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DRAFT

PRE-CONSTRUCTION, CONSTRUCTION AND POST-CONSTRUCTION PHASE

ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE

THE PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT ON ERF 266 AND A PORTION OF ERF 21 IN RIVERSDALE, HESSEQUA LOCAL MUNICIPALITY, GARDEN ROUTE DISTRICT MUNICIPALITY, WESTERN CAPE PROVINCE.

APPLICANT:	BELLADONNA (PTY) LTD
ENVIRONMENTAL ASSESSMENT PRACTITIONER:	SHARPLES ENVIRONMENTAL SERVICES CC RESPONSIBLE EAP: MADELEINE KNOETZE (EAPASA REG: 2021/3230) OVERSEEING EAP: BETSY DITCHAM (EAPASA REG: 2020/1480)
SES REFERENCE NUMBER:	CT19/RDH/DEMPR/10/25
DATE:	1 October 2025

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APPENDIX 4 OF THE EIA REGULATIONS 2014 (AS AMENDED 2017).

This Environmental Management Programme has been drafted in accordance with Appendix 4 of the Environmental Impact Assessment Regulations 2014 (as amended 2017). The table below shows how the requirements of Appendix 4 have been included within this Environmental Management Programme.

(1) An EMPr must comply with section 24N of the Act and include— (a)details of– (i)the EAP who prepared the EMPr; and (ii)the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Appendix A
(b)a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Appendix B - E
(c)a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Appendix C
(d)a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including— (i)planning and design; (ii)pre-construction activities; (iii)construction activities; (iv)rehabilitation of the environment after construction and where applicable post closure; and (v)where relevant, operation activities;	Section 6 - 10
(f)a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to — (i)avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii)comply with any prescribed environmental management standards or practices; (iii)comply with any applicable provisions of the Act regarding closure, where applicable; and (iv)comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	
(g)the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	
(h)the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	
(i)an indication of the persons who will be responsible for the implementation of the impact management actions;	
(j)the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	
(k)the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 12 -13 Appendix H
(l)a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	
(m)an environmental awareness plan describing the manner in which— (i)the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii)risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 15 Appendix C
(n)any specific information that may be required by the competent authority.	

COMPLIANCE WITH SECTION 24N OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998, AS AMENDED (ACT 107 OF 1998)

(1) The Minister, the Minister of Minerals and Energy, an MEC or identified competent authority may require the submission of an environmental management programme before considering an application for an environmental authorisation.	This Environmental Management Programme (EMPr) has been compiled in accordance with the requirements of the Environmental Impact Assessment Regulations and is currently being circulated for public review purposes.
(1A) Where environmental impact assessment has been identified as the environmental instrument to be utilised in informing an application for environmental authorisation, or where such application relates to prospecting, mining, exploration, production and related activities on a prospecting, mining, exploration or production area, the Minister, the Minister of Minerals and Energy, an MEC or identified competent authority must require the submission of an environmental management programme before considering an application for an environmental authorisation.	
(2) The environmental management programme must contain-	
(a) information on any proposed management, mitigation, protection or remedial measures that will be undertaken to address the environmental impacts that have been identified in a report contemplated in subsection 24(1A), including environmental impacts or objectives in respect of- *(i) planning and design;* *(ii) pre-construction and construction activities;* *(iii) the operation or undertaking of the activity in question;* *(iv) the rehabilitation of the environment; and* *(v) closure, if applicable;*	Sections 8, 9, 0 and 11
(b) details of- *(i) the person who prepared the environmental management programme; and* *(ii) the expertise of that person to prepare an environmental management programme;*	Section 4
(c) a detailed description of the aspects of the activity that are covered by the environmental management programme;	Section 5
(d) information identifying the persons who will be responsible for the implementation of the measures contemplated in paragraph (a);	Section 12 Appendix E
(e) information in respect of the mechanisms proposed for monitoring compliance with the environmental management programme and for reporting on the compliance;	
(f) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and	Sections 8, 9, 0 and 11
(g) a description of the manner in which it intends to- *(i) modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;* *(ii) remedy the cause of pollution or degradation and migration of pollutants; and* *(iii) comply with any prescribed environmental management standards or practices*	Sections 8, 9, 0 and 11
(3) The environmental management programme must, where appropriate-	
(a) set out time periods within which the measures contemplated in the environmental management programme must be implemented;	Section 6 - 10
(b) contain measures regulating responsibilities for any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of prospecting or mining operations or related mining activities which may occur inside and outside the boundaries of the prospecting area or mining area in question; and	Section 12 and 13 Appendix E
(c) develop an environmental awareness plan describing the manner in which- *(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and* *(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment.*	Sections 14 and 15
(4) The Minister of Minerals and Energy may not grant an environmental authorisation, unless he or she has considered any recommendation by the Regional Mining Development and Environmental Committee	Not applicable to the project
(5) The Minister, the Minister of Minerals and Energy, an MEC or identified competent authority may call for additional information and may direct that the environmental management programme in question must be adjusted in such a way as the Minister, the Minister of Minerals and Energy or the MEC may require.	All comments obtained from Stakeholders will be incorporated into this document upon conclusion of the Public Participation Process.
(6) The Minister, the Minister of Minerals and Energy, an MEC or identified competent authority may at any time after he or she has approved an application for an environmental authorisation approve an amended environmental management programme.	Not applicable to the project at this stage

(7) The holder and any person issued with an environmental authorisation-	
(a) must at all times give effect to the general objectives of integrated environmental management laid down in section 23 (Of the NEMA);	Section 12 Appendix E
(b) must consider, investigate, assess and communicate the impact of his or her prospecting or mining on the environment;	
(c) must manage all environmental impacts- *(i) in accordance with his or her approved environmental management programme, where appropriate; and* *(ii) as an integral part of the reconnaissance, prospecting or mining, exploration or production operation, unless the Minister of Minerals and Energy directs otherwise;*	
(d) must monitor and audit compliance with the requirements of the environmental management programme;	
(e) must, as far as is reasonably practicable, rehabilitate the environment affected by the prospecting or mining operations to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and	
(f) is responsible for any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of his or her prospecting or mining operations or related mining activities which may occur inside and outside the boundaries of the prospecting or mining area to which such right or permit relates.	

1. DOCUMENT DETAILS

SES Project Ref. No:	CT19/RDH/DEMPR/09/25
Conditions of Use:	This report is the property of the sponsor, *Sharples Environmental Services cc* (*SES*), who may make allowance to publish it, in whole provided that: Approval for copy is obtained from *SES*. *SES* is acknowledged in the publication. *SES* is indemnified against and claim for damages that may result from publication of specifications, recommendations or statements that is not administered or controlled by *SES*. That approval is obtained from *SES* if this report is to be used for the purposes of sale, publicity or advertisement. *SES* accepts no responsibility for failure to follow the recommended program.
Disclaimer	**This Environmental Management Programme has been compiled in line with Appendix 4 of Environmental Impact Assessment (EIA) Regulations of 2014, as amended (GNR 326 of 2017). This EMPr has been submitted to the Competent Authority as part of the EIA process followed in terms of the EIA Regulations of 2014, as amended. Even though numerous renditions of this report exist, this report (in its final state), aims to replace any other version of this document, upon authorisation of the project by the Department of Forestry, Fisheries & Environment (DFFE).* **All technical developmental information contained in this EMPr was provided by Belladonna (Pty) Ltd and SES does not take any responsibility regarding the accuracy of the information.* **This EMPr and the preliminary impacts identified is based on the expected sensitivity of the receiving environment based on the observations made by the appointed Environmental Assessment Practitioner (EAP) and the specialists qualified to make such interpretations.*

2. ABOUT THIS EMPR

This document is intended to serve as an implementing guideline to be used by *Belladonna (Pty) Ltd* during the pre-construction, construction, and post-construction phases of the proposed mixed-use development. This document provides measures that must be implemented to ensure that any environmental degradation that may be associated with the proposed development is avoided, or where such impacts cannot be avoided entirely, are minimised and mitigated appropriately.

This Environmental Management Programme (EMPr) has been prepared in accordance with Appendix 4 of the Environmental Impact Assessment (EIA) Regulations of 2014, as amended (Government Notice Regulation [GNR] 326 of 2017; GNR 517 of 2021), which stipulates the minimum requirements of an EMPr, Section 24N of the National Environmental Management Act, 1998, as amended (Act No. 107 of 1998), and with reference to the "Guidelines for Environmental Management Programmes" published by the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP, 2005).

In line with the mitigation hierarchy (see Figure 1), the overarching goal of this EMPr is to anticipate and provide measures that must be implemented to ensure that any environmental impact that may be associated with the development is avoided. Where such impacts cannot be avoided entirely, such environmental impacts must be minimised and mitigated appropriately. The mitigation hierarchy was considered during the BAR planning process, to appropriately manage environmental impacts.

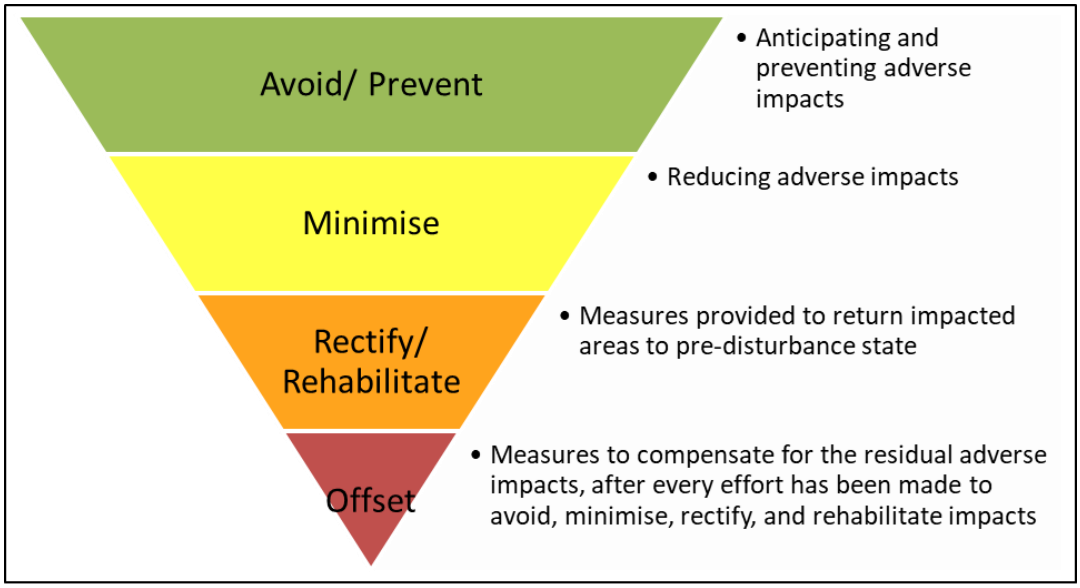

Figure 1. Mitigation hierarchy

It is important to note that not only is the EMPr designed to manage the physical establishment of the development *per se*, but also acts as a tool which can be used to manage the environmental impacts of the development.

Hierarchy level		Description in relation to the proposal
1	Avoid	Through the implementation of the proposed project and the proposed development layout, the natural environment will be avoided. It should be noted that the impact on the agricultural resources will not be avoided as part of the proposed development. The impacts the proposed development must be considered from a cumulative perspective (also highlighted as such by the appointed specialist).
2	Minimise impacts	The recommended mitigation measures of the various specialists reports in addition to the mitigation measures to be provided in the EIA will lead to the minimisation of the impacts of the construction phase.
3	Rectify	Rehabilitation measures will be proposed in the EMPr in order to manage the impacted areas, outside of the development footprint, back to a functional state. The Applicant, and by extension, the Contractors, will be responsible for rectifying any non-compliances with the conditions of the EA and EMPr.
4	Reduce	In order to manage the impact on the watercourse located on site, the specialist has indicated that the watercourse must be considered a no-go areas and should be incorporated into the stormwater management infrastructure. This watercourse may not be developed. In order to reduce the direct and indirect impacts of the proposed development, the EMPr compiled for the proposed development must be adhered to and mitigation measures provided therein must be implemented during the various phases of the proposed development.
5	Offset	In June 2023, the Department of Forestry, Fisheries and Environment (DFFE) promulgated the National Biodiversity Offset Guidelines in terms of the National Environmental Management Act. 1998, as amended (Act No. 107 of 1992). Based on the National Biodiversity Offset Guidelines, 2023 (GN 3569 of 2023), an offset is required where the residual impacts are Medium or High. The proposed development is located within the Eastern Ruens Shale Renosterveld ecosystem type. This ecosystem type is considered Critically Endangered. That being said, the specialist has confirmed the following: - There is essentially no natural vegetation remaining on site, as >97% of the site is regularly cultivated. The two small patches of CBA2 may support some low diversity, partly natural vegetation, one on the eastern corner and on the western corner, but both have clearly been moderately to heavily disturbed. - The vegetation in the study area is deemed to be of Very Low sensitivity, with the small patches of partly natural remnants (the terrestrial CBA2 areas) being of Low sensitivity at a regional scale.

