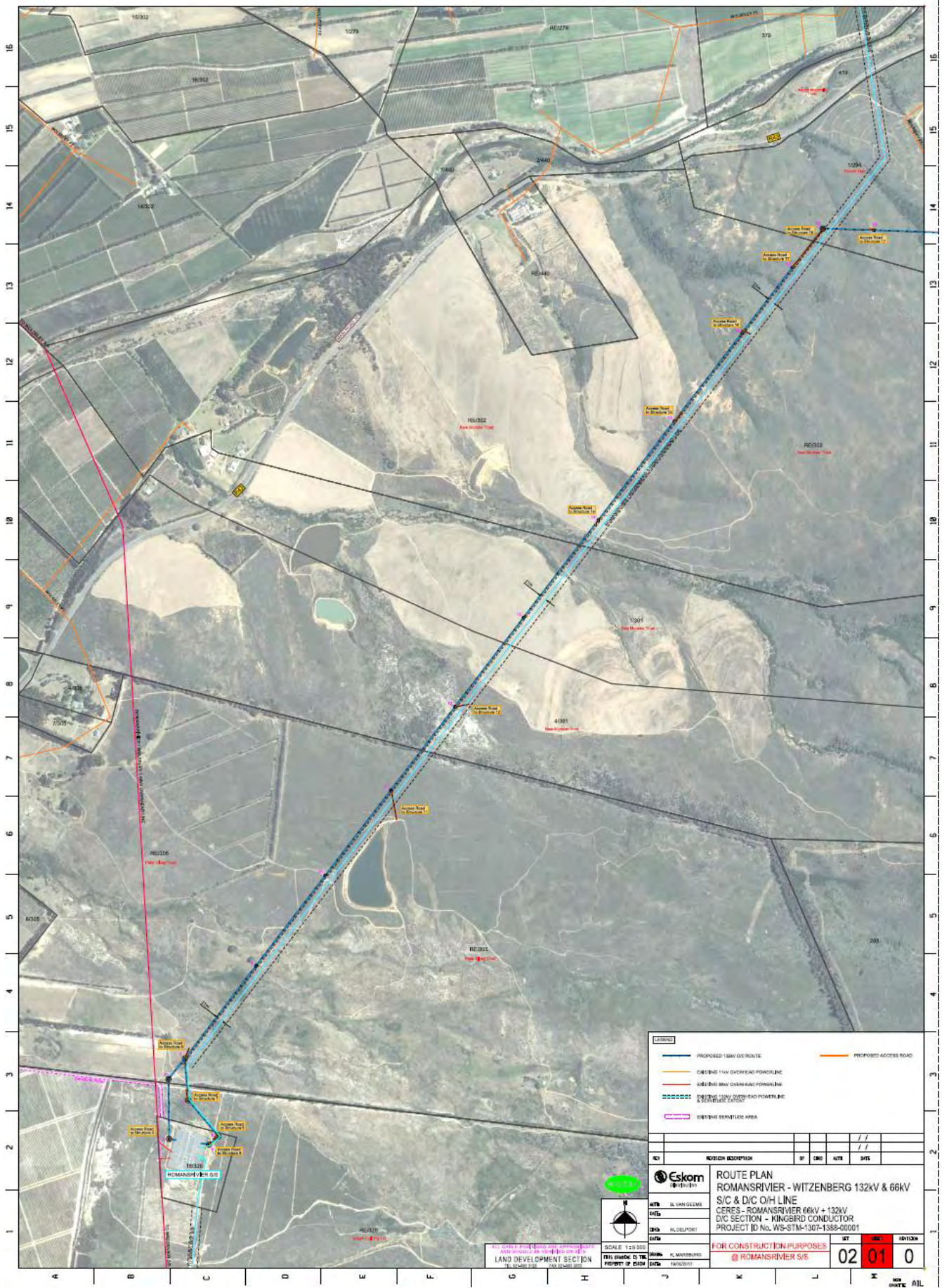


Figure 1.4: Powerlines to the east of Wolseley

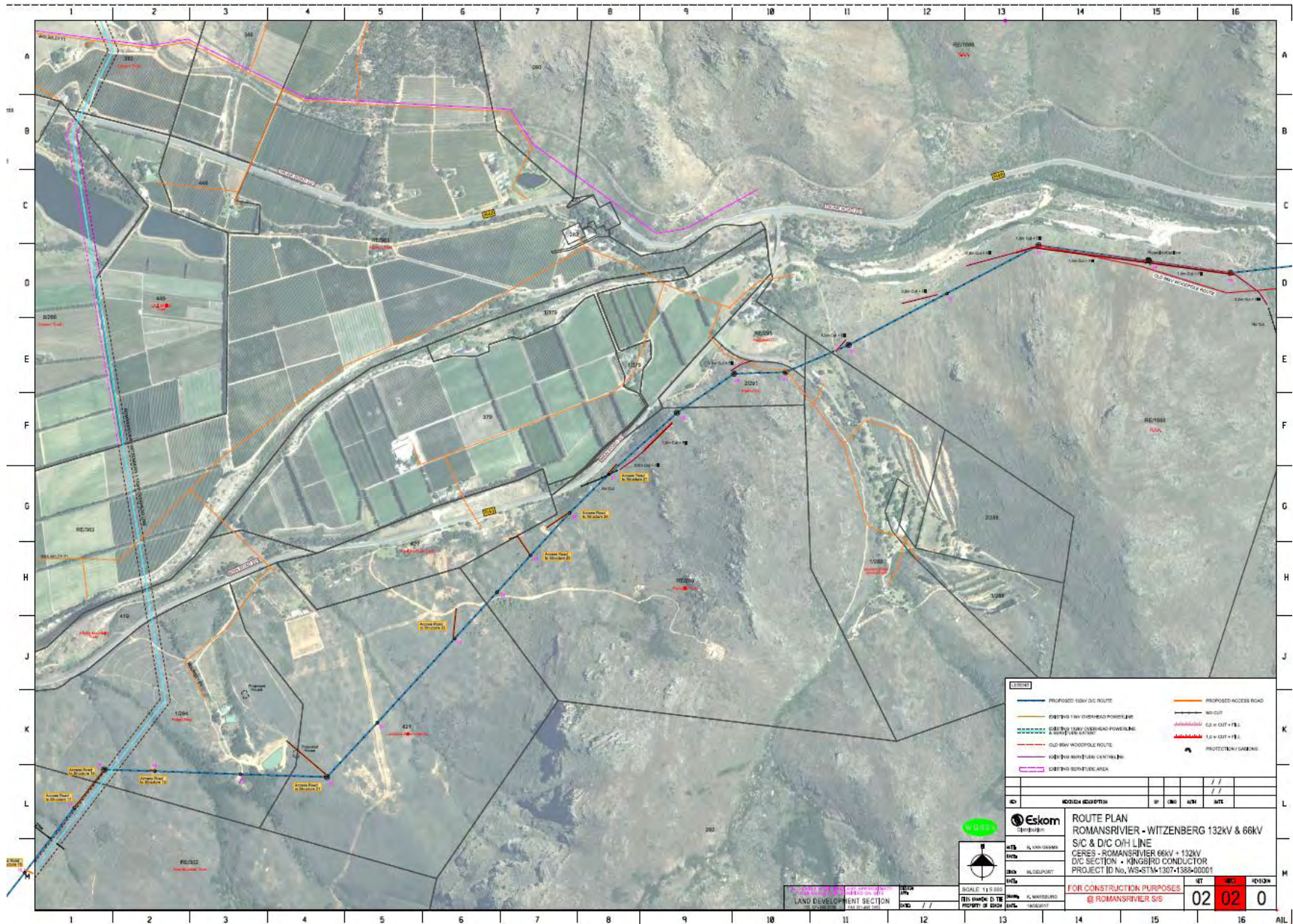


Figure 1.5: Powerlines to the east of Wolsley, southern end of Mitchell's Pass

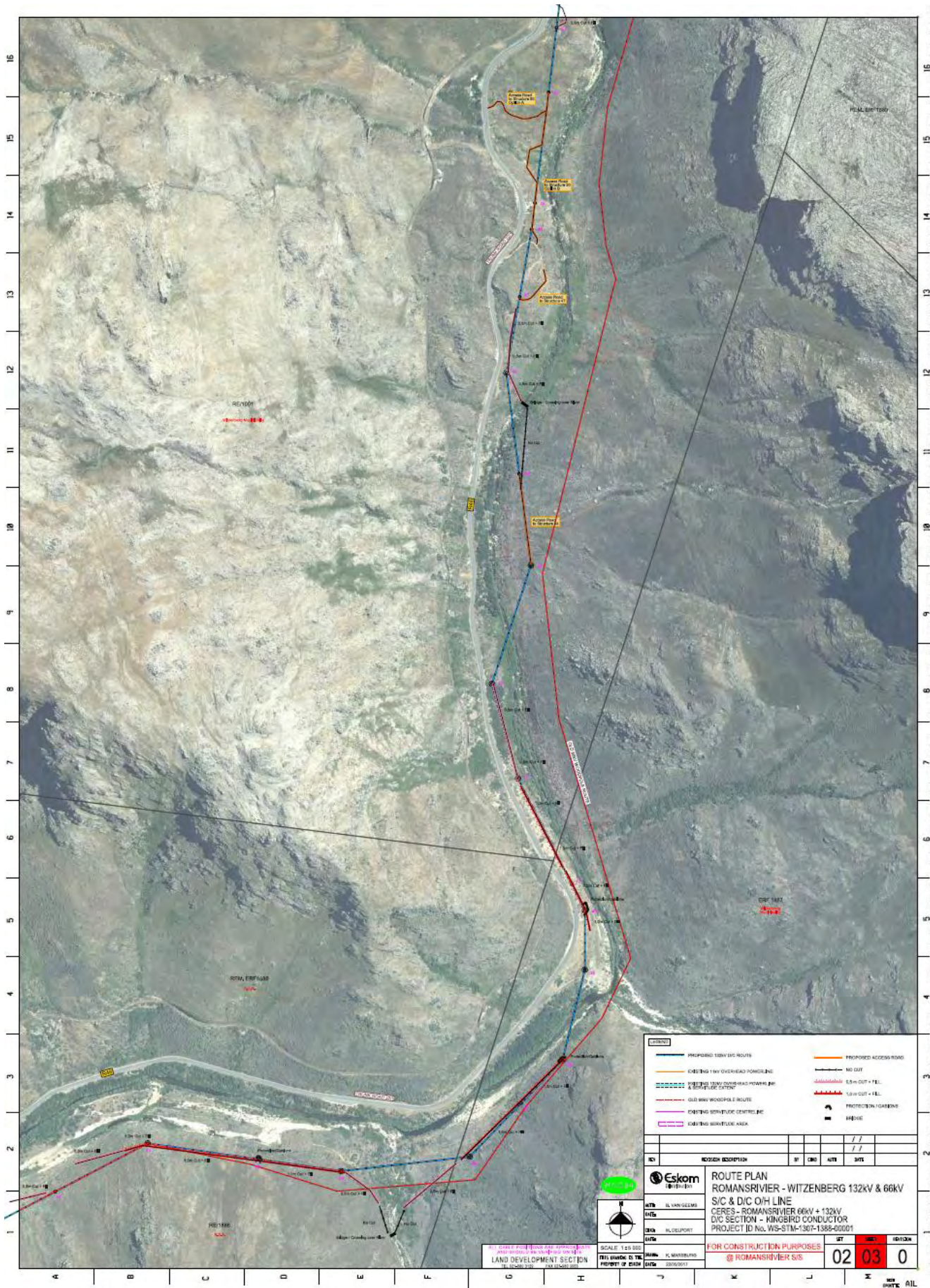


Figure 1.6: Powerlines to the east of Wolsley, southern end of Mitchell's Pass



Figure 1.7: Powerlines at the northern end of Michell's Pass to the Ceres sub-station

2. APPLICABLE LEGISLATION

The National Heritage Resources Act, No 25 of 1999 (NHRA) (Section 38 (1)) makes provision for a compulsory notification of the intent to develop when any development exceeding 5000 m² in extent, or any road or linear development exceeding 300 m in length is proposed.

The NHRA provides protection for the following categories of heritage resources:

- Cultural landscapes (Section 3(3))
- Buildings and structures greater than 60 years of age (Section 34)
- Archaeological sites greater than 100 years of age (Section 35)
- Palaeontological sites and specimens (Section 35)
- Shipwrecks and aircraft wrecks (Section 35)
- Graves and grave yards (Section 36).

Prior to development (the extent of which is described in Section 38 of the NHRA), the person who intends to undertake the development must notify SAHRA/HWC at the very earliest stages of initiating such a project of the location, nature and extent of the development. Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted.

HWC is the relevant Provincial Heritage Resources Authority (PHRA) with respect to this application. SAHRA is the National Heritage Resources Authority and is responsible for Grade 1 heritage and heritage in provinces where no Provincial authority has been established. As there are no Grade 1 heritage sites identified for the powerline project, SAHRA has no part to play in this application.

2.1 Grading of heritage resources

The significance of heritage resources is assessed according to the grading criteria established by the National Heritage Resources Act, No 25 of 1999. The grading system in Table 2.1 is currently applied by HWC.

Table 2 1: Grading of Heritage Resources (only categories I, II and III are defined in the NHRA), but Heritage Western Cape have introduced additional categories under III).

Grade	Level of significance	Description
I	National	Of high intrinsic, associational and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources.
II	Provincial	Of high intrinsic, associational and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources.
IIIA	Local	Of high intrinsic, associational and contextual heritage value within a local context, i.e. formally declared or potential Grade 3a heritage resources.
IIIB	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3b heritage resources.
IIIC	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3c heritage resources.
NCW		Not conservation-worthy - The Heritage Authority has applied its mind and the resource does not have enough heritage significance to be included in the National Estate. i.e. Insufficient Heritage Significance or "Ungradeable". This category is important as not all old places or structures are significant in terms of the NHRA.
Not yet graded		The Heritage Authority has not yet applied its mind in order to determine a grading for the resource or there is not, yet, sufficient information to determine the grading.

2.2 Responsible heritage authorities

2.2.1 HWC

A NID application was submitted to Heritage Western Cape (HWC) on the the 6th July 2017 and a case number was assigned (17070502AS0706E). In its comment dated 27th July 2017, HWC requested both Archaeological and Visual specialist studies be conducted and that the comments of the local municipality and any registered conservation body for the area be included. A set of integrated specialist recommendations must be presented. Specialist reports, requested comments as well as those of I&AP's are included in the Appendices. The response to the NID for this project can be found in Appendix C. After the promulgation of the NHRA (1999), all former Grade 1 National Monuments reverted to Grade II Provincial Heritage Resources and the PHRA's are responsible for their management and protection. Recently, a memorandum of Understanding (MOU) between SAHRA and HWC, has seen HWC taking over the management of human remains in the western Province.

2.3 Consultation

According to HWC's website² consulted on 1 August 2017, there is no registered Heritage conservation body for the study area. The comments of the municipality, and the Ceres Railway tour operator will be canvassed via the PPP process and will be found in Appendix G along with other comments of I&AP's with respect to the study. The comment from HWC dated 30 May 2017 (Appendix C) requested a heritage impact assessment with integrated recommendations of both Archaeological and Visual impact assessments. This report is the Integrated Heritage Impact Assessment as requested.

3. METHODOLOGY

The methodologies of the requested specialist studies are described in detail in the respective specialist reports (Appendices E and F) and are not repeated here

4. FINDINGS OF THE ASSESSMENT

Although no specialist report was required for Palaeontological resources, we have included Dr Almond's comment included in the NID application for completeness. The findings of the requested specialist reports are summarised below:

4.1.1 Palaeontology

Dr John Almond provided the following email comment at the NID stage (Appendix D): "The 132 kV powerline route traverses the outcrop area of the Table Mountain Group for the most part, most of which is of low palaeontological sensitivity (Ordovician - Early Devonian fluvial to shallow marine sandstones of the Peninsula, Goudini, Skurweberg and Rietvlei Formations plus thin glacial tillites of the Pakhuis Formation). Where the route runs along the Skurweberg mountain front to the north of Ceres, as well as to the southwest of Michell's Pass, it overlies low-sensitivity colluvial deposits (Late Caenozoic scree, sheetwash). The sector close to Romansrivier overlies unfossiliferous, tectonised sediments of the Late Precambrian Malmesbury Group. The only palaeontologically sensitive sector of the powerline route is located in Michell's Pass close to the Ou Tol where the route crosses the narrow outcrop band of the Cederberg Formation (Late Ordovician marine mudrocks, very high palaeontological sensitivity). However, the Cederberg mudrocks here are likely to be mantled with colluvial deposits and weathered near-surface, so I doubt that significant fossil impacts would occur." No assessment was requested as impacts would be non-existent to very minimal.

4.1.2 Archaeological Impact Assessment

² (<http://www.hwc.org.za/conservation-bodies>).

4.1.2.1 Pre-colonial heritage

A small number of pre-colonial heritage resources were located along the route, primarily in the mountainous section between the northern section of Michell's Pass and the Ceres sub-station. No tower positions will directly impact any significant pre-colonial archaeological resources as these are all located some distance from the proposed alignment. Although some construction access roads were proposed in this area, environmental sensitivity has meant that most towers in this area will be helicopter assisted. The impact of both tower construction and provision of access on pre-colonial resources is assessed to be **Insignificant**. No mitigation is required.

4.1.2.2 Historic built environment

The built environment is largely limited to surviving sections of the old Michell's Pass that can be found at places alongside the new road. The Old Toll House will not be directly impacted.

No old buildings, structures, or features were recorded within the existing damaged Romansrivier to Ceres 66 kV servitude on the eastern side the Valley that was assessed previously by Kaplan (Kaplan 2004, 2005).

4.1.2.3 Possible old Anglo Boer redoubt

A small stone structure above the pass and to the west of Ceres, is believed to represent a military redoubt. This is a roughly constructed, rectangular dry stone structure (~4x2 meters), with thick walls (~1 meter). There is no evidence of a roof ever having been present. Although the position only offers brief glimpses of the Pass below, the position has good sight of the natural passage in the mountains above the town of Ceres (utilised for the previous powerline and the proposed new). As there are no associated artefacts nor documentary evidence, we cannot say unequivocally what the structure represents. In our opinion, it is an unlikely place for a kraal. Furthermore, it is not unusual to find redoubts such as these guarding mountain passes. Formal blockhouses are usually only used at highly strategic locations (such as railway bridges) where natural cover is not available. Examples of such blockhouses are found south of Wolseley guarding the railway bridge over the Breede River (Figure 4.1). As we believe this structure represents a redoubt, we have given it a grading of IIIA.

The structure (redoubt) is located sufficiently far from the powerline not to experience any direct or indirect impacts.



Plates 4.1 and 4.2: A small rectangular dry packed stone structure (D001) is believed to possibly be a redoubt from the time of the Anglo Boer War.

4.1.2.4 The Toll House

The Old Toll house is the only historic structure on the pass (with the restaurant behind being the only other structure). The Toll House is a simple four-bay thatched house between straight gables built between 1846 and 1848. Originally declared a National Monument in 1972 under the old National Monuments Act of 1969, it is now a declared Grade II Provincial Heritage building.

