

Eskom Ceres – Witzenberg 132 kV Powerline and Short Tie-In to the Proposed Prince Alfred Hamlet Substation

Appendix E – Maintenance Management Plan

Report Prepared for

Eskom Holdings SOC Limited



SRK Project Number 532062 – Appendix E



Report Prepared by



April 2024

Eskom Ceres - Witzenberg 132 kV Powerline and Short Tie-In to the Proposed Prince Alfred Hamlet Substation Maintenance Management Plan

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April 2024

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Note:

In response to stakeholder comments, the Maintenance Management Plan (MMP) was updated at the end of the comment period to produce this MMP for submission to Department of Forestry, Fisheries and the Environment (DFFE).

All changes in the MMP vis-a-vis the previously released MMP are italicised and underlined for easier reference.

Profile and Expertise of EAPs

SRK Consulting (South Africa) Pty Ltd (SRK) has been appointed by Eskom Holdings SOC Limited (Eskom) as the independent consultants to undertake the Basic Assessment (BA) process and compile a Maintenance Management Plan (MMP) required in terms of the National Environmental Management Act 107 of 1998 (NEMA).

SRK Consulting was established in 1974 and comprises over 1 750 professional staff worldwide, offering wide-ranging expertise in the natural resources and environmental sectors. SRK's Cape Town Environmental, Social and Governance (ESG) Business Unit has a proven track record of managing large, complex environmental and engineering projects in the Western Cape, Africa and internationally. SRK has rigorous quality assurance standards and is ISO 9001 certified.

As required by NEMA, the qualifications and experience of the key individual practitioners responsible for this project are detailed below.

Project Director: Christopher Dalgliesh, BBusSc (Hons), MPhil (EnvSci)

Registered EAP (no. 2019/413)

Chris Dalgliesh is a Partner and Principal Environmental Consultant with over 37 years' experience, primarily in Southern Africa, West Africa, South America, the Middle East and Asia. Chris has worked on a wide range of projects, notably in the natural resources, Oil & Gas, waste, energy, renewables, infrastructure and industrial sectors. He has directed and managed numerous Environmental and Social Impact Assessments (ESIAs) to international standards (e.g. IFC). He regularly provides high level review of ESIAs, frequently directs Environmental and Social Due Diligence studies, and leads E&S reviews on behalf of financial institutions. He also has a depth of experience in Strategic Environmental Assessment (SEA) and Resource Economics.

Project Consultant: Kelly Armstrong, BSocSc (Hons) Environmental Science

Registered EAP (no. 2019/1167)

Kelly Armstrong is an Environmental Consultant at SRK Consulting. She has five years' experience in managing Basic Assessment, Environmental Impact Assessment and Water Use Authorisation processes and acting as an Environmental Control Officer (ECO) in the renewable energy, residential, aquaculture, marine and mining sectors. She also conducts Visual Impact Assessments (including Glint and Glare, and flicker modelling) for infrastructure, renewable energy and mining projects.

Statement of SRK Independence

Neither SRK nor any of the authors of this MMP have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK has no beneficial interest in the outcome of the assessment which is capable of affecting its independence.

Disclaimer

The opinions expressed in this report have been based on the information supplied to SRK Consulting (South Africa) (Pty) Ltd by Eskom. SRK has exercised all due care in reviewing the supplied information, but conclusions from the review are reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

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Acronyms and Abbreviations

BA	Basic Assessment
DFFE	(National) Department of Forestry, Fisheries and the Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
Eskom	Eskom Holdings SOC Limited, Western Operating Unit: Distribution Division
GN	Government Notice
HWC	Heritage Western Cape
kV	Kilovolt
LSA	Late Stone Age
MMP	Maintenance Management Plan
MSDS	Material Safety Data Sheets
NEMA	National Environmental Management Act 107 of 1998
SCC	Species of Conservation Concern
SRK	SRK Consulting (South Africa) (Pty) Ltd

Glossary

Activity	An activity or operation carried out as part of the construction or operation of the powerline
Basic Assessment	A process of evaluating the environmental and socio-economic consequences of a proposed course of action or project
Community	Those people who may be impacted upon by the construction and operation of the project. This includes neighbouring landowners, local communities and other occasional users of the area.
Contractor	Any company appointed by the Proponent to undertake construction or related activities on site, and will include the main Contractor, as well as any Sub-Contractors.
Contaminated water	Water contaminated by activities on site, e.g. concrete water and run-off from plant / personnel wash areas.
Environment	The external circumstances, conditions and influences that surround and affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Environmental Authorisation	The authorisation by a competent authority of a listed activity or specified activity in terms of NEMA.
Environmental Management Measures	Requirements or specifications for environmental management, as presented in the MMP, some of which are based on the mitigation measures identified in the BA Report.
Hazardous substance	A substance (including materials and waste) that can have a deleterious (harmful) effect on the environment and those substances declared hazardous substances in terms of the Hazardous Substances Act 15 of 1973.
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.
Maintenance	Actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.
Method Statement	A mandatory written submission by the Contractor to the Environmental Control Officer outlining setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity.
Mitigation Measures	Actions identified in the BAR to manage (avoid, minimise or optimise) potential environmental impacts which may result from the development.
Operational Phase	The stage of the works (including maintenance) following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation.
Performance indicator	A measurable indicator of the outcome of environmental management, used to assess the success with which mitigation measures have been implemented. Often captures the results of several different monitoring activities.
Phase	A defined period during the life of the project, e.g. the Construction and Operations Phases.
Proponent	The person or organisation implementing the project.
Resources	The personnel, financial, equipment and technical requirements necessary for the

	successful completion of mitigation measures and for monitoring activities.
Schedule	The schedule or deadline for completion of each mitigation measure, which are recorded to ensure that mitigation measures are implemented in good time and in the correct sequence.
Solid waste	All solid waste including construction debris, chemical waste, broken / redundant equipment, oil filters, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).
Sub-Contractors	A Sub-Contractor is any individual or Contractor appointed by the main Contractor, to undertake a specific task on site.

1 Introduction

1.1 Background

Eskom Holdings SOC Limited, Western Cape Operating Unit: Distribution Division (Eskom) (see Table 1-1) intends to construct a new 17 km single circuit, 132 kilovolt (kV) powerline (the powerline) between Ceres and Witzenberg Substations as well as a short tie-in to a proposed a new substation at Prince Alfred Hamlet in the Witzenberg Municipality, Western Cape (the project - see Figure 3-1). The new powerline will extend from the existing Ceres Substation, pass and tie-into the new substation at Prince Alfred Hamlet and terminate at the existing Witzenberg Substation

Table 1-1: Details of the applicant

Name of the Applicant	Eskom Holdings SOC Limited, Western Cape Operating Unit: Distribution Division (Eskom)
Telephone Number:	021 980 3112
Fax Number:	N/A
Postal Address	PO Box 222, Brackenfell
Physical Address	Eskom Road, Protea Heights, Brackenfell

SRK Consulting (South Africa) Pty Ltd (SRK) was appointed by Eskom to undertake the Basic Assessment (BA) process for the project, which is required in terms of the National Environmental Management Act 107 of 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014. The BA Report (to which this document is an appendix) contains a detailed description of the project and its impacts.

Eskom will trigger the following activities listed in NEMA during construction and ongoing maintenance of the powerline:

1. Listing Notice 1, Activity 11: The development of facilities or infrastructure for the transmission and distribution of electricity (i) outside urban areas or industrial complexes with a capacity of more than 33, but less than 275kV;
2. Listing Notice 1, Activity 12: The development of (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs – (a) within a watercourse; or (c) if no development setback exists, within 32 metres of a watercourse, measures from the edge of a watercourse.
3. Listing Notice 3, Activity 12: the clearance of an area of 300 square metres or more of indigenous vegetation; and
4. Listing Notice 3, Activity 14: The development of (ii) infrastructure or structures with a physical footprint of 10 square metres or more (c) within 32 metres of a watercourse, outside an urban area in a protected area identified in National Environmental Management: Protected Areas Act 57 of 2003.

As it is expected that the powerline will be maintained in the long-term, and not be decommissioned in the foreseeable future, measures related to the decommissioning and post-closure rehabilitation of the powerline corridor are not included.

Note: *The MMP will be submitted to the Department of Forestry, Fisheries and the Environment (DFFE) for approval along with the BA Report. Once an Environmental Authorisation has been issued by DFFE, this document may need to be updated to ensure that all relevant conditions of authorisation are adequately captured.*

1.2 Purpose and Structure of the MMP

This Maintenance Management Plan (MMP), through its approval, authorises Eskom to conduct ongoing repairs and maintenance to the powerline (i.e. Activity 12 of Listing Notice 3) in an environmentally responsible manner, in compliance with relevant environmental legislation.

The mitigation measures, which were identified during the BA process and included in the MMP are applicable during the long-term maintenance of the powerline and must be implemented by Eskom. These mitigation measures are presented in Section 4.

Eskom can undertake these activities during maintenance without the need for EA in terms of this MMP (once approved).

1.2.1 Structure of this Report

This MMP consists of the following sections:

Section 1: Introduction

Provides an introduction and background to the project and outlines the purpose of this document.

Section 2: Governance Framework

Provides a brief summary and interpretation of relevant legislation.

Section 3: Site and Project Description

Describes the location of the project and describes the activities required for the maintenance of the powerline and substation.

Section 4: Maintenance Management Measures

Provides the management measures applicable during the long-term maintenance of the project.

2 Governance Framework

This section provides the legislative framework that has informed the preparation of this MMP. Further detail on relevant legislative framework can be found in the BA Report (SRK Consulting Report No: 532062/03, April 2024), of which the MMP is an appendix.

2.1 National Environmental Management Act 107 of 1998

NEMA establishes a set of principles that all authorities have to consider when exercising their powers. These include the following:

- Development must be sustainable;
- Pollution must be avoided or minimised and remedied;
- Waste must be avoided or minimised, reused or recycled;
- Negative impacts must be minimised; and
- Responsibility for the environmental consequences of a policy, project, product or service applies throughout its life cycle.

Section 28(1) states that “every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”. If such degradation/pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution. These measures may include:

- Assessing the impact on the environment;
- Informing and educating employees about the environmental risks of their work and ways of minimising these risks;
- Ceasing, modifying or controlling actions which cause pollution/degradation;
- Containing pollutants or preventing movement of pollutants;
- Eliminating the source of pollution; and
- Remedying the effects of the pollution.

Legal requirements for this project

Eskom has a responsibility to ensure that the proposed maintenance activities conform to the principles of NEMA. Eskom is obliged to take actions to prevent pollution or degradation of the environment in terms of Section 28 of NEMA. This MMP will assist Eskom to conform with the principles of NEMA during the periodic maintenance of the powerline.

2.2 EIA Regulations, 2014

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities which may not commence without an Environmental Authorisation (EA) issued by the competent authority. In this context, Listing Notices 1¹, 2² and 3³ of the EIA Regulations, 2014, list activities that require EA in terms of NEMA (“NEMA listed activities”). Certain listed activities are

¹ GN R517 of 2021.

² GN R517 of 2021.

³ GN R517 of 2021.

exempt from the requirement for EA if they are undertaken for maintenance purposes, and in accordance with an approved MMP.