Hierarchy level		Description in relation to the proposal
		- Overall both the construction and operational phase ecological Impacts of the proposed subdivision and development here are likely to be Low negative before and after mitigation. Therefore, no Offsets are applicable to the proposed development.

The rehabilitation, mitigation, management and monitoring measures prescribed in this EMPr must be seen as binding to the *Proponent*, and any person acting on its behalf, including but not limited to agents, contractors, employees, associates, guests or any person rendering a service to the development site.

2.1. Environmental legislative requirements of the proposed infrastructure

The EIA Regulations of 2014, as amended (GNR 326 of 2017; GNR 517 of 2021), as promulgated in terms of the National Environmental Management Act, 1998 (NEMA; Act No. 107 of 1998), gives effect to the Constitution of the Republic of South Africa by providing a framework for co-operative environmental governance and the environment. NEMA requires that an environmental authorisation (EA) be granted by a competent authority (CA) before the commencement of an activity listed in terms of the EIA Regulations of 2014, as amended.

Since this development proposal triggered listed activities in terms of the EIA Regulations of 2014, as amended, in terms of Listing Notice 1 and 3 of 2014, as amended, a Basic Assessment Process was undertaken. This EMPr acts as a standalone document submitted with the Basic Assessment Report submitted to the Department of Environmental Affairs and Development Planning (DEADP) for the purpose of obtaining Environmental Authorisation.

The following listed activities will be triggered in terms of the relevant Listing Notices:

Table 1. Listed Activities triggered in terms of Listed Notice 1 and 3 of 2014, as amended.

Activity #	Listing Notice 1. Description of Activity as per GN No. R 327	Reason for Listing
9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or stormwater – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where - (a) such infrastructure is for bulk transportation of water or stormwater or stormwater drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	According to the Civil Services Report, the proposed development layout makes allowance for water and stormwater infrastructure. The water infrastructure provisions in the civil services report falls below the triggerable thresholds for the proposed development. However, regarding the stormwater infrastructure, most designs are focused on managing runoff through localized measures like water tanks and detention areas, rather than large bulk transport systems. This could potentially be required during detailed design phase of the civil infrastructure.
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 (b) if no development setback line exists, within 32 metres of a watercourse, measured from the edge of a watercourse.	According to the aquatic biodiversity specialist, there is a small (0.25 ha) seep wetland located within the boundaries of the proposed development site. The wetland is situated in an area where, as per the preferred SDP for the project, there will be General Residential housing. In accordance with the recommendations of the aquatic specialist, the Applicant envisions to incorporate the feature into the stormwater management of the proposed development. No buffer was suggested for

		the wetland by the specialist. There is a likelihood that infrastructure may be located within 32 m of the watercourse..
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	There is a small (0.25 ha) seep wetland located within the boundaries of the Remainder of Erf 21. It has been indicated in the SDP that this wetland will be absorbed in the General Residential Zone II topology. The Applicant indicated that the watercourse will be preserved as part of the stormwater attenuation features of the site as suggested by the appointed specialist.
24	The development of a road (ii) with a reserve wider than 13.5 metres, or where no reserve exists, whether the road is wider than 8 metres.	As per Section C.6 above, the proposed development will see to the extension of three existing roads within an urban area. Therefore, the activity does not apply for the external access roads. It should be noted that the proposed development itself will include internal roads that varies between having a reserve of up to 16 m. Therefore, it is anticipated that the road width will be wider than the threshold for this activity (as each lane will be at least 3.4 m in width where the road reserve is 16 m).
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.	The terrestrial biodiversity specialist indicated that the proposed development site consists of 97 % agricultural transformation, with the remnant vegetation associated with the critical biodiversity areas being severely modified. Based on the site observations by the EAP (due to disturbed nature of the vegetation as described in the SSVR) no indigenous vegetation remains on site. The impact of the proposed development on the mapped CBAs and the remaining mapped extent of the Endangered Ecosystem (Eastern Ruens Shale Renosterveld) will exceed the minimum threshold of this activity.
28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The proposed development will see to the transformation of land currently used and zoned as agriculture (with a total extent of 54.6 ha) to mixed use development.
Activity	**Listing Notice 3. Description of Activity as per GN No. R 324**	**Reason for listing**
12	The clearance of an area of 300 square metes or more of indigenous vegetation. i. Western Cape i. Within any critically endangered or endangered ecosystem listed in terms of Section 52 of the NEMBA. ii. Within critical biodiversity areas identified in bioregional plans	The terrestrial biodiversity specialist indicated that the proposed development site consists of 97 % agricultural transformation, with the remnant vegetation associated with the critical biodiversity areas being severely modified. Based on the site observations by the EAP (due to disturbed nature of the vegetation as described in the SSVR) no indigenous vegetation remains on site. The impact of the proposed development on the mapped CBAs and the remaining mapped extent of the Endangered Ecosystem (Eastern Ruens Shale Renosterveld) will exceed the minimum threshold of this activity.

2.2. Important caveat to the report

In the past, some developments have had a devastating impact on the environment even though they have had EMPrs in place, while other developments have had a low impact even though no management plans have been compiled.

The Implementing Agent and the attitude of the construction team play an integral role in determining the impact a development will have on the environment. The independent Environmental Control Officer (ECO) needs to ensure that all role-players are aware of the constraints that the EMPr places on the development and the construction team and are prepared to be actively involved in implementing these constraints. The end result relies on co-operation, mutual respect and understanding of all parties involved.

3. HOW TO USE THIS DOCUMENT

It is essential that this EMPr be carefully studied, understood, implemented, and adhered to as far as reasonably possible, throughout all phases of the proposed development. The *Proponent* must retain a copy of this EMPr, and an additional copy must be kept on site at all times during the pre-construction, construction and post-construction / rehabilitation phases of the proposed upgrade project.

This EMPr must be included in all contracts compiled for engineers, contractors and subcontractors employed by the *Proponent*, as this EMPr identifies and specifies the procedures to be followed by engineers and other contractors to ensure that the adverse impacts of construction and maintenance activities are either avoided or reduced. Appointed contractors must make adequate financial provision to implement the environmental management measures specified in this document.

This EMPr must be seen as a working document, which may be amended as and when needed accommodate changing circumstances on site or in the surrounding environment, or to accommodate requests/ conditions issued by the DEADP. Amendments to this EMPr must first be approved by the Competent Authority, in writing, before being implemented.

4. DETAILS OF THE EAP & TECHNICAL/SPECIALIST INPUT

This EMPr was compiled by Sharples Environmental Services cc (SES). SES was established in 1998 and has been actively engaged in the fields of environmental planning, assessment and management. SES advises on private, corporate and public enterprises on a variety of differing land use applications ranging from large-scale residential estates and resorts to golf courses, municipal service infrastructure installations and the planning of major arterials. Our consultants have over 20+ years of combined experience and we operate in the Southern, Eastern and Western Cape regions.

A brief description of the Environmental Assessment Practitioners (EAP) has been included below, as per Table 1, and a detailed Curriculum Vitae has been included in Appendix A.

Table 1: EAP Details.

Role:	Name:	E-Mail Address:	Qualifications:	Registration/ Memberships	YEARS OF EXPERIENCE
Responsible EAP	Ms. Madeleine Knoetze	madeleine@sescc.net	B.Sc. Environmental Sciences (Geology and Geography) (NMMU)	IAIA (SA) EAPASA (Reg nr. 2021/3230)	10+ years
Overseeing EAP	Mrs. Betsy Ditcham	betsy@sescc.net	B.Sc. Honours (Wildlife Management) (UP) B.Sc (Zoology and Ecology (UCT)	IAIA (SA) EAPASA (Reg Nr. : 1480)	16+ years

5. DESCRIPTION OF THE ACTIVITY

Belladonna (Pty) Ltd proposes the development of the Erf 266 and a portion of Erf 21 from the current land use (Agriculture) to a mixed-use residential development. It has been confirmed that the two properties have been included in the Urban Edge defined by the Hessequa Municipality. As indicated by both Appendix L4 and the adoption of the 2024/2025 Spatial Development Framework (SDF) of the Hessequa Local Municipality (HLM).

The proposed development site is located North of the N2-Highway. The remaining portion of Erf 21 (located toward the south of the N2-Highway) will retain its current land use and Zoning. Please see the figure below.

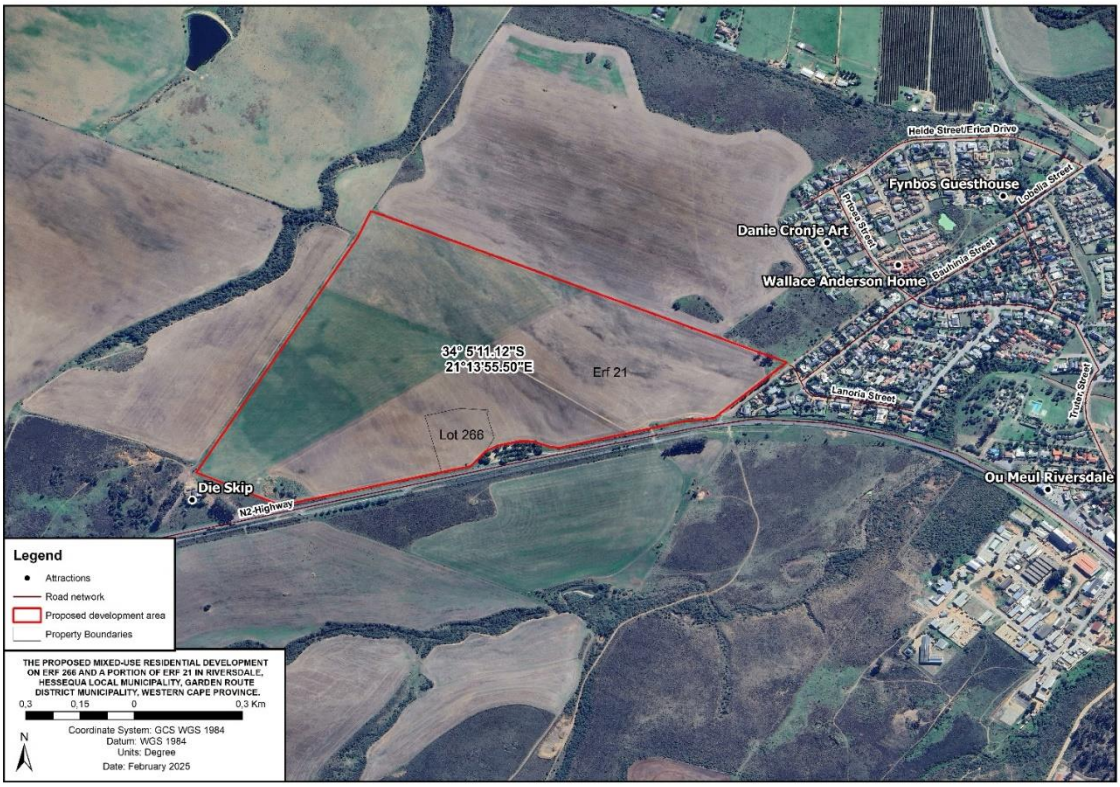

Figure 1. Locality map of the proposed development.

The preferred site development plan comprises the development of the following topologies:

- 27 Agricultural Zone II erven with a combined extent of 27.5 ha
- 159 Single Residential erven with a combined extent of 10.4 ha

- 3 Pockets of General Residential Zone II areas with a combined extent of 10.4ha
- 1 Business Zone with an extent of 0.7 ha;

Additionally, several ancillary land uses are also proposed which include the internal and access roads,

- Transport Zone II erven with a combined extent of 3.8 ha
- Transport Zone III erf with an extent of 1.9 ha
- Utility Zone with an extent of 0.2 ha; and
- 3 Open Space Zone 1 erven with a combined extent of 1.5 ha.