The Toll House will not be directly impacted by the proposed powerline activities. The site is separated from the valley by the busy Pass with 3 lanes at this point.



Plate 4.3: The Old Toll house. **Plate 4.4:** Various signs with very basic information acknowledging Mostert's old wagon road, Michell's Pass and the Toll House.



Plate 4.5: The Toll house (and restaurant behind) in relation to the road heading up the pass towards Ceres (powerline will be to the right). **Plate 4.6:** The Toll house in relation to the road heading towards Wolseley.

4.1.2.4.1 Michell's Pass

The rough road built in 1765 by Jan Mostert was known as the Mostertshoek Pass, and greatly improved access to the Ceres district in colonial times³. Access was made even easier when Michell's Pass and Gydo Pass were built in 1848, followed shortly thereafter by Bain's Kloof Pass in 1853. The founding of Ceres in 1854, indicated the rapidly increasing population of the area (Fransen 2004:377).

Michell's Pass is perhaps the most significant built environment resource identified on the powerline route. The description of Michell's Pass by Graham Ross (Ross 2002: 24-31) though briefly summarised here, nevertheless highlights the heritage significance of this feature:

- 1765 - Jan Mostert built at his own expense an eight-mile (13-kilometre) road up the valley;
- 1846 to 1848 - Andrew Geddes Bain built Michell's Pass, named after Charles Michell the Colony's Civil Engineer who had inspected and Surveyed both the Witzenberg to Skurweberg and Mostertshoek Passes in 1830;
- 1937/38 to 1946 - Widening and concrete surfacing of the pass by the Ceres Divisional Council, under the guidance and control of the then District Roads Engineer, John Williamson. He decided to retain most of the existing road surveyed by Bain a hundred years before. Many of the old dry-stone retaining walls and some of the impressive masonry culverts were incorporated into the new works. Owing to wartime restrictions it was not possible in 1942 to import bitumen for the permanent surfacing and instead, a 100 millimeter un-reinforced cement slab on a selected base-course was built, the first time that this type of construction had been carried out on a major project;
- 1988 to 1992 – Reconstruction of the road by Cape Provincial Roads Branch to improved geometric and materials standards to meet the increased traffic requirements of the late twentieth century. On completion, the road was nominated for a special award by the South

³ And it is likely that it followed the route used later by Bain

African Institution of Civil Engineering. A section of Bain's original road and a number of examples of his stone walling were preserved for posterity.

While sections of the road are indeed preserved in places, they are largely unacknowledged except by a very basic sign at the Toll House. There are a few lay byes where the original road and dry stone embankments/culverts are present and visible, but most sections are difficult to access as the pass carries a lot of fast moving traffic. Additional signage would be informative and could be placed at the more accessible lay-byes.



Plate 4.7: A section of the old road embankment can be seen off to one side of the new pass. While there are a few sections in this context, most can only be seen when walking the route.

Plate 4.8: A section of old embankment and road next to the pass has been resurfaced and is used as a lay-bye (D016)



Plate 4.9: A section of the old road curves around behind a rocky koppie (D014). The characteristic rock bollards can be seen along the outer edge. ESKOM have proposed using this as an access road during construction. **Plate 4.10:** A well preserved dry packed stone embankment wall and culvert (D015).

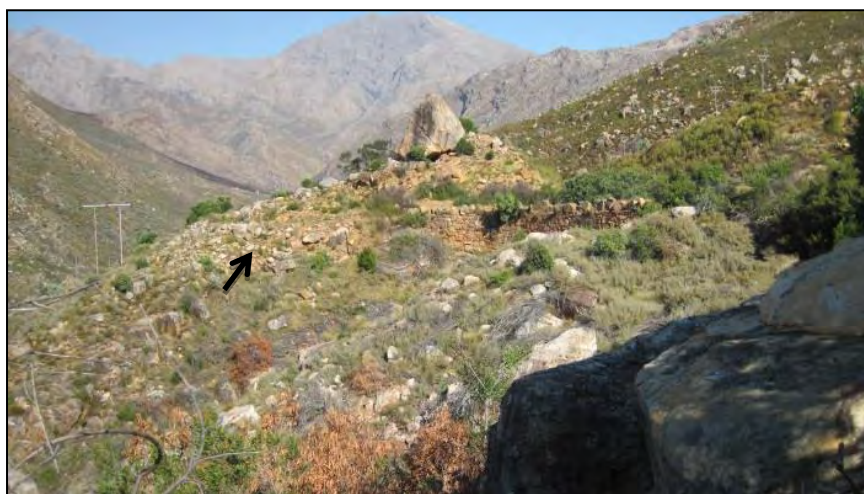


Plate 4.11: Looking back towards approximate position of Tower 057. The embankment wall (D015) can be seen at right. One of the old 66kV powerline towers can be seen at left.

4.1.2.5 Impact assessment

Impacts on physical heritage resources are few and primarily related to sections of the old Michell's Pass road built by Bain in the 19th century. Some impact may occur during the construction phase but can be mitigated. Impacts during the operational phase are also very limited and can be mitigated. There is little impact difference between the two phases.

Possible loss of built environment resources is primarily focussed on the construction and access to Tower 057 in Michell's Pass. While the tower itself is located approximately 18 meters east of a well preserved section of Bain's old road, ESKOM have proposed using this section of the Old Road for access during the construction and operational phases. To avoid impacts, the footprint of the construction at Tower 057 must be defined and may not impact on the old road. While use of the old road for access can probably be accommodated, no upgrade will be permitted, other than cosmetic (clearing loose surface debris, cutting back vegetation). Great care will have to be exercised when using vehicles on the old road section to prevent damage to the surface or to the original rock bollards along the edge. Some involvement of a heritage specialist is required prior to the construction of Tower 57 and possibly during the construction itself. We would prefer that a small section of new road proposed to carry materials to the construction footprint at 057 was not built, but rather an alternative method of getting materials the short distance to the construction area was used (small crane).

Although we have considered generally the placement of towers in relation to all built environment heritage resources, it is only Tower 057 where possible direct impacts may occur and the impact assessment refers to that specific tower.

The impact without mitigation is assessed to be of **low** negative significance, which after the implementation of mitigation, moves to **insignificant** positive. Similar impact ratings are given for the provision of access roads i.e. **low** negative, but differs only slightly with mitigation where the impact is rated to be **insignificant** negative.

Due to its importance to the development of Ceres as well as providing access to the interior, we have graded all remaining sections of the Old Michell's Pass as IIIA, although sections with road surfaces, and embankment walls and culverts, that are most significant, as the full extent of the engineering is visible..

4.1.3 Landscape

The following photographs give broad sense of the landscape along different sections of the route. These are in addition to those presented in the VIA.



Plate: 4.12: Looking east from the R43 along a bluegum windbreak towards the Romansrivier s/s (~1.2 km from the R43).



Plate: 4.13: Looking south along the existing Romansrivier to Tulbagh 132 kV powerline seen at left on metal Lattice towers.



Plate: 4.14: A section of the route along the R43



Plate: 4.15: The route swings to the east beyond the intersection of the R43 and R66 at Wittebrug (seen on the rhs of the photo crossing the Breede River). The existing 66 kV on wooden "H" poles visible at left. There are also the remains of old service roads and pipelines.



Plate: 4.16: Looking east with the R66 on the left above the Breede River in the Wittebrug Nature Reserve. In the distance the pass swings turns in a northerly direction. The Ceres Mountain Fynbos Nature Reserve is in the distance.



Plate: 4.17: Looking east with the R66 on the left above the Breede River in the Wittebrug Nature Reserve before the pass swings into a northerly direction. The Ceres Mountain Fynbos Nature Reserve is in the distance.



Plate: 4.18: The lower section of the pass looking south.



Plate: 4.19: The railway line looking south west, has to this point been above and to the west of the Pass after which it is below and east of the Pass before exiting the valley through a tunnel into Ceres



Plate: 4.20: Looking south down the valley from where the pass swings east towards Ceres. Parts of the old 66 kV powerline can be seen at centre.



Plate: 4.21: Looking north across the landscape above the town of Ceres with the existing 66kV powerline visible on the rhs. There is a natural "pass" here with rocky mountain slopes found to left and right.

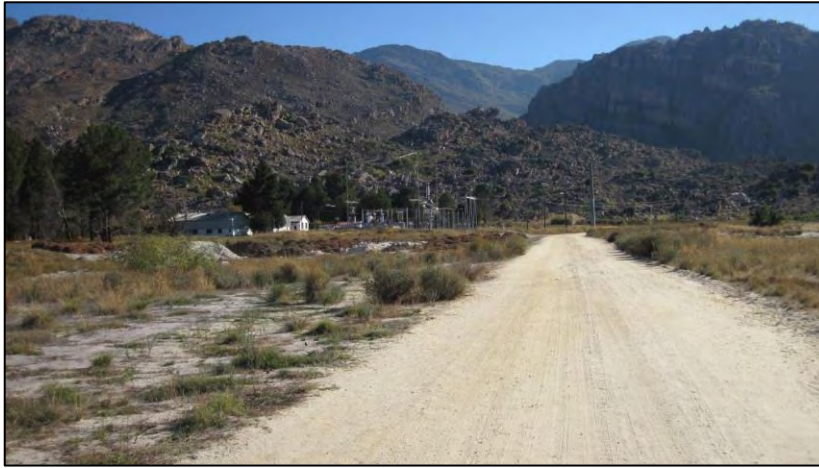


Plate: 4.22: Looking west towards the Ceres sub-station (at lower left) and the rocky mountain slopes beyond.

4.1.4 Visual Impact Assessment

Findings of the VIA are summarised here:

The VIA describes and interprets the visual context or affected environment in which the project is located: this provides a visual baseline or template and aims to ascertain the aesthetic uniqueness of the project area. To better understand the *magnitude* or *intensity* of visual and sense of place impacts, the capacity of the project area and receptors to accommodate, attenuate and absorb impacts was analysed in considerable detail. To assess impact significance, the powerline and substation were “introduced” into the baseline, taking account of the attenuating capacity of the project area.

The following findings are pertinent:

- Eskom proposes to build a new double circuit (132/66 kV) powerline (~ 12 km) from the existing Romansrivier Substation to the existing Ceres Substation.
- The basis for the **visual character** of the area is provided by the geology, vegetation and land use of the area. The Tulbagh-Wolseley Valley and Ceres Valley landscape units can be described as *modified rural landscapes*. The Michell’s Pass Valley landscape unit can be described as a *natural transition landscape*.
- The **visual quality** of the overall area is largely ascribable to the rural patterns across the valleys contained by the steep and rugged mountains covered in natural vegetation. Some elements detract from the visual quality in the study area, notably vertical elements traversing the landscape including powerlines (including the existing 132 kV powerline from Romansrivier Substation to Tulbagh and the remains of the 66 kV powerline through Michell’s Pass).
- The region has scenic value in terms of the rural setting and sense of nature invoked by the steep mountainous backdrop. The region has attractive visual-spatial qualities and residents and tourists are attracted to the area because of its scenery and location in the landscape. The sense of place influenced by the rural patterns created by rolling wheatfields, patchwork of fruit orchards and vineyards in a mountainous setting. Views across the valley and from and within the scenic mountain pass add to the **sense of place** of the area. Tourists are also attracted to the area during the winter months when the surrounding mountains are often covered in snow.
- The **visual exposure** analysis indicates that the powerline will be exposed and will be visible throughout the study area. The viewsheds do not, however, take into consideration the screening provided by minor variations in topography, planted trees nor the built fabric in Wolseley and Ceres.
- The Visual Absorption Capacity (**VAC**) of the area is increased by topographical variations in the landscape and the windrows (and other planted trees) providing effective screening, but the powerline will still be visible from the immediate surroundings (particularly in Michell’s Pass).
- **Receptors** include residents of Wolseley and Ceres, motorists on the provincial roads (R43 and R46), farmers and farm labourers, and visitors/tourists to the area. Many receptors are exposed

to existing powerlines in the study area, including powerlines along the same route, but visitors / tourists travelling through Michell's Pass are particularly sensitive receptors.

- **Visibility** of the powerline is lower in the Tulbagh-Wolseley Valley and Ceres Valley landscape units, but visibility is high in the Michell's Pass Valley.
- **Landscape integrity** refers to the compatibility of the development with the existing landscape. The powerline is moderately compatible with the existing land use of the Tulbagh-Wolseley Valley where it traverses rural areas. A section of the proposed powerline will be located in the servitude of an existing 132 kV powerline and is therefore consistent with the existing land use along this section. The powerline through Michell's Pass and down to the Ceres Substation is not sensitive with the natural environment and the powerline is therefore less compatible with the existing landscape when traversing natural areas.
- **During construction**, loss of sense of place in the Tulbagh-Wolseley Valley is limited as construction activities will be marginally congruent with the current nature of the surrounding area (viz. agricultural activities) and the construction footprints will be visible from a limited number of viewpoints. Loss of sense of place is expected during installation of the pylons along the natural sections of the powerline route (through Michell's Pass and over into the Ceres Substation) since construction and the change in the state of the site (scarring, construction equipment and dust generation) is incongruent with the current natural state of the surrounding area and the construction footprints will be visible to highly sensitive receptors. The impact is assessed to be of **low** significance with and without the implementation of mitigation measures.
- Although the powerline is not visible from much of the Tulbagh-Wolseley Valley or Ceres Valley, the proposed powerline will be particularly visible to sensitive receptors moving through the Michell's Pass Valley. The powerline will be in the foreground to these receptors (i.e. within 500 m) and is highly likely to alter the visual quality of the scenic Michell's Pass and therefore alter the sense of place to receptors moving through the space (by road / rail). The impact of the **powerline and access roads** is assessed to be of **high** significance with and without the implementation of mitigation.

Overall, the powerline will be marginally visible to receptors in the Tulbagh-Wolseley Valley due to its alignment along an existing powerline (up to pylon 23) with a low number of sensitive receptors in the foreground. A series of windrows at the base of Wittebrug Mountain provides highly effective visual screening to receptors in the middle- and background. The powerline is moderately compatible with the existing land use of the Tulbagh-Wolseley Valley where it traverses rural areas as these areas have been altered by agricultural activities.

The location of the town at the base of the mountain, the angle of the mountain slope and the alignment of the powerline behind a minor crest, will reduce the visibility of the powerline from Ceres. Where the powerline is visible to receptors (likely to be further than 500 m), the distance from the powerline and the grey palette of the mountainous backdrop, will reduce the visibility of the pylons. The section of the powerline in the Ceres Valley traverses a natural area and is therefore not sensitive with the natural environment. The compatibility increases approaching the Ceres Substation as the powerline is consistent with the existing land use of the property.

The impact of the altered sense of place and visual intrusion from the powerline and access roads in the Tulbagh-Wolseley Valley and the Ceres Valley can be considered to be of **low** significance.

The powerline (and access roads) will be particularly visible to sensitive receptors moving through the Michell's Pass Valley, although individual pylons may be screened by local variations in topography and bends in the road / railway line. Visibility is also reduced if the pylon is located below the road. Pylons located on the eastern side of the Bree River will be less visible as the pylons may blend into the grey background of the west-facing mountain slopes. Visibility will be greatest when the powerline "breaks" the skyline (e.g. pylon 56 when viewed approaching from the north or south) or when the powerline crosses the road at pylon 56 and pylon 58. The powerline is highly likely to alter the visual quality of the scenic Michell's Pass and therefore alter the sense of place to receptors moving through the space (by road / rail). A number of pylons will also be highly visible to motorists using the rest areas, particularly the rest areas near pylon 53 (within 20 m of the rest area) and pylon 58 (within 18 m of the rest area).

The impact of the altered sense of place and visual intrusion from the powerline and access roads in the Michell's Pass Valley can be considered to be of **very high** significance. As this section of the powerline will have such a significant visual impact on the landscape and receptors, Eskom should provide reasons as to why cabling the proposed powerline (in trenches underground) through at least the Michell's Pass Valley is not a feasible and/or reasonable alternative (anticipating this question being posed by I&AP's).

As the underground option is not considered a feasible and/or reasonable alternative by Eskom, it has not been assessed in the impact assessment phase.

The overall impact of the altered sense of place and visual intrusion from the proposed project in the study area can therefore be considered to be of **high** significance.

4.2 Cultural landscape

Winter and Oberholzer (2014) have assessed the area through which the powerline runs (Figure 4.1). Michell's Pass (Ws.2) is considered to be a scenic mountain pass, while the roads bypassing Wolseley (R43 and R46) are considered to be major scenic routes. Wnl.5 and Wnl.8 are defined as wilderness/natural landscapes. The light green polygon section to the west of Ceres town is the edge of Wcl.12, the Ceres Valley/Warm Bokkeveld cultural landscape. The landscape around Wolseley has not been defined as a cultural landscape in the study.



Figure 4.1: Excerpt from Winter and Oberholzer (2014) Cape Winelands area (Purple – mountain pass or poort of scenic/heritage value, Light mauve – scenic routes with major scenic/heritage value, Light blue – secondary importance link routes; Orange circles – Anglo Boer War Blockhouses; Yellow circle with “f” – Historic farmsteads/buildings of local significance (Grade III). The Old Toll House is not clearly indicated on the map.

The powerline route can logically be divided into 3 sections following those defined by Masson (2017) in the VIA and the cultural landscape of each is defined by the various natural and man-made factors in each area. These zones are clearly visible in Figure 1.1.

- **Southern section - the Tulbagh-Wolseley Valley:** The south-facing Tulbagh-Wolseley Valley is a narrow valley enclosed by the Witzenberg Mountains to the east, the Waterval and Obiekwaberg Mountains to the west and the Groot Winterhoek Mountains at the head of the valley. The town of Wolseley is situated on a natural watershed that divides the Berg River flowing north-west, and the Bree River flowing south into the Breede River. The Wittebrug Mountain juts out at this point, splitting the valley into two distinct areas.

The western slopes of the Wittebrug mountains have been utilised for agriculture where the topography allows between steeply incised river courses. Ploughed land, farm roads, fences, dams, the Romansrivier sub-station and powerlines are the typical land use here, with farm houses located on, or close to the R43. Intensive agriculture is predominantly to the north west between the R46 and the R43, along the Breede River. The town of Wolseley is located in the midst of this agriculture.

Proposed landscape grading: IIIC

- **Central section - The Michell's Pass (Bree River) Valley:** Michell's Pass (R46) is a scenic route from Tulbagh and Wolseley through the Witzenberg Mountains to Ceres following the narrow valley of the Bree River. From its southern entrance near Wolseley, the pass ascends 190 metres to the summit at an elevation of 490 m before descending a short distance into Ceres (Wikipedia, 2017). A mountainous natural area exists to the west of Ceres between the upper part of the Pass and the sub-station.