Listing Notice 3 Activity 12 (Table 2-1) is applicable to the project and exempts the maintenance activities for this project from the requirement for EA on approval of this MMP.

Table 2-1: NEMA listed activity applicable to the project

No.	Listed activity
Listing Notice 3	
12	The clearance of an area of <u>300 square metres of more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</u> <u>Within the Western Cape</u> (i) <u>Within any critically endangered ecosystem;</u> (ii) <u>Within critical biodiversity areas identified in the bioregional plans;</u> (iv) <u>On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning;</u> (v) <u>On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.</u>

Legal requirements for this project:

As the proposed maintenance activities involve the clearance of more than 300 m² of indigenous vegetation, Eskom requires approval of this MMP to undertake maintenance activities.

It is Eskom's responsibility to ensure that maintenance activities are undertaken as described in this report, and that no other listed activities are triggered during ongoing maintenance works, or that, if they are, relevant processes are followed to obtain EA. Note that the approval of this MMP does not authorise any other listed activities that may be applicable.

3 Site and Project Description

3.1 Site Description

The project is located in the Ceres Valley (also known as the Warm Bokkeveld Valley) surrounded by mountains of the Cape Fold Belt (see Figure 3-1 and Figure 3-2). The valley is accessed through mountain passes (Michell's Pass from Cape Town, Theron's Pass from Touws River and Gydo Pass from Citrusdal – see Figure 3-2). The fertile Ceres Valley is known for producing deciduous fruits but is also an attractive tourist destination for outdoor activities.

The study area for the powerline comprised of a 100 m corridor (i.e. 50 m either side of the line) extending the full length of the proposed 17 km powerline route between the Ceres and Witzenberg Substations, tie-in to Prince Alfred Hamlet and Erf 528, the Prince Alfred Hamlet Substation site.

The line would extend from the Ceres Substation (in the magisterial district of Ceres), passes Prince Alfred Hamlet and terminate at the Witzenberg Substation located adjacent to Witzenberg Valley Road, off Gydo Pass (see Figure 3-1). The Ceres Substation is located ~2 km to the north-west of the town of Ceres on transformed land. The corridor runs parallel to, and to the west of the existing 66 kV and 11 kV powerlines, and spans two different vegetation types (or terrestrial habitat units): Winterhoek Sandstone Fynbos (*Least Threatened*) and Ceres Shale Renosterveld Vegetation (*Critically Endangered*).

Approximately 14 820 m² (~1.5 ha) of vegetation will be cleared during construction of the project. Of this 0.66 ha of Ceres Shale Renosterveld (*Critical Endangered*) vegetation will be cleared.

Sensitivity maps that superimpose the proposed activity and associated structures and infrastructure on the environmental sensitivities of the preferred site are included in Appendix A. Note, that all references to 'the site' refer to the 32 m wide servitude.

3.2 Project Description

The Witzenberg Substation is currently supplied with electricity by one 132 kV⁴ single circuit powerline. This line runs from the Romansrivier Substation, via Tulbagh, over the Witzenberg Mountain Range. Three 66 kV feeders (powerlines) from the Witzenberg Substation supply the Ceres, Gydo and Slangboom Substations from where Eskom's customers draw their electricity. The Witzenberg Substation also supplies Prince Alfred Hamlet with electricity directly through a 11 kV line.

A 66 kV powerline used to run between the Romansriver and Witzenberg Substations via Ceres. A portion of this line between Romansriver and Ceres burnt down, cutting supply from Romansriver to Ceres and Witzenberg, reducing the reliability of supply to the area (i.e. the only supply to Witzenberg is the 132 kV line from Romansriver to Witzenberg, and the only supply to Ceres is from the remaining portion of the 66 kV line from Witzenberg to Ceres).

Therefore, both the Ceres and the Witzenberg Substations are solely dependent on the 132 kV line between Romansriver and Witzenberg. Eskom would be unable to supply the dependent network (i.e. the towns of Prince Alfred Hamlet and Ceres) for several months should a fault occur on this line (i.e. until the line is repaired⁵).

⁴1 kilovolt is equal to 1 000 volts

⁵ Repairs to this line would take an excessive amount of time as the pylons are old and no designs (or spares) are available for this infrastructure).

Eskom therefore propose to:

- Construct a new double circuit powerline (132 kV and 66 kV) from the Romansrivier Substation to the Ceres Substation (Phase 1, which has received EA⁶) (see Figure 3-2); and
- Extend the 132 kV line from the Ceres Substation to the Witzenberg Substation (Phase 2, and the subject of this application) (Figure 3-1 and Figure 3-2).

The new 132 kV line would provide a backup 132 kV supply to Witzenberg, and ensure 132 kV supply to Ceres Substation in the event of a fault on the existing 132 kV line between the Romansrivier Substation and the Witzenberg Substation over the Witzenberg Mountain Range.

The project consists of the following key components:

- Construction of a 132 kV single circuit distribution powerline between Ceres substation and Witzenberg substation, including a tie-in to the new Prince Alfred Hamlet substation;
- Construction of the new 132 kV Prince Alfred Hamlet substation located to the north west of Prince Alfred Hamlet (see Figure 3-1);
- Installation of new 132 kV feeder bays at the Witzenberg Substation;
- Stringing conductors;
- Periodic and emergency repairs to pylons;
- Restranging of conductors; and
- Trimming and clearing of vegetation to maintain line clearance.

Based on the preliminary design, the proposed powerline will be installed on 92 pylons between the Ceres and Witzenberg Substations and will be approximately 17 km long.

Foundations of pylons will be between ~1.8 m and 9 m deep. It is anticipated that there will be a disturbance footprint of approximately ~100 m² per pylon, which includes an excavation footprint (55 m²), soil stockpile and laydown area at each site. Blasting will be required to excavate the foundations at certain pylon locations.

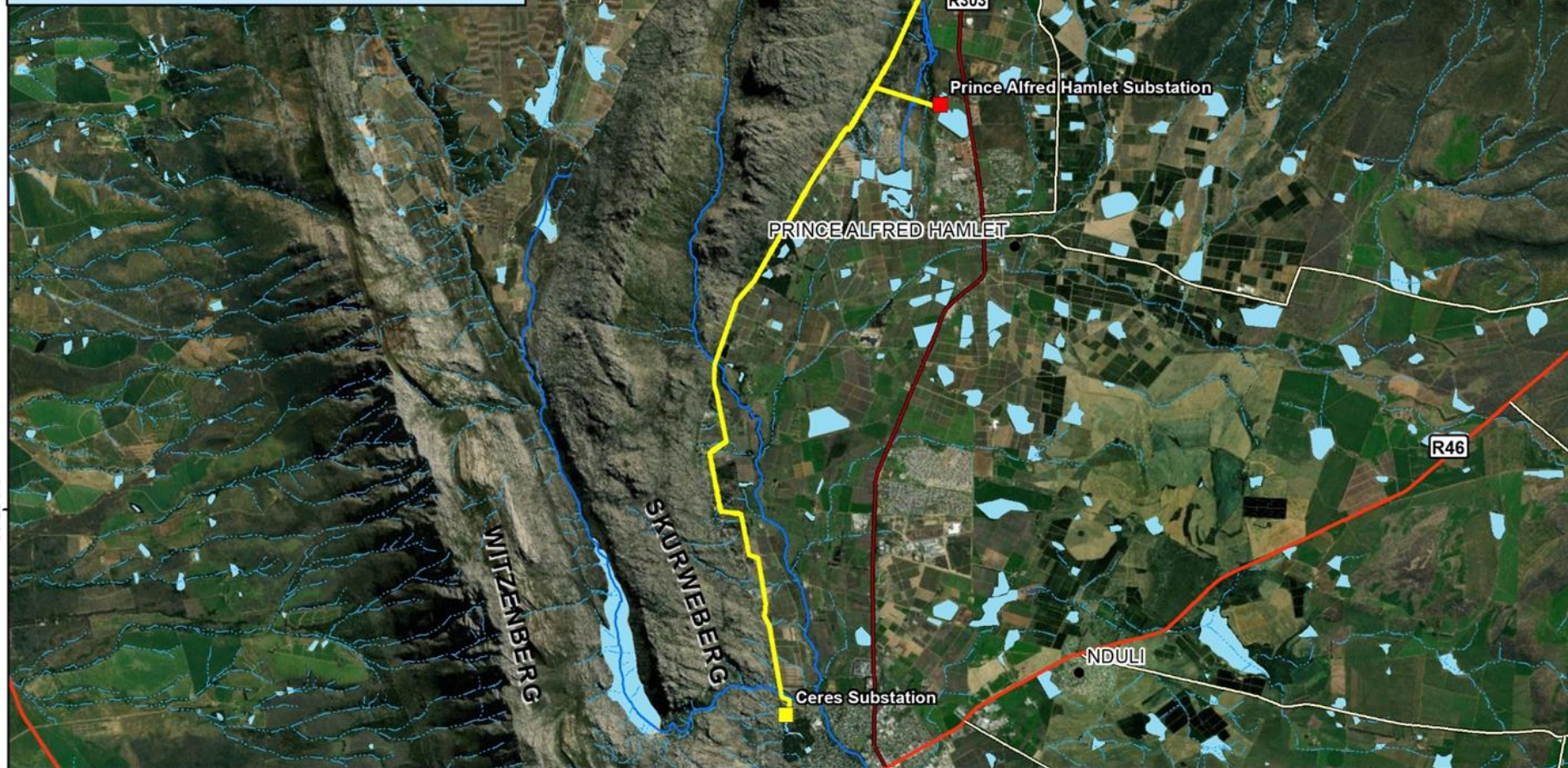
Wherever possible, new pylons are located in close proximity to existing infrastructure (pylons) and access roads. Due to access constraints and environmental sensitivities on the ridge near the Witzenberg Substation (see Appendix A), Eskom proposes to use helicopters for construction and maintenance of Pylons 67 to 88 (Appendix A). These pylons will be assembled and installed in a modular fashion. No new access roads are anticipated at these pylons.

A more detailed project description is provided in Section 3 of the BA Report (SRK Consulting Report No: 532062/02, March 2024).

⁶ EA (DFFE ref. no. 14/12/16/3/3/1/1822) was granted by the DFFE on 25 April 2018 for Phase 1 of the project.