The above can further be elaborated on:

- Smallholdings / 1ha lifestyle erven forming a gated community with restricted agricultural land uses such as equestrian use – Proposed zoning Agricultural Zone II
- Low density single residential erven – Proposed zoning Residential Zone II
- Medium density general residential erven – Proposed zoning General Residential Zone II
- Retirement village / frail care unit – Proposed zoning General Residential Zone II

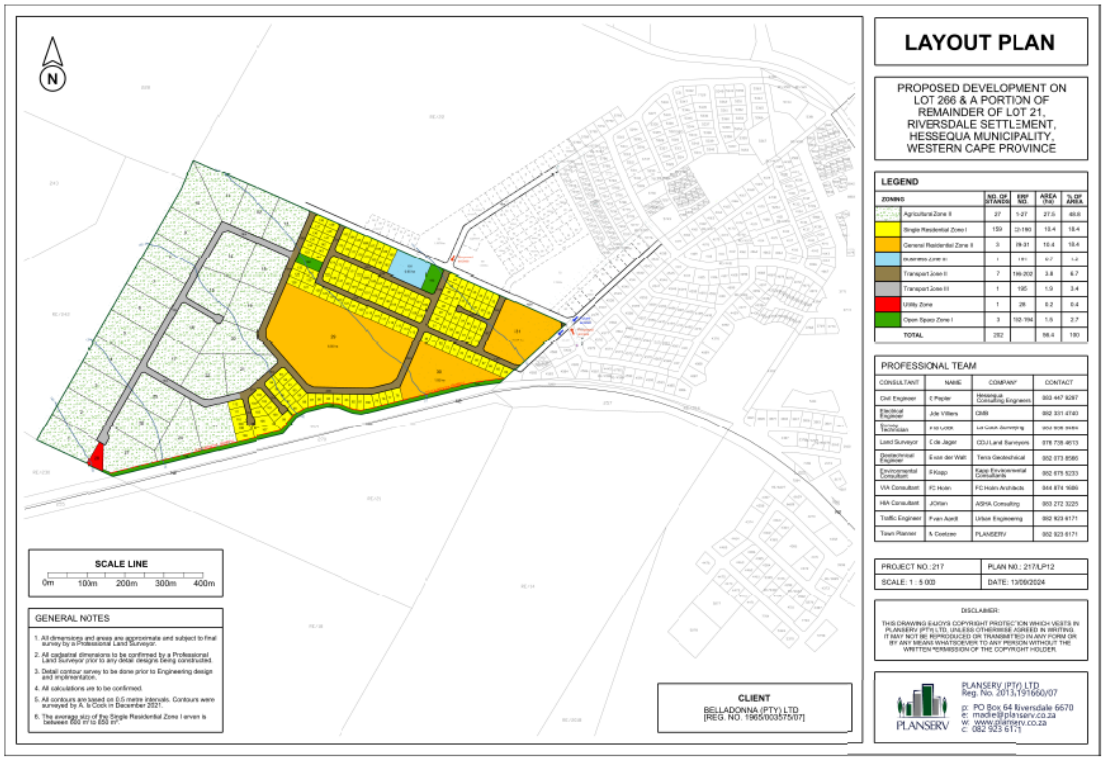

Figure 2. Proposed preferred site development plan.

The following project descriptions are applicable to the proposed development's external infrastructure as per the requirements of the project's civil engineering and electrical services reports.

(1) External Roads Infrastructure

The proposed roads infrastructure will have the following lengths, widths and reserve widths:

- Access road 1: Extension of Labolia Street (considered a Class 4b road)
  Please note, the reserve associated with the extension of Labolia Street is located within properties earmarked for the future extension of the road. The reserve is 16 m in width (allowing for multidirectional traffic with a minimum lane width of 3.4 m per lane). The portion the road to be formalised as part of the proposed development will be 494 m. The total footprint of the expansion will be approximately 0.68 ha.
- Access road 2: Extension of Lanoria Street (Remainder of Erf 22) (considered a Class 5 road)

The proposed reserve is 16 m in width (allowing for multidirectional traffic with a minimum lane width of 3.4 m per lane). The portion the road to be formalised as part of the proposed development will be 724 m. The total footprint of the expansion will be approximately 1.17 ha.

- Access road 3: Extension of Erica Drive (Remainder of Erf 22) (considered a Class 5 road)
  The reserve is 16 m in width (allowing for multidirectional traffic with a minimum lane width of 3.4 m per lane). The portion the road to be formalised as part of the proposed development will be 468 m. The total footprint of the expansion will be approximately 0.82 ha.

According to the Traffic Assessment for the proposed development, traffic counts at the following intersections were undertaken:

- Intersection of Erica Street and Protea Street,
- Intersection of Bauhinia Street and Protea Street,
- Intersection of Lobelia Street and Erica Street,
- Intersection of Protea Street and Langezicht access road.

It was found that the following interventions would be required from a traffic impact perspective to accommodate the traffic to be associated with the proposed development:

- Short Term (Immediate Implementation): Conversion of the current 4-way STOP at intersection of Bauhinia Street and Protea Street, to a new 2-way STOP controlled intersection with priority movement along the Bauhinia approaches to the intersection.
- Long Terms (5 to 15 year period): Formalisation of the gravel jeep track road currently situated within the Lobelia Street road reserve. Please note this intervention has been incorporated into the proposed development layout.

(2) External Stormwater Layout Plan:

- Graeme McGill Consulting Engineers was appointed to prepare a Storm Water Management Plan (SWMP) for the proposed development as well the drainage through the lower lying areas.
- The following measures are proposed to mitigate the impact of post development stormwater runoff on the existing infrastructure downstream from the proposed development:
  - Installation of 5 000 kℓ water tanks on each residential erf will contribute to the attenuation of initial runoffs.
  - Public Open Spaces will be utilised as recreation areas as well as stormwater detention areas where the concentration of stormwater runoff will be minimised through the application of landscaping techniques, i.e. by creating grass lined swales, undulations and depressions.
  - Post development runoffs will be attenuated with the construction of stilling basins and energy dissipating structures at outlet structures.
  - As indicated in the image below, the proposed development will be equipped with four attenuation ponds (as detailed in Appendix L5):
    - Pond 1: Located within a General Residential Zone II plot will have an area of approximately 4 110 m^2 with a capacity of approximately 4 570 m^3.
    - Pond 2: Located within a Open Space Zone I plot will have an area of approximately 1 390 m^2 with a capacity of approximately 2 130m^3.
    - Pond 3: Located within a General Residential Zone II plot will have an area of approximately 3 030 m^2 with a capacity of approximately 4 040 m^3.
    - Pond 4: Located within a General Residential Zone II plot will have an area of approximately 860 m^2 with a capacity of approximately 730 m^3.

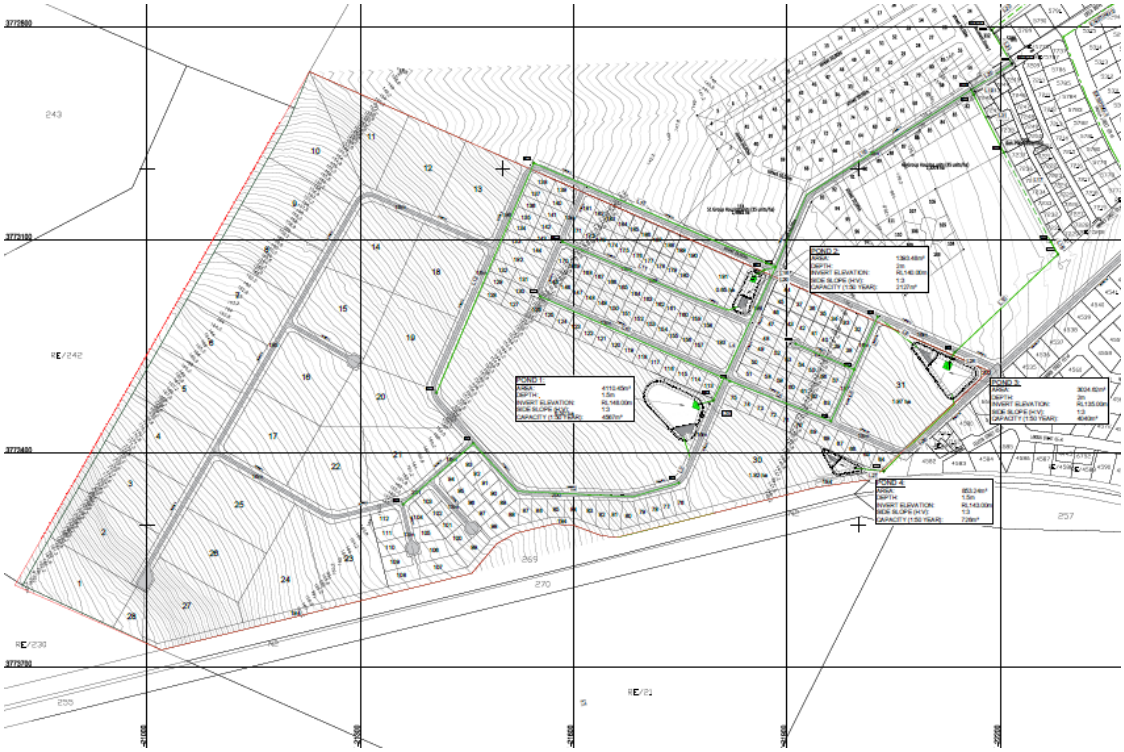

Figure 2. Proposed Internal Stormwater Management Infrastructure.

(3) External Water Connection:

- Hessequa Municipality confirmed on 30 July 2024, through the Municipal Manager Mr. A. de Klerk, reference 17/7/5/9, that Hessequa Municipality (Riversdale) consists of sufficient water sources to accommodate the development of Erf 21.
- The proposed development falls within the High-Level Reservoir Zone and require storage capacity of 1 Mℓ that represent 48 hours of the AADD. The existing storage capacity at the High-Level Reservoir Zone is 5,64 Mℓ with a Full Water Level (FWL) of 213,02m.
- The proposed development has an elevation range between 135,5 and 183,5 m a.s.l. All erven will have a minimum of 24m water pressure.
- In accordance with the GLS Report, dated June 2015, the following Link Water Main will be required to accommodate the proposed development in the existing High-Level Zone 1,855m Long, 200mm Ø, uPVC Water Link between existing 200mm High Level pipe network, at the northwestern corner of the Cemetery (adjacent to the N2) and Erf 21. It is proposed that the pipeline be upsized to an 250mm Ø, uPVC to accommodate the future developments in the area. Blue line in the image below.

Figure 3. Proposed External Water Infrastructure (indicated in blue)

(4) External Electrical Connection:

- When the load requirement of this development and the adjacent Erf RE/22 exceeds the available capacity of 856 kVA of the aforementioned 35mm² Cu x 3 core MV cable, a new 11kV feeder, indicated in green on Drawing No. 19076/E/01, Rev.1, must be supplied and installed from the existing 11kV overhead line between the "Main Intake Substation" and "SS-Main". The 11kV feeder will consist of a ring main unit, 11kV underground cable, and 11kV overhead line.
- The Municipality indicated that they will take-over:
    - The external 11kV electrical reticulation to the two group housing developments on Erven 29 and 30, i.e the 4-way Ring Main Unit "RMU-Lanoria", 11kV underground cable from said ring main unit to the aforementioned private developments, including the 11kV bulk supply points each consisting of a 11kV ring main unit and metering unit.
    - The LV connections to the erf boundaries of the group housing developments on Erf 31 and the Business Zone II erf, including the LV bulk supply points each consisting of a tariff circuit breaker and kVA/kWh bulk meter.
    - The MV reticulation and LV reticulation to the 27 Agricultural Zone II Erven and 155 single Residential Erven up to the erf boundary of each erf, i.e. MV underground cable, miniature substations, LV kiosks, LV underground cables and streetlights.
    - The 11kV underground / overhead line feeder between the Main Intake Overhead line and the aforementioned 4-way ring main unit.
- For this reason, the external electrical installations mentioned above would have to comply with the technical requirements of the Municipality and their supply conditions.
- The internal 11kV installations on the load side of the MV Supply Points at the private developments, the LV installations on the load side of the LV tariff breakers inside the LV compartment of the miniature substations at Erven 31 and 191 and the LV installation inside each of the single residential and Agricultural Zone II erven, will be taken over by the Developer/ Body Corporate/home owners.