The section from the intersection of the R46 and R43 roads is largely a natural landscape with human intervention in the form of powerlines, tracks, fences, access gates/booms, pipelines, weirs and occasional small areas of agriculture. The dominant interventions are the R46 road (Michell's Pass) which carries high volumes of commercial and conventional traffic, and the railway (which carries occasional freight and tourist trains). The only structures are located at the Old Toll house (declared Grade II building -1972), a simple four-bay thatched house between straight gables built between 1846 and 1848. A restaurant in a separate building is found to the rear of the Toll House. There are the usual road signs and informal advertising boards and flags have proliferated at the Toll House. A few lay-byes built during the most recent road upgrade, permit stopping to enjoy the view. The railway crosses the road towards the top of the pass from where it runs below (east) of the road at a gentle gradient before passing through a tunnel into the town of Ceres.

Most of the central section passes through the extensive Ceres Mountain Fynbos Nature Reserve and the smaller Wittebrug Nature Reserve. Where the road swings east towards Ceres at the top of the pass, the proposed powerline continues through a natural "pass" in the mountains west of Ceres at the foot of the Skurweburg. Here there are occasional traces of abandoned powerlines (footings, bases of old metal poles set in the ground), tracks and walking paths. There is a tangible Late Stone Age archaeological layer in this area characterised by rock shelters and overhangs with rock paintings and artefacts. Characteristic artefacts of the Middle Stone Age were also observed. A single stone walled structure on the ridge above the pass is believed to be an informal redoubt, a remnant of the Anglo Boer war. Other reminders of this period are found just south of Wolseley where two formal blockhouses guarded the bridges crossing the Breede River.

The valley with its transport associations has had an important role to play in the establishment of Ceres and access to the interior. There is a combination of natural and man-made features.

Proposed landscape grading: IIIA

- **Northern section - The Ceres Valley:** The Ceres Valley (also known as the Warm Bokkeveld Valley) is enclosed by the Skurweberg Mountains to the west, the Hex River Mountains to the south and the Gydoberg Mountains and Waboomberg Mountains to the north. The landscape rises gently across the western and central portions of the valley (with Ceres at approximately 460 m above sea level), then rising sharply at the foothills in the east. Gydo Pass (R303) in the north of Ceres Valley connects the Warm Bokkeveld with the higher altitude Koue Bokkeveld. The Ceres sub-station is located on the north western end of Ceres, immediately north of the Pine Forest camping and caravan park with its dense pine plantation remnant. This is a transitional area between the town and mountain slopes to the west, and the intensive agricultural areas along the Dwars River to the north. Waterworks infrastructure and

roads leading up to the Koekedouw/Ceres Dam can be found above the substation. 66 kV powerlines from the Witsenberg s/s and Romansrivier s/s converge here.

Proposed landscape grading: IIIB

4.3 Site sensitivity

The baseline study and impact assessment has indicated that the powerline "site" contains Archaeological, Built environment and Visual resources. For the most part, archaeological sites will not be impacted by the activities due to distance. One tower (057) may impact a small section of the old Michell's Pass road but we believe this can be mitigated. Access during the construction along the old road may result in impacts if mitigation is not implemented. Visual impacts will be experienced in Michell's Pass due to visual exposure and proximity to receptors. In other areas, there is much greater capacity to absorb the activity due to natural and man-made screening.

5. FINDINGS AND RECOMMENDATIONS

In general, powerline and access road activities proposed by ESKOM will not have high impact on identified archaeological resources, or physical heritage resources in general. The position of Tower 57 was moved from the originally proposed position in order not to directly impact a section of the old road. While we believe that the old road can be used during construction of Tower 57, no modification may occur other than pruning vegetation and moving loose rubble. The archaeologist will be appointed to oversee the excavation of the tower footprint and use of the old road for access. A short secondary construction road to link the old road and the tower footprint (57) is not supported.

There are however Visual issues where the line goes through Michell's Pass. As alternative routes are screened out, mitigation of the visual impacts is limited to using lattice towers which have a softer profile than other types. Some monopole use may be required at strategic points. Lattice towers do blend into mountain backdrops to some degree.

The use of lattice towers as far as possible in Michell's Pass is preferred.

5.1 Environmental acceptability

In our opinion, the powerline as proposed (alternatives having been screened out) can be supported from an archaeological, palaeontological and built environment perspective provided that the proposed mitigation is carried out. Visual impacts in Michell's Pass will be unavoidable as there is little mitigation possible. Use of metal Lattice towers may achieve some blending with mountainous backdrops, and a softening of the overall appearance. In the Tulbagh/Wolseley valley, the activity is consistent with existing powerline use, and natural screening on the northern section mitigate visual issues from Ceres and the Pass.

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Appendix A: Specialists CV

Details

Name: Mr David John Halkett

ID number: 5807235148080

Date of Birth: 23.07.1958

Company: ACO Associates cc (Registration 2008/234490/23)

Principal business: Archaeological/Heritage Impact Assessment

Position: Director (Principal investigator)

Profession: Archaeologist, Heritage Impact Assessor

Years with Firm: 8

Years' experience: 27

Previous employment: Archaeology Contracts Office, UCT, 24 years

Nationality: South African

HDI Status: White Male

Physical work address: Unit D17, Prime Park, 21 Mocke Road, Diep River 7800

Postal address: 8 Jacobs Ladder, St James, 7945

E-mail: david.halkett@aco-associates.com

Education

1991: M.A. (Archaeology) University of Cape Town

1982: B.A. (Hons) (Archaeology) University of Cape Town

1980: B.A. University of Cape Town

1976: Pinelands High School (matric exemption)

Professional Qualifications

MA (Archaeology) UCT

Registered member of the Association of Southern African Professional Archaeologists (ASAPA)

Languages

First language – English

Second language - Afrikaans (speaking, reading and writing).

Expertise

Having co-directed the Archaeology Contracts Office at the University of Cape Town for 24 years (one of the first heritage resource management companies in South Africa), David is now a director of ACO Associates cc, which has taken over from the UCT operation and retains most of its staff. ACO Associates provides Heritage and Archaeological Impact Assessment services to a range of clients in order for them to comply with Environmental and Heritage Legislation. He is a long standing member of the Association of Southern African Professional Archaeologists (ASAPA) and an accredited Principal Investigator of the Cultural Resource Management (CRM) section. With 28 years of working experience in heritage impact assessments, conservation and archaeological research, he has worked in a wide variety of contexts and participated in over a thousand heritage projects ranging from Heritage and archaeological impact assessments, to mitigation of archaeological sites in suburban, rural and industrial (mining) situations. He is an accredited with ASAPA to act as a Principal Investigator on Earlier Middle and Later Stone Age sites, especially coastal shell middens and rock painting sites, and Colonial period sites. David's broad experience in heritage management has led to his participation as an advisor to the National Monuments Council up until 2000, and more recently he served as a member of two Heritage Western Cape regulatory committees, the Impact Assessment Review Committee (IACOM) and the Archaeology, Palaeontology and Meteorites Committee (APM), and he has served on occasion as a forensic consultant to the Missing Persons Unit of the National Prosecuting Authority (NPA). He has led field projects on behalf of both local and overseas research organisations, and continues to participate in archaeological research on an ad hoc basis. Research interests include aspects of the Middle Stone Age, Later Stone Age and Colonial era of southern Africa. He has co-authored a number of peer reviewed journal articles on these topics.

ACO Associates cc has assisted on numerous renewable energy projects in the Northern, Eastern and Western Cape and David has been personally involved in a number of these projects.

Summary of other experience

2008-present: Director and Principal Investigator: ACO Associates cc. Projects undertaken in the Eastern, Northern and Western Cape Provinces.

1988-2012: Principal Investigator and director: Archaeology Contracts Office, University of Cape Town. Projects undertaken in the Eastern, Northern and Western Cape Provinces.

1997: Junior Research Officer: Palaeoanthropology Research Unit, University of the Witwatersrand, (part time apt for one year) Cape Town based.

1984: Part time research assistant: Spatial Archaeology Research Unit, University of Cape Town

Relevant experience

Employment since 1988 has required management of all aspects of heritage projects, and management of the day to day functions of the business (including Financial, HR).

Powerline Projects selection

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Appendix B: Declaration of Independence



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	
NEAS Reference Number:	
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014;

PROJECT TITLE

BA for the Proposed Eskom Powerline from Romansrivier to Witzenberg and the Proposed Prince Alfred Hamlet Substation

Specialist:	AIC ASSOCIATES CC		
Contact person:	DAVID HALKETT		
Postal address:	8 JACOBS LADDER ST JAMES		
Postal code:	7345	Cell:	073 1418606
Telephone:	021 706 4104	Fax:	086 603 7195
E-mail:	DAVID.HALKETT@AIC-ASSOCIATES.COM		
Professional affiliation(s) (if any)			

Project Consultant:	SRK Consulting (South Africa) (Pty) Ltd		
Contact person:	Amy Hill		
Postal address:	Postnet Suite #206, Private Bag X18, Rondebosch		
Postal code:	7701	Cell:	081 461 7590
Telephone:	021 659 3060	Fax:	021 685 7105
E-mail:	ahill@srk.co.za		

4.2 The specialist appointed in terms of the Regulations_

I, DANN HACKETT, declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

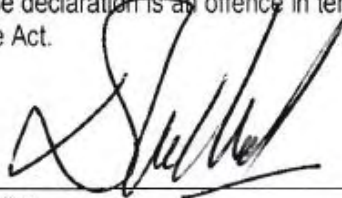
I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

ALO ASSOCIATES CC

Name of company (if applicable):

5th AUGUST 2017.

Date:

Appendix C: HWC NID comment

Our Ref: HM/WITZENBERG/CERES/
ROMANSRIVIER-WITZENBERG 132KV POWERLINE
Case No.: 17070502AS0706E
Enquiries: Andrew September
E-mail: andrew.september@westerncape.gov.za
Tel: 021 483 9543
Date: 27 July 2017

David Halkett
8 Jacobs Ladder
St James
7945
david.halkett@aco-associates.com



RESPONSE TO NOTIFICATION OF INTENT TO DEVELOP: HIA REQUIRED
In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape
Provincial Gazette 6061, Notice 298 of 2003

NOTIFICATION OF INTENT TO DEVELOP: PROPOSED 132KV/66KV POWERLINE ON PORTIONS OF FARM 320, 305, 301, 302, 294, 1887, 263, 323, 1, 421, 289, 288, 1886, 316, 371, 371, 375, 374, 423, 374, 372 & 323 AND ERVEN 1001, 1002, 11884, 4963 & 5018 BETWEEN ROMANSRIVIER AND WITZENBERG SUBSTATION, WITZENBERG MUNICIPALITY, SUBMITTED IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

CASE NUMBER: 17070502AS0706E

The matter above has reference.

Heritage Western Cape is in receipt of your application for the above matter received on 06 July 2017.

You are hereby notified that, since there is reason to believe that the proposed powerline will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following:

- Impacts to archaeological heritage resources
- Visual impacts of the proposed development

The required HIA must have an integrated set of recommendations.

The comments of relevant registered conservation bodies and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied.

Please note, should you require the HIA to be submitted as a Phased HIA, a written request must be submitted to HWC prior to submission. HWC reserves the right to determine whether a phased HIA is acceptable on a case by case basis

HWC reserves the right to request additional information as required.

Should you have any further queries, please contact the official above and quote the case number.

Yours faithfully

.....
Mpholisi Dlamuka
Chief Executive Officer, Heritage Western Cape

www.westerncape.gov.za/cas

Street Address: Protea Assurance Building, Green Market Square, Cape Town, 8000 • **Postal Address:** Private Bag X9067, Cape Town, 8000
• **Tel:** +27 (0)21 483 5959 • **E-mail:** ceheritage@westerncape.gov.za

Straatadres: Protea Assuransie-gebou, Groentemarkplein, Kaapstad, 8000 • **Posadres:** Privaatsak X9067, Kaapstad, 8001

Appendix D: Palaeontological comment from Dr J Almond for the NID

On 21 April 2017 at 17:36, almond <almond@zsd.co.za> wrote:

Dear Dave,

The 132 kV powerline route traverses the outcrop area of the Table Mountain Group for the most part, most of which is of low palaeontological sensitivity (Ordovician - Early Devonian fluvial to shallow marine sandstones of the Peninsula, Goudini, Skurweberg and Rietvlei Formations plus thin glacial tillites of the Pakhuis Formation). Where the route runs along the Skurweberg mountain front to the north of Ceres as well as to the southwest of Michell's Pass it overlies low-sensitivity colluvial deposits (Late Caenozoic scree, sheetwash). The sector close to Romansrivier overlies unfossiliferous, tectonised sediments of the Late Precambrian Malmesbury Group. The only palaeontologically sensitive sector of the powerline route is located in Michell's Pass close to the Ou Tol where the route crosses the narrow outcrop band of the Cederberg Formation (Late Ordovician marine mudrocks, very high palaeontological sensitivity). However, the Cederberg mudrocks here are likely to be mantled with colluvial deposits and weathered near-surface here, so I doubt that significant fossil impacts would occur.

In my view, a specialist palaeontological study would mainly highlight the potentially sensitive Cederberg Formation outcrop area but conclude that significant impacts are unlikely.

Perhaps you can just say that and quote me?

If you can get by without doing a palaeo study at all, that would be just fine!

Regards,

John

On 2017-04-21 13:43, David Halkett wrote:

Hi John,

Sorry, just getting to this NID.

Sorry to be a pain but I was hoping you could give me a paragraph that describes more specifically the resource that may be impacted along this route in order to justify the need for a palaeo study. The palaeo Baseline report will have to be very specific and address the tower positions and (access roads when decided). The walk down will be to address any issues immediately on site via route tweaks so very likely at least walkdown fieldwork will be required. Just trying to figure out how the Palaeo will fit in without fieldwork? Reporting will have to be a baseline and then a BAR. SRK will appoint you directly depending on the NID requirement.

The new dates for reports are 12 May for baseline report, walkdown 23-24 May (tentative), and draft Bar by 7 June.

What say you?

Regards

Dave

Appendix E: Archaeological Specialist Study

ARCHAEOLOGICAL IMPACT ASSESSMENT OF THE PROPOSED ESKOM ROMANSRIVIER TO CERES132kV OVERHEAD POWERLINE

HWC CASE: 17070502AS0706E
DEA CASE: not allocated yet

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act (No. 25 of 1999)
as part of a NEMA Basic Assessment process)

Prepared for

SRK Consulting (South Africa) (Pty) Ltd

On behalf of

Eskom Holdings SOC Limited

August 2017



Prepared by

David Halkett

ACO Associates cc

Physical: Unit D17, Prime Park, 21 Mocke Rd, Diep River
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david.halkett@aco-associates.com
Tel: 021 7064104
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EXECUTIVE SUMMARY

Introduction

ACO Associates cc has been requested by SRK Consulting on behalf of Eskom Holdings SOC Limited to undertake a Basic Assessment Report of the impacts on heritage resources from the proposed Eskom Romansrivier to Ceres 132/66kV overhead powerline, south west of Ceres and to the east of the R43 and along the R46 routes in the Western Cape (Figure 1). A "Notice of Intent to Develop" (NID) application was submitted to Heritage Western Cape on the 6th July 2017 and in their response of 27th July, (see Appendix C), HWC requested that an HIA be conducted with integrated findings consisting of a Visual Impact Assessment and Archaeological Impact Assessment. Having looked at the proposed activity, the Palaeontologist Dr John Almond concluded that no significant impacts on Palaeontological resources would result from the activity and hence no Specialist Palaeontological assessment was required for the HIA. The comments of the municipality and the registered conservation body for the area should also be included. The operator of the Ceres Railway is a registered I&AP and their comments will be canvassed as part of the EIA process. This AIA will be included as an Annexure to the HIA also being prepared by ACO Associates cc.. No registered heritage conservation bodies are however listed on HWC's website for the affected area when consulted on 1 August 2017.

ToR

The generic ToR and principal objectives for each specialist study are to:

- Describe the existing baseline characteristics of the study area and place this in a regional context;
- Identify and assess potential impacts of the project and the alternatives, including impacts associated with the construction and operation phases, using SRK's prescribed impact rating methodology (Appendix F);
- Indicate the acceptability of alternatives and recommend a preferred alternative (where applicable);
- Identify and describe potential cumulative impacts of the proposed development in relation to proposed and existing developments in the surrounding area;
- Recommend mitigation measures to avoid and/or minimise impacts and/or optimise benefits associated with the proposed project; and
- Recommend and draft a monitoring campaign, if applicable.

The main deliverable from each specialist will be an impact assessment report with appropriate maps, drawings and figures. Reports will consist of the following components:

- Baseline description: a description of the environment of the study area in its current state, relevant to the specialist's field of study; and
- Impact assessment: an assessment of how the proposed project will alter the *status quo* as described in the baseline description, and recommended measures to mitigate and monitor impacts.

Project motivation and technical data

Eskom proposes to construct a ~20 km double circuit powerline (132/66 kV) from the existing Romansrivier Substation near Wolseley to the existing Ceres Substation. The project is required to provide additional electricity to the region. Key aspects of the project include:

- Installation of a 80MVA 132/66/11kV transformer at the Romansrivier substation to supply the new 132 kV line to Ceres;
- Construction of a double circuit distribution powerline (132kV and 66kV) between Romansrivier and Ceres substations;

- Installation of a 132 kV and 66kV feeder bays at Romansriver substation and a 66kV feeder bay at Ceres substation to accommodate these lines;
- Construction of new access roads;
- Upgrading of various existing roads; and
- Decommissioning of the existing 66 kV line between the Romansriver and Ceres substations.

Access for construction purposes is going to be a major challenge. As such various existing roads will need to be upgraded and new access roads will be constructed. Construction of roads and bridges over/through watercourses may be required. The positions and layout of roads, and final tower positions have been determined following a baseline study and specialist walkdown.

Design alternatives may include lattice structures, monopoles and wood poles. Due to construction challenges, the current engineering design for the line only caters for lattice steel and limited steel monopole structures which is the preferred design alternative. The use of wood poles is not preferred.

Certain towers will be helicopter assisted builds where environmental sensitivities prevent access by roads.

The scope of electrical works

- Build Romansrivier-Ceres ~20km Double Circuit 132 & 66kV line;
- 300 meter corridor for the line route;
- 1 x 132kV feeder bay at Romansrivier substation;
- 1 x 66kV feeder bay at Romansrivier and Ceres substation (Test and commission existing 66kV feeder bay at Romansrivier);
- Install 1x80MVA 132/66/11kV transformer at Romansrivier;
- Various new road constructions and road upgrades for access purposes.

Powerline alternatives

Two routes were originally evaluated by Eskom i.e. a Mountain route and a River route. Eskom is applying for the river option as this was judged to be the only feasible route. The mountain route was screened out but due to feedback from Cape Nature and the relevant land owners and is not being considered or applied for.

Data gathering

A three day field assessment was undertaken from 9-11 May 2017 by Mr D Halkett and Mr R Mclver of ACO Associates cc. The survey time was sufficient to determine the range and distribution of heritage resources across the entire route (Romansrivier s/s to Ceres s/s). Many of the route sections were assessed on foot, while others were assessed from the vehicle, particularly in areas where the powerline route was through previously or currently cultivated land. Visibility of heritage resources was considered to be generally good to excellent along the route and there were almost no limitations in terms of accessing the route. The inspection of some sections along Michell's Pass were rendered difficult where alien vegetation cutting left a dense mat covering the ground, but overall we do not believe that not specifically looking at those areas detract from our overall conclusions.