19°10'0"E

19°22'30"E



33°20'0"S

33°20'0"S

19°10'0"E

19°22'30"E

CERES – WITZENBERG POWERLINE LOCALITY MAP

Legend

- Towns
- Existing Substations
- Proposed Substation
- Secondary Road
- Arterial Road
- Main Road
- Perennial River
- Non-Perennial River
- Inland Water Features
- Proposed Powerline

0 0.5 1 2 Kilometers

Data Source:

Chief Directorate: National
Geospatial Information (CD:NGI)
Google Earth Imagery

Scale:

1:100 000 @ A4

Projection:

TM

Datum:

HH94

Central Meridian/Zone:

Lo19

Date:

04/02/2021

Compiled by:

DUSS

Project No:

532062

Fig No:

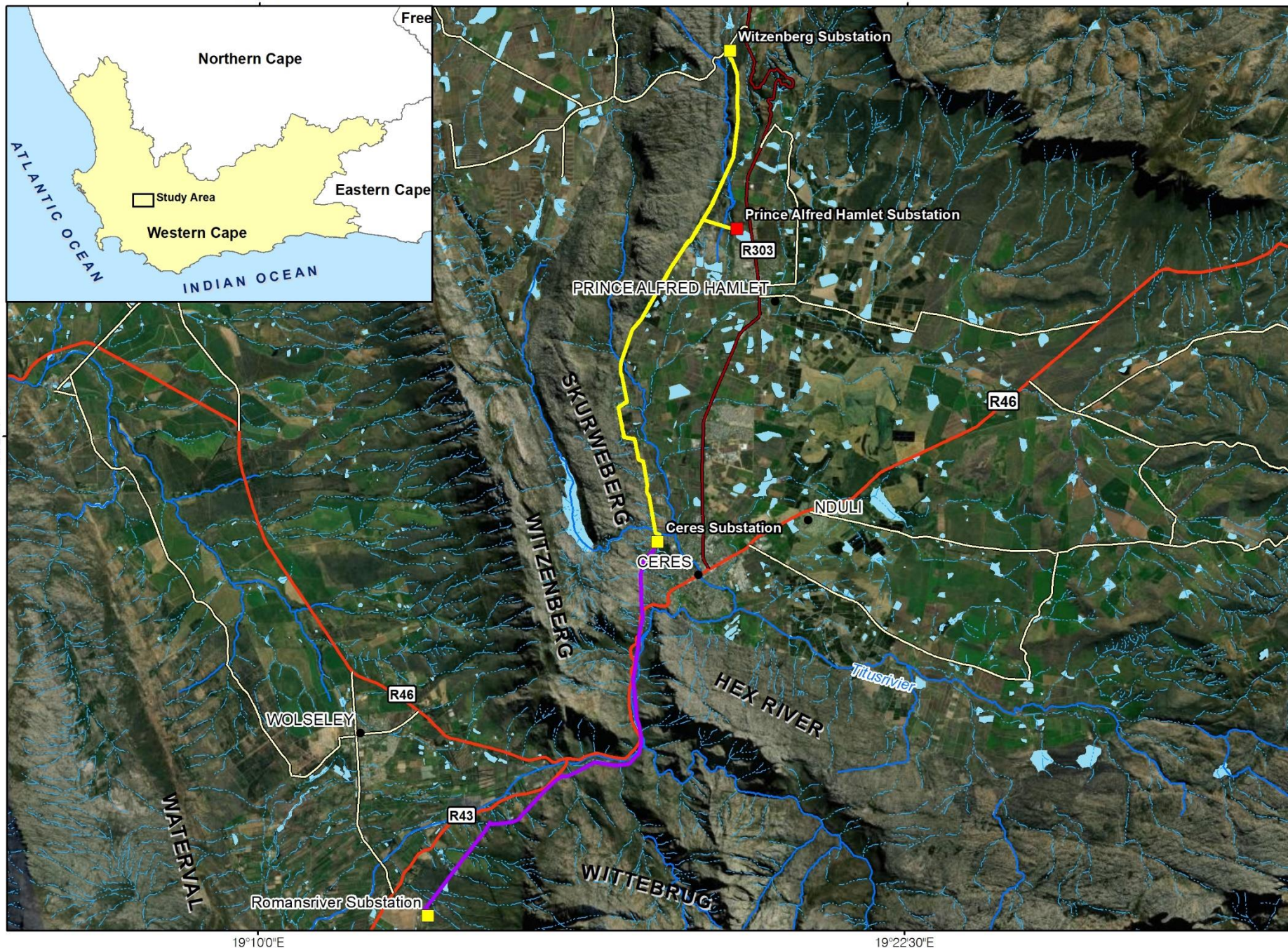
1-1

Revision: A

Date: 15 02 2021

19°10'0"E

19°22'30"E



19°10'0"E

19°22'30"E



Legend

- Towns
- Existing Substations
- Proposed Substation
- Secondary Road
- Arterial Road
- Main Road
- Perennial River
- Non-Perennial River
- Proposed Powerline
- Existing Romansriver – Ceres Powerline
- Inland Water Features

0 1 2 4 Kilometers

Data Source:

Chief Directorate: National
Geospatial Information (CD:NGI)
Google Earth Imagery

Scale:

1:160 000 @ A4

Projection:

TM

Datum:

HH94

Central Meridian/Zone:

Lo19

Date:

15/02/2021

Compiled by:

DUSS

Project No:

532062

Fig No:

X

Revision: A

Date: 15 02 2021

3.3 Maintenance Activities

Following the completion of the Construction Phase, the powerline will be commissioned into operation. No physical operational activities are anticipated other than ongoing maintenance of the line.

Maintenance activities will be limited to:

- Periodic and emergency repairs to pylons;
- Restraining of conductors; and
- Trimming and clearing of vegetation to maintain line clearance and access.

3.3.1 Repairs to Pylons

Periodic and emergency repairs to pylons will be required. Replacement components will be delivered to site by truck or helicopter and installed with appropriate equipment (e.g. mobile cranes or helicopters at Pylons 67 to 88).

3.3.2 Restraining of Conductors

In response to damage on the line, it may be necessary to replace portions of the conductors. This will be undertaken by hand with a pulley system where watercourses lie between structures. Restraining will be undertaken mechanically in all other areas.

3.3.3 Trimming and Clearing of Vegetation

Trimming and clearing of vegetation will be required to maintain access and meet legal clearance requirements below conductors. Vegetation management will be in line with Eskom standards and policies.

3.3.4 Site Camps

No site camps will be required during maintenance activities.

3.3.5 Access

Pylons will be accessed by vehicles using existing tracks. Alternatively, where new tracks were not technically feasible or unacceptable from an environmental perspective, access to pylons will be by helicopter.

3.3.6 Waste

Waste produced during the Operational Phase will include small volumes of domestic waste, hazardous waste, discarded pylon components and conductors and vegetation cuttings.

Domestic waste will be removed from site by hand on a daily basis during maintenance activities. Faulty pylon components, conductors and vegetation cuttings will be removed from site on truck when necessary. All waste generated will be collected separately (general waste and hazardous waste) during maintenance activities and will be disposed of at appropriately licensed waste disposal facilities.

Waste will not be disposed of, burned, or buried on site.

Where possible, green waste (i.e. organic waste including vegetation cuttings) will be disposed at an approved municipal or private green waste management facility to reduce the volume of green waste directed to landfill.

The volumes of waste that will be generated during maintenance activities cannot be estimated at this stage, but are not expected to be significant or place strain on local waste management and disposal facilities.

3.3.7 Water Use

During maintenance activities, only small volumes of potable water will be required for maintenance staff.

3.3.8 Workforce

Maintenance teams are typically 2 - 15 people strong and consist of existing Eskom staff members and / or contractors employed for this purpose.

4 Maintenance Management Measures

4.1 Potential Impacts and Impact Management Outcomes

A summary of the potential operational impacts of the proposed project identified and assessed in the BA Report are presented in Table 4-1.

Table 4-1: Potential operational impacts of the proposed project

Impact	Description	Impact Status
Freshwater Ecology	Degradation of watercourses during maintenance	Negative
Botanical	Loss of vegetation <i>and habitat fragmentation</i> during maintenance	Negative
Avifaunal	Avifaunal mortalities from electrocution and collision with powerlines	Negative
Socio-economic	Secure power supply enabling economic growth	Positive
	Decline in tourism due to altered sense of place during operation	Negative
Heritage	Damage to archaeological and heritage resources due to disturbance during maintenance activities	Negative
Visual	Altered sense of place and visual intrusion from the proposed powerline	Negative
	Altered sense of place and visual intrusion from the proposed Prince Alfred Hamlet substation	Negative

The mitigation and enhancement measures stipulated in the BA Report and in this MMP seek to meet the impact management outcomes listed in Table 4-2. A management outcome describes the intended objective or end goal of impact management, effected through the implementation of mitigation measures / impact management actions.

Table 4-2: Impact management outcomes of the MMP

Impact	Impact Management Outcome
<i>Operational and Maintenance Phase</i>	
Freshwater Ecology	Preservation of freshwater features during the operational phase.
Botanical	Avoid the loss of Species of Conservation Concern (SCC).
	Avoid disturbance of areas beyond the development footprint.
Avifaunal	Reduce avifaunal mortalities.
Socio- economic	Enhance the intensity of economic benefits on the local community and economy
Heritage	Avoid loss or damage to palaeontological and archaeological resources
Visual	Mitigate changes to the sense of place of the site
	Prevent visual intrusion, as far as possible

4.2 Roles and Responsibilities

The key role players during ongoing maintenance are:

- Eskom (the proponent); and
- Contractors responsible for maintenance.

Key roles and responsibilities during maintenance with respect to the implementation of the MMP are outlined below.

Eskom

- Ensure that all contractors executing work for Eskom for the project are aware of the requirements of the MMP;
- Appoint a suitably qualified and experienced staff member as the Environmental Representative to review the environmental performance of contractors;
- Ensure that those responsible for the long term maintenance of the infrastructure are aware of the requirements of this MMP; and
- Implement and manage a programme of adequate infrastructure and servitude maintenance.

Contractors:

- Comply with the applicable environmental commitments, procedures, restrictions and guidance specified in the MMP;
- Ensure that copies of the MMP are available on site;
- Ensure that all personnel on site, (including any sub-contractors and their staff) are familiar with and understand the requirements of the MMP relevant to their activities; and
- Ensure that any problems and non-conformances are remedied in a timely manner, to the satisfaction of the relevant management personnel at Eskom.

4.3 Environmental Management Measures

The management measures listed in Table 4-3 are either:

- Essential: measures which must be implemented and are non-negotiable; or
- 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. These measures have been *italicised* for ease of reference.

The environmental management and mitigation measures that must be implemented during maintenance, as well as responsibilities and timelines for the implementation of these measures, are laid out in Table 4-3 below.

Table 4-3: Environmental management and mitigation measures that must be implemented during ongoing maintenance

Aspect	ID	Mitigation measure / Action	Responsible	Implementation Timeframe	Monitoring Method ⁷ and Performance Indicators
General	1.	Define and use helicopter landing locations and laydown areas established during construction for ongoing maintenance.	• Eskom	• Following construction	• Check updated MMP
	2.	Update the Maintenance Phase mitigation measures with lessons learnt during construction and maintenance activities in consultation with the DFFE (if better practices are identified during this phase).	• Eskom	• Following construction and throughout operations	• Check updated MMP
	3.	<u>Obtain landowner approval on the location of the laydown areas, use of access roads and servitude prior to maintenance.</u>	• <u>Eskom</u>	• <u>Throughout operations</u>	• <u>Check record of liaison with landowners</u>
	4.	<i>Schedule routine maintenance activities outside of the wet season (i.e. not between May and end of September).</i>	• Eskom	• Prior to maintenance activities	• Check maintenance programme.
Compliance Monitoring	5.	Audit compliance with the MMP.	• Eskom	• Frequency specified by the EA	• Check record of audit
	6.	Record and retain the audit results.	• Eskom	• Frequency specified by the EA	• Check record of audit
	7.	Appoint a suitably qualified Eskom staff member to periodically inspect and report on compliance with the MMP during or following physical maintenance activities.	• Eskom	• At least once every six months	• Check compliance reports
	8.	Increase the frequency of compliance inspections if significant non-conformances are reported.	• Eskom	• Following non-conformances	• Check frequency of compliance inspections
Community Complaints	9.	Respond to complaints that are made.	• Eskom	• Throughout operations	• Check record of correspondence
Landowner Consultation	10.	Inform landowners before maintenance activities take place on their property.	• Contractor	• Throughout operations	• Check correspondence with landowners
Ablutions	11.	Provide ablation facilities (i.e. chemical toilets) at active work areas for staff at a ratio of 1 toilet per 15 workers (absolute minimum 1:25) where maintenance will take place at any one site ⁸ for more than 5 days.	• Contractor	• Throughout operations	• Check that ablation facilities provided at the minimum ratio
	12.	Locate portable toilets at least 100 m from the edge of any watercourse.	• Contractor	• Throughout operations	• Check ablation facilities more than 100m from any watercourse
	13.	Secure portable toilets to the ground to prevent them toppling due to wind or any other cause.	• Contractor	• Throughout operations	• Check that portable toilets are secure

⁷ Unless otherwise indicated, monitoring will be undertaken by a suitably qualified employee (Environmental Representative) of Eskom, supported by the authorities where the requirement is specifically stipulated in a licence or permit.