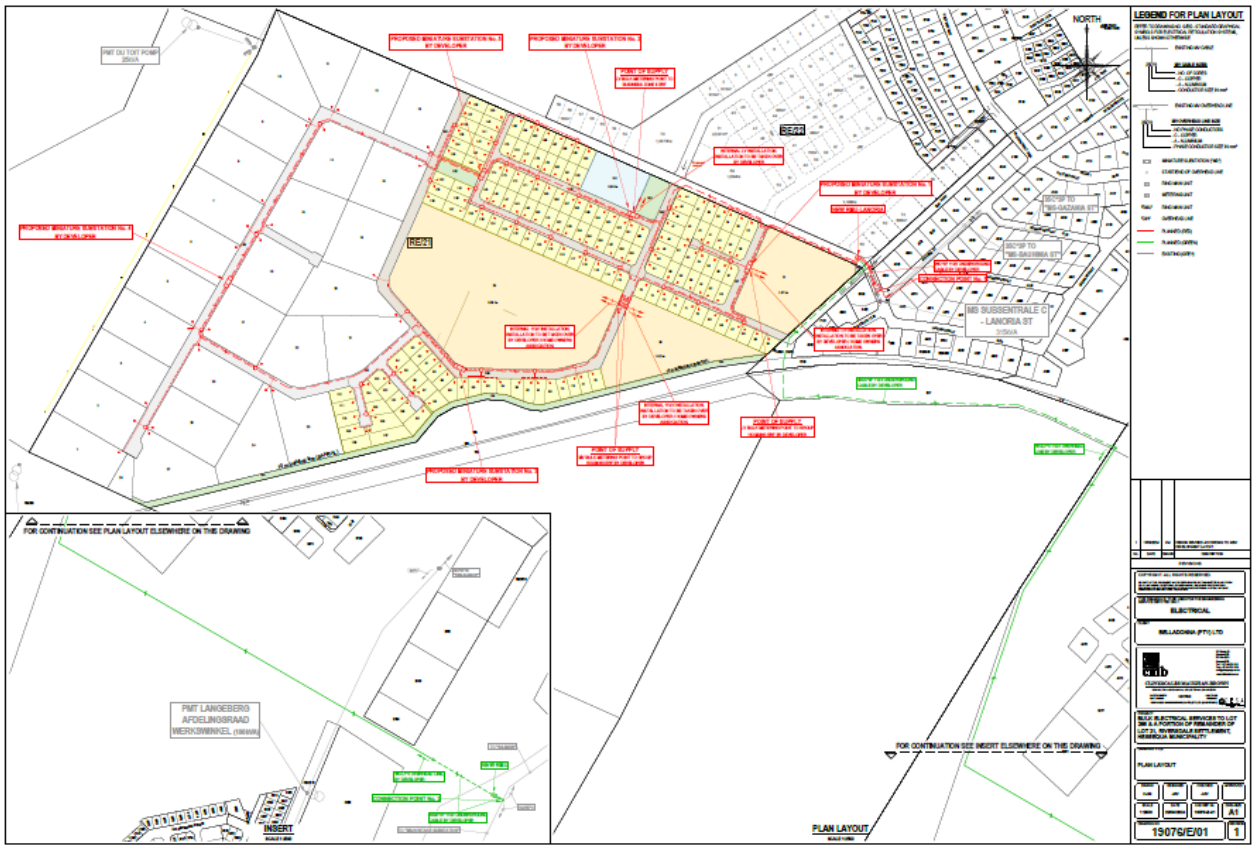

Figure 4. Proposed Internal (red) and External Electrical (green) Reticulation.

(5) External Sewer Connection:

- The existing WWTW has a design capacity of 4,0 Mℓ/d. Hessequa Municipality confirmed on 30 July 2024, through the Municipal Manager Mr. A. de Klerk, reference 17/7/5/9, that the WWTW in Hessequa Municipality (Riversdale) consists of sufficient capacity to accommodate the proposed development.

- In accordance with the Guidelines for the Provision of Engineering Services and Amenities in Residential Township Development it is expected that 70% of the Average annual water daily demand will end up in the wastewater system. The annual average dry weather flow (AADWF) equals 70% of 500 kℓ/d = 350 kℓ/d = 4,05 ℓ/s. To determine the Peak Wet Weather Flow (PWWF) a peak factor of 2,32 were taken in consideration with an expected stormwater infiltration of 15%. The PWWF equals 10,8 ℓ/s.

- Design specifications:
  - Design parameters: Average daily flow as per Red Book for the different housing categories Peak factor – Harmon formula: Extraneous flow – 15% : Minimum velocity – 0.7m
  - Minimum cover to pipes: 0.80m
  - Minimum pipe size: 110mm diameter for house connections : 160mm diameter for sewer mains
  - House connection depth shall generally be 1.0m but at least be able to drain 80% of an erf.
  - Maximum manhole spacing of 80m.

Figure 5. Proposed External Sewer Infrastructure (indicated in green)

6. SUMMARY OF FINDINGS OF THE SPECIALISTS

Specialist Details	Sensitivity of receptors	Summary of findings
ASHA Consulting (Pty) Ltd Jayson Orton (Heritage Consultant)	Medium	During the site visit, the following was observed: • Although they cannot be properly understood due to the poor ground visibility at the time of the survey, indications are that archaeological materials are present on the site. A key concern is that the density of such materials cannot be determined. These archaeological resources are most likely to have low cultural significance at the local level for their scientific value and could potentially be graded IIIC with the implication that mitigation can be implemented and the material would not prevent development. It is also possible that their density may be too low for meaningful research and that a grade of NCW may apply with no mitigation required. The chances of a higher significance and grade are considered very small. • There are no graves or historical/built environment resources on or close to the site. • On site the landscape does not have much intrinsic cultural significance. The local urban landscape has no heritage value and the few remaining historical structures in the core area of Riversdale lie far from the proposed development, more than 1 km away, and engulfed by modern buildings. However, the wider region spanning the Agulhas Plain from the mountains to the coast does have cultural significance for its aesthetic value and is rated as having at least medium cultural significance at the local level. It can be graded at least IIIB. Included in this landscape is the N2 as a scenic route. It, too, is thus graded IIIB. • Other than the wider landscape and N2 scenic route, there are no specific graded heritage resources to be mapped on or close to the site. As such, no grade map is provided.

Specialist Details	Sensitivity of receptors	Summary of findings
John Almond (Palaeontological Consultant	Medium	Direct impacts to palaeontological resources would occur during the construction phase when excavations for foundations and services are made. While fossil wood fragments could be found, they would be difficult for lay people to recognise. However, fossil bones (potentially dinosaur) would be more recognisable and are of significant research value. The potential impact intensity is thus regarded as high, but the features are improbable to find on site.
HC Holm (Visual Specialist)	High	Five (5) viewpoints were identified for the proposed development site: • Viewpoint 1 is situated at the northwestern corner of the Langezicht residential complex located along Erica Street – Site exposure is expected to be high at this point. • Viewpoint 2 is situated at the Oakdale High School's entrance gate on the R323 – Site exposure is expected to be moderate at this point. • Viewpoint 3 is situated on the corner of the Ou Meul Restaurant located along the N2 highway – Site exposure is expected to be moderate to high at this point. • Viewpoint 4 is situated on the N2 highway leading to George, looking in an easterly direction towards the site – Site exposure is expected to be moderate at this point. • Viewpoint 5 is situated in the industrial area along Fritz Grub Crescent – Site exposure is expected to be moderate to high at this point.
Nick Helm (Terrestrial Biodiversity and plant species specialist)	Low	Eastern Ruens Shale Renosterveld is gazetted as Critically Endangered on a national basis (Government of South Africa 2022), with less than 19% of its total original extent remaining intact, less than 1% conserved, and a national conservation target of 27% (Rouget et al 2004). The unit supports a very high number of threatened and endemic plant species, and occurs on nutrient rich, shale derived soils in the lowland area between Swellendam and Albertinia, and the vegetation type needs fire for optimal ecological functioning (Helme and Rebelo 2016). There is essentially no natural vegetation remaining on site, as >97% of the site is regularly cultivated. The two small patches of CBA2 may support some low diversity, partly natural vegetation, one on the eastern corner and on the western corner, but have both clearly been moderately to heavily disturbed, and were used as dumping grounds for rocks, equipment, animal feed and storage areas for farm implements over many years. The areas also each support a few alien trees, probably for livestock shade, in the form of gums (*Eucalyptus* sp.) and rooikrans (*Acacia cyclops*). The vegetation in the study area is deemed to be of Very Low sensitivity, with the two small, partly natural remnants (terrestrial CBA2 areas) being of Low sensitivity at a regional scale. No plant Species of Conservation Concern (SoCC) are likely to be present anywhere within the study area, given its long history of agricultural disturbance.
Agriculture	High	The assessed site is classified almost entirely as high agricultural sensitivity by the screening tool. This has been confirmed by this assessment, because of the agricultural production potential and current agricultural land use. The soils are limited by high stone content, drainage limitations, and shallow depth in places but are nevertheless suitable for the grain production that takes place on the site. There is not significant variation in agricultural production potential across he site and the whole site is considered suitable for cropping. the soils on site are rated, in the ten-point system of soil capability used in the Western Cape, as being between 5 and 6.
Willem Matthee and Jan Venter (Animal Species)	Low	During the site visit, a total of 22 animal species were recorded, with one amphibian, 14 bird species, one gastropod, five insect species, and one mammal species being recorded. Notable observations included a total of four Blue Cranes (*Grus paradisea*) feeding in the harvested fields on the property, Common Quail (*Coturnix coturnix*) calling from the cultivated fields, and the dung of Steenbok (Raphicerus campestris) in the harvested fields. These cultivated fields (both while under cultivation, and after being harvested) provide a habitat for the species recorded, but there is an abundance of similarly suitable habitat for these species in surrounding areas, and the development is

Specialist Details	Sensitivity of receptors	Summary of findings
		unlikely to have a major impact on the continued survival of these species in this area.
Dietmar de Klerk (DDK Consulting) (Aquatic Biodiversity)	Low	A small (approximately 2 500m^2) depression wetland was delineated within the proposed development area. The delineation aligns with the 2017 WCBSP (during which it was delineated as an ESA), the NFEPA wetland delineations and the NWM5 delineations. Additionally, a number of valley bottom wetlands were identified within the proposed servitudes of the external infrastructure (specifically the electrical and water reticulation infrastructure). Based on the findings of the DWS risk assessment, the potential impact on the freshwater resources are anticipated to be Low with mitigation measures implemented.

7. GENERAL ENVIRONMENTAL MANAGEMENT

The following general management measures are intended to protect environmental resources from pollution and degradation during all phases of the project life cycle. These measures must be implemented as and where applicable, reasonable and practicable during the pre-construction, construction and post-construction rehabilitation and operational (maintenance) phases of the proposed development.

7.1. Code of Conduct

The purpose of the Code of Conduct (CoC) is to minimise the impact of the activities associated with the construction phase on the environment. The rules and regulations prescribed in this CoC are intended to ensure that the impacts on the environment are not prejudiced by the construction activities. Failure to adhere to, or any breach of the conditions within the CoC will result in a fine being levied against the offending or defaulting party / individual.

Labourers appointed during the construction phase must conserve the natural environment, endorsing the principles of sustainable use and minimum impact. They must also be sensitive to the impact of their operations on the environment within which they work and, in doing so, minimise any adverse impacts.

This EMPr forms an integral part of the activities during the construction phase and as such, is legally enforceable. In addition to the restrictions and controls provided for in this EMPr, the environmental controls comprise of the following:

- **Engineers**
  Unless otherwise stated by the *Holder* of the Environmental Authorisation (hereafter referred to as the *Holder*), only a registered engineer must be appointed for the construction phase of the project. The engineer must provide work or services of quality and scope, and to a level, which are commensurate with accepted standards and practices. The engineer must be impartial in decision-making, provision of advice and judgement.
- **Contractors and sub-contractors**
  Unless otherwise determined, only appropriately registered contractors must be appointed. It will be the responsibility of the *Holder* / engineer to ensure that the contractors abide by and comply with the rules and regulations of the Code of Conduct. Contractors shall be responsible for their sub-contractors and employees whilst they are on the development property at all times.
- **Rules and Regulations**

It is of vital importance that engineers, and contractors understand and acknowledge that they are working on a site that has undergone an environmental assessment, and if authorised will require compliance with all relevant permits/licenses and this EMPr. The role players should agree to conform to all environmental controls specified in this EMPr, and any additional environmental permits/licenses, as well as any additional input by the ECO.

In addition to the EMPr, the environmental controls comprise of the following:

- **Plan Controls**
  A copy of the approved and signed project plans must be available on site during the construction phase of the proposed development. Variations of the building plans must be approved by the engineer / *Holder* prior to being implemented.

- **Site Tidiness**
  The contractor must always keep the appearance of the site neat and tidy. Building rubble must be removed from site at regular intervals, and litter must be removed from the site daily (if not, stored in appropriate receptacles). Refuse bins must be available on site which waste can be placed in. The bins must be emptied on a regular basis, as required, and the waste taken to a licenced local waste disposal facility.

- **Safety**
  The contractor must comply with the Health and Safety Act (Act No. 85 of 1993), as amended (OSHA), together with such regulations promulgated thereunder.

  Telephone numbers of emergency services, including the local firefighting service, shall be displayed conspicuously in the Contractor's office near a telephone. No weapons (firearms, airguns, daggers etc.) are permitted on site.

7.2. Site Access and Traffic Management

All construction vehicles need to adhere to traffic laws and regulations. Drivers must be sensitised to the fact that they are working in an area with a potentially high volume of foot and vehicle traffic. The speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users within the Riversdale Residential area. As far as possible, care must be taken to ensure that the local traffic flow pattern is not significantly disrupted, and vehicle operators therefore need to be educated in terms of "best-practice" operation in order to minimise unnecessary traffic congestion or dangers. These practices include, but are not limited to:

- Not unnecessarily obstructing the access point or traffic lanes used to access the site;
- Considering the load carrying capacity of road surfaces; and
- Adhering to all other prescriptive regulations regarding the use of public roads by construction vehicles.

Adequate signage that is both informative and cautionary to passing traffic must be erected to warn other road users (motorists and pedestrians) about the presence of construction vehicles, particularly at the point where construction vehicles enter/ exit the site warning them of the construction. Signage would need to be clearly visible and include, amongst others, the following:

- Identifying the working area as a construction site;
- Cautioning against relevant construction activities;
- Prohibiting access to the construction site;
- Clearly specifying possible detour routes and / or delay periods;

- Possible indications of time frames attached to the construction activities, and;
- Listings of which contractors are working on the site.