Additional data was collected during the combined ESKOM and specialist walkdown on 23 and 24 May 2017 where the ACO was represented by Mr D Halkett.

All the landowners (whose contact details were provided by ESKOM Appendix D) that were contacted for access to properties, granted permission. Our search tracks were recorded by means of a Garmin GPS receiver to document search areas (Figures 3.1 to 3.3, Table in Appendix E), and any identified heritage sites were assigned Lat-Lon co-ordinates, described and photographed. The list of heritage resources and other observations are listed in Appendix E. In some cases we recorded features in the

landscape that were of obvious recent age, in order to record the presence where it may be useful for design or other purposes (e.g. indications of an older powerline on or very close to the new powerline route above Ceres). The heritage resources have been graded for significance according to the system used by Heritage Western Cape as defined in the table in Appendix E.

A survey of available literature was carried out to assess the general heritage context of the area and a background search of other Cultural Resource Management (CRM) projects in the area was made via the South African Heritage Resources Information Systems (SAHRIS) database. Further information was derived from ACO Associates' in-house database and library. Reference to specific consulted reports and publications is made in the text where we describe the heritage resources that exist in the study site.

FINDINGS AND RECOMMENDATIONS

Overall we find that the proposed 132/66kV powerline and associated infrastructure will result in little loss of heritage resources. The summary of impacts and mitigation can be found in Table 7.1.

Pre-colonial heritage

A number of pre-colonial heritage resources are located at sufficient distance not to result in any direct or indirect impacts from tower construction or provision of access. No mitigation has been proposed for any of these sites.

Historic built environment

The built environment is largely limited to surviving sections of the old Michell's Pass that can be found at places alongside the new road. The Old Toll house will not be impacted by the proposed activities, nor will a small stone structure above the pass to the west of Ceres, believed to be a military redoubt, which is located sufficiently far from the powerline not to experience any direct or indirect impacts.

Possible loss of built environment resources is primarily focussed on the construction and access to Tower 057. While the tower itself is located approximately 18 meters east of a well preserved section of Bain's old road, ESKOM have proposed using the Old Road for access during the construction and operational phases. To avoid impacts, the footprint of the construction at Tower 057 must be indicated on the ground by ESKOM and approved by the archaeologist. It may not impact on the old road. While use of the old road for access can probably be accommodated, no upgrade will be permitted, other than cosmetic (clearing loose surface debris, cutting back vegetation). Great care will have to be exercised when using vehicles on the old road section to prevent damage to the surface or to the original rock bollards along the edge. Some involvement of a heritage specialist is required with respect to the construction of Tower 57 prior to and possibly during construction. We would prefer that a small section of new road proposed to carry materials to the construction footprint at 057 was not built, but rather an alternative method of getting materials the short distance to the construction area was used (perhaps a small crane or other suitable method to minimise impacts to the old road).

Summary of impacts and mitigation

Impact	Significance rating		Preferred Alternative	Key mitigation / optimisation measures
	Before mitigation	After mitigation		
CONSTRUCTION PHASE IMPACTS				
Loss of pre-colonial archaeological resources during construction of powerline - towers	INSIGNIFICANT (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> No mitigation required
Loss of pre-colonial archaeological resources during construction of powerline - access roads	INSIGNIFICANT (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> No mitigation required
Loss of historical built environment during powerline construction - towers	LOW (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> Appoint an archaeologist to assist with monitoring of the initial construction activities at Tower 057, such as demarcation of the footprint and access roads. This shall be at the start of construction and thereafter as deemed necessary by the archaeologist (1-2 site inspections); Limit clearance and the footprint of construction activities to what is absolutely essential (see below); Construction may not damage the old road in any way and the 15x15 m (or less if short road not used) construction footprint must be defined and approved around Tower 057 prior to commencement of construction;
Loss of historical built environment during powerline	MED (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> Appoint an archaeologist to assist with monitoring of the construction activities such as the new short track section to the tower 057 position. Preferably, use a crane to deliver tower sections to the proposed position (approx. 18 meters from old road, (or suitable method to minimise impacts if crane not feasible);

Impact	Significance rating		Preferred Alternative	Key mitigation / optimisation measures
	Before mitigation	After mitigation		
construction – access				<ul style="list-style-type: none"> • Only limited clearing of loose debris and cutting back vegetation may occur on the old road to facilitate access; • Care must be exercised that no damage occurs when vehicles use the old road section; • Consult heritage specialist with respect to the placement of the short new track section (should it be necessary to use this – preferably not). • The old road is currently cut off by a permanent “Armco” barrier. It will have to be removed to provide access during construction. Some access control must be reinstated after construction is completed to prevent use by private vehicles.
Loss of historical built environment during powerline construction – access: new short road to construction area Tower 57	MED (-ve)	VERY LOW (-ve)		<ul style="list-style-type: none"> • Appoint an archaeologist to monitor access and construction activities at this site; • Preferably, use a crane (or other suitable method) to deliver tower sections to the proposed construction area (approx. 18 meters from old road); • Care must be exercised that no damage occurs to the old road when vehicles access the tower 57 area;
OPERATIONAL PHASE IMPACTS				
Loss of historical built environment during powerline maintenance	VERY LOW (-ve)	VERY LOW (-ve)	n/a	<ul style="list-style-type: none"> • Only cosmetic modifications permitted when accessing the road for maintenance (bush cutting, clearing loose debris); • Care must be exercised that no damage occurs when vehicles use the old road section; • The old road is currently cut off by a permanent “Armco” barrier. It will have to be removed to provide access during construction. Some access control must be reinstated after construction is completed to prevent use by private vehicles between maintenance periods.

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GLOSSARY

Archaeological	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.
Baseline	Information gathered at the beginning of a study which describes the environment prior to development of a project and against which predicted changes (impacts) are measured.
Construction Phase	The stage of project development comprising site preparation as well as all construction activities associated with the development.
Cumulative Impacts	Direct and indirect impacts that act together with current or future potential impacts of other activities or proposed activities in the area/region that affect the same resources and/or receptors.
Environment	The external circumstances, conditions and objects that affect the existence of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Environmental Authorisation	Permission granted by the competent authority for the applicant to undertake listed activities in terms of the NEMA EIA Regulations, 2014.
Environmental Impact Assessment	A process of evaluating the environmental and socio-economic consequences of a proposed course of action or project.
Environmental Impact Assessment Report	The report produced to relay the information gathered and assessments undertaken during the Environmental Impact Assessment.
Environmental Management Programme	A description of the means (the environmental specification) to achieve environmental objectives and targets during all stages of a specific proposed activity.
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
Impact	A change to the existing environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities.
Mitigation measures	Design or management measures that are intended to minimise or enhance an impact, depending on the desired effect. These measures are ideally incorporated into a design at an early stage.
Operational Phase	The stage of the works following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation.
Palaeontological	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.
Scoping	A procedure to consult with stakeholders to determine issues and concerns and for determining the extent of and approach to an EIA and EMP (one of the phases in an EIA and EMP). This process results in the development of a scope of work for the EIA, EMP and specialist studies.
Specialist study	A study into a particular aspect of the environment, undertaken by an expert in that discipline.

Stakeholders	All parties affected by and/or able to influence a project, often those in a position of authority and/or representing others.
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. Generally protected structures are those which are over 60 years old.

ACRONYMS AND ABBREVIATIONS

BA	Basic Assessment Process
CRM	Cultural Resource Management
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age >~3000 0000 years –~ 1.1 Million years
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape – Provincial Heritage Authority
kV	Kilo Volt
LSA	Late Stone Age <~20 000 years
MSA	Middle Stone Age – between ~300 000 and ~20 000 years
MVA	Megavolt amperes
NEMA	National Environmental Management Act 107 of 1998, as amended
NHRA	National Heritage Resources Act of 1999
NID	Notice of intent to Develop – application to HWC at inception of the project
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency – the National Heritage Authority
SAHRIS	South African Heritage Resources Information System
S&EIR	Scoping and Environmental Impact Reporting
SRK	SRK Consulting (South Africa) (Pty) Ltd
ToR	Terms of Reference
VIA	Visual Impact Assessment

1. INTRODUCTION

1.1 Background

ACO Associates cc has been requested by SRK Consulting on behalf of Eskom Holdings SOC Limited to undertake a Basic Assessment Report of the impacts on heritage resources from the proposed Eskom Romansrivier to Ceres 132/66kV overhead powerline, south west of Ceres and to the east of the R43 and along the R46 routes in the Western Cape (Figure 1). A “Notice of Intent to Develop” (NID) application was submitted to Heritage Western Cape on the 6th July 2017 and in their response of 27th July, (see Appendix C), HWC requested that an HIA be conducted with integrated findings consisting of a Visual Impact Assessment and Archaeological Impact Assessment. Having looked at the proposed activity, the Palaeontologist Dr John Almond concluded that no significant impacts on Palaeontological resources would result from the activity and hence no Specialist Palaeontological assessment was required for the HIA. The comments of the municipality and the registered conservation body for the area should also be included. The operator of the Ceres Railway is a registered I&AP and their comments will be canvassed as part of the EIA process. . This AIA will be included as an Annexure to the HIA also being prepared by ACO Associates cc. No registered heritage conservation bodies are however listed on HWC’s website for the affected area when consulted on 1 August 2017¹.

1.2 Terms of Reference

The generic ToR and principal objectives for each specialist study are to:

- Describe the existing baseline characteristics of the study area and place this in a regional context;
- Identify and assess potential impacts of the project and the alternatives, including impacts associated with the construction and operation phases, using SRK’s prescribed impact rating methodology (Appendix F);
- Indicate the acceptability of alternatives and recommend a preferred alternative (where applicable);
- Identify and describe potential cumulative impacts of the proposed development in relation to proposed and existing developments in the surrounding area;
- Recommend mitigation measures to avoid and/or minimise impacts and/or optimise benefits associated with the proposed project; and
- Recommend and draft a monitoring campaign, if applicable.

The main deliverable from each specialist will be an impact assessment report with appropriate maps, drawings and figures. Reports will consist of the following components:

- Baseline description: a description of the environment of the study area in its current state, relevant to the specialist’s field of study; and
- Impact assessment: an assessment of how the proposed project will alter the *status quo* as described in the baseline description, and recommended measures to mitigate and monitor impacts.

Specialists should determine the spatial scope of their assessments using their professional judgment.

1.3 Assumptions and limitations

- We assume that the information provided by ESKOM is accurate;
- We assume that the information provided in consulted reports and publications is accurate.

¹ <http://www.hwc.org.za/conservation-bodies>

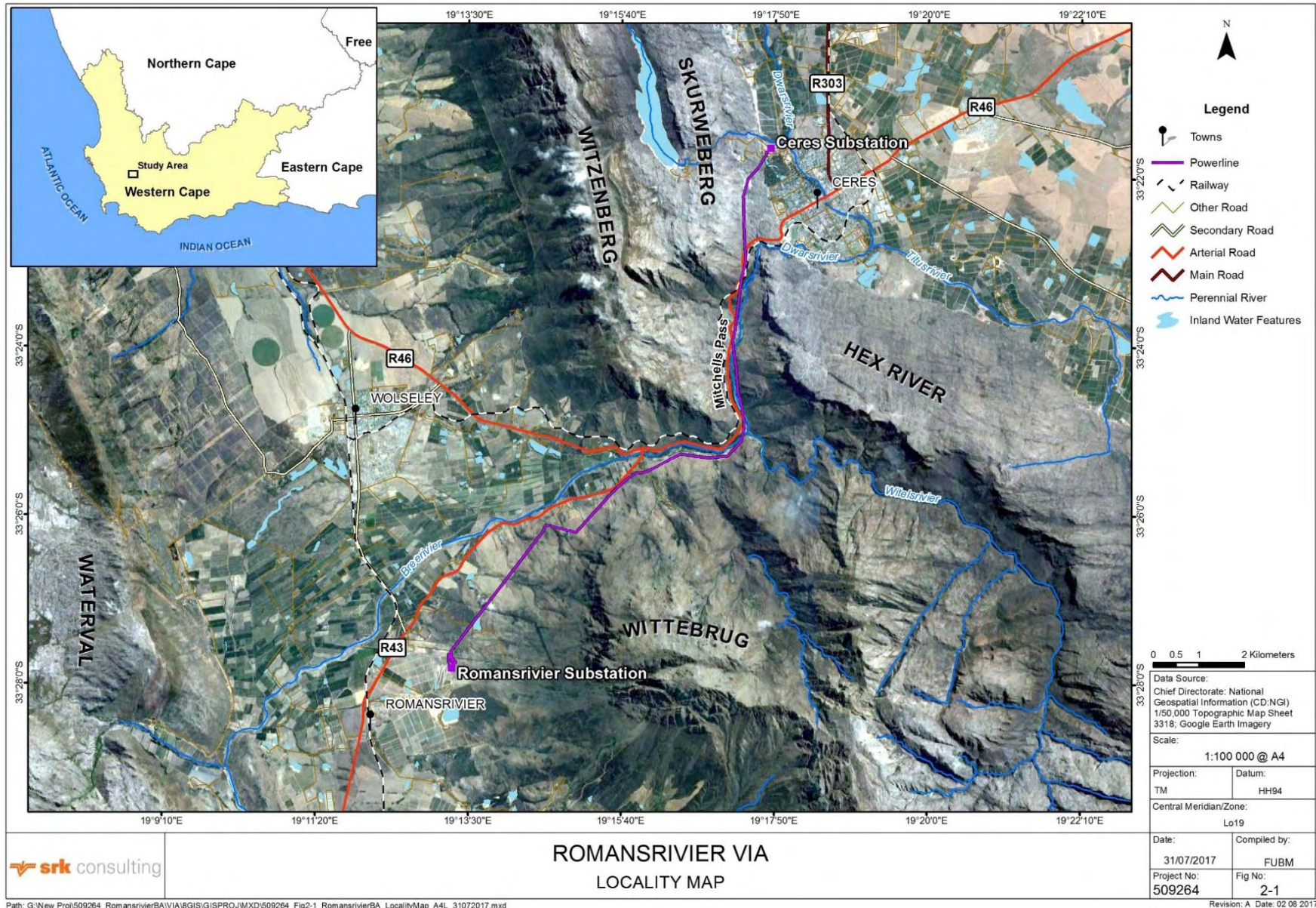


Figure 1.1: The location of the proposed powerline route and sub-stations in local context.

1.4 Information on heritage resources from previous heritage projects in the area

Relevant unpublished heritage reports for the powerline and substation site area was found on the SAHRIS database, and published includes the broad discussion of the Ceres valley and its history by Bulpin (1986) and Fransen (2006). The description of Michell's Pass (Ross 2002: 24-31) has been useful with respect to the history. There has been no detailed study for this project of the histories of the farms.

2. PROJECT DESCRIPTION

2.1 Project motivation and technical data

Eskom proposes to construct a ~20 km double circuit powerline (132/66 kV) from the existing Romansrivier Substation near Wolseley to the existing Ceres Substation. The project is required to provide additional electricity to the region. Key aspects of the project include:

- Installation of a 80MVA 132/66/11kV transformer at the Romansrivier substation to supply the new 132 kV line to Ceres;
- Construction of a double circuit distribution powerline (132kV and 66kV) between Romansrivier and Ceres substations;
- Installation of a 132 kV and 66kV feeder[1] bays at Romansriver substation and a 66kV feeder bay at Ceres substation to accommodate these lines;
- Construction of new access roads;
- Upgrading of various existing roads; and
- Decommissioning of the existing 66 kV line between the Romansriver and Ceres substations.

Access for construction purposes is going to be a major challenge. As such various existing roads will need to be upgraded and new access roads will be constructed. Construction of roads and bridges over/through watercourses may be required. The positions and layout of roads, and final tower positions have been determined following a baseline study and specialist walkdown.

Design alternatives may include lattice structures, monopoles and wood poles. Due to construction challenges, the current engineering design for the line predominantly caters for lattice steel and limited steel monopole structures which is the preferred design alternative. The use of wood poles is not preferred.

Certain towers will be helicopter assisted builds where environmental sensitivities prevent access by roads.

2.2 The scope of electrical works

- Build Romansrivier-Ceres ~20km Double Circuit 132 & 66kV line
- 300 meter corridor for the line route
- 1 x 132kV feeder bay at Romansrivier substation
- 1 x 66kV feeder bay at Romansrivier and Ceres substation (Test and commission existing 66kV feeder bay at Romansrivier)
- Install 1x80MVA 132/66/11kV transformer at Romansrivier
- Various new road constructions and road upgrades for access purposes.

2.3 Need for the project

The Witzenberg 132/66/11kV 2x80MVA substation provides a 66kV input point to agricultural, residential and commercial loads in the Witzenberg area. The main and only supply into Witzenberg substation is from Romansrivier substation via a single circuit 132kV Bear line. Three 66kV feeders out of Witzenberg supply several 66/11kV and 66/22kV substations. There is also a 11kV supply point at Witzenberg itself.

2.4 List of affected properties

See Appendix D, for owner details and a list of erven/farm portions as provided by ESKOM.

2.5 Powerline alternatives

Two routes were originally evaluated by Eskom i.e. a Mountain route and a River route. Eskom is applying for the river option as this was investigated to be the only financial and technical feasible route. The mountain route was screened out but due to feedback from Cape Nature and the relevant land owners and is not being considered or applied for.

The preferred river route was proposed by ESKOM and it was evaluated as part of a Baseline study by various specialists in May 2017. A number of issues with respect to environmental and heritage sensitivity were raised with respect to proposed layout of infrastructure. Subsequently, a walkdown of the proposed route was undertaken by specialists and ESKOM representatives on 23 and 24 May 2017. The issues raised in the baseline study were discussed on site and alternative infrastructure positions were proposed in sensitive areas. Most of the issues were to do with botanical and freshwater resources, while heritage issues were raised in relation to infrastructure build in proximity to surviving sections of the old Michell's Pass built by Andrew Geddes Bain in 1848.

The proposed alternate positions recommended by specialists were evaluated by the engineering division to determine where changes could technically be accommodated. Finally in July, ESKOM provided a new set of plans which encapsulated proposed specialist changes that could be accommodated. These included shifting tower positions and changing alignments of proposed construction roads. In some cases, access roads were done away with altogether in favour of helicopter assisted builds in sensitive areas.

2.5.1 The No-Go Alternative

The No-Go Alternative will retain the *status quo* and involve no construction of a powerline

2.6 Date and season of the site investigation

The Archaeological Impact assessment was conducted on the 9 – 11, and 23 - 24 May 2017. We experienced no limitations from a vegetation point of view in making our surface observations across the proposed route area.

3. METHODOLOGY

3.1 Literature review

A survey of available literature was carried out to assess the general heritage context of the area and a background search of other Cultural Resource Management (CRM) projects in the area was made via the South African Heritage Resources Information Systems (SAHRIS) database. Further information was derived from ACO Associates' in-house database and library. Reference to specific consulted reports and publications is made in the text where we describe the heritage resources that exist in the study site.