⁸ Site refers to the 32 m servitude of the proposed powerline.

Aspect	ID	Mitigation measure / Action	Responsible	Implementation Timeframe	Monitoring Method ⁷ and Performance Indicators
	14.	Maintain toilets in a hygienic state (i.e. provide toilet dispensers, clean toilets and service regularly).	• Contractor	• Throughout operations	• Check toilets are maintained in a hygienic state
	15.	Empty toilets before long weekends and builders' holidays.	• Contractor	• Throughout operations	• Check toilets are emptied
	16.	Prevent spillages when the toilets are cleaned or emptied.	• Contractor	• Throughout operations	• Check for evidence of portable toilet chemical spills
Fire Protection	17.	Prohibit fires on site.	• Contractor	• Throughout operations	• Check for evidence of fires
	18.	Provide sufficient fire-fighting equipment to maintenance teams.	• Contractor	• Throughout operations	• Check equipment is available
	19.	Prohibit the burning of vegetation.	• Contractor	• Throughout operations	• Check for evidence of fires
	20.	Trim vegetation infringing on the safety clearance of the powerline only to the extent necessary to promote the safety of the line.	• Contractor	• Throughout operations	• Check evidence of trimming
	21.	Respond to reports of the presence of alien plant species through eradication and the application of herbicides on the site, where appropriate.	• Contractor	• Throughout operations	• Check evidence of alien vegetation on the site.
	22.	Avoid brushcutting in areas mapped as moderate, high and very high sensitivity by the botanical specialist.	• Contractor	• Throughout operations	• Check evidence of brushcutting in specified areas.
Safety and Security	23.	Implement established emergency procedures when necessary (in relation to fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc.).	• Contractor	• Throughout operations	• Check emergency procedures • Check records of responses to emergencies
Environmental Awareness Training	24.	Provide environmental awareness training for maintenance staff.	• Contractors	• Throughout operations	• Check records of environmental awareness training provided
	25.	Tailor environmental awareness training maintenance activities and impacts (e.g. no-go areas, potential impact on the environment, key and site specific measures, etc.).	• Contractor	• Start of maintenance in new area	• Check records of environmental awareness training provided
Hazardous Materials Management	26.	Place potential contaminants (including cement) on impervious surfaces.	• Contractor	• Throughout operations	• Check storage of hazardous substances takes place on impermeable surfaces
	27.	Implement procedures for the safe transport, handling and storage of potential pollutants.	• Contractor	• Throughout operations	• Check implementation of procedures for the safe transport, handling and storage of potential pollutants
	28.	Avoid unnecessary use and transport of hazardous substances.	• Contractor	• Throughout operations	• Check use and transport of hazardous substances and incidences of spills
	29.	Keep Material Safety Data Sheets (MSDS) for all hazardous materials on site.	• Contractor	• Throughout operations	• Check MSDS available for all hazardous substances on site
	30.	Maintain vehicles and machinery to prevent leaks of hydrocarbon materials.	• Contractor	• Throughout operations	• Check evidence of leaks

Aspect	ID	Mitigation measure / Action	Responsible	Implementation Timeframe	Monitoring Method ⁷ and Performance Indicators
	31.	Remove faulty equipment (leaking) from site immediately	• Contractor	• Throughout operations	• Check evidence of leaks • Check no faulty equipment on site
Refuelling and Maintenance	32.	Conduct on-site refuelling and emergency repairs (if absolutely) essential with appropriate impermeable ground cover (e.g. use drip trays) further than 50m from any watercourse.	• Contractor	• Throughout operations	• Check on-site refuelling and emergency repairs take place more than 50 m from any watercourse
Response to Environmental Pollution	33.	Provide spill containment and clean-up equipment in all areas where refuelling and / or maintenance activities will take place.	• Contractor	• Throughout operations	• Check that spill containment and clean-up equipment is available
	34.	Immediately stop any activity causing environmental pollution, e.g. leaks and spillages.	• Contractor	• Throughout operations	• Check that no activities cause environmental pollution on site
	35.	Clean up any spills immediately, through containment and removal of free product and appropriate disposal as hazardous waste / remediation of contaminated soils.	• Contractor	• Throughout operations	• Check that spills have been addressed as specified
	36.	Notify Eskom and the relevant authorities (DFFE) within one day of a major environmental pollution event.	• Eskom	• Throughout operations	• Check evidence of correspondence between Eskom and authorities
Waste Management	37.	Provide separate weather and vermin proof bins for a) general and b) hazardous waste at active work areas and mark these clearly.	• Contractor	• Throughout operations	• Check bins available in active work areas
	38.	Dispose waste regularly to appropriate licensed waste disposal facilities.	• Contractor	• Throughout operations	• Check waste disposal receipts
	39.	Prevent littering by staff at work sites.	• Contractor	• Throughout operations	• Check presence of litter
	40.	Do not allow any burning or burying of waste on site.	• Contractor	• Throughout operations	• Check no waste burnt or buried on site
	41.	<i>Dispose of green waste (i.e. organic waste including vegetation cuttings) at an approved municipal or private green waste management facility.</i>	• Contractor	• Throughout operations	• Check location of green waste disposal.
Cement Work Management	42.	Batch cement (if unavoidable) in impermeable bunded areas outside of any watercourses and within the disturbance footprint created during construction	• Contractor	• Throughout operations	• Check cement batching areas bunded outside of any watercourses
	43.	Collect and strictly control runoff from the concrete batching areas.	• Contractor	• Throughout operations	• Check effluent from cement batching controlled and collected
	44.	Physically remove any remains of concrete, either solid, or liquid, immediately after batching activities and dispose at licensed disposal facilities.	• Contractor	• Throughout operations	• Check for evidence of any remains of concrete
	45.	Place empty cement bags in bins and dispose at licensed disposal facilities.	• Contractor	• Throughout operations	• Check empty cement bags placed in bins • Check waste receipts

Aspect	ID	Mitigation measure / Action	Responsible	Implementation Timeframe	Monitoring Method ⁷ and Performance Indicators
Effluent Management	46.	Install appropriate pollution control facilities to prevent discharge of water containing polluting matter or suspended materials into watercourses or water bodies (e.g. the installation of silt fences).	• Contractor	• Throughout operations	• Check pollution control measures installed at areas where effluent is generated or stored
	47.	Clean vehicles and equipment off-site or in dedicated impermeable areas only.	• Contractor	• Throughout operations	• Check vehicles and equipment cleaned in appropriate areas only
	48.	Dispose of effluent from bunded, refuelling, cleaning and cement batching areas off-site at licensed disposal facilities.	• Contractor	• Throughout operations	• Check waste receipts • Check for evidence of on-site disposal
Stormwater Management	49.	Install cut-off trenches with silt traps around work areas within 50 m of any watercourse.	• Contractor	• Throughout operations	• Check cut-off trenches installed at active work areas during the wet season (May-Sept)
	50.	<u>Divert any runoff from impermeable surfaces away from natural and man-made watercourses to limit erosion and deposition of sediment into watercourses.</u>	• <u>Contractor</u>	• <u>Throughout operations</u>	• <u>Check cut-off trenches installed at active work areas during the wet season (May-Sept)</u>
	51.	Contain contaminated stormwater from work areas and excavations and dispose as effluent	• Contractor	• Throughout operations	• Check waste receipts • Check containment of contaminated stormwater.
	52.	Use berms and stormwater drainage systems to prevent surface run-off from entering site excavations.	• Contractor	• Throughout operations	• Check build-up of runoff in excavations
Erosion Control	53.	Close and rehabilitate erosion gullies as they form.	• Eskom • Contractor	• Throughout operations	• Check for evidence of erosion gullies • Check that erosion gullies are closed and rehabilitated
	54.	Stabilize exposed slopes within 30 m of any watercourse as soon as these are created (e.g. at stockpiles and cut and fill areas) to prevent sedimentation.	• Contractor	• Throughout operations	• Check that exposed slopes within 30 m of any watercourse are stabilised
Water Conservation	55.	Minimise the use of potable water as far as practically possible.	• Contractor	• Throughout operations	• Check for evidence of water wastage
	56.	Reuse and recycle water wherever possible.	• Contractor	• Throughout operations	• Check that water is recycled and reused where possible
Topsoil Conservation and Management	57.	Harvest topsoil (up to a maximum of 30 cm depth) where opportunities arise.	• Contractor	• Start of maintenance in new area	• Check that topsoil is harvested
	58.	Replace harvested topsoil in disturbed areas	• Contractor	• Completion of maintenance in each area	• Check that topsoil is replaced
Protection of Flora	59.	<u>Compile a Vegetation Management Plan tailored to the affected vegetation in consultation with CapeNature</u>	• <u>Eskom</u>	• <u>Commencement of operations</u>	• <u>Check for Vegetation Management Plan and consultation with CapeNature</u>
	60.	Limit vegetation clearance, pruning and the footprint of maintenance activities to what is absolutely essential.	• Contractor • Eskom	• Throughout operations	• Check for unnecessary disturbances
	61.	<u>Demarcate the Witzenberg conebrush subpopulations (Leucadendron Chamelaea) near Pylon 89 and 90 as a no-go area when undertaking maintenance activities in close proximity.</u>	• <u>Contractor</u>	• <u>Throughout operations</u>	• <u>Check that the Leucadendron Chamelaea subpopulation is demarcated during maintenance activities in close proximity.</u>