Other mitigation measures include:

- The ECO must do awareness training with the contractors and all labourers that will be working on site and must highlight the traffic related risks before construction commences.
- Where possible, construction traffic that may obstruct traffic flow on the surrounding roads must be scheduled outside of peak traffic times.
- Ensure appropriate behaviour of operators of construction vehicles.
- If needed, appropriate traffic management measures and/ or points men (traffic marshals) must be utilised to assist vehicles entering/ exiting the site.

7.3. Site Demarcation

The working areas should be clearly demarcated by appropriate means during the pre-construction or construction phases of the development, as appropriate.

- **Construction Working Area**
  Prior to the commencement of any land-clearing or construction activities, the ECO must be advised of the project programme providing an indication of when clearance and earthworks will commence.

  Prior to the commencement of any land clearance or construction activities, the outer boundary of the working area must be surveyed and demarcated by means of an appropriate method. This demarcation boundary is to ensure that land clearing and construction activities are restricted to only the area strictly required for the proposed activities, and to prevent unnecessary disturbance of soil surfaces and vegetation outside of the approved footprint.

  The demarcation should be retained and maintained for the duration of the construction period or up until the conclusion of the rehabilitation phase. If changes to the extent of the working areas are required, such changes may only be applied once the approval of the appointed ECO, Site Engineer or where applicable, the Competent Authority (the Department of Forestry, Fisheries and Environment; DFFE) has been obtained.

- **No-Go Areas**
  Due to the Agriculturally sensitive nature of the area surrounding the proposed development, all areas beyond the approved areas of clearance must be considered "no-go" areas. This approach aims to avoid disturbance activities from expanding beyond the approved proposed development footprint.

  Additionally, the small depression wetland identified within the proposed mixed-use development area must be avoided during the construction phase and must be incorporated into the detailed design of the General Residential Area indicated in the proposed Site Development Plan.

  A 5 m working corridor will be applicable to the external infrastructure associated with the project. However, a 3 m working corridor shall apply in proximity to any watercourses. All areas beyond the indicated corridors must be considered as no-go areas.

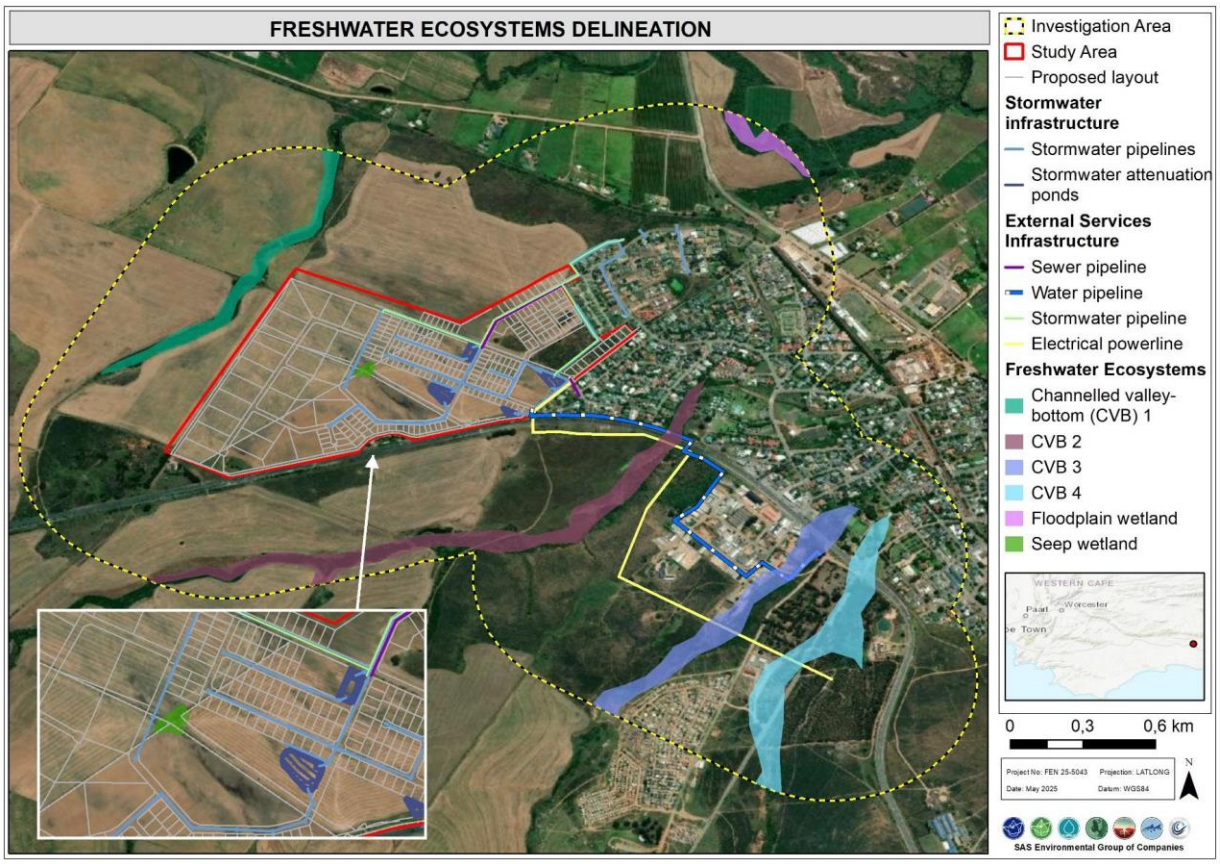

Figure 6. Freshwater resources identified within proximity to the proposed development and associated infrastructure.

It is recommended that the working areas be demarcated with a suitable material that can be easily identified and noticed. The method of demarcation is to be determined by the ECO and the appointed Contractor. Danger tape flagging (pieces of danger tape tied to twine or rope) may be utilised as a short-term solution. However, the use of only danger tape is not recommended for long-term demarcation as this will easily become untidy and blown away by the wind resulting in pollution.

For the purpose of this project, all areas beyond the working areas stipulated above are considered no-go areas.

No-go areas must be considered as off-limits to all construction workers, vehicles and machinery during all phases of the development. No vegetation may be cleared beyond the working areas as stipulated above (unless in accordance with an approved alien invasive management plan and under the supervision of the ECO), and no dumping of any material (waste, topsoil, subsoil etc.) may occur in these areas. Construction workers must be informed of the no-go areas, and if necessary appropriate signage can be used to enforce the demarcation. Any interaction with no-go Areas must be consulted with between the Contractor and ECO prior to any actions.

No vegetation clearing shall take place without approval of the method statement by the ER. No vegetation clearing shall take place until the site boundaries and "No-Go" areas are clearly demarcated. Before clearing of vegetation, the Contractor shall ensure that all litter and non-organic material is removed from the area to be cleared. Vegetation clearing of the site shall

be limited as far as possible. Clearing may not extend beyond the approved proposed development footprints assessed as part of the Basic Assessment Process. If large areas are to be cleared, consideration should be given to a phased clearing approach to limit potential impacts resulting from large areas standing cleared for extended period of time. Indigenous plant material can be removed from cleared areas and may be stockpiled for mulching.

Alien vegetation may be used for mulching if it is not in seed. All remaining alien invasive vegetation must be removed and disposed of at an approved landfill site.

- **Demarcation of the Site Camp**
  The area chosen for the site camp and associated facilities must be the minimum area reasonably required to accommodate the site camp facilities, and which will involve the least disturbance to the environment. It is recommended that easily accessible, transformed areas must be used for the site camp. Site selection must be done in consultation with the ECO.

  Furthermore, the recommendations of the Visual Impact Assessment Specialist must be adhered to (Please refer to Section 9 of this EMPr for the inclusion of the specialist recommendations).

7.4. Site Camp and Associated Facilities

The set up and organisation of the site camp is paramount to ensuring compliance with the requirements of the EA, if approved, and the EMPr. An environmental site file is to be created by the contractor and must be situated within the site camp throughout the construction phase and must be kept by the *Holder* following the conclusion of the construction phase. The environmental file is to include the following as a minimum requirement;

- A copy of the Environmental Authorisation.
- A copy of the General Authorisation in terms of the National Water Act, if required, or any other relative permits (Workplans and licences).
- A copy of the approved EMPr.
- Updated waste slips (waste transporter accreditation certificate, manifest and safe disposal certificate).
- Disposal slips or cleaning slips (ablution cleaning).
- All Environmental Monitoring Reports (EMRs) and ECO instructions.
- Copies of Environmental induction register/s.
- The Protocol for Chance Palaeontological Findings.
- A Complaints Register.
- Updated method statements.
- Any and all emergency procedure/s applicable to site activities.
- An Incident Register.

Method Statements (MS) are written submissions by the Contractor to the Resident Engineer (RE) engineer assigned to the project) (with input from the ECO) in response to the requirements of this EMPr or to a request by the RE or ECO. A minimum requirement will consist of the listed MS's below.

The ECO and / or Competent Authority have the authority to request method statements for activities, including but not limited to:

- Establishment of site camp and stockpile area.
- Site clearing
- Cement/ concrete batching, disposal and emergency contingencies.

- Topsoil and sub-soil storage/ stockpiling.
- Storage of fuels and hazardous chemicals and emergency contingencies.
- Waste management system.
- Storm water management and control.
- Dust Mitigation
- Alien invasive plant species management.
- Fire Control & Fire Emergency Plan.
- Emergency preparedness plan / emergency response procedure.
- Post-construction rehabilitation.

Further MS's may be requested by the RE or ECO. The Contractor shall be required to prepare method statements for several specific construction activities and/or environmental management aspects as specified.

It is the Contractors responsibility to ensure that the required method statements are drafted and submitted. The Contractor shall not commence with an activity for which a method statement is required until the RE and the ECO has approved the relevant method statement.

Method statements must be submitted at least seven (7) business days prior to the date on which approval is required (start of the activity).

Should an MS be rejected this will be done so with comment. The seven-day submission period will commence once again on re-submission of the MS.

Failure to submit a MS (either required in terms of the EMPr, or as required before specific works highlighted by the ECO or RE), may result in suspension of the activity concerned until such time as a MS has been submitted and approved. An approved MS shall not absolve the Contractor from any of his obligations or responsibilities in terms of the contract. However, any damage caused to the environment through activities undertaken without an approved MS shall be rehabilitated at the contractor's cost and to the satisfaction the ECO and RE.

The method statements shall cover relevant details with regard to:

- Construction procedures (including vegetation clearance, earthworks, and installation of services) and location of the construction site.
- Start date and duration of the procedure.
- Materials, equipment and labour to be used.
- How materials, equipment and labour would be moved to and from the site as well as on site during construction.
- Storage, removal and subsequent handling of all materials, excess materials and waste materials of the procedure.
- Emergency procedures in case of any reasonably potential accident / incident which could occur during the procedure.
- Mitigation measure that will be employed.
- Compliance / non-compliance with the EMPr Specification and motivation if non-compliant.

The following general management measures pertaining to the set-up, operation and closure of a site camp must be applied where appropriate, reasonable and practicable:

7.5. Fencing & Security

The site camp area must be secured to prevent any unauthorised individuals from entering the site camp and possibly getting injured or posing a safety and/or security risk. Adequate signage must be displayed, designating the site office / camp as a restricted area accessible only to personnel appointed to the construction works of the project. If required, the boundary of site camp should be clearly demarcated and the camp access controlled through the use of a gate or other approved method. A site register is recommended to record any daily visitors and activities, for record keeping purposes.

- **Fire Fighting Equipment**

No less than 2 fire extinguishers must be present at the site camp. The extinguishers must be in a working condition and within their service period. A fire extinguisher must always be present wherever any "hot works", if any, (e.g. welding, grinding etc.) are taking place. It is recommended that all construction workers receive basic training in fire prevention and basic fire-fighting techniques and are informed of the emergency procedure to follow in the event of accidental fires. These may either be in the form of proper training or by means of Toolbox Talks facilitated by the On-site Safety Officer.

Open fires should be prohibited on site. However, it is noted that despite this, incidents may arise where fires are created after hours by security, and labour may attempt to smoke on site. In these cases, measures should be taken to ensure that activities are managed appropriately. Therefore, should a fire be created on site after hours, the following procedure must be followed:

- Ensure that the security is aware that creating fires within the site boundaries are prohibited.

Should the contractor choose to, he/she may designate a smoking area within the site camp, of which the contractor is solely responsible for the management of this activity on site, and any incidents that may occur. It must contain the following features:

- Appropriate signage.
- A barrel/bucket filled to 50% capacity with sand, for disposal of used cigarettes.
- An appropriately weighted lid, that cannot be easily displaced by volatile weather conditions.
- The bin and designated area must be positioned in such a manner that it is not directly affected by heavy winds.
- This bin must be emptied as is necessary and must not be allowed to reach 75% capacity.

In the case of accidental fires, the contractor must (if required/significant) alert the Koeberg and Local Authority's Fire Department as soon as a fire starts prior to the fire becoming uncontrollable.