3.2 Data gathering

A three day field assessment was undertaken from 9-11 May 2017 by Mr D Halkett and Mr R Mclver of ACO Associates cc. The survey time was sufficient to determine the range and distribution of heritage resources across the entire route (Romasrivier s/s to Ceres s/s). Many of the route sections were assessed on foot, while others were assessed from the vehicle, particularly in areas where the powerline route was through previously or currently cultivated land. Visibility of heritage resources was considered to be generally good to excellent along the route and there were almost no limitations in terms of accessing the route. The inspection of some sections along Michell's Pass were rendered

difficult where alien vegetation cutting left a dense mat covering the ground, but overall we do not believe that not specifically looking at those areas detract from our overall conclusions.

Additional data was collected during the combined ESKOM and specialist walkdown on 23 and 24 May 2017 where the ACO was represented by Mr D Halkett.

All the landowners (whose contact details were provided by ESKOM Appendix D) that were contacted for access to properties, granted permission. Our search tracks were recorded by means of a Garmin GPS receiver to document search areas (Figures 3.1 to 3.3, Table in Appendix E), and any identified heritage sites were assigned Lat-Lon co-ordinates, described and photographed. The list of heritage resources and other observations are listed in Appendix E. In some cases we recorded features in the landscape that were of obvious recent age, in order to record the presence where it may be useful for design or other purposes (e.g. indications of an older powerline on or very close to the new powerline route above Ceres). The heritage resources have been graded for significance according to the system used by Heritage Western Cape as defined in the table in Appendix E.

The field assessment also enabled us to determine the extent of disturbance (both natural and man-made) of the landscape and record existing electrical infrastructure by taking photographs at a number of points along the route. We had also uploaded the locations of the very few previously recorded heritage sites with co-ordinates (only 2) in the event that these would need to be assessed if deemed to be impacted by the proposed new route.

3.3 Fieldwork observations

The powerline route can logically be divided into 3 sections following those defined by Masson (2017) in the VIA dated August 2017:

- **Southern section - the Tulbagh-Wolseley Valley:** The south-facing Tulbagh-Wolseley Valley is a narrow valley enclosed by the Witzenberg Mountains to the east, the Waterval and Obiekwaberg Mountains to the west and the Groot Winterhoek Mountains at the head of the valley. The town of Wolseley is situated on a natural watershed that divides the Berg River flowing north-west, and the Bree River flowing south into the Breede River. The Wittebrug Mountain juts out at this point, splitting the valley into two distinct areas.
- **Central section - The Michell's Pass (Bree River) Valley:** Michell's Pass (R46) is a scenic route from Tulbagh and Wolseley through the Witzenberg Mountains to Ceres. Michell's Pass follows the narrow valley of the Bree River. From its southern entrance near Wolseley, the pass ascends 190 metres to the summit at an elevation of 490 m before descending a short distance into Ceres (Wikipedia, 2017). A mountainous area occurs between the head of the Pass to the west of Ceres and the sub-station.
- **Northern section - The Ceres Valley:** The Ceres Valley (also known as the Warm Bokkeveld Valley) is enclosed by the Skurweberg Mountains to the west, the Hex River Mountains to the south and the Gydoberg Mountains and Waboomberg Mountains to the north. The landscape rises gently across the western and central portions of the valley (town of Ceres at approximately 460 m above sea level), but then rises sharply at the foothills in the east. Gydo Pass (R303) in the north of Ceres Valley connects the Warm Bokkeveld with the higher altitude Koue Bokkeveld.

3.3.1 Archaeological resources

Few archaeological resources were located in the southern section apart from those few ESA implements described by Kaplan. Only a small section of the route (close to Ceres s/s) lies in the northern section and no heritage resources were found there. Most of the heritage resources were in fact found in the Central section of the route. Route sections showing search tracks and heritage resources are presented in Figures 2-4, while a Table describing and grading all the heritage resources is presented in Appendix E. Significant heritage resources are discussed below:

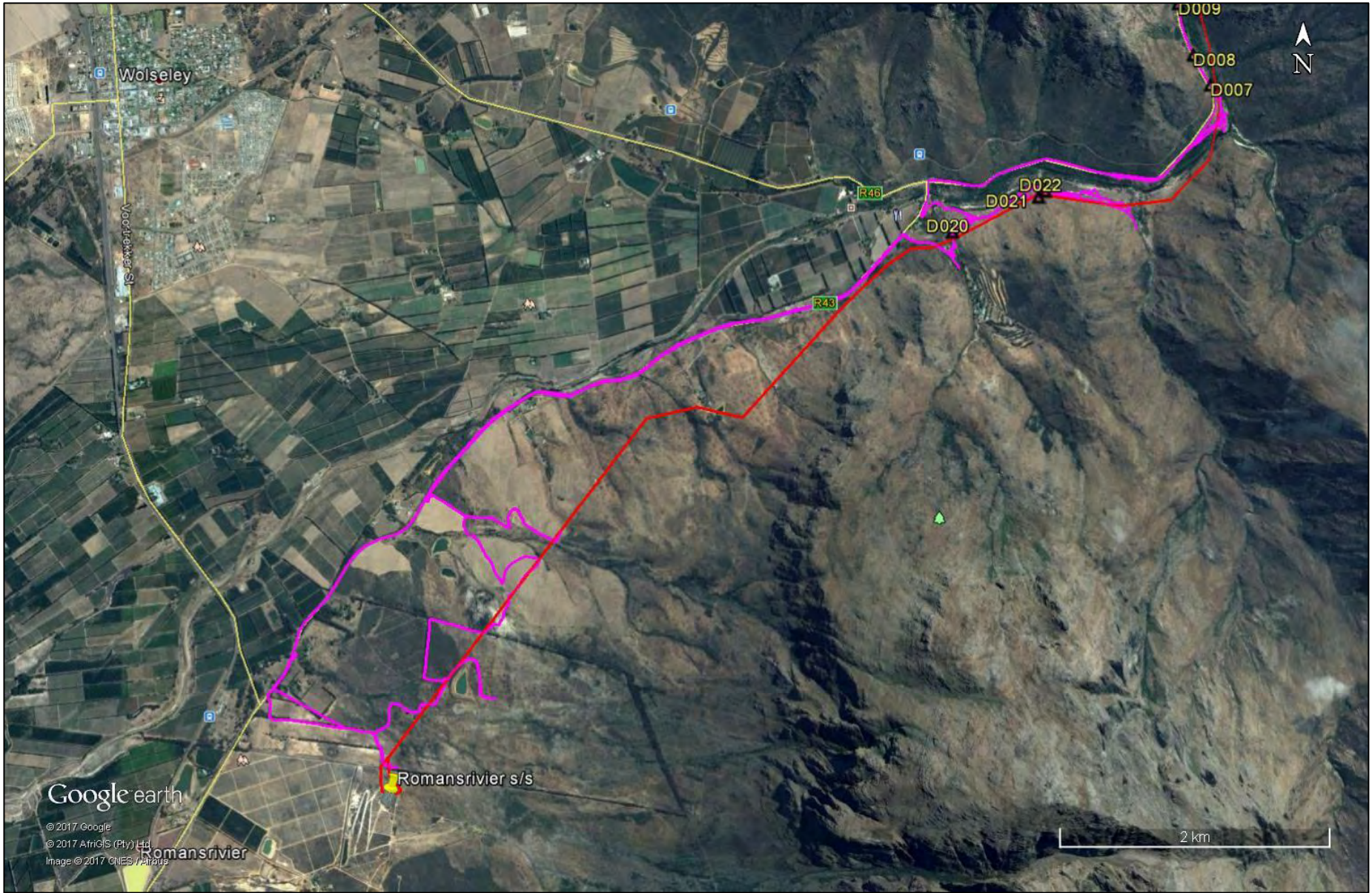


Figure 3.1: Southern Section - powerline (red) tracks (magenta), heritage resources (black triangles with labels)

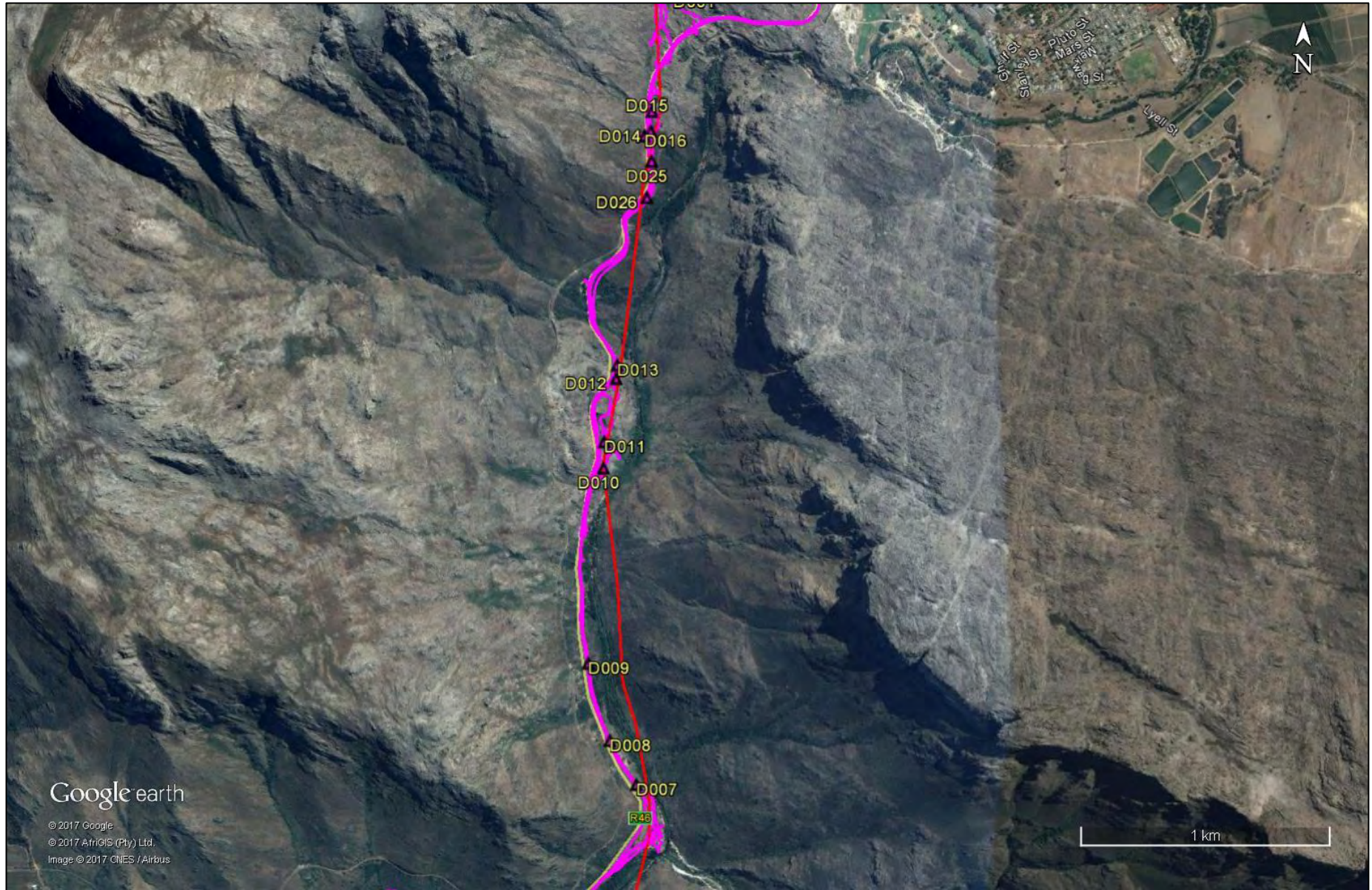


Figure 3.2: Central Section (1) - powerline (red) tracks (magenta), heritage resources (black triangles with labels)



Figure 3.3: Central Section (2) - powerline (red) tracks (magenta), heritage resources (black triangles with labels)

3.3.1.1 Pre-colonial sites

The site D020 is a small rock “overhang” with a flattish rocky/sandy floor. Some Later Stone age artefacts were noted on the floor and included quartz flakes, chips and chunks, and one edge damaged river cobble. The site is disturbed and there is modern glass and wood in the area. A single possible faded rock painting appears on the rock wall. It is not possible to determine what it might have been. It has limited heritage value (Grade IIIC). Lying 40 meters north of the powerline, it is unlikely to be impacted by any of the activities.

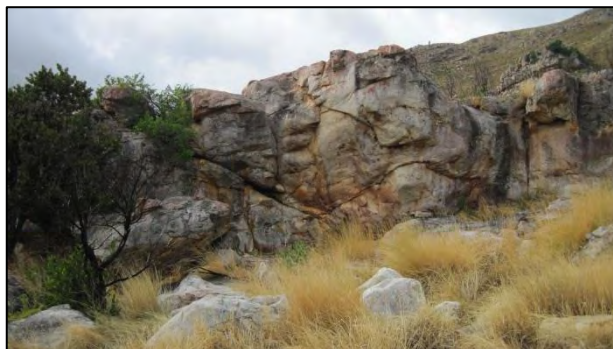


Plate 3.1: A small rock wall (D020) contained an ephemeral scatter of late Stone Age artefacts and one possible faded rock painting.

Site D027 (K001) is a large sandstone overhang with several rock paintings and an associated Later Stone Age artefact scatter located in 2005 by Kaplan about 150 m east of the existing 66 kV powerline above the town of Ceres. The artefacts include both modified and unmodified tools in fine-grained silcrete and pebble quartz, as well as coarse-grained quartzite's. Several pieces of red ochre were also noted, including one ground piece. One piece of blackened, coarse tempered LSA pottery was found. This is a significant heritage resource which we have graded IIIA. As it lies some 200 meters east, it will not be impacted by the powerline or associated activities.



Plates 3.2 and 3.3: The large overhang D027 (K001) contains Later Stone Age artefacts and pottery as well as a number of relatively well preserved rock paintings. The image on the right is perhaps the most distinctive painted image.

D023 is a small recess on a boulder containing rock painting. The images include 3 left facing human figures with heads and legs painted in red ochre. Bodies not clearly visible due to fugitive paint (possibly white). No artefacts observed. We have graded this as IIIB. The site is at least 100 meters west of the powerline will not be impacted by the powerline or associated activities.



Plate 3.4: Three human figures are painted in a small recess on a boulder on the valley floor

D024 is a very localised open small surface MSA artefact scatter where artefacts are predominantly on grey silcrete. Some edge retouch noted. This lies some 80 meters east of proposed activities and will not be impacted. As there is no stratigraphic context or associated material we have graded it as III C.



Plate 3.5: A small localised surface MSA artefact scatter at D024

3.3.1.2 Built environment

3.3.1.2.1 The Toll House

The Old Tollhouse was built shortly after the completion of Michell's Pass in 1848. From 1 January 1849 toll charges were collected here on animals and vehicles. Since Michell's Pass opened up an easy route to the north and because, when diamonds were subsequently discovered, it was on the main route from the Cape, the tollhouse played an exceptionally important role. It was declared a national Monument in 1972 and is now a Provincial Heritage Site (Grade II).



Plates 3.6 and 3.7: The old toll house and signage

A building behind the toll house operates as a restaurant. The powerline lies some 250 meters to the east and at this point is down in the valley and is on the other side of the busy Michell's Pass road.

3.3.1.2.2 Remains of the old Bain road

Parts of the Old Pass built by Bain in 1848 are still evident to the east of the upgraded Pass To some degree, the original old stone retaining walls are in many places an integral part of the new road but are variably preserved along the way.

We have broadly graded all remaining sections of the old road as IIIA, as acknowledgement of the importance of Michell's Pass to the history of Ceres in particular, and also providing access to the interior. Sections of the Pass with preserved road surfaces and dry stone walling embankments with culverts are the most impressive remnants (D014, D01, D016).

Some acknowledgement in signage of the presence of the old toll road is made at the Old Toll house, but other than that, there is no indication or additional signage indicating where the old road was, or where sections can still be seen. This despite the fact that one of the new "lay-byes" is placed directly on top of a well preserved section of the old road with fine stone embankment walls.

For the most part, the construction of the powerline will not impact remaining sections of the old road. The position of Tower 057 lies close to a section of the old road that is fairly well preserved though neglected. The intention is to use the remaining section of the old road to provide access to this tower during the construction phase (Figure 6.1). The position was adjusted marginally to the east after the walkdown.



Plate 3.8: A section of the old road embankment can be seen lying to one side of the new pass.



Plate 3.9: A section of old embankment and road next to the pass has been resurfaced and is used as a lay-bye (D016)



Plate 3.10: A section of the old road curves around behind a rocky koppie (D014). The characteristic rock bollards can be seen along the outer edge. ESKOM have proposed using this as an access road during construction.



Plate 3.11: A well preserved dry packed stone embankment wall (D015).



Plate 3.12: Looking back towards where Tower 057 will be erected. The embankment wall (D015) can be seen at right. The old 66kV powerline can be seen at left.

3.3.1.3 “Anglo Boer war” structure

A roughly constructed dry stone structure approximately 4x2 meters dimensions (D001). The walls are thick at approximately 1 meter and there is no evidence of a roof ever having been present. Although the position offers only glimpses of the Pass below, the position does have good sight of the natural passage through the mountains above the town of Ceres. It is an unlikely place for a kraal, though we cannot say unequivocally what the structure represents as there are no associated artefacts. Given the presence of similar structures on other mountain passes in the western Cape (e.g. Tradouw Pass - Halkett personal observation), we believe the structure is likely to be a remnant of the Anglo Boer War. We have accordingly graded this IIIA. No impact is anticipated as it lies ~90 meters east of the powerline.



Plates 3.13 and 3.14: A small rectangular dry packed stone structure (D001) is believed to possibly be a redoubt from the time of the Anglo Boer War.

3.4 Impact assessment

Potential impacts of the proposed project were identified based on the baseline data, project description, review of other studies for similar projects and professional experience.

The significance of the impacts was assessed using the prescribed SRK impact rating methodology (Appendix F). The significance of an impact is defined as a combination of the consequence of the impact occurring and the probability that the impact will occur.

Practical mitigation and optimisation measures that can be implemented effectively to reduce or enhance the significance of impacts were identified. The impact significance was re-rated assuming the effective implementation of mitigation measures.

4. APPLICABLE LEGISLATION

The National Department of Environmental Affairs is the decision making authority acting in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and EIA Regulations (2014) in

terms of NEMA. In terms of Section 38 (8) National Heritage Resources Act (Act 25 of 1999) (NHRA), DEA must ensure that the evaluation of the statutorily defined broad range of heritage resources fulfils the requirements of the relevant heritage resources authority in terms of Section 38 (3) of the NHRA, and that any comments and recommendations of the relevant heritage resources authority with regard to proposed development have been taken into account prior to the granting of the consent.

4.1 Responsible heritage authority

In this case, the responsible Provincial Heritage Resources Authority for the Western Cape² is Heritage Western Cape (HWC). They have a defined process in order to achieve a final comment with respect to heritage resources.