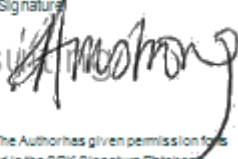
Aspect	ID	Mitigation measure / Action	Responsible	Implementation Timeframe	Monitoring Method ⁷ and Performance Indicators
	62.	Favour vegetation pruning over clearing.	• Contractor	• Throughout operations	• Check for unnecessary disturbances
	63.	Inspect access roads annually during routine maintenance and report on the presence or absence of invasive alien plant species on the site.	• Eskom	• Once a year	• Check work instructions • Check reports from inspections
	64.	<u>Ensure that there is focused invasive and alien plant eradication, management and monitoring on the site, along access roads, where invasive and alien plants are likely to spread.</u>	• <u>Eskom</u>	• <u>Throughout operations</u>	• <u>Check for invasive and alien plant management and monitoring plan</u>
	65.	Respond to reports of the presence of alien plant species through eradication and the application of herbicides in the site, where appropriate.	• Eskom	• When the presence of alien vegetation is reported	• Check records of alien plant species control
	66.	Remove cuttings of alien vegetation from the site.	• Contractor	• Throughout operations	• Check evidence of cuttings left on site
	67.	Restrict laydown areas for maintenance and repair work to areas disturbed during construction of the project.	• Contractor	• Throughout operations	• Check for evidence of offsite disturbances
	68.	Designate areas outside the previous construction footprint as no-go areas.	• Contractor	• Throughout operations	• Check for evidence of offsite disturbances
	69.	Restrict the movement of vehicles to access roads only.	• Contractor	• Throughout operations	• Check for evidence of offsite disturbances from vehicles
	70.	Stockpile materials in disturbed areas if required.	• Contractor	• Throughout operations	• Check stockpiles located in disturbed areas
	71.	Manage infrastructure in PAs in accordance with respective management plans for each PA.	• Eskom	• Throughout construction	• Check respective management plan
	72.	Do not harm, catch or kill birds or animals by any means, including poisoning, trapping, shooting or setting of snares.	• Contractor	• Throughout operations	• Check for evidence of faunal mortalities
Protection of Fauna Faunal Management	73.	Avoid fauna when driving on site.	• Contractor	• Throughout operations	• Check for evidence of faunal mortalities
	74.	Maintain Bird Flight Diverters on the powerline.	• Eskom	• Throughout operations	• Check that Bird Flight Diverters are maintained
	75.	Inspect the powerline periodically for bird mortalities, and install additional mitigation measures at any identified mortality hot-spots.	• Eskom	• Throughout operations	• Check records of inspections
	76.	<i>Monitor and record avifaunal collision fatalities for the first year of operation to confirm the success of mitigation measures. Report the results of monitoring to CapeNature.</i>	• <i>Eskom</i>	• <i>First year of operation</i>	• <i>Check records</i>
	77.	Limit maintenance footprints to what are absolutely essential.	• Contractor	• Throughout operations	• Check for evidence of offsite disturbances
Protection of Watercourses	78.	Locate lay-down areas at least 25 m from all watercourses or within disturbance footprints created during construction, if required.	• Contractor	• Start of maintenance in new area	• Check laydown areas are at least 25m from all watercourses

Aspect	ID	Mitigation measure / Action	Responsible	Implementation Timeframe	Monitoring Method ⁷ and Performance Indicators
	79.	Designate areas outside the previous construction footprint as no-go areas.	• Contractor	• Throughout operations	• Check for evidence of offsite disturbances
	80.	Restrict the movement of vehicles to access roads only.	• Contractor	• Throughout operations	• Check for evidence of offsite disturbances from vehicles
	81.	String conductors by hand through watercourses.	• Contractor	• During conductor restringing	• Check for evidence of mechanical stringing in watercourses
	82.	Maintain the 32 m powerline corridor free of invasive alien vegetation.	• Contractor	• During maintenance.	• Check that cuttings of alien vegetation have been removed from the site
	83.	Apply herbicides to cleared stands of alien plants to prevent re-sprouting.	• Contractor	• Following the clearing of alien vegetation	• Check records of herbicide applications
	84.	Revegetate disturbed areas caused during maintenance using locally indigenous plant species and harvested topsoil.	• Contractor	• End of maintenance in each area	• Check that rehabilitation takes place with locally indigenous plant species and harvested topsoil
	85.	Limit vehicle speeds to 30 km/h on all unsurfaced access tracks.	• Contractor	• Throughout operations	• Check for complaints about dust
	86.	<u>Rehabilitate any watercourses damaged by compaction or trampling caused during maintenance.</u>	• Contractor	• Throughout operations	• Check <u>rehabilitation</u>
	87.	<u>Ensure that Eskom's Environmental Representative assesses all sections near watercourses and identifies areas that require rehabilitation.</u>	• <u>Eskom</u>	• <u>Through operations</u>	• <u>Ensure that rehabilitation has been completed in areas identified.</u>
	88.	Reshape and scarify identified areas of Very High Importance to address compaction and erosion.	• Contractor	• Throughout operations	• Check that areas of very high importance have been rehabilitated
Dust Management	89.	Cover trucks transporting loose material to or from site with tarpaulins, plastic or canvas.	• Contractor	• Throughout operations	• Check that trucks transporting loose material are covered
	90.	Locate stockpiles in sheltered areas.	• Contractor	• Throughout operations	• Check that stockpiles are located in sheltered areas
	91.	Investigate and respond to complaints about dust and take appropriate corrective action.	• Eskom	• Throughout operations	• Check for evidence that complaints about dust have been responded to • Check that additional mitigation measures are applied to prevent reoccurrences
	92.	Investigate and respond to complaints about excessive noise and take appropriate corrective action.	• Contractor	• Throughout construction	• Check for evidence that complaints about noise have been responded to • Check that additional mitigation measures are applied to prevent reoccurrences
Traffic Management	93.	Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. when necessary.	• Contractor	• Throughout operations	• Check that road signage is in place when necessary
	94.	Ensure that all safety measures are observed and that drivers comply with the rules of the road.	• Contractor	• Throughout operations	• Check for complaints from other road users

Aspect	ID	Mitigation measure / Action	Responsible	Implementation Timeframe	Monitoring Method ⁷ and Performance Indicators
	95.	Investigate and respond to complaints about traffic.	• Eskom	• Throughout operations	• Check for evidence that complaints about traffic have been responded to • Check that additional mitigation measures are applied to prevent reoccurrences
	96.		•	•	•
Protection of Archaeological and Paleontological Resources	97.	Demarcate the large rocky outcrop ~30m to the south west of Pylon 45 and the associated thin scatter of Late Stone Age (LSA) silcrete flakes and pottery as no-go areas during the maintenance activities.	• Contractor	• Throughout operations	• Check that the large rocky outcrop is demarcated.
	98.	<u>Prohibit maintenance activities to the west of the powerline centreline between Pylons 12 and 13.</u>	• <u>Contractor</u>	• <u>Throughout operations</u>	• <u>Check for disturbance of areas to the west of the powerline centreline between Pylon 12 and 13.</u>
	99.	Demarcate the ruined dwelling as a no-go area during maintenance activities.	• Contractor	• Throughout operations	• Check that the ruined dwelling is demarcated as a no-go area
	100.	Demarcate the remains of the building and the foundations / low mound and demarcate as no-go area during the maintenance of Pylon 35.	• Contractor	• Throughout operations	• Demarcate the remains of the building foundations / low mound
	101.	Report the presence of graves or human remains, fragments of fossil bone, ostrich egg and stone fragments to Heritage Western Cape (HWC).	• Contractor	• Throughout operations	• Check reports of chance finds • Check reports to HWC
	102.	Obtain a permit for the removal of artefacts from the site if any are discovered during maintenance.	• Contractor	• Throughout operations	• Check permits in place
Visual Mitigation	103.	Prune large indigenous trees and shrubs rather than clearing vegetation completely.	• Contractor	• Throughout operations	• Check that pruning (and not clearing) has taken place where practical
	104.	Prohibit the installation of lights on pylons.	• Eskom	• Throughout	• Check no lights installed on pylons
	105.	Remove all construction equipment, vehicles, waste and surplus materials, site office facilities, temporary fencing and other items from the site.	• Contractor	• Site closure	• Check all equipment and materials removed from site
Employment and Procurement	106.	Purchase goods (materials) and services from local sources wherever possible.	• Contractor	• Throughout operations	• Check records of local employment
Rehabilitation	107.	Clean up and remove any spills and contaminated soil in the appropriate manner.	• Contractor	• Site closure	• Check contaminated areas addressed
	108.	<u>Reinstate (rehabilitate) agricultural land following construction.</u>	• <u>Contractor</u>	• <u>Throughout operations</u>	• <u>Check that disturbed areas have been rehabilitated.</u>