- **Waste Storage Area**

Sufficient bins for the temporary storage of construction related waste must be provided inside the site camp and/or at the working area and must be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. Sufficient signage and awareness must be created to ensure that these bins are properly used.

- **Hazardous Substances Storage Area, spills and leaks**

Fuels, chemicals, lubricants and other hazardous substances must be stored in a demarcated, secured, bunded and clearly sign-posted area within the site camp. Sufficient signage and awareness must be created to ensure that these bins are properly used. It must be ensured that all hazardous storage containers and storage areas comply with the relevant SABS standards to prevent leakage. Ensure that when substances are transferred, this is done on an impermeable and/or bunded surface, to contain any spillage. Spillage, should it occur, must be disposed of appropriately.

All hazardous materials or substances (e.g. petrochemicals, oils, etc.) must be stored on site only under controlled conditions. All hazardous material and substances shall be stored in a secured, designated area that has restricted entry. All storage must take place using suitable containers to the approval of the RE. Hazard signs and data sheets indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Symbolic safety signs depicting "No Smoking", "No Naked Lights" and "Danger" are to be provided, and are to conform to the requirements of SABS 1186.

Where there may be suitable storage infrastructure (existing yards and fuel tanks etc.), such as those used for current/existing activities at KNPS these may be used provided if this is approved by the RE. All necessary safety requirements in terms of bunds, spill kits and signage must be in place. Fuel storage tanks are permitted to be temporarily established on site for construction purposes provided that the contractor ensures full compliance with the following:

- All local by-laws relating to community and fire safety must be complied with. Most local authorities require that a permit be obtained from the relevant Fire Department. This permit should be kept on file.
- The storage tank capacity may not exceed 9000 litres.
- The storage tank may not be on the premises for a period exceeding that stipulated by the local authority.
- The tanks must be removed on completion of construction or the once the contractor responsible for the tanks has completed their work on site.
- A tank must be erected at least 3.5 metres from boundaries, buildings and other flammable substances or combustible materials.
- A temporary tank must have a bund wall with 110% capacity of the tank's total storage capacity.
- The fuel tank shall be steel and maintained by the fuel suppliers and/or Contractor.
- The floor and wall of the bund area shall be impervious to prevent infiltration of any spilled / leaked fuel into the soil.
- The floor of the bund shall be sloped towards an oil trap or sump to enable any spilled fuel to be removed.
- The sump must have a lock off valve that can only be opened in an emergency.

Should a mini-mobile type trailer tank or bowser be used on site, the following specifications apply:

- The tank will be maintained by the fuel suppliers and/or Contractor and is to be kept clean and leak free.
- The trailer is to be kept on site with a drip tray at all times and is to be removed from site at the end of every day unless it is kept in a bund area of 110% of the tank volume.

A hydrocarbon bioremediation product approved by the RE with input from the ECO must be stored on site and near the fuel stores for any emergencies. Once a purpose manufactured hydrocarbon spill remediation product has been used or has been used to treat contaminated materials (soil, rubble etc.) it must be disposed of, with the treated material, at a facility licensed to receive such waste.

Areas for storage of fuels and other flammable materials shall comply with standard fire safety regulations and may require the approval of a fire prevention officer. The contractor must ensure that there is adequate firefighting equipment at the fuel stores and that persons are adequately trained to use this equipment.

All empty drums and externally dirty drums shall be sealed and stored in the bunded area. If fuel is dispensed from 200 litre drums, the proper dispensing equipment shall be used, and the drum shall not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank shall be stored in a waterproof container or within the bund area when not in use.

The location of suitable areas for maintenance and refuelling must be identified by the ER in collaboration with the ECO. The ECO must be involved in the decision and must provide guidance from an environmental perspective prior to commencement of the proposed action.

Any significant accidental release of a hazardous substance during the construction and post-construction phase of the project must be reported to the relevant authorities, including the Western Cape Department of Environmental Affairs and Development Planning's Directorate: Pollution and Chemicals Management, in terms of Section 30(3) of the NEMA.

The contractor shall ensure that all employees are aware of the procedure to be followed for dealing with spills and leaks, which shall include notifying the, RE and ECO. The Contractor shall ensure that the necessary spill response hydrocarbon remediation materials (e.g. chemcap, spill-sorb, drizzat pads, enretech, OilCap or peat moss) and equipment for dealing with spills and leaks are available on site at all times. The source of the spillage shall be isolated. The Contractor shall contain the spillage using sand berms, sandbags, pre-made booms, sawdust or absorbent materials. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the RE.

The Contractor shall submit his emergency procedure prior to bringing on site any such substances. All spills or accidents involving such materials are to be recorded by the Contractor. The Contractor is responsible for ensuring that these records are submitted to the ECO. The cleanup of spills and any damage caused by the spill shall be for the Contractor's account.

- **Potable Water**

An adequate supply of potable water must be provided to construction workers at the site camp. It is the Contractor's duty to ensure that the labour has adequate access to potable water throughout construction phase, and to monitor weather conditions, to ensure that labour has enough drinking water on hotter days. Should enough potable water not be available on warmer days, construction activities must cease, until conditions are safe to continue. To conserve water, it is recommended that buckets of water kept within the site camp and are reserved for the use of cleaning tools and machinery.

The Contractor shall make safe drinking water fit for human consumption available at the site offices and all other working areas. All drinking water must be from a legal source and comply with recognised standards for potable use. No water may be abstracted from streams, rivers, wetlands or boreholes unless the necessary water use authorisations are in place. If water is stored on site, drinking water and multi-purposed water storage facilities shall be clearly distinguished and demarcated. No water is to be wasted on site. Any leaks must be reported and repaired immediately. All pipes, taps and associated infrastructure, where made available to the Contracting team for use, are too maintained in good working order.

- **Ablution Facilities**

Chemical toilets must be kept at the site camp, on a level surface and secured from blowing over, and must be located in such a way so as to ensure that the toilets will not cause any form of pollution. The supply toilet facilities must comply with the requirements of the SABS and the OSHA.

The ablution facilities must not be linked to a river system/drainage lines/the ocean in any way. Toilets must be serviced regularly and kept in an orderly state. The contractor must ensure that no spillage occurs when the toilets are cleaned, serviced or moved. The toilet facilities must be emptied on a weekly basis by an appropriately registered service provider. Proof of this weekly servicing must be obtained and filed in the Environmental File on site. The contractor shall ensure that chemical toilets

are emptied before the builders' holidays and that no spillage occurs when they are emptied. All contents must be removed from the site. Under no circumstances may waste be discharged into the environment or be buried on site.

Performing ablutions outside of the provided toilet facilities is strictly prohibited and the ECO would need to regularly inspect the state of the chemical toilets to ensure compliance.

The Contractor is responsible for the erection and maintenance of adequate ablution facilities and washing areas and for enforcing the use of these facilities. Under no circumstances may the natural environment be used as a toilet or cleaning area. The Contractor shall be responsible for ensuring that all ablution facilities are maintained in a clean and sanitary condition to the satisfaction of the ER. All temporary portable toilets shall be secured in such a manner so as to prevent them toppling due to wind or any other cause. Plumbed toilets must have no leaks or malfunctioning valves. No chemicals, oils or similar construction related materials are to be disposed of via the toilets on site. Ablution facilities (chemical toilets, etc.) must be provided at all construction camp areas where there will be a concentration of labour. Toilet paper must be provided.

- **Eating & Rest Area**

A dedicated area within which construction workers can rest and eat during breaks must be provided within the site camp. Alternatively, a designated area must be identified within the proposed development area to make allowance for these activities. This area must be agreed upon by the RE, ECO and the *Holder*. Seating, shaded areas and waste bins must be provided. If none is available, the Contractor shall provide adequate temporary shade within the construction areas to ensure that site personnel do not move off site to eat. The Contractor shall provide adequate refuse bins with lids at all eating areas to the satisfaction of the RE. The bins must be weatherproof and scavenger proof and approved by the ER. If deemed necessary by the RE, the Contractor shall demarcate designated eating areas.

No feeding of wild animals shall be permitted. Food and food products are to be stored in such away so as not to attract scavenging animals.

- **House-Keeping**

The site camp and associated site camp facilities must be kept neat and orderly at all times, in order to prevent potential safety risks and to reduce the visual impact of the site during construction.

7.6. Protection of Fauna

Construction workers are to be sensitised to the fact that they may encounter fauna during the construction period. This must be included in the environmental awareness training completed with all site personnel before any construction commences. Environmental Awareness Training must educate labour on conduct in terms of faunal management throughout construction phase, including but not limited to:

- No person/s may harm, kill, capture or keep any fauna.
- Appropriate access control must be put in place to reduce the risk of animal species gaining access to the development area.
- Where possible, avoid interactions, particularly with fauna that can inflict harm, if such fauna is identified on site contact local SPCA other animal protection and removal services.
- No domestic animals are permitted on the sites.
- Maintain good housekeeping, so that fauna cannot hide amongst waste and material.

If any fauna is encountered by construction workers, the SEO or ECO is to be notified. If the SEO or ECO is not on site, the site manager is to be informed. Rescued fauna must be released into a nearby area of similar habitat away from any construction. Contact details for animal rescue services and/or snake wrangler, from the local area, should be available on site, in case of an emergency.

7.7. Indigenous Vegetation Clearing and Protection.

The following measures must be implemented:

- It is important that clearing activities are kept to the minimum and take place in a phased manner. This allows animal species to move into safe areas and prevents alien invasive encroachment, and wind and water soil erosion of the cleared areas. Blanket clearing of vegetation must be limited to the approved development footprint.
- Any alien vegetation that is cleared must be disposed of in accordance with the Alien Invasive Management Programme and in consultation with the ECO. Chipping of alien invasives must occur immediately and must not be stored on site for more than 90-days.
- Workers are NOT allowed to collect any flora species. All flora remains the property of the landowner and must not be disturbed, upset or used without their expressed consent.
- A vegetation monitoring programme shall be in place, not only to ensure compliance with this EMPr throughout the construction phase, but also to monitor any post-construction environmental issues and impacts such as increased surface runoff.

Where indigenous vegetation must be cleared for the development, the following measures must be implemented:

- An Independent Environmental Control Officer must oversee compliance with all the prescribed environmental requirements and mitigation measures listed here and will be on site regularly.
- Only the areas required to fulfil the needs of the construction activities and access to the construction site must be cleared of vegetation.
- Vegetation outside of the approved footprint must not be cleared, unless permitted in accordance with the alien invasive management plan, and under the supervision of the ECO.
- Land clearing and earthmoving activities should not be undertaken during strong winds or heavy rainfall events, where possible.
- Trees and shrubs that are directly affected by the operations may be felled or cleared but only by the expressed written permission of the ECO, and under the applicable permit obtained in terms of the Nature Conservation Ordinance (19 of 1974, amended 2000), if applicable.
- Stripped vegetation should be temporarily stored during operations and to be used later to stabilise slopes/soils. This excludes alien invasive species.
- Ensure any open spaces/bare areas are kept clear of alien plant species through the adoption of an Alien Invasive Management plan.
- No unpermitted/uncontrolled fires are permitted on site.
- Rehabilitation of vegetation of the site must be done as described in the approved Rehabilitation Plans.
- To limit adverse impacts to the surrounding environment, the contractor and labourers must take great care if cement is to be mixed on site. Cement is to be mixed on thick plastic sheets or in large buckets that are bunded. Any spillage must be cleaned up immediately. Cement water must also to be contained in the above manner and allowed to dry out and then removed from site. Cement water, which is highly alkaline, poses a definite threat to the soil and seed banks, should the water disperse into surrounding areas.

7.8. Alien Invasive Species Control

Several exotic invasive and other weed species were noted on the site. Existing infestations and any further spread of these species pose a negative risk to the environment by causing direct habitat destruction, increasing the risk and intensity of wildfires, and reducing surface and sub-surface water. Alien Invasive Plants require removal according to the Conservation of Agricultural Resources Act 43 of 1983 (CARA) and the National Environmental Management: Biodiversity Act (10 of 2004; NEMBA): Alien and Invasive Species Lists (GN R598 and GN R599 of 2014).

Removal of species must take place throughout the construction and post-construction phases.