In terms of Section 38 of the NHRA, the appointed Heritage Practitioner must submit a “Notice of Intent to Develop” (NID) form to the Provincial Heritage Resources Authority (PHRA) for initial adjudication of the project and to determine the need for, and scope of further specialist heritage studies. If it is clear from the NID that no significant heritage resources will be impacted, no further action in terms of heritage will be requested. The comment is submitted to the Environmental Assessment practitioner (EAP) for inclusion in the Environmental process. If the decision is that further studies are required, the PHRA will request that the additional specialist studies are done as part of an Integrated Heritage Impact Assessment (HIA). The integration is to ensure that there is a recommendation that takes into account the findings of the various requested specialist Heritage studies. The specialist studies may include studies undertaken routinely as part of the Environmental Impact Assessment (EIA) process e.g. a Visual Impact Assessment (VIA), but often include an Archaeological and/or Palaeontological Impact Assessment. If there is significant Built Environment heritage at the affected site, a study of the buildings and their significance could be requested.

In the case of the Romansrivier to Ceres 132/66kV powerline, HWC requested that an HIA be undertaken consisting of Archaeological and Visual Impact studies, and that the comments from any registered conservation body³ and the municipality be included. The requested specialist reports will be included as appendices of the integrated HIA, and comments of the Witzenburg Municipality will be included in the final BAR, once the HIA has been submitted to them for comment.

4.2 Grading of heritage resources

The significance of heritage resources is assessed according to the grading criteria established by the NHRA.

Table 4.1: Grading of Heritage Resources (only categories I, II and III are defined in the NHRA), but HWC have introduced additional categories under III).

Grade	Level of significance	Description
I	National	Of high intrinsic, associational and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources.
II	Provincial	Of high intrinsic, associational and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources.
IIIA	Local	Of high intrinsic, associational and contextual heritage value within a local context, i.e. formally declared or potential Grade 3a heritage resources.
IIIB	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3b heritage resources.

² The National Department for Heritage management is the South African Heritage Resources Agency (SAHRA). They are responsible for management of Heritage resources all provinces except the Western Cape and KwaZulu Natal. The submission process to SAHRA differs from that of HWC.

³ There are no registered heritage bodies listed on the HWC website for this area as of 1 August 2017.

IIIC	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3c heritage resources.
NCW		Not conservation-worthy – The Heritage Authority has applied its mind and the resource does not have enough heritage significance to be included in the National Estate. i.e. Insufficient Heritage Significance or “Ungradeable”. This category is important as not all old places or structures are significant in terms of the NHRA.
Not yet graded		The Heritage Authority has not yet applied its mind in order to determine a grading for the resource or there is not, yet, sufficient information to determine the grading.

5. BASELINE DESCRIPTION

5.1 Archaeological resources

The archaeologist, Mr J. Kaplan previously assessed components of the existing 66kV electrical infrastructure between Romansrivier and Ceres substations in 2005 and prior to that in 2004 had assessed the location of the Romansrivier substation itself and tie-in powerlines (Kaplan 2004, 2005). He noted that the proposed sub-station was located in an old borrow pit in the vicinity of which he found three Earlier Stone Age (ESA) quartzite flakes and two large split cobbles, and an ESA chunk in the access road. A search of the wider quarry area however failed to detect further artefacts. HWC approved the construction of the sub-station on 16 February 2005 (ref C13/3/6/2/1/1/1/1/C6).

In 2005 Eskom (Land Development) requested Mr Kaplan to undertake a specialist Phase 1 Archaeological Heritage Impact Assessment of the proposed Romansrivier to Ceres 66 kV powerline refurbishment (Kaplan 2005) required due to the fact that the existing 66 kV woodpole powerline was at that time more than 30 years old, and a section of about 5 kms had been destroyed by a fire in March/April 2004. Eskom proposed to refurbish the approximately 14 km long line from Romansrivier to Ceres using (for the most part) the same alignment as the old. Kaplan recorded a few Stone Age tools during the assessment but he noted that they were very thinly spread over the surrounding landscape. Most were located in access roads to the powerline servitude, while very few tools were found along the actual route itself. Where tools were noted in the servitude, they were mostly isolated finds. Several tools were found in the old gravel road below the powerline servitude alongside the Dwars (Breede) River at the bottom of Michell’s Pass. The tools comprised mainly unmodified Early Stone Age and several Middle Stone Age flakes but no formal tools were located. A pitted hammerstone (probably from the Later Stone Age) was found near Wolvekloof. All the artefacts were made on locally available quartzite river cobbles.

One rock painting site (which we have called K001 for the purposes of the current Baseline study mapping) was located by Kaplan about 150 m east of the existing 66 kV powerline above the town of Ceres. While he indicated knowledge of several other rock painting sites among the rocky outcrops and kopjes in the area above the town of Ceres, the locations of these sites are not indicated in the report (Kaplan 1995, 1998). The site K001 comprises a large sandstone overhang containing several paintings, some relatively well preserved, despite evidence of vandalism, graffiti and veld fire damage having affected the resources. Relatively large numbers of Late Stone Age tools were found inside and outside the overhang suggesting that it was used for occupation in the Late Stone Age. The artefacts include both modified and unmodified tools in fine-grained silcrete and pebble quartz, as well as coarse-grained quartzite’s. Several pieces of red ochre were also noted, including one ground piece. One piece of blackened, coarse tempered LSA pottery was found. Although he did not grade the site, we believe it should be IIIA as it is likely to have research potential.

No Stone Age artefacts or rock paintings were however recorded during a survey in 1995 by Kaplan of the nearby Koekedouw Dam in the kloof some 2 km to the west of the Ceres sub-station.

5.2 Places, buildings structures and equipment of cultural significance

The building of a rough road, known as Mostertshoek Pass by Jan Mostert in 1765 greatly improved access to the Ceres district in colonial times. Access was made even easier when Michell's Pass and Gydo Pass were built in 1848, and followed shortly thereafter by Bain's Kloof Pass in 1853. The founding of Ceres in 1854, indicated the rapidly increasing population of the area (Fransen 2004:377).

Michell's Pass is perhaps the most significant built environment resource identified on the powerline route. In order to understand the significance of this road, have included the description by Graham Ross in his book on the Mountain Passes of South Africa (Ross 2002: 24-31):

"In 1765, Jan Mostert, who farmed the lower reaches of the valley, built at his own expense an eight-mile (13-kilometre) road up the valley, for the use of which he justifiably charged a toll. It was a valued facility for all who passed that way. Andrew Geddes Bain built Michell's Pass, during the years 1846 to 1848 and it was named after Charles Michell, the Colony's Civil Engineer who had inspected and Surveyed both the Witzenberg – Skurweberg and the Mostertshoek Passes in 1830.

The next intervention was the widening and concrete surfacing of the pass by the Ceres Divisional Council, under the guidance and control of the then District Roads Engineer, John Williamson. The improvement of the road through the pass was long overdue when investigations started in about 1937, the urgency in this regard having been lessened by the provision of alternative transport facilities when the railway reached Ceres in 1912. Various routes were investigated, but it was finally decided to retain the general location as selected for the existing road a hundred years before. Grades were acceptable throughout, the steepest being three short sections of 1 in 12, and the work in the first stage concentrated on widening the roadway and on improving the curves to meet the needs of the traffic of those days. Most of the old dry-stone retaining walls and some of the impressive masonry culverts were incorporated into the new works.

Construction commenced in July 1938. Very little equipment was available, and the bulk of the work on this stage was completed by hand labour. When the widening and realigning had been completed, the Divisional Council had to deploy their unit elsewhere for a year or so before the second stage, the construction of the base-course and the actual surfacing, could be tackled. Owing to wartime restrictions it was not possible in 1942 to import bitumen for the permanent surfacing of the pass roadway, as had originally been intended. Facing up to this dilemma, the Cape Provincial Roads Department had carried out experiments with thin, unreinforced concrete surfacing, and on the basis of the results obtained on the Provincial Experimental Road it was decided to provide the pass with a 100-millimetre slab on a selected base-course. Work on the second stage started in August 1943. This was the first time that this type of construction had been carried out on a major project, and much innovative developmental detail had to be sorted out as the work progressed. The revamped pass was officially opened on 31 March 1946.

Later still, reconstruction to improved geometric and materials standards took place so as to meet the increased traffic requirements of the late twentieth century. Construction commenced during August 1988 and was completed by April 1992. The planning, detail design and construction were carried out departmentally by the Cape Provincial Roads Branch. This was a most tricky project as the work had to be planned and executed in such a manner that traffic was not unduly impeded, especially during the critical fruit-picking season, and a whole number of considerations had to be taken into account, especially when blasting. These included the railway, major Eskom powerlines and Post Office lines, as well as the fact that the road runs through the Ceres Nature Reserve.

The reconstructed pass was officially commissioned on 20 October 1992. It was nominated for a special award by the South African Institution of Civil Engineering. A section of Bain's original road and a number of examples of his stone Walling have been preserved for posterity.

The 150th anniversary of the opening of Andrew Bain's pass was celebrated on 5 December 1998 by a picturesque procession up the pass, speeches and the cutting of a ribbon on a section of Bain's original pass, the unveiling of a plaque commemorating the proclamation of the pass as a National Monument⁴.

⁴ There does not seem to be any record of the Pass ever having been declared on the SAHRIS database, but the Old Toll House is indeed a Grade II Provincial Heritage site.

No old buildings, structures, or features were recorded within the existing 66kV servitude examined by Kaplan.

6. IMPACT ASSESSMENT

6.1 Methodology for assessing impact

The assessment criteria provide by SRK in the ToR have been used for this assessment (Appendix F). Only one alternative “the River Route” was presented for assessment. Parts of the route have been changed following a baseline study and walkdown.

6.2 Potential impacts: construction phase

- Impacts on pre-colonial archaeological resources during the construction phase – erection of towers at specific sites;
- Impacts on pre-colonial archaeological resources during the construction phase – construction and/or upgrade of access roads;
- Impacts on built environment archaeological resources during the construction phase – erection of towers at specific sites;
- Impacts on built environment archaeological resources during the construction phase – construction and/or upgrade of access roads;

6.2.1 Impacts on pre-colonial archaeological resources during powerline construction – towers

No tower positions will directly impact any significant pre-colonial archaeological resources as these are all located some distance from the proposed alignment (Table 6.1).

The impact is assessed to be of **Insignificant**. No mitigation is required.

Table 6.1: Impacts on pre-colonial archaeological resources during powerline construction – towers

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Improbable	INSIGNIFICANT	– ve	High
Essential mitigation measures:								
<ul style="list-style-type: none"> • No mitigation is required for these resources 								
With mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Improbable	INSIGNIFICANT	– ve	High

6.2.2 Impacts on pre-colonial archaeological resources during powerline construction – access roads

No access roads will directly impact significant pre-colonial archaeological resources as these are all located some distance from the proposed activities (Table 6.2).

The impact is assessed to be of **Insignificant**. No mitigation is required.

Table 6.2: Impacts on pre-colonial archaeological resources during powerline construction – access roads

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Improbable	INSIGNIFICANT	– ve	High
Essential mitigation measures:								

• No mitigation is required for these resources								
With mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Improbable	INSIGNIFICANT	- ve	High

6.2.3 Impacts on historical built environment during powerline construction – towers

Although the powerline and associated access roads are located in proximity to the old Michell’s Pass, only the activities at Tower 057 are of any concern. The tower is close to sections of the old road that are better preserved here than elsewhere on the new pass. There is a section of the old road with rock “bollards” defining the edge going around behind a small rocky koppie and then crossing one of the original dry wall retaining embankments (see plates 3.10 - 3.12). The position of Tower 057 was shifted marginally to the east during the walkdown to avoid placement on the old road. At present there is no commemoration of this section of road, though there should be!

A small stone ruin at D001 is believed to possibly represent an old redoubt from the Anglo Boer War. It is sufficiently far from the activities not to suffer any direct impacts. It is located between Towers 059 and 060 which will be helicopter assisted builds and thus no access roads will be required in this area, lessening potential impacts.

Although we consider generally the placement of towers in relation to all built environment heritage resources, it is only Tower 057 where possible impacts may occur and Table 6.3 refers to that specific tower. The impact without mitigation is assessed to be of **low** negative significance and with the implementation of mitigation moves to **insignificant** positive.

Table 6.3: Impacts on historical built environment during powerline construction – towers

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Long-term 3	Medium 6	Possible	LOW	- ve	High
Essential mitigation measures:								
<ul style="list-style-type: none"> • Appoint an archaeologist to monitor the initial construction excavations of the tower 057, and then one to two visits thereafter as required. ESKOM to notify the archaeologist in reasonable time of the commencement of construction; • Limit clearance and the footprint of construction activities to what is absolutely essential (see below); • Construction may not damage the old road in any way and a clearly defined construction footprint (~15x15 m or less) around Tower 057 must be indicated on the ground and approved prior to commencement of construction; 								
With mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Improbable	INSIGNIFICANT	- ve	High

6.2.4 Impacts on historical built environment during powerline construction – access

As far as possible, access roads involve the re-use of existing tracks. These may require some upgrade during the construction phase. Similarly, short sections of new roads are required in places and have been assessed.

As with the construction of towers, it is only the access road/s at Tower 057 which are at issue and the impact Table 6.4 refers specifically to access at this point.

ESKOM have proposed using the section of the old road (see Figure 6.1, Plates 3.10 – 3.12) to provide access during construction. A smaller secondary new track of approximately 19 meters in length was proposed to link the existing access to the tower position. We would prefer that this short road was not used but nevertheless have assessed its potential impact.

There are few sections of the old pass that are as well preserved as a unit as there are in this location and impacts must therefore be restricted to absolute minimum and mitigation will be required.

While the use of the old road can probably be accommodated, no upgrade other than removal of loose rubble and cutting back vegetation will be possible. The rock bollards lining the road edge may not be moved. The position where the short new track (Fig. 6.1 – yellow) connects to the old road must be determined in consultation with the heritage specialist prior to construction.

Although we consider generally the placement of access roads in relation to all built environment heritage resources, it is only the access to Tower 057 where possible impacts may occur and Table 6.4a refers to that specific access road which is located on a well preserved section of Bain’s Old road. A short section of new track to link the access road to the tower is not favoured. If it is unavoidable to use the short track, the position where it links to the old Bain road must be decided in consultation with the heritage specialist (see Table 6.4b for impact assessment of the new road).

The impact without mitigation of using a part of the old road for access to Tower 57 is assessed to be of **low** negative significance and with the implementation of mitigation moves to **insignificant** negative.

Construction of a new access road from the old road to the construction area is assessed to be of **medium** negative significance without mitigation (if the road is built), and if the road is not built and alternate means are used for getting materials a relatively short distance to the tower site, then impact is lowered to **insignificant** negative.

Table 6.4a: Impacts on historical built environment during powerline construction – access

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Long-term 3	Medium 6	Probable	MEDIUM	- ve	High
Essential mitigation measures:								
<ul style="list-style-type: none"> • Appoint an archaeologist to monitor construction activities such as the new short track section to the tower 057 position (if used). Preferably, use a crane (or other suitable method) to deliver tower sections to the proposed position (approx.. 18 meters from old road); • Only limited clearing of loose debris and cutting back vegetation may occur on the old road to facilitate access ; • Care must be exercised that no damage occurs to the old road when vehicles access tower 57 area; • Consult heritage specialist with respect to the placement of the short new track section (should it be necessary to use this – preferably not). • The old road is currently cut off by a permanent “Armco” barrier. It will have to be removed to provide access during construction. Some access control must be reinstated after construction is completed to prevent use by private vehicles. 								
With mitigation	Local 1	Low 1	Short-term 1	Very Low 3	Possible	INSIGNIFICANT	- ve	Medium

Table 6.4b: Impacts on historical built environment during powerline construction – new short construction road access road to tower 57

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Medium 2	Long-term 3	Medium 6	Probable	MEDIUM	- ve	High
Essential mitigation measures:								
<ul style="list-style-type: none"> • Appoint an archaeologist to monitor access and construction activities at this site; • Preferably, use a crane (or other suitable method) to deliver tower sections to the proposed construction area (approx. 18 meters from old road); • Care must be exercised that no damage occurs to the old road when vehicles access the tower 57 area; 								
With mitigation	Local 1	Low 1	Short-term 3	Low 5	Possible	VERY LOW	- ve	Medium

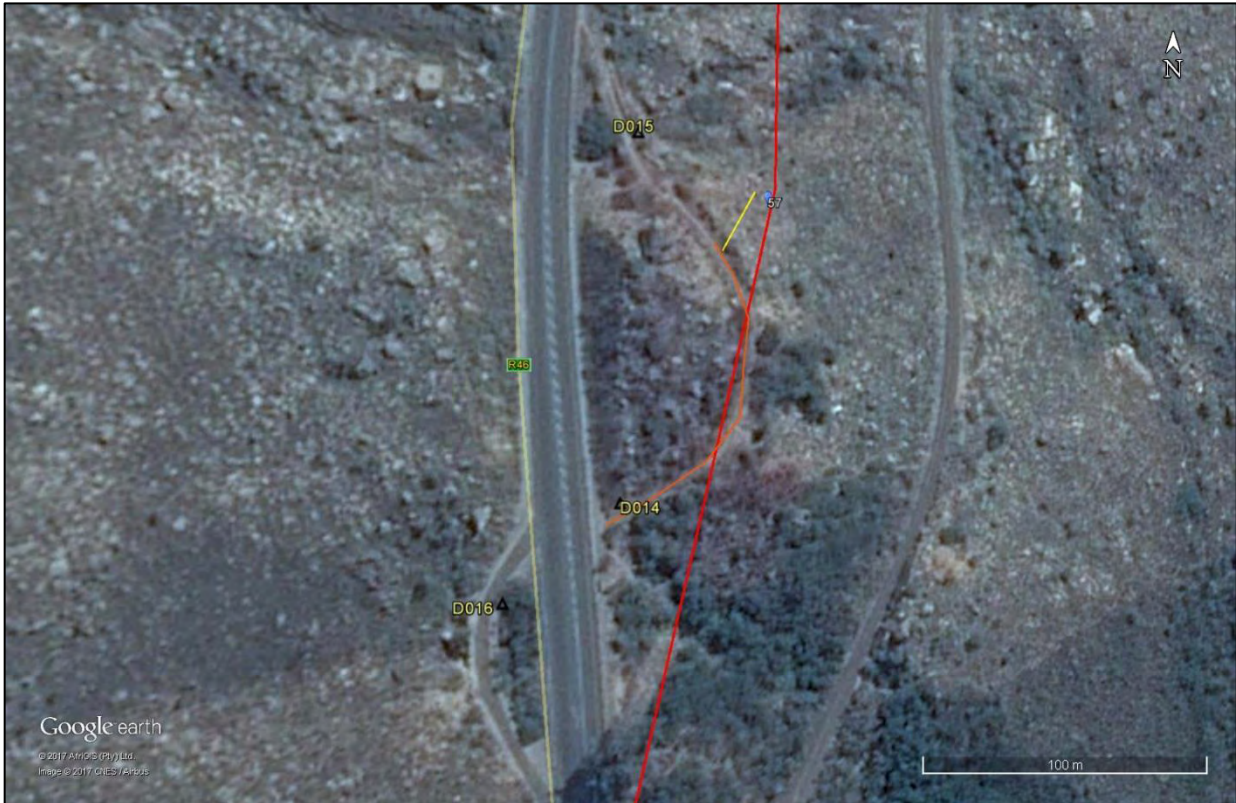


Figure 6.1: Detail of proposed activities at Tower 057. Existing access road proposed for access (brown), new track (yellow), powerline (red line), tower position (blue pin)

6.3 Potential impacts: operational phase

- Impacts on archaeological/heritage resources resulting from ongoing maintenance of the powerline;

6.3.1 Impacts on historical built environment during powerline maintenance

In general we would expect most impacts to be at the construction phase and be limited during the operational phase.