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Chris Dalgliesh

SRK Partner

Appendix A: Sensitivity Maps

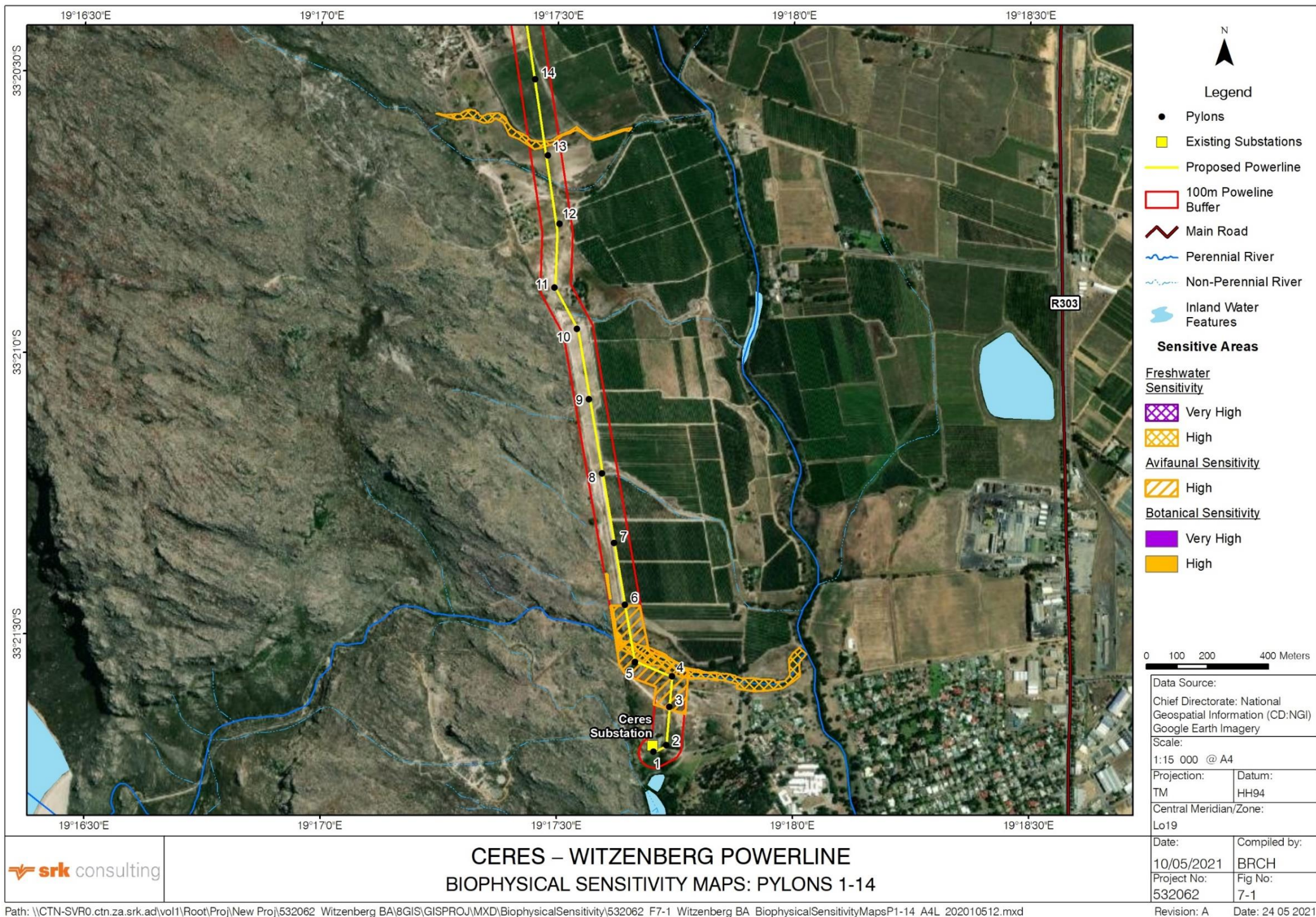


Figure A-1: Biophysical sensitivity map: Pylon 1 to 14

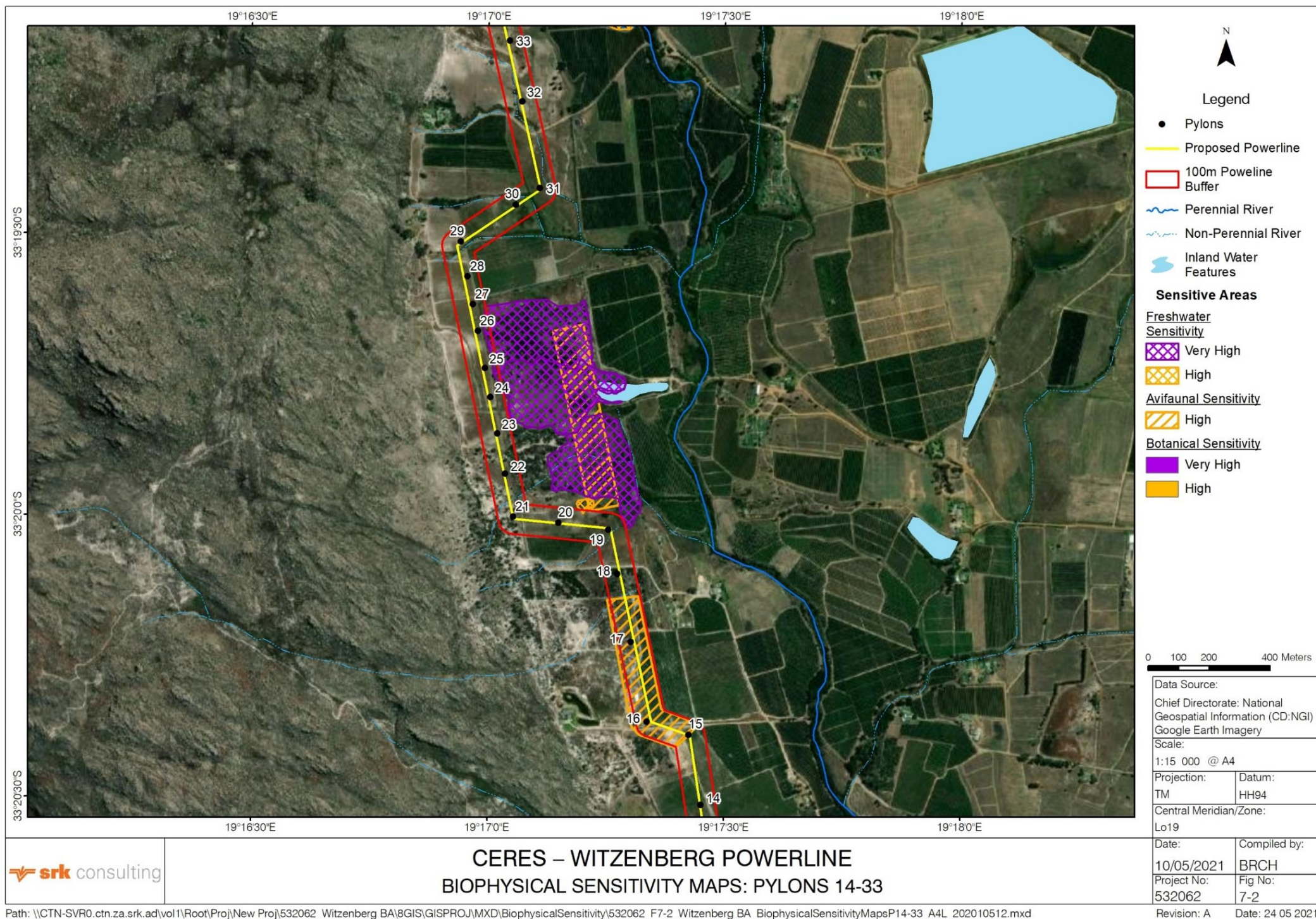


Figure A-2: Biophysical sensitivity map: Pylons 14 to 33

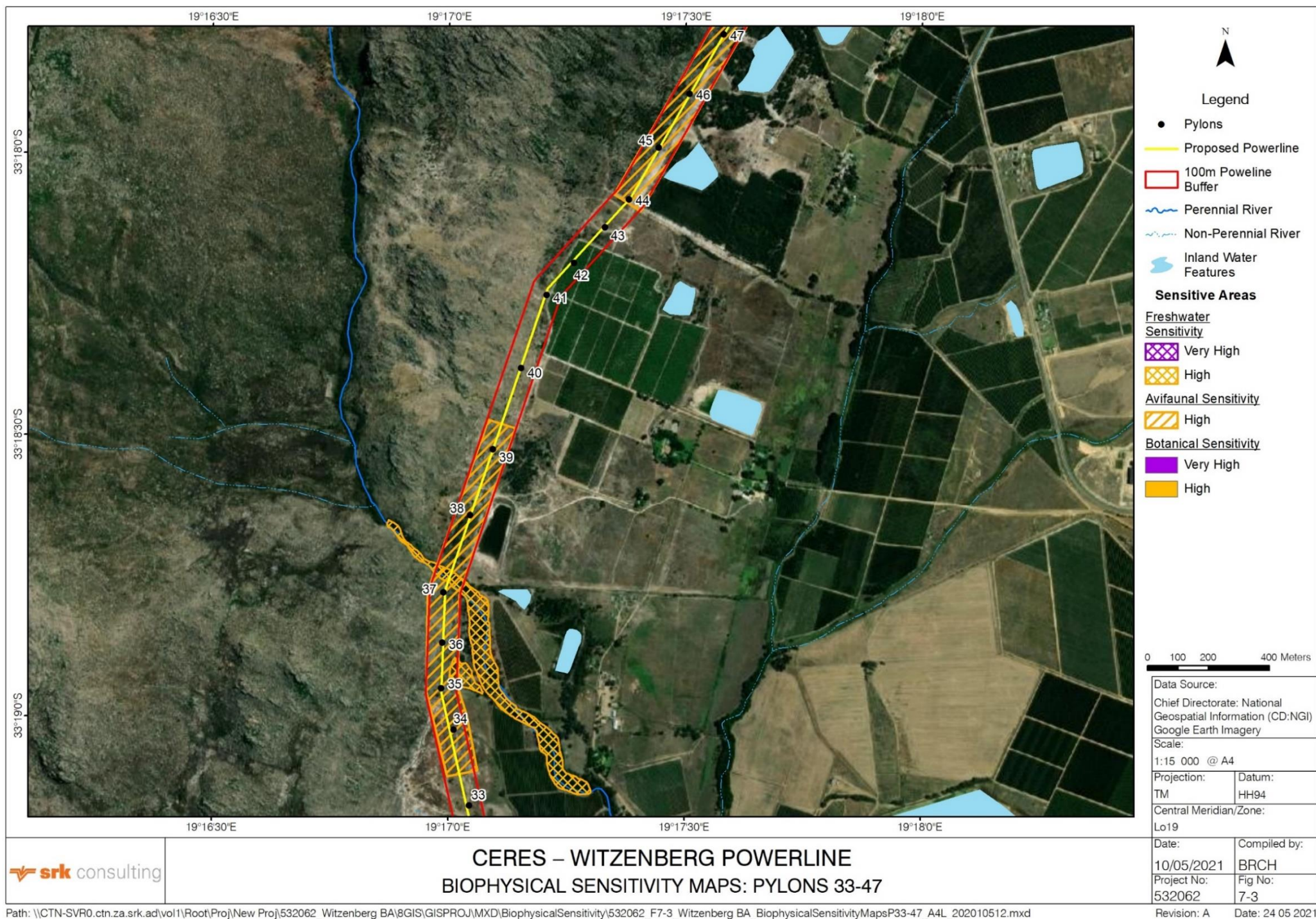


Figure A-3: Biophysical sensitivity map: Pylons 33 to 47

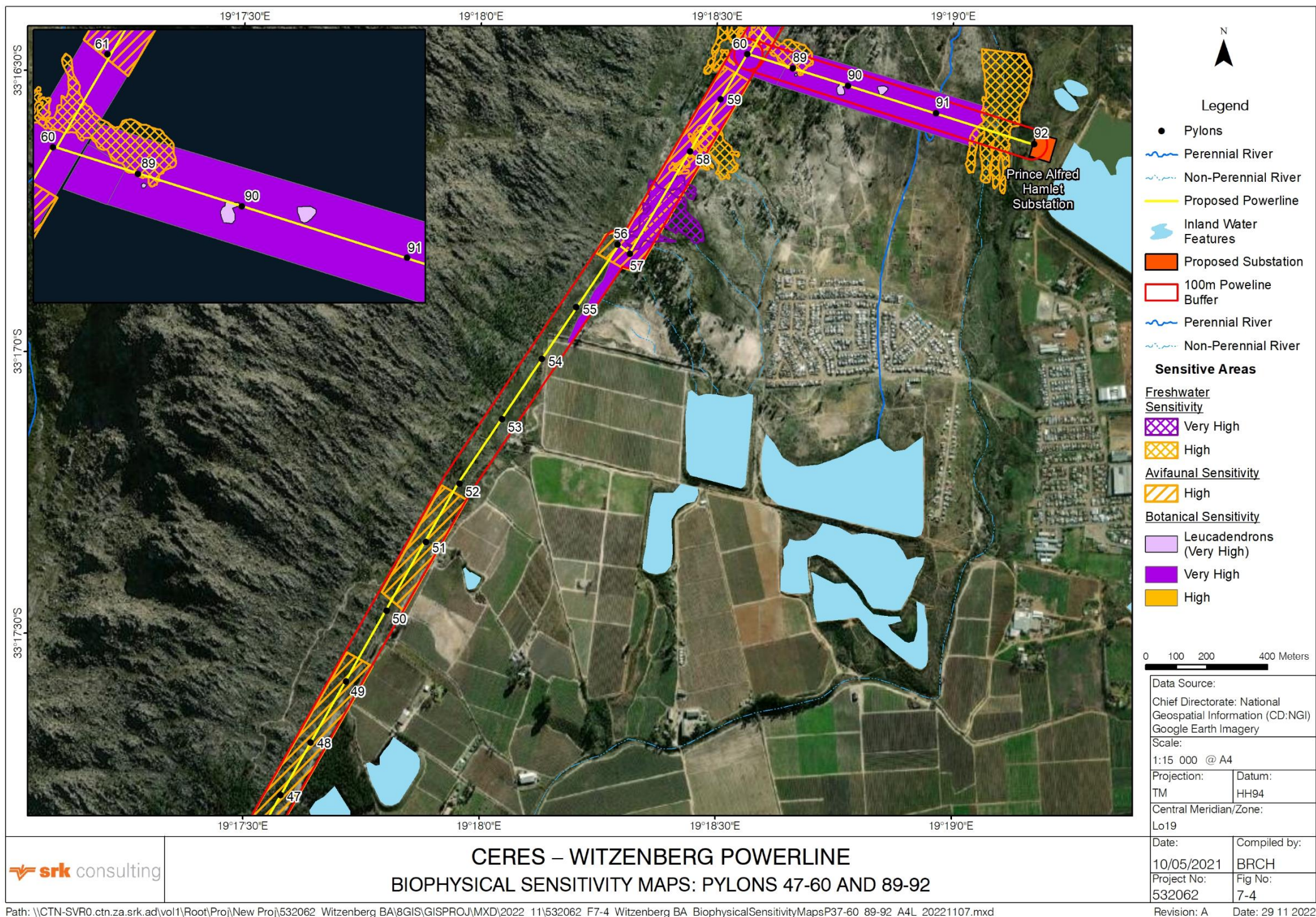


Figure A-4: Biophysical sensitivity map: Pylons 47 to 60 and 89 to 92

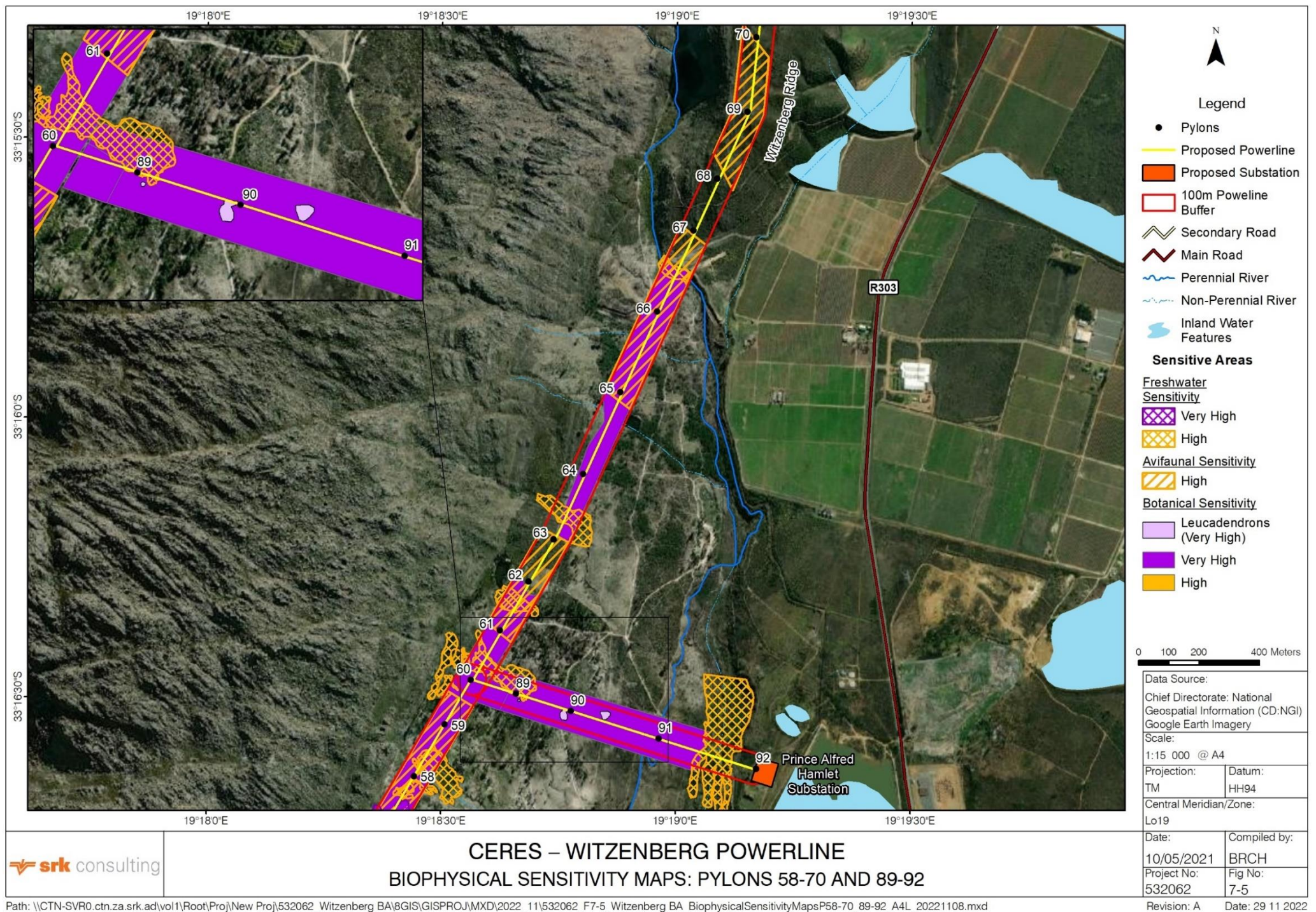