7.9. Topsoil and Subsoil Management

Topsoil must be removed from any area where physical disturbance of the surface will occur, including within the footprint of the development site (working area) and possibly within the site camp, ablution area, refuelling area and temporary waste storage area. Topsoil removal and stockpiling must be undertaken only after the ECO has been consulted with. The following soil management measures must be implemented:

- Topsoil & subsoil that has been excavated must be stockpiled separately, along & adjacent to the excavation areas and must be covered.
- Topsoil stockpiles must not be covered with tarpaulin, as this may smother and decrease the virility of topsoil.
- Excavated topsoil and subsoil must be stockpiled for the duration of the active construction period and utilised for the final landscaping and rehabilitation of disturbed areas on site.
- The topsoil & subsoil storage area must be located on a level area outside of any surface drainage channels outside the riparian zone, and at a location where it can be protected from disturbance and river flow/floods during construction and where it will not interfere with construction activities.
- Topsoil and subsoil stockpiles must be adequately protected from being blown away or eroded by storm water. If necessary, shade cloth or other suitable measures must be used to stabilise and protect the stockpile from wind/water erosion.
- Handling of topsoil must be minimised as much as possible, and the location of the topsoil berm must be chosen carefully to avoid needing to relocate the topsoil berm.
- Ideally, topsoil is to be handled twice only, once to strip and stockpile, and once to replace, level, shape and scarify.
- Topsoil shall be kept separate from overburden and shall not be used for building or maintenance of roads.
- Topsoil stockpiles must not exceed 1.5 m in height and must not be compacted.
- If soil stockpiles will be stored for an extended period of time, the stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding, (or application of herbicides if agreed with the ECO).
- Soil material that will not be re-utilised on site may be removed from site and taken to an appropriate site for re-use or disposal.
- Note that the topsoil must be the final layer applied to a rehabilitated/ re-landscaped site, after subsoil/ spoil material has been placed and shaped on the site.
- Material Stockpiles (including imported materials and rubble) may not exceed 2 m in height.

7.10. Integrated Waste Management Approach

It is recommended that an integrated waste management system is adopted on site. The system must be based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where

appropriate. Separate waste bins/skips that are weather- and animal proof must be provided for recyclable waste, general waste and hazardous waste. Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until removal. These bins/skips must be emptied, and the waste taken to a registered recycling facility. The receipts from the facility must be kept on file and must be available on request.

The non-recyclable and non-reusable waste (e.g. builder's rubble, etc.) generated on site must be disposed of at a landfill site licensed in terms of the applicable legislation. The waste manifest and safe disposal certificate from the facility must be kept on file and must be available on request.

Chemical toilets present a risk to the surrounding environment and must be managed accordingly. Chemical toilets must be kept within the site camp (not be linked to the storm water drainage system), on a level surface and secured from blowing over. Chemical toilets must be regularly emptied by a registered cleaning company and the waste disposed of at an appropriate wastewater disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets.

Hazardous substances such as diesel, oil and detergents will be present on site throughout the construction phase of the project. Hazardous substances pose a greater risk to the surrounding environment than general substances and therefore need to be managed accordingly. A designated storage area within the site camp that is clearly demarcated must be set aside for the storage of hazardous substances and is to be treated as a no-go zone to unauthorised personnel. Appropriate signage, Material Safety Data Sheets (MSDSs), recently serviced fire extinguishers and spill kits should accompany the hazardous substances. Appropriate storage of hazardous substances is important while drip trays should always be utilised when decanting of hazardous substances and when refilling chemical/ fuel storage tanks. If any spills do occur, the solid must be excavated and disposed of as hazardous waste.

Cement and concrete batching will be permitted on site, but may only take place on designated impermeable, bunded surfaces, as agreed with the ECO. Used cement bags should be disposed of as hazardous waste on site.

7.11. Erosion Control and Stormwater Management

Stormwater must be managed in accordance with the Municipal Stormwater Management By-law and based on Sustainable Drainage Systems (SUDS). The SUDS systems attempt to maintain or mimic the natural flow systems as well as prevent the wash-off of urban pollutants to receiving waters. Further to this, the EA *Holder* or appointed contractor must ensure that:

Where necessary, Stormwater Management Plans must be developed by the Contractor (as part of the Method Statements) for the site and should include the following:

- The management of stormwater and erosion control during construction.
- The management of stormwater and erosion control as part of post-construction.
- Temporary drainage works are implemented, where/when required, to prevent sediment-laden surface water from draining into river systems in proximity to the site. Stormwater must be prevented from entering or running off site.
- Sheet runoff from access roads and the walkways is slowed down by the strategic placement of berms.
- Diversion channels should be constructed ahead of the open cuts, and above emplacement areas and stockpiles to intercept clean runoff and divert it around disturbed areas into the natural drainage system downstream of the site.

As much indigenous vegetation must be maintained and encouraged to minimise erosion;

- All soil compacted because of construction activities as well as ongoing operational activities falling outside of project footprint areas should be ripped and profiled;
- To ensure that site is not subjected to excessive erosion and capable of drainage runoff with minimum risk of scour, their slopes should be profiled at a maximum 1:3 gradient where possible;
- Rehabilitation is necessary to control erosion and sedimentation of all eroded areas (where works took place);
- It is importation that the rehabilitation of site is planned and completed in such a way that the runoff water will not cause erosion; and

The scale and nature of the erosion and stormwater control measures implemented on site must be appropriate to the conditions on site, and sufficient to achieve the desired outcomes (soil preservation, prevention of flooding, stormwater control) to the satisfaction of the ECO and RE.

The prevention of soil erosion can be initiated by designating specific areas for stockpiling of raw materials with consultation of the ECO. No stockpiling is to occur on or near slopes or water resources and all stockpiling areas must be approved by the ECO before stockpiling occurs.

Stockpiles need to be effectively managed and maintained as they have the potential to contribute to runoff and erosion. To prevent this, the following management measures must be implemented:

- Stockpiles of earth material may not be located within any storm-water drainage pathways and must be outside of the reach of potential flood waters.
- Any erosion runnels/ gulleys/ channels that form on site must be infilled with appropriate material, compacted, rehabilitated as needed and appropriate erosion control measures put in place to prevent recurrent erosion at that site. Rehabilitation of erosion channels must be ongoing during the construction phase and not left until the end of the construction period.
- It may be necessary to implement small-scale erosion protection measures at the construction site, to prevent soil erosion. Such measures may include the use of shade netting, geo-fabric, brush-packing or similar barriers in areas susceptible to erosion and along exposed slopes. The Storm Water Management Plan must adhere to the principles of sound storm water management as well as the Municipal Stormwater Management By-law and based on Sustainable Drainage Systems (SUDS). The storm water management system must be implemented on site and must be properly maintained to ensure that contaminated run-off from the construction site is prevented from flowing into the watercourse/ocean.

Cleared areas and any other area susceptible to erosion should be provided with a suitable cover and stabilised as soon as possible via the implementation of appropriate erosion control measures. This may include use of cut-off drains, temporary drainage channels, brush-packing, mulching, planting or sodding, use of environmentally benign soil binders, use of geo-textile or other coverings. The appropriate measures should be selected by the contractor in consultation with the RE & ECO.

The Contractor shall take reasonable measures to control the erosive effects of stormwater runoff. The Contractor shall use silt screens to prevent overland flow from causing erosion. Point source discharge of storm water must be prevented on slopes as this will lead to erosion of the unstable slope with loss of vegetation and resultant deep donga erosion. Any stormwater outlets must be constructed in such a manner as to ensure no soil or bank erosion takes place.

The use of straw bales as filters, which are placed across the flow of overland stormwater flows, can be used as an erosion protection measure. The ploughing-in of straw offers limited protection against storm water runoff-induced erosion and can be used as an erosion protection measure. The Contractor shall

be liable for any damage to downstream property caused by the diversion of overland storm water flows. Drip trays shall be used for all pumps, generators, etc. in order to prevent water contamination as a result of fuel spills or leaks.

7.12. Excavations and Earthworks

Any major earthworks with bulldozers and heavy machinery must be under constant supervision. Operators must be aware of all the environmental obligations, as there is always the potential to inflict damage to the sensitive areas. Any unnecessary or excessive heavy machinery movement must be kept to a minimum i.e. only what is absolutely necessary. Areas to be excavated must be clearly demarcated. Areas which have already been excavated and entail fairly significant earthworks, must be similarly demarcated to avoid the spreading of construction activities beyond the approved working areas.

All excavated material must be stored on a flat surface away from any drainage line, sloped areas or area susceptible to erosion. The location must be decided in consultation with the ECO. Stored material must be protected from wind and water erosion, and this may entail covering the material with suitable shade cloth material or similar (if and when necessary). The shade cloth may need to be weighed down in such a manner that any stream flow is directed away from the stockpile, reducing the risk of erosion.

Whenever any excavation is undertaken, the following procedures shall be adhered to:

- Topsoil must be handled as described in this EMPr.
- Excavations must take place only within the approved demarcated site.
- Excavations must follow the contour lines, where possible and/or applicable.
- Where possible, excavations should be closed overnight, over weekends, holiday periods, and during any other planned site closure periods, where feasible.
- Excavations must be temporarily demarcated shade cloth or barrier fencing to obstruct visual impacts and to prevent the harm to animals or unauthorised persons that may fall into excavations.
- The construction site will not be left in any way to deteriorate into an unacceptable state.
- Once excavations have been filled with overburden and coarse natural materials and profiled with acceptable contours (including erosion control measures), the previously stored subsoil and topsoil shall be returned to its original depth over the area.
- Rehabilitation of the site shall take place according to the Vegetation Rehabilitation Programme and must occur concurrently with the construction phase.

7.13. Visual Impact

The proposed project has the potential to cause a visual impact during the construction and post-construction periods. To minimise the potential visual impact, all working areas, storage facilities, stockpiles, waste bins, elevated tanks and the site camp should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. Waste must be managed according to this EMPr. Good housekeeping practices on site must be maintained to ensure the site is kept neat and tidy. The site camp may require visual screening via shade cloth or other suitable material. The use of reflective materials and excessive lighting should be avoided, and construction vehicles must enter and leave the site during working hours (07:00-17:00).

7.14. Noise Management.

Additional noise is expected during the construction period due to construction activities. It is important that and earth-moving activities be restricted to normal construction working hours (7:00 – 17:00) as far

as possible. Work on site must be well-planned and should proceed efficiently so as to limit the duration of the disturbance. This is to be done by ensuring that all equipment is in good working condition and fitted with mufflers/exhaust silencers in necessary. Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate, and all affected parties must be informed of the excessive noise factors.

The Contractor shall endeavour to keep noise generating activities to a minimum. The Contractor shall attempt to, as far as possible, warn any local communities and residents that could be disturbed by noise generating activities, such as blasting or piling, well in advance and shall keep such activities to a minimum. The Contractor shall be responsible for compliance with the relevant legislation with respect to noise. Construction processes and machinery/vehicles with the lowest noise emission values available must be utilised. A well planned and co-ordinated "fast track" procedure must be implemented to complete the total construction process in the shortest possible time. Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels).

All plant, equipment and vehicles are to have effective silencers/mufflers fitted that would otherwise cause a noise level exceeding 85dBI. Exhaust systems are to be in good repair with no holes in the piping. Regular check-ups and adequately maintained must be undertaken to keep all equipment and vehicles in good working order to reduce noise. Excessively noisy equipment, vehicles or machinery requiring repairs are to be removed from site. No sound amplification equipment (hooters, loud music speakers, sirens etc.) is to be used on site except in emergencies.

7.15. Dust Management

Although the generation of dust is synonymous with construction sites, care needs to be taken to prevent excessive dust from impacting the surrounding environment and community. Majority of the dust causing activities will take place during the construction period. Exposed surfaces, such as stockpiles and cleared areas should be provided with a suitable cover as soon as possible or wetted down. Construction vehicles should maintain low speeds of 20-40km/h and must ensure that tarpaulins are used to cover any loads transported. Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. i.e. dust fall rates in non-residential areas may not exceed 1200 600mg/m^2/day, measured using reference method ASTM D1739.

A Complaints Register must be available at the site office for inspection by the ECO, in case of complaints, such as those related to dust. This should form a part of your Environmental Site File. The register shall contain all contact details of the person who made the complaint and information regarding the complaint itself as well as any follow-up undertaken, if required.

The Contractor shall submit a MS to the RE detailing how potential dust. The contractor will consider the recommendations above while bearing in mind that these are not the only available solutions.

7.16. Site Closure and Rehabilitation

Upon completion of the construction phase, and after each maintenance event, all disturbed areas, including the working area, temporary access road, and all areas utilised for the site camp and associated site camp facilities, if applicable, will require rehabilitation as follows:

- On completion of the construction activities, the site camp area must be cleared of all site camp facilities, ablution facilities, fencing, signage, waste and surplus material.