It is only the use of the old Bain road for access to Tower 057 during the operational phase which will result in possible impacts. As with the construction phase, no changes other than cosmetic may occur when requiring access for maintenance purposes. Table 6.5 refers specifically to the use of the access road at Tower 057.

The impact without mitigation is assessed to be of **very low** negative significance and with the implementation of mitigation moves to **insignificant** negative.

Table 6.5: Impacts on historical built environment during powerline maintenance

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	Local 1	Low 1	Long-term 3	Low 5	Probable	VERY LOW	- ve	Low
Essential mitigation measures: <ul style="list-style-type: none"> • Only cosmetic modifications permitted when accessing the road for maintenance (bush cutting, clearing loose debris); • Care must be exercised that no damage occurs when vehicles use the old road section; • The old road is currently cut off by a permanent “Armco” barrier. It will have to be removed to provide access during construction. Some access control must be reinstated after construction is completed to prevent use by private vehicles. 								
With mitigation	Local 1	Low 1	Short-term 13	Low 5	Possible	VERY LOW	- ve	Low

6.4 Cumulative impacts

Cumulative impacts on heritage resources generally appear to be fairly limited overall. The previous 66kV woodpole powerline was assessed and no heritage sites were impacted then. The greatest impact was the construction of the new pass on Bain’s old road (Michell’s Pass) which largely obliterated most of the old route. Sections of old embankment walls can be found along the edge of the new road. Some small sections of well-preserved embankment walls with the old road surface are present between the Old Toll House and Ceres. One section has been resurfaced and is now used as a lay-bye.

Although at present, there is little acknowledgement of any of the old road (apart from some unsatisfactory signage at the Toll House), the old Pass remains an important part of the history of Ceres and the history of South Africa. Additional impacts to the old road would definitely be of local significance, but given its more broad importance to the history, can probably be extended to Regional and National scales.

Indirect impacts are expected to be very limited to non-existent.

6.4.1 The “No Go” option.

If the no-go option is invoked, the status quo would be maintained and natural and man-made processes would continue to act on the heritage resources.

7. FINDINGS AND RECOMMENDATIONS

Overall we find that the proposed 132/66kV powerline and associated infrastructure will result in little loss of physical heritage resources. The summary of impacts and mitigation can be found in Table 7.1.

7.1 Pre-colonial heritage

A number of pre-colonial heritage resources are located at sufficient distance not to result in any direct or indirect impacts from tower construction or provision of access. No mitigation has been proposed for any of these sites.

7.2 Historic built environment

The built environment is largely limited to surviving sections of the old Michell’s Pass that can be found at places alongside the new road. The Old Toll house will not be impacted by the proposed activities, nor will a small stone structure above the pass to the west of Ceres, believed to be a military redoubt, which is located sufficiently far from the powerline not to experience any direct or indirect impacts.

Possible loss of built environment resources is primarily focussed on the construction and access to Tower 057. While the tower itself is located approximately 18 meters east of a well preserved section of Bain's old road, ESKOM have proposed using the Old Road for access during the construction and operational phases. To avoid impacts, the footprint of the construction at Tower 057 must be defined and may not impact on the old road. While use of the old road for access can probably be accommodated, no upgrade will be permitted, other than cosmetic (clearing loose surface debris, cutting back vegetation). Great care will have to be exercised when using vehicles on the old road section to prevent damage to the surface or to the original rock bollards along the edge. Some involvement of a heritage specialist is required with respect to the construction of Tower 57 prior to and possibly during construction. We would prefer that a small section of new road proposed to carry materials to the construction footprint at 057 was not built, but rather an alternative method of getting materials the short distance to the construction area was used (small crane).

Table 7.1: Summary of impacts and mitigation

Impact	Significance rating		Preferred Alternative	Key mitigation / optimisation measures
	Before mitigation	After mitigation		
CONSTRUCTION PHASE IMPACTS				
Loss of pre-colonial archaeological resources during construction of powerline – towers	INSIGNIFICANT (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> No mitigation required
Loss of pre-colonial archaeological resources during construction of powerline – access roads	INSIGNIFICANT (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> No mitigation required
Loss of historical built environment during powerline construction – towers	LOW (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> Appoint an archaeologist to assist with monitoring of the construction activities at Tower 057; Limit clearance and the footprint of construction activities to what is absolutely essential (see below); Construction may not damage the old road in any way and a clearly defined construction footprint must be defined and approved around Tower 057 prior to commencement of construction;
Loss of historical built environment during powerline construction – access	MED (-ve)	INSIGNIFICANT (-ve)	n/a	<ul style="list-style-type: none"> Appoint an archaeologist to assist with monitoring of the construction activities such as the new short track section to the tower 057 position(if it is to be used). Preferably, use a crane (or other suitable method if crane not feasible) to deliver tower sections to the proposed position (approx. 18 meters from old road); Only limited clearing of loose debris and cutting back vegetation may occur on the old road to facilitate access;

Impact	Significance rating		Preferred Alternative	Key mitigation / optimisation measures
	Before mitigation	After mitigation		
				<ul style="list-style-type: none"> Care must be exercised that no damage occurs when vehicles use the old road section; Consult heritage specialist with respect to the placement of the short new track section (should it be necessary to use this – preferably not). The old road is currently cut off by a permanent “Armco” barrier. It will have to be removed to provide access during construction. Some access control must be reinstated after construction is completed to prevent use by private vehicles.
Loss of historical built environment during powerline construction – access: new short road to construction area Tower 57	MED (-ve)	VERY LOW (-ve)		<ul style="list-style-type: none"> Appoint an archaeologist to monitor access and construction activities at this site (if used); Preferably, use a crane (or other suitable method) to deliver tower sections to the proposed construction area (approx. 18 meters from old road); Care must be exercised that no damage occurs to the old road when vehicles access the tower 57 area;
OPERATIONAL PHASE IMPACTS				
Loss of historical built environment during powerline maintenance - access	VERY LOW (-ve)	VERY LOW (-ve)	n/a	<ul style="list-style-type: none"> Only cosmetic modifications permitted when accessing the road for maintenance (bush cutting, clearing loose debris); Care must be exercised that no damage occurs when vehicles use the old road section; The old road is currently cut off by a permanent “Armco” barrier. It will have to be removed to provide access during construction. Some access control must be reinstated after construction is completed to prevent use by private vehicles.

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Appendix A: Specialist CV

Details

Name: Mr David John Halkett

ID number: 5807235148080

Date of Birth: 23.07.1958

Company: ACO Associates cc (Registration 2008/234490/23)

Principal business: Archaeological/Heritage Impact Assessment

Position: Director (Principal investigator)

Profession: Archaeologist, Heritage Impact Assessor

Years with Firm: 8

Years' experience: 27

Previous employment: Archaeology Contracts Office, UCT, 24 years

Nationality: South African

HDI Status: White Male

Physical work address: Unit D17, Prime Park, 21 Mocke Road, Diep River 7800

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Education

1991: M.A. (Archaeology) University of Cape Town

1982: B.A. (Hons) (Archaeology) University of Cape Town

1980: B.A. University of Cape Town

1976: Pinelands High School (matric exemption)

Professional Qualifications

MA (Archaeology) UCT

Registered member of the Association of Southern African Professional Archaeologists (ASAPA)

Languages

First language – English

Second language – Afrikaans (speaking, reading and writing).

Expertise

Having co-directed the Archaeology Contracts Office at the University of Cape Town for 24 years (one of the first heritage resource management companies in South Africa), David is now a director of ACO Associates cc, which has taken over from the UCT operation and retains most of its staff. ACO Associates provides Heritage and Archaeological Impact Assessment services to a range of clients in order for them to comply with Environmental and Heritage Legislation. He is a long standing member of the Association of Southern African Professional Archaeologists (ASAPA) and an accredited Principal Investigator of the Cultural Resource Management (CRM) section. With 28 years of working experience in heritage impact assessments, conservation and archaeological research, he has worked in a wide variety of contexts and participated in over a thousand heritage projects ranging from Heritage and archaeological impact assessments, to mitigation of archaeological sites in suburban, rural and industrial (mining) situations. He is an accredited with ASAPA to act as a Principal Investigator on Earlier Middle and Later Stone Age sites, especially coastal shell middens and rock painting sites, and Colonial period sites. David's broad experience in heritage management has led to his participation as an advisor to the National Monuments Council up until 2000, and more recently he served as a member of two Heritage Western Cape regulatory committees, the Impact Assessment Review Committee (IACOM) and the Archaeology, Palaeontology and Meteorites Committee (APM), and he has served on occasion as a forensic consultant to the Missing Persons Unit of the National Prosecuting Authority (NPA). He has led field projects on behalf of both local and overseas research organisations, and continues to participate in archaeological research on an ad hoc basis. Research interests include aspects of the Middle Stone Age, Later Stone Age and Colonial era of southern Africa. He has co-authored a number of peer reviewed journal articles on these topics. ACO Associates cc has assisted on numerous

renewable energy projects in the Northern, Eastern and Western Cape and David has been personally involved in a number of these projects.

Summary of other experience

2008-present: Director and Principal Investigator: ACO Associates cc. Projects undertaken in the Eastern, Northern and Western Cape Provinces.

1988-2012: Principal Investigator and director: Archaeology Contracts Office, University of Cape Town. Projects undertaken in the Eastern, Northern and Western Cape Provinces.

1997: Junior Research Officer: Palaeoanthropology Research Unit, University of the Witwatersrand, (part time apt for one year) Cape Town based.

1984: Part time research assistant: Spatial Archaeology Research Unit, University of Cape Town

Relevant experience

Employment since 1988 has required management of all aspects of heritage projects, and management of the day to day functions of the business (including Financial, HR).

Powerline Projects selection

Halkett, D. 2013. An Assessment of the potential Impacts of an Informal Cemetery Situated on Ptn 32 of the Farm De Doorns 552 resulting from the upgrade of the 66kV between Hammanshof and Kwaggaskloof Substation near Worcester. Unpublished report prepared for SiVEST. ACO Associates cc.

Halkett, D. 2014. An Archaeological Study of the Proposed Eskom Blanco Substation and line project: Alternatives 1-7. Unpublished report prepared for Vidamemoria. ACO Associates cc.

Halkett, D. 2014. Proposed Eskom Longdown Substation and Vyboom Turn in Powerline near Villiersdorp, Western Cape. Unpublished report prepared for SiVEST. ACO Associates cc.

Halkett, D. 2015. Specialist Archaeological Assessment of an amendment of an authorised 132kV Powerline Route to the South east of Oudsthoorn, Western Cape. Unpublished report prepared for SiVEST. ACO Associates cc.

Halkett, D. & Webley, L. 2015. Archaeological Impact Assessment: Proposed Construction of a 132 kV powerline from The Rheboksfontein Wind Energy facility to the Aurora Substation, Western Cape. Unpublished report prepared for Savannah Environmental (Pty) Ltd. ACO Associates cc.

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Halkett, D. 2016. Heritage impact assessment of the proposed Eskom Merino 66kv substation and 24km Bon-Chretien to Merino 66kv powerline, Ceres. Unpublished report prepared for SRK Consulting (South Africa) (Pty) Ltd on behalf of Eskom Holdings SOC Limited. ACO Associates cc.

Published articles in peer reviewed journals

Avery, G., Halkett, D., Orton, J., Steele, T. & Klein, R. 2009. The Ysterfontein 1 Middle Stone Age Rock shelter and the Evolution of Coastal Foraging. South African Archaeological Society Goodwin Series 10: 66–89

Cruz-Uribe, K., Klein, R.G., Avery, G., Avery, D.M., Halkett, D., Hart, T., Milo, R.G., Sampson, C.G. & Volman, T.P. 2003. Excavation of buried late Acheulean (mid-quaternary) land surfaces at Duinefontein 2, Western Cape Province, South Africa. Journal of Archaeological Science 30, 559-575

- Dewar, G, Halkett, D, Hart, T., Orton, J. & Sealy, J. 2006. Implications of a mass kill site of springbok (*antidorcas marsupialis*) in South Africa: hunting practices, gender relations, and sharing in the later Stone Age. *Journal of Archaeological Science* 33, 1266-1275
- Finnegan, E., Hart, T. & Halkett, D. 2011. The 'informal' burial ground at Prestwich Street, Cape Town: cultural and chronological indicators for the historical Cape underclass. *South African Archaeological Bulletin* 66 (194): 136–148
- Halkett, D., Hart, T. and Malan, A. 2005. Bones of Contention: Archaeology and the Green Point burial grounds. *South African Museums Association Bulletin*. 30: 25-31
- Halkett, D., Hart, T., Yates, R., Volman, T.P., Parkington, J.E., Klein, R.J., Cruz-Uribe, K. & Avery, G. 2003. First excavation of intact Middle Stone Age layers at Ysterfontein, Western Cape province, South Africa: implications for Middle Stone Age ecology. *Journal of Archaeological Science* 30, 955-971
- Halkett, D.J. 1984. The archaeology of the Putslaagte. In Parkington, J.E. & Hall, M. eds. *Papers in the Prehistory of the Western Cape, South Africa*. BAR International Series 332 (ii)
- Hall, M., Halkett, D.J., Huigen van Beek, P. & Klose, J. 1990. "A stone wall out of the earth that thundering canon cannot destroy"? Bastion and Moat at the Castle, Cape Town. *Social Dynamics* 16 (1): 22-37
- Hall, M., Halkett, D.J., Klose, J. & Ritchie, G. 1990. The Barrack Street Well: images of a Cape Town household in the 19th century. *South African Archaeological Bulletin* 152: 73-92
- Hine, P., Sealy, J., Halkett D. & Hart T. 2010. Antiquity of stone-walled tidal fish traps on the cape coast, South Africa. *South African Archaeological Bulletin* 65 (191): 35–44
- Jerardino, A., Halkett, D., Hart, T., Kaplan, J., Navarro, R., & Nilssen, P. in prep. Filling-in the gaps and testing past scenarios on the central West Coast: hunter-gatherer subsistence and mobility at 'Deurspring 16' shell midden, Lamberts Bay, South Africa.
- Jerardino, A., Wiltshire, N., Webley, L., Tusenius, M., Halkett, D., Hoffman, M.T. & Maggs, T. 2014. Site distribution and chronology at Soutpansklipheuwel, a rocky outcrop on the West Coast of South Africa. *Journal of Island & Coastal Archaeology*.
- Klein, R.G., Avery, G., Cruz-Uribe, K., Halkett, D., Hart, T., Milo, R.G., Volman, T.P. 1999. Duinefontein 2: An Acheulean Site in the Western Cape Province of South Africa. *Journal of Human Evolution* 37, 153-190
- Klein, R.G., Cruz-Uribe, K., Halkett, D., Hart, T., Parkington, J.E. 1999. Palaeoenvironmental and human behavioural implications of the Boegoeberg 1 late Pleistocene hyena den, northern Cape province, South Africa. *Quaternary Research* 52, 393-403
- Klein, R.G., Avery, G., Cruz-Uribe, K., Halkett, D.J., Parkington, J.E., Steele, T., Volman, T.P. & Yates, R.J. 2004. The Ysterfontein 1 Middle Stone Age site, South Africa, and early human exploitation of coastal resources. *Proceedings of the National Academy of Sciences of the United States of America* 101: 5708–5715
- Malan, A., Webley, L., Halkett, D. & Hart, T. 2013. People and places on the West Coast since AD 1600. In: Jerardino, A., Malan, A., & Braun, D. Eds. *The Archaeology of the West Coast of South Africa*. BAR International Series 2526, 124-142
- Morris, A.G and Halkett, D.J. 2008. Fragmentary evidence: the analysis of the crushed human bone from the BP site, a secondary mass burial of historic skeletons from the Waterfront in Cape Town, South Africa. Paper presented at ASAPA conference, UCT.

Orton, J., Hart, T. and Halkett, D.J. 2005. Shell middens in Namaqualand: Two Later Stone Age sites at Rooiwalbaai, Northern Cape Province, South Africa. *South African Archaeological Bulletin*, 60 (181): 24-32

Orton, J. & Halkett, D. 2007. Excavations at Noetzie midden. *The Digging Stick* 24 (3)

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Orton, J., Halkett, D., Hart, T., Patrick, M. and Pfeiffer. 2015. An unusual pre-colonial burial from Bloubergstrand, Table Bay, South Africa. *South African Archaeological Bulletin*, 70 (201): 106–112

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Parkington, J.E., Yates, R., Manhire, A. & Halkett, D. 1986. The social impact of pastoralism in the south-western Cape. *Journal of Anthropological Archaeology* 5: 313-329

Smith, A., Halkett, D., Hart, T. & Mütti, B. 2001. Spatial patterning, cultural identity and site integrity on open sites: evidence from Bloeddrift 23, a pre-colonial herder camp in the Richtersveld, Northern Cape Province, South Africa. *South African Archaeological Bulletin* 56 (173&174): 23-33

Wilson, M.L. & Halkett, D.J. 1981. The use of marine shell for decorating Cape coastal (Khoisan) pottery. *South African Archaeological Bulletin* 36: 43-44

Books

Malan A., Halkett D., Hart T. and Schietecatte L. 2017. *Grave Encounters. Archaeology of the burial grounds, Green Point, South Africa.*

Appendix B: Declaration of Independence



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	
NEAS Reference Number:	
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014;

PROJECT TITLE

BA for the Proposed Eskom Powerline from Romansrivier to Witzenberg and the Proposed Prince Alfred Hamlet Substation
--

Specialist:	ACO ASSOCIATES CC		
Contact person:	DAVID HALKETT		
Postal address:	8 JACOBS LADDER ST JAMES		
Postal code:	7345	Cell:	073 141 8606
Telephone:	021 706 4104	Fax:	086 603 7195
E-mail:	DAVID.HALKETT@ACO-ASSOCIATES.COM		
Professional affiliation(s) (if any)			

Project Consultant:	SRK Consulting (South Africa) (Pty) Ltd		
Contact person:	Amy Hill		
Postal address:	Postnet Suite #206, Private Bag X18, Rondebosch		
Postal code:	7701	Cell:	081 461 7590
Telephone:	021 659 3060	Fax:	021 685 7105
E-mail:	ahill@srk.co.za		

4.2 The specialist appointed in terms of the Regulations_

I, DAVID HALKETT, declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

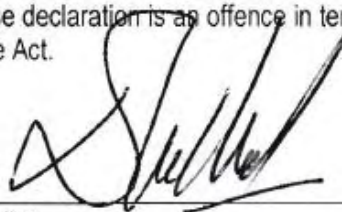
I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

ALO ASSOCIATEDS CC

Name of company (if applicable):

5TH AUGUST 2017.