Figure A-5: Biophysical sensitivity map: Pylons 58 to 70 and 89 to 92

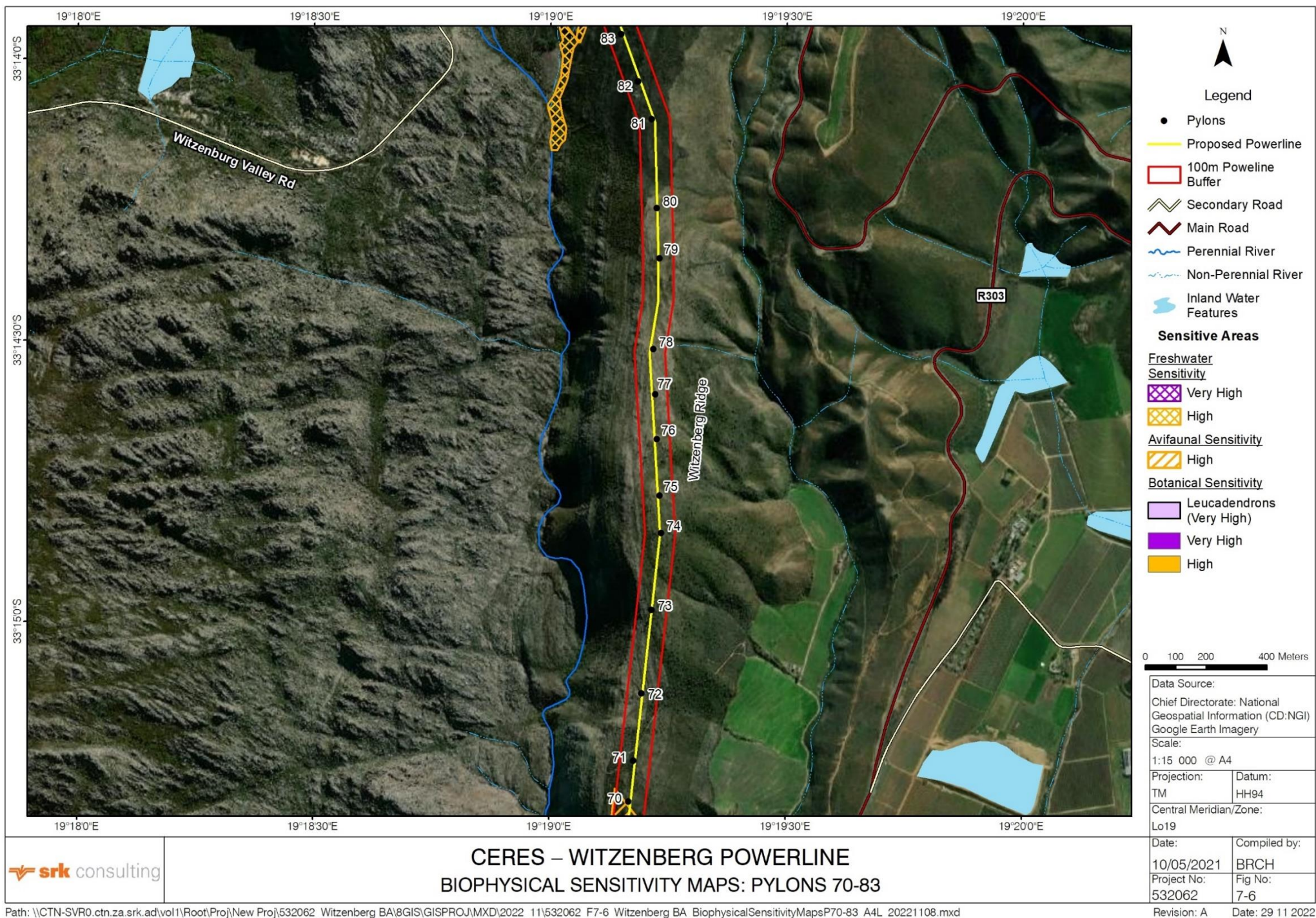


Figure A-6: Biophysical sensitivity map: Pylons 70 to 83

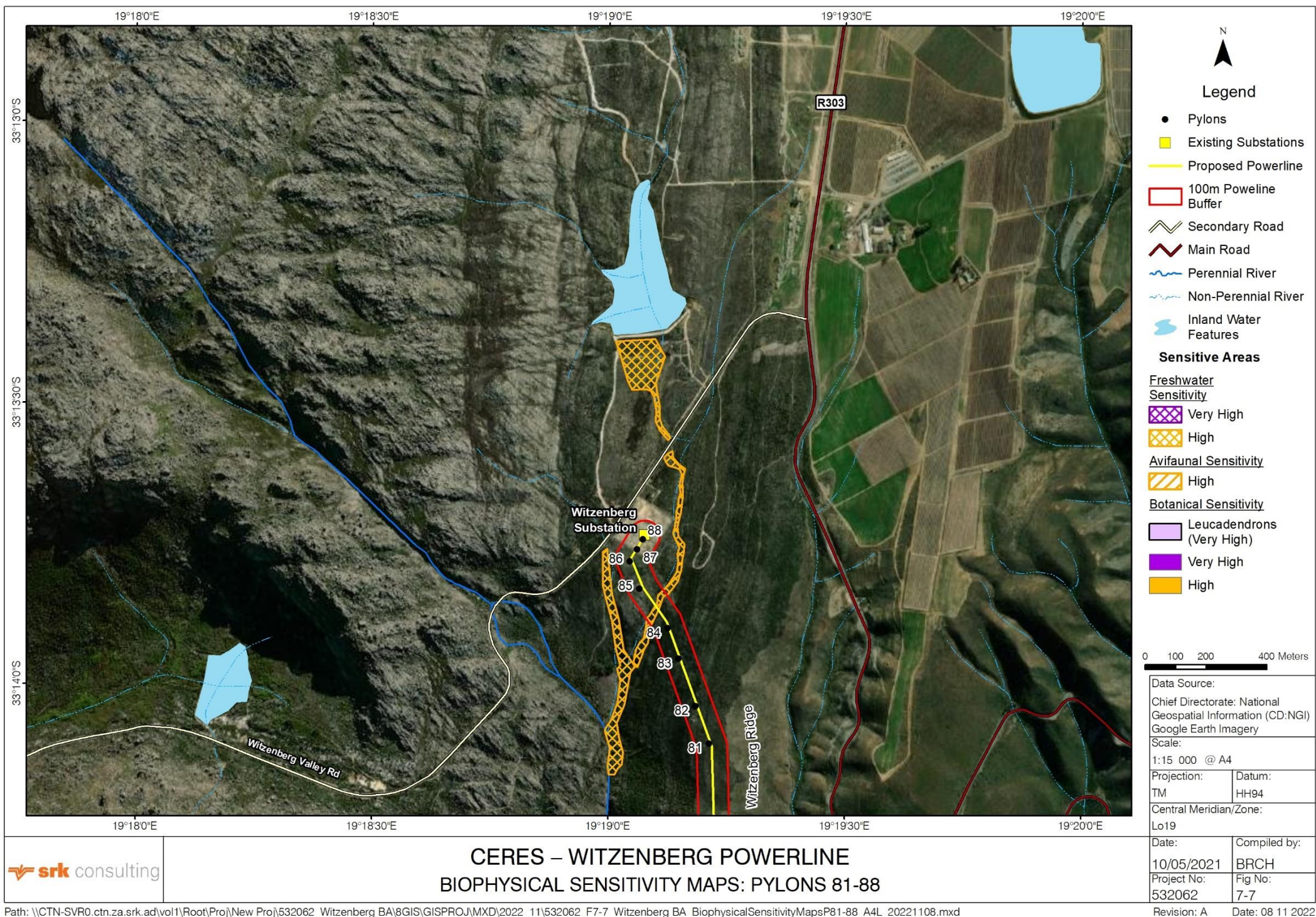
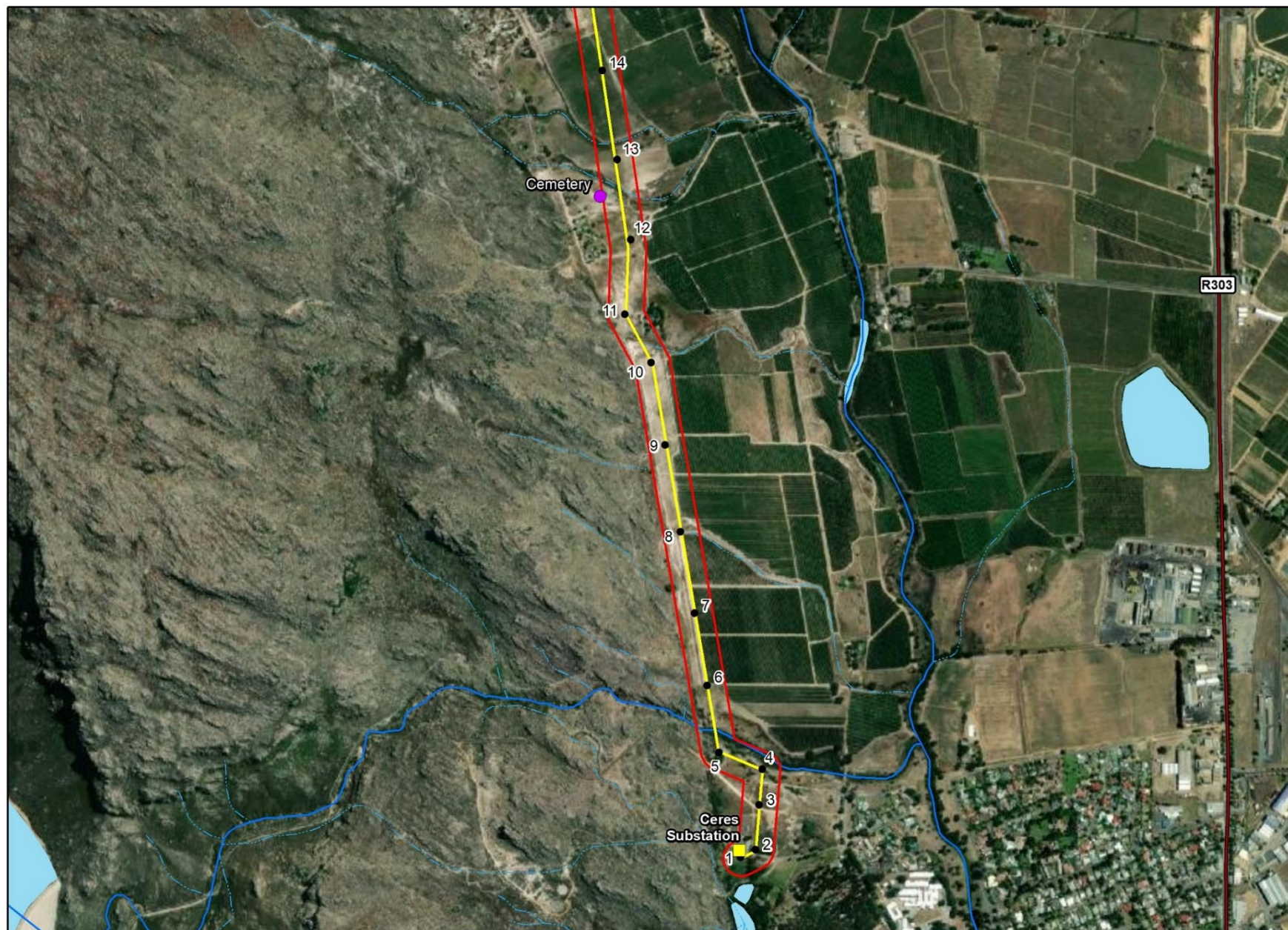


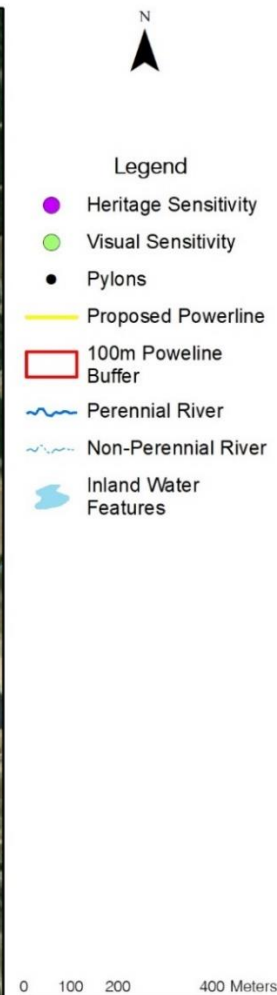
Figure A-7: Biophysical sensitivity map: Pylon 81 to 88



0 100 200 400 Meters

Data Source:	
Chief Directorate: National Geospatial Information (CD:NGI)	
Google Earth Imagery	
Scale:	
1:15 000 @ A4	
Projection:	Datum:
TM	HH94
Central Meridian/Zone:	
Lo19	
Date:	Compiled by:
10/05/2021	BRCH