Date:

Appendix C: HWC comment on the NID submission



Our Ref: HM/WITZENBERG/CERES/
ROMANSRIVIER-WITZENBERG 132KV POWERLINE
Case No.: 17070502AS0706E
Enquiries: Andrew September
E-mail: andrew.september@westerncape.gov.za
Tel: 021 483 9543
Date: 27 July 2017

David Halkett
8 Jacobs Ladder
St James
7945
david.halkett@aco-associates.com

RESPONSE TO NOTIFICATION OF INTENT TO DEVELOP: HIA REQUIRED
In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape
Provincial Gazette 6061, Notice 298 of 2003

NOTIFICATION OF INTENT TO DEVELOP: PROPOSED 132KV/66KV POWERLINE ON PORTIONS OF FARM 320, 305, 301, 302, 294, 1887, 263, 323, 1, 421, 289, 288, 1886, 316, 371, 371, 375, 374, 423, 374, 372 & 323 AND ERVEN 1001, 1002, 11884, 4963 & 5018 BETWEEN ROMANSRIVIER AND WITZENBERG SUBSTATION, WITZENBERG MUNICIPALITY, SUBMITTED IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

CASE NUMBER: 17070502AS0706E

The matter above has reference.

Heritage Western Cape is in receipt of your application for the above matter received on 06 July 2017.

You are hereby notified that, since there is reason to believe that the proposed powerline will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following:

- Impacts to archaeological heritage resources
- Visual impacts of the proposed development

The required HIA must have an integrated set of recommendations.

The comments of relevant registered conservation bodies and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied.

Please note, should you require the HIA to be submitted as a Phased HIA, a written request must be submitted to HWC prior to submission. HWC reserves the right to determine whether a phased HIA is acceptable on a case by case basis

HWC reserves the right to request additional information as required.

Should you have any further queries, please contact the official above and quote the case number.

Yours faithfully

.....
Mxolisi Dlamuka
Chief Executive Officer, Heritage Western Cape

www.westerncape.gov.za/cas

Street Address: Protea Assurance Building, Green Market Square, Cape Town, 8000 • **Postal Address:** Private Bag X9067, Cape Town, 8001
• **Tel:** +27 (0)21 483 5959 • **E-mail:** ceheritage@westerncape.gov.za

Straatadres: Protea Assuransiegebou, Groentemarkplein, Kaapstad, 8000 • **Posadres:** Privaatsak X9067, Kaapstad, 8001

Appendix D: List of affected properties and owners

NO	REGISTERED OWNER AND PROPERTY	ADDRESS	CONTACT PERSON	TELEPHONE	LAN
1	GRAAFF FRUIT Farm 320	P O Box 57 PA Hamlet 6840	Christi Van Der Heever (Manager) christi@graaff-fruit.com Robert Graaff (Director)	(072) 480 2531	Afr
2	PETER DICEY TRUST Farm 305	P O Box 30 Wolseley 6830	Nicholas De Villiers Dickey (Trustee) office@laplaisante.co.za Peter Dickey (Trustee) laplaisant@xpoint.co.za	(083) 235 7235 (023) 231 0956 (082) 411 6937	Eng
3	NEW MUNSTER TRUST Farm 301/4 Farm 301/1 Farm 302	P O Box 31 Wolseley 6830	Jacobus Petrus Kriel (Kobie) kobiekriel@hotmail.com	(023) 231 0869 (076) 673 2577	Afr
4	ROBERT MAY Farm 294/1	P O Box 239 Wolseley 6830	David John Robert May (Owner) May.Butch@gmail.com Ivan Plisic (Son in Law) Laura Plisic (Daughter) Laura@wilcos.co.za	(082) 458 2404 (082) 416 7447 (083) 701 7170	Eng
5	WITZENBERG MUNICIPALITY Erf 1001 Erf 1002 Erf 5137 Farm 1887	Po Box 44 Ceres 6835 Voortrek Str 53 Ceres 6835	Hennie Taljaard (Town Planner) Htaljaard@Witzenberg.gov.za Raymond Haywood (Supervisor) Anita Grobelaar (Secretary) Johan Swanepoel (Manager) Jswan@witzenberg.gov.za	(023) 316 1854 (083) 457 2375 (023) 316 8540 (083) 287 7747	Eng
6	JACOBUS WILLEM NAUDE Farm 421	P O Box 178 Wolsley 6830	Jacobus Willem Naude (Willie) wntwenty@gmail.com	(082) 551 7022	Afr
7	PENKELLY TRUST Farm 289	P O Box 217 Wolsely 6830	Clive Alfred Elgar The.Elgars@gmail.com	(084) 673 6999 (021) 797 1433	Eng
8	MATHOF CC Farm 2/291	P O Box 428 Ceres 6835	Steven Brian Matthews info@Hillbillyfarm.co.za	(084) 358 3003 (023) 312 3070	Eng
9	SAGGEUS CC Farm 291	Posbus 516 Ceres 6835	Karien Grobler Winterberg@breede.co.za Reint Grobler	(083) 408 0989 (023) 231 0860	
10	WESTERN CAPE GOVERNMENT CAPE WINELANDS Farm 288/1	PO Box 100 Stellenbosch PO Box 91 Worcester 6849	Wilmarie Neethling (Secretary) wilmari@capewinelandsgov.za admin@capewinelandsgov.za F Van Eck (Executive Director) francois@capewinelandsgov.za Stewart Bain (Roads Engineer) Stewart.Bain@westerncape.gov.za	(023) 348 2315 (083) 795 5677 (021) 888 5299 (021) 863 2020 (083) 641 5131	
11	REPUBLIECK SA Farm 1886	P O Box 168 Tulbagh 6820	Peter Viljoen Cape Nature Conservation	(023) 2300759	

FARM/ERF NAME	PORTION	ID	OWNER
ROMANSRIVIER NATURE RESERVE	RE/320	C0750000000003200000	GRAAFF FRUIT
LA PLAISANT	RE/305	C0750000000003050000	PETER DICEY TRUST
Null	4/301	C07500000000030100004	NEW MUNSTER TRUST
Null	1/301	C07500000000030100001	NEW MUNSTER TRUST
NEW MUNSTER	RE/302	C07500000000030200000	NEW MUNSTER TRUST
Null	421	C07500000000042100000	JACOBUS WILLEM NAUDE
Null	1/294	C07500000000029400001	ROBERT MAY
WATERVAL OUTSPAN	RE/289	C07500000000028900000	PENKELLY TRUST
WHITE BRIDGE	2/291	C07500000000029100002	MATHOF CC
WHITE BRIDGE	RE/291	C07500000000029100000	SAGGEUS CC
WOLVEKLOOF	1/288	C07500000000028800001	WESTERN CAPE GOVERNMENT: CAPE WINELANDS
ERF	1886	C01900010000188600000	REPUBLIC OF SA
ERF	1887	C01900010000188700000	WITZENBERG MUNICIPALITY
ERF	RE/1001	C01900010000100100000	WITZENBERG MUNICIPALITY
ERF	1002	C01900010000100200000	WITZENBERG MUNICIPALITY
ERF	5137	C01900010000513700000	WITZENBERG MUNICIPALITY
ROMANSRIVIER NATURE RESERVE	18/320	C07500000000032000018	? Romansriier s/s site
ERF	1498	C01900010000149800000	? Ceres s/s site

Appendix E: Archaeological/heritage resources table

LABEL	LAT S (dec deg)	LON E (dec deg)	DESCRIPTION	GRADING
K001 (D027)	33.37063300	19.29201700	Rock painting and artefact scatter site located in 2005 by Kaplan about 150 m east of the existing 66 kV powerline above the town of Ceres. Large sandstone overhang containing several paintings, some relatively well preserved – evidence of vandalism, graffiti and veld fire damage. Relatively large numbers of Late Stone Age tools were found inside and outside the overhang. The artefacts include both modified and unmodified tools in fine-grained silcrete and pebble quartz, as well as coarse-grained quartzite's. Several pieces of red ochre were also noted, including one ground piece. One piece of blackened, coarse tempered LSA pottery was found. 4520-4531.	IIIA
D001	33.37774199	19.29091603	Rectangular dry stone wall structure approx. 4x2 meters. Thick crude walls of approx. 1 meter thickness. No evidence of a roof. Either a kraal or a military redoubt (Anglo Boer). No artefacts observed and no "loop holes". No clear view of the pass. 4334-4339	IIIA
D002	33.37401104	19.28979898	2x modern eye bolts set into rock and near to a hollow cut-off metal pipe cemented into ground. Old powerline pole and stays. 4344	Ungradeable
D003	33.37165003	19.28988598	Concrete base with 4 bolts cemented in. Old powerline pole base. 4345-4347	Ungradeable
D004	33.37092499	19.28992898	as above	Ungradeable
D005	33.36840497	19.29003200	as above 4352	Ungradeable
D006	33.36333300	19.29412102	Hollow cut-off metal pipe cemented into ground. Old powerline pole	Ungradeable
D007	33.41356097	19.28928098	Section of old Bain road and stone retaining embankment (not good condition). 4360-4362	IIIA
D007a	33.41314003	19.28888996	Section of old Bain road and stone retaining embankment continued (not good condition) Approx 3m height. (obs007)	IIIA
D007b	33.41220000	19.28825000	Possible old road at bottom of slope below new road. The old road embankment not in good condition here.	Ungradeable
D008	33.41151402	19.28779897	Old Bain embankment in good condition approx. 4-5 m height (obs009)	IIIA
D009	33.40796697	19.28656197	Old Bain embankment in good condition. 4369-4371	IIIA
D010	33.39896296	19.28730402	Small stone walled structure against a natural boulder approx. 2 x 1.5m. Stonework is rough and unstructured. Unsure of use or age. Some recent informal human use. 4380-4383	Ungradeable
D011	33.39774700	19.28733302	Small section of retaining wall, 2 courses next to small stream. Old road? 4384-4385	Ungradeable
D012	33.39483798	19.28795001	Section of Bain retaining wall, 3-4 m height. Also some modern gabions chased in to support new culvert. 4388-4390	IIIA
D013	33.39421403	19.28801003	Roadside grave marker at a lay bye ("Hier het Jacobus W.A. Jordaan op 4 Feb 1953(?) op tragiese wyse verongeluk..."). These are not considered to be public monuments in terms of the NHRA. 4391	Ungradeable
D014	33.38366196	19.28976000	Section of old Bain road preserved in full and going behind a rock outcrop to west of exiting tar road. 4406-4410	IIIA
D015	33.38277499	19.28981197	A section of the old Bain road preserved in full with a significant retaining wall and culvert where the road crossed a gully. This is very well preserved. Just to south, the koppie appears to have been quarried, possibly to facilitate the old road and/or to provide additional construction material for the retaining wall. There is no acknowledgement of the old road. 4411-4412	IIIA
D016	33.38389498	19.28942598	A section of the old Bain road preserved in full with retaining walls. The road has been tarred and is now used as a lay by. There is no acknowledgement of the old road. 4413-4417	IIIA
D018	33.25507896	19.31884504	Water furrow. At the point, it was formally constructed with cement lining to the east, while the section to the west was unlined cut into the mountainside. 4466-4468	Ungradeable
D020	33.42372201	19.26791601	Small rock "overhang" with a flattish rocky/sandy floor. Some Late Stone age artefacts noted on the floor included quartz flakes, chips and chunks, and one edge damaged river cobble. The site is disturbed and there is modern glass and wood in the area. A single possible faded rock painting appears on the rock wall. It is not possible to determine what it might have been. 4502-4505	IIIC
D021	33.42132898	19.27502302	artificial man-made platform that includes a modern cement slab with "BH120" inscribed in the cement. Close by is a piece of cable attached to the bedrock. There were a number of places where it appeared that disturbance had occurred in the vicinity. Suspect there is a buried water pipe downslope to the north (see D022) (modern). 4511-4512. Views 4513-4514.	Ungradeable

D022	33.42088399	19.27563800	Box-like partial brick structure with hinged steel lid covering a stop cock. Linear disturbance to east and west suggests buried water pipe (modern). 4515-4516	Ungradeable
D023	-33.36628200	19.28940997	Rock painting site on in a small recess on a boulder. 3 left facing human figures with heads and legs painted in red ochre. Bodies not clearly visible due to fugitive paint (possibly white). No artefacts observed. 4519.	IIIB
D024	-33.37113999	19.29062904	Very localised small MSA artefact scatter. Grey silcrete. Some edge retouch noted. 4532-4533	IIIC
D025	-33.38500500	19.28982102	Section old Bain road embankment wall ~1.5m	IIIA
D026	-33.38661600	19.28957099	Good section of old Bain road embankment wall ~3-4 m high	IIIA
R001	33.36420204	19.29308100	Old powerline pole footing set in cement (modern).	Ungradeable

Appendix F: Impact Assessment Methodology

Impact Assessment Methodology for EIAs - Instructions to Specialists

The significance of all potential impacts that would result from the proposed Project is determined in order to assist decision-makers. The significance rating of impacts is considered by decision-makers, as shown below.

- **INSIGNIFICANT:** the potential impact is negligible and **will not** have an influence on the decision regarding the proposed activity.
- **VERY LOW:** the potential impact is very small and **should not** have any meaningful influence on the decision regarding the proposed activity.
- **LOW:** the potential impact **may not** have any meaningful influence on the decision regarding the proposed activity.
- **MEDIUM:** the potential impact **should** influence the decision regarding the proposed activity.
- **HIGH:** the potential impact **will** affect a decision regarding the proposed activity.
- **VERY HIGH:** The proposed activity should only be approved under special circumstances.

The **significance** of an impact is defined as a combination of the **consequence** of the impact occurring and the **probability** that the impact will occur. The significance of each identified impact⁴ must be rated according to the methodology set out below:

Step 1 – Determine the **consequence** rating for the impact by determining the score for each of the three criteria (A-C) listed below and then **adding** them⁵. The rationale for assigning a specific rating, and comments on the degree to which the impact may cause irreplaceable loss of resources and be irreversible, must be included in the narrative accompanying the impact rating:

Rating	Definition of Rating	Score
A. Extent – the area over which the impact will be experienced		
Local	Confined to project or study area or part thereof (e.g. site)	1
Regional	The region, which may be defined in various ways, e.g. cadastral, catchment, topographic	2
(Inter) national	Nationally or beyond	3
B. Intensity – the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration – the timeframe over which the impact will be experienced and its reversibility		
Short-term	Up to 2 years (i.e. reversible impact)	1
Medium-term	2 to 15 years (i.e. reversible impact)	2
Long-term	More than 15 years (state whether impact is irreversible)	3

⁴ This does not apply to minor impacts which can be logically grouped into a single assessment.

⁵ Please note that specialists are welcome to discuss the rating definitions as they apply to their study with the EIA team.

The combined score of these three criteria corresponds to a **Consequence Rating**, as follows:

Combined Score (A+B+C)	3 – 4	5	6	7	8 – 9
Consequence Rating	Very low	Low	Medium	High	Very high

Example 1:

Extent	Intensity	Duration	Consequence
Regional 2	Medium 2	Long-term 3	High 7

Step 2 – Assess the probability of the impact occurring according to the following definitions:

Probability– the likelihood of the impact occurring	
Improbable	< 40% chance of occurring
Possible	40% - 70% chance of occurring
Probable	> 70% - 90% chance of occurring
Definite	> 90% chance of occurring

Example 2:

Extent	Intensity	Duration	Consequence	Probability
Regional 2	Medium 2	Long-term 3	High 7	Probable

Step 3 – Determine the overall significance of the impact as a combination of the consequence and probability ratings, as set out below:

		Probability			
		Improbable	Possible	Probable	Definite
Consequence	Very Low	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	Low	VERY LOW	VERY LOW	LOW	LOW
	Medium	LOW	LOW	MEDIUM	MEDIUM
	High	MEDIUM	MEDIUM	HIGH	HIGH
	Very High	HIGH	HIGH	VERY HIGH	VERY HIGH

Example 3:

Extent	Intensity	Duration	Consequence	Probability	Significance
Regional 2	Medium 2	Long-term 3	High 7	Probable	HIGH

Step 4 – Note the status of the impact (i.e. will the effect of the impact be negative or positive?)

Example 4:

Extent	Intensity	Duration	Consequence	Probability	Significance	Status
Regional 2	Medium 2	Long-term 3	High 7	Probable	HIGH	- ve

Step 5 – State your level of confidence in the assessment of the impact (high, medium or low).

Depending on the data available, you may feel more confident in the assessment of some impact than others. For example, if you are basing your assessment on extrapolated data, you may reduce the confidence level to low, noting that further groundtruthing is required to improve this.

Example 5:

<i>Extent</i>	<i>Intensity</i>	<i>Duration</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Status</i>	<i>Confidence</i>
Regional 2	Medium 2	Long-term 3	High 7	Probable	HIGH	- ve	High

Step 6 – Identify and describe practical mitigation and optimisation measures that can be implemented effectively to reduce or enhance the significance of the impact. Mitigation and optimisation measures must be described as either:

- **Essential:** best practice measures which must be implemented and are non-negotiable; and.
- **Best Practice:** recommended to comply with best practice, with adoption dependent on the proponent's risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.

Essential mitigation and optimisation measures must be inserted into the completed impact assessment table. The impact should be re-assessed with mitigation, by following Steps 1-5 again to demonstrate how the extent, intensity, duration and/or probability change after implementation of the proposed mitigation measures. *Best practice* measures must also be inserted into the impact assessment table, but not considered in the "with mitigation" impact significance rating.

Example 6: A completed impact assessment table

	<i>Extent</i>	<i>Intensity</i>	<i>Duration</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Status</i>	<i>Confidence</i>
Without mitigation	Regional 2	Medium 2	Long-term 3	High 7	Probable	HIGH	- ve	High
Essential mitigation measures: <ul style="list-style-type: none"> • Xxx1 • Xxx2 • Xxx3 Best practice mitigation measures: <ul style="list-style-type: none"> • Yyy1 • Yyy2 								
With mitigation	Local 1	Low 1	Long-term 3	Low 5	Improbable	VERY LOW	- ve	High

Step 7 – Summarise all impact significance ratings as follows in your executive summary:

<i>Impact</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Status</i>	<i>Confidence</i>
Impact 1: XXXX	Medium	Improbable	LOW	-ve	High
With Mitigation	Low	Improbable	VERY LOW		High
Impact 2: XXXX	Very Low	Definite	VERY LOW	-ve	Medium
With Mitigation:	<i>Not applicable</i>				

Appendix F: Visual Impact Assessment
(refer to Appendix F6 of the BAR)

Appendix G: I&AP comments