Project No:	Fig No:
532062	7-8
Revision: A	Date: 13 05 2021

Figure A-8: Cultural sensitivity map: Pylons 1 to 14



Data Source:	
Chief Directorate: National Geospatial Information (CD:NGI)	
Google Earth Imagery	
Scale:	
1:15 000 @ A4	
Projection:	Datum:
TM	HH94
Central Meridian/Zone:	
Lo19	
Date:	Compiled by:
13/05/2021	BRCH
Project No:	Fig No:
532062	7-9
Revision: A	Date: 13 05 2021

Figure A-9: Cultural sensitivity map: Pylon 33 to 47

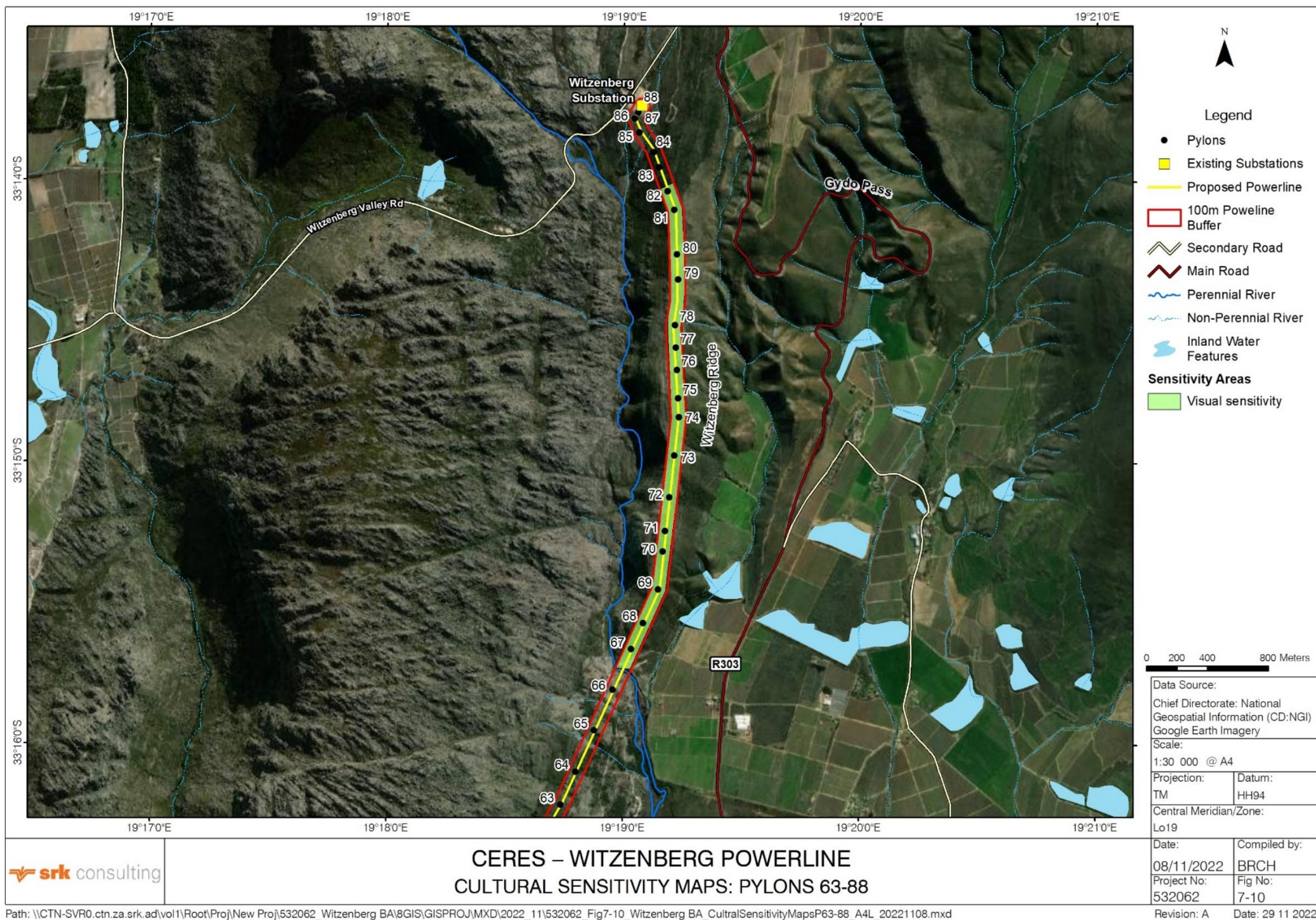


Figure A-10: Cultural sensitivity maps: Pylons 63-88

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