- All areas within the working area and site camp that have become devoid of vegetation or where soils have been compacted due to construction activities must be scarified or ripped to improve filtration and reduce run-off.
- All demarcation fencing, including all droppers, wires, netting and barrier tape must be removed from site and taken to an appropriate site for re-use or disposal.
- Surfaces must be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved by the ECO. Any soil contaminated with hydrocarbons (oil, fuel, etc) or other hazardous substance must be collected and disposed of as hazardous waste at a licenced disposal facility.
- All construction waste is to be removed from the site and disposed of at an appropriate facility. Burying or burning of waste or rubble on site is strictly prohibited.
- Topsoil removed and stockpiled before construction, must be replaced by spreading it evenly over the areas from which it was removed. This topsoil (and the seedbank it contains) will facilitate the re-vegetation of the site.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Site Manager may require that the soil be analysed and any deleterious effects on the soil arising from the activity, be corrected and the area be seeded with a vegetation seed mix to his or her satisfaction. This *must* be done in consultation with the ECO.
- Disturbed areas, especially areas where excavations have taken place, must be shaped as appropriate (original topography must be restored where possible), and covered with a layer of stockpiled topsoil as soon as possible.
- Any topsoil, subsoil or other excavated material that cannot be utilised during site rehabilitation must be removed from the site and disposed of at an appropriate disposal site.
- The disturbed, newly rehabilitated surfaces (particularly steeper slopes and areas recently covered with topsoil) must be protected from wind & water erosion using mulch, brush packing or other appropriate erosion protection measures. Brush-packing/mulching is done by covering the exposed surface with organic plant material such as branches, plant cuttings and leafy material. Ideally the vegetation removed from site at the start of the construction must be utilised. Brush-packing/mulching plays a valuable role in erosion control, while also promoting re-vegetation of the site by retaining moisture in the soil, introducing seeds and/or trapping wind-blown seeds and providing organic material (compost) to promote new plant growth.
- Final landscaping and rehabilitation of the site must be done to the satisfaction of the ECO and must adhere to all conditions/requirements of the Environmental Authorisation.

7.17. Temporary Site Closure (Contractor's break)

It is the obligation of the Contractors to uphold and manage the anticipated impacts of vacancy of the site during this time. Therefore, the following management measures toward ensuring minimum impacts must be implemented prior to any temporary site closures during the construction phase:

- Any contaminated soil must be collected and disposed of as hazardous waste.
- All construction waste, litter and rubble must be removed from the site and re-used elsewhere, or recycled/disposed of at an appropriate facility. Burying or burning of waste or rubble on site is prohibited.
- Temporary access routes must be closed and measures put in place to prevent future use of the access road by any person.
- Preventative dust pollution mitigation measures must be implemented to control dust during the festive break (when the site is vacant).
- All construction areas/facilities must be secured, e.g. Where scaffolding is left on site, it must be ensured that no plastics, danger tape or other wastes are allowed to blow off; portable toilets must be secured etc.
- All construction barriers must be neat and secure.

- Stockpiles of topsoil, spoil material and other material that may generate dust must be protected from wind erosion (e.g. covered with netting, tarpaulin or other appropriate measures. Note that topsoil should not be covered with tarpaulin as this may kill the seedbank).
- Drip trays must be placed beneath all construction vehicles, if kept on site during the construction break. Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant.
- Where feasible, fuel tanks should be elevated so that leaks are easily detected.
- • Contractors must ensure that their site camp and working areas are clear of alien invasive and weed species prior to the construction break.

8. ENVIRONMENTAL IMPACT MANAGEMENT: PLANNING AND DESIGN PHASE

No direct environmental impacts are associated with the planning and design phase. However, poor planning or inappropriate design decisions in this phase may result in environmental impacts arising during subsequent phases of the project.

Planning and design activities must therefore take into account the environmental constraints and opportunities identified during the Environmental Impact Assessment process, in order to avoid or minimise the potential future impacts of the development. Proper planning is also essential to ensure that adequate provision is made to implement the environmental requirements of this EMPr, and to ensure that the development is compliant with additional conditions which may be included in the Environmental Authorisation.

The environmental management objectives (goals) during this phase are to:

- Appoint an Independent Environmental Control Officer.
- Compile and adopt a suitable and acceptable Stormwater Management Plan.
- Update the EMPr (if necessary).

These environmental management objectives, as well as the management actions that must be implemented in order to achieve the desired objective and avoid/minimise potential impacts are discussed in more detail below.

8.1. Objective 1: Appointment of an Environmental Control Officer and Environmental Auditor

***Impact Management Objective:* To appoint a suitably qualified and experienced environmental control officer, environmental auditor.**			
Potential impact to avoid	Failure to appoint an ECO, and should it be required in terms of the Environmental Authorisation, an Environmental Auditor, and Environmental Auditor will result in non-compliance with the requirements of the EMPr.		
Impact Management Outcome	The requirements of the EMPr are implemented and monitored during all phases of the project, which will promote sound environmental management on site.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
Environmental Auditor & Control Officer: • Should it be required in terms of the Environmental Authorisation (EA), a suitable qualified and experienced Environmental Auditor must be appointed before any activities commence on site. • A suitably qualified and experienced Environmental Control Officer (ECO) must be appointed before any activities commence on site. • The appointed ECO must adhere to the requirements stated in Section 11 of this EMPr. • The appointed ECO must be advised of the construction start date, at least two weeks in advance, prior to the commencement of any construction activities on site, so that the ECO can perform a pre-commencement inspection, ensure any pre-construction conditions of the environmental authorisation are completed, and plan for environmental awareness training of construction workers (see Section 14 for Environmental Awareness Plan and Appendix I for Environmental Awareness Training Booklet).		Belladonna (Pty) Ltd	During design phase
Performance Indicator	• A qualified ECO (should it be required in terms of the EA) is appointed prior to the commencement of any construction activities (including pre-construction set-up activities) on site.		

8.2. Objective 2: Legislative compliance

***Impact Management Objective:* Legislative compliance**		
Potential impact to avoid	Commencement of activities without all relevant permits/permissions/licences/approvals including registered servitudes, permits to remove specific vegetation, etc. as well as commencing without implementation of specialist recommendations, and compliance with EMPr pre-construction activities, can result in penalties, time delays and excessive costs. All stemming from poor planning.	
Impact Management Outcome	All permits, permissions, licences, approvals, and specialist input are acquired, and the project is compliant with the respective conditions.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period

General
• Ensure all relevant permits/licenses/approvals are in place and are valid prior to commencing with works. These include, but are not limited to:
  o Environmental Authorisation;
  o Permits to be Obtained from Cape Nature for the clearance of Indigenous vegetation, if applicable; and
  o Water Use Authorisation
• Ensure that the Contractor has accepted the approved EMPr and Environmental Authorisation (and any other relevant permits/licenses/authorisations), as a part of their Tender Document, to ensure that they are fully aware of their responsibilities in terms of the implementation of these documents.
• Ensure that the Contractor has provided method statements for activities intended to be undertaken, and these are checked and approved by the ECO as well as the Engineer.
• Inform the ECO of planned works ahead, so as to ensure inductions are undertaken timeously.
• Involve ECO in selection of site camp location.
• Ensure that a site layout plan is received, this plan must indicate the total clearance areas, site camp.
• Ensure that the construction programme is pre-planned.
• The management measures listed in Section 6.18 must be implemented during temporary site closures and, depending on the construction period, the necessary provisions must be made to ensure the measures can be implemented accordingly.
 	
Climate Change Considerations:
• Final designs must include:
  - Green building materials must be integrated into the development as much as possible.
  - Apply soft engineering techniques, where possible.
  - Take into consideration floodline/drainage areas that can be exacerbated during flooding/storm surge events.
  - Incorporate thermal efficiency into designs and use climate-resilient technologies.
	Belladonna (Pty) Ltd	During design phase

- Water saving technologies/techniques (jo-jo tanks for rainwater collection) and energy saving technologies/techniques (solar geezers/solar panels on roofs, potentially in for light poles, etc. and utilizing energy saving bulbs where possible). - An appropriate stormwater management plan must be compiled and approved. - Ensure materials are sourced locally, and consider Life Cycle of all materials utilized, when selecting materials.		
Performance Indicator	The project does not incur delays, excessive costs and penalties due to unobtained permits and non-compliance with required permits, permissions, licences, and approvals.	

9. ENVIRONMENTAL IMPACT MANAGEMENT: PRE-CONSTRUCTION PHASE

Proper set-up during the pre-construction phase can set the foundation for good environmental management during the active construction phase to follow and can avoid potential impacts from arising at a later date.

The Impact Management Objectives for this phase of the project relate to:

- Identification and Demarcation of no-go areas and working areas.
- Establishment of site camp and associated site facilities.
- Pre-construction ECO visit.

9.1. Objective 1: Identify & demarcate no-go and working areas

Impact Management Objective: ***Demarcation of no-go and working areas.***		
Potential impact to avoid	• Insensitive location of working areas and site facilities may result in environmental impacts during the construction phase. • Failure to accurately demarcate working areas may result in works exceeding the approved assessed footprint, resulting in non-compliance and potential penalties and delays.	
Impact Management Outcome	• Future construction activities will be restricted to within the designated areas & all areas indicated as no-go areas, will be protected from disturbance. • Excavating into potentially fossil-bearing deposits during the pre-construction phase might damage some fossils	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General: • Inform the ECO of planned works ahead, so as to ensure inductions are undertaken timeously. • Involve the ECO in selection of site camp location. • Ensure all labour and sub-contractors undergo environmental inductions. • Ensure all applicable permits/licenses are obtained prior to commencement of construction works on site. • Environmental Awareness and Training – Ensure all labour are informed and plant operators are aware of risks, issues, dos and don'ts within the project areas. • Ensure the relevant ECO is present and consulted for demarcation of the sensitive areas within the project footprint • Demarcate the working corridor with temporary fencing (e.g. poles and shade cloth) to obstruct visual impacts; • The temporary demarcations must be retained and maintained on a daily basis for the duration of the construction period in any one area. • Contain disturbance to the demarcated construction area at any one time. • Areas outside the proposed development footrpint described in the EMPr must be considered no-go areas. • Pre-construction survey during dry season to determine true density of ESA materials and recommend mitigation if required.	Environmental Control Officer (ECO), Contractor, Belladonna (Pty) Ltd	Pre-construction phase (prior to arrival of construction equipment, machinery, or workers on site)

Road users; • A detailed Traffic Management Plan must be compiled by the appointed contractor and submitted for approval to the RE and the ECO.		
Performance Indicator	No-go areas, working areas and areas for site camp facilities have been identified and appropriately demarcated to the satisfaction of the ECO, before construction activities commences on site. No fossils have been disturbed.	

9.2. Objective 2: Establish Environmentally Sensitive Site Camp & Site Facilities

Impact Management Objective: ***To set up and equip the site camp and associated site facilities in a manner that will promote good environmental management.***		
Potential impact to avoid	• Failure to properly demarcate and set up site facilities may result in disorganised construction activities and unnecessary disturbance to the site. • Failure to provide the necessary site facilities and/or failure to equip these facilities with the necessary equipment/materials may impede good environmental management & compromise ability to respond to emergencies.	
Impact Management Outcome	Site camp facilities do not impact significantly on environment. The equipment required to implement the provisions of the EMPr are provided on site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General: • The site camp and associated site facilities must be set-up and managed in accordance with the general environmental management measures specified in Section 6.4 of this EMPr. • The site camp must be strategically set up in a manner that will promote good environmental management during construction/ demolition, and to respond to potential emergencies (including fires, spillage of hazardous substances etc.) that may arise. • The site camp, storage facilities, stockpiles, waste bins, and any other temporary structures on site must be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • Frequent stormwater outlets must be maintained (if necessary), to prevent erosion at discharge points. • A sweep of the proposed development footprint must be done prior to the site establishment in order to ensure that no animals are hurt during site clearance activities. • A sweep of faunal species must be done by the Contractor, prior to the clearance of vegetation in any one area. Collected fauna to be relocated into the adjacent Nature Reserve should also be included in the Pre-Construction mitigation measures • In the event of a temporary site closure occurring such as the builder's holidays, temporary suspension of works or any period of inactivity longer than 7 working days the Contractor is to notify the ECO. The Contractor shall check the site according to the requirements of the ECO, and ensure that all items are addressed. The Contractor will provide a brief written report on compliance to the ER and ECO prior to the temporary shutdown date **Site Camp Establishment:** • The construction area including the construction camp is to be cordoned off (by through reasonable measures). • If in an area that contains vegetation, utilise disturbed areas only, and: • Ensure site selected is inspected and approved by ECO. • Utilise disturbed or transformed areas for site camp establishment. • Site camp facilities must be the minimum area reasonably required to accommodate the site camp facilities and must not be allowed to impact areas not within the designated footprint. • Ensure the site camp is positioned on a levelled area and is easily accessible. • The boundary of site camp should be clearly demarcated and the camp access controlled through the use of a gate or other approved method. • Ensure access to site is at one point, unless two existing points of entry/exit are identified. • Ensure access onto site is controlled. • Ensure there is 24hr security.	Contractor / Belladonna (Pty) Ltd / ECO	Pre-construction phase (prior to start of construction activities)

• Designate specific areas for specific purpose, including storage areas, machinery storage areas, parking areas, waste disposal areas, etc. • Infographics must be available on site in public areas, including information on safety measures, potential harmful fauna (ie. snakes common to the areas, and emergency contact information, including, but not limited to: Snake catchers, Ambulance; Fire Department; the closest hospital, veterinarian (ie: for anti-venom, etc). • Must contain a spill-kit. • Potable chemical toilets: • Plan positioning of Potable Toilets for labour working along the route. • Consider designating a vehicle for the transportation of labourers to toilets. The vehicle can be equipped with a spill-kit. • Ensure chemical toilets are positioned on levelled areas and are protected from wind and rain that could result in them blowing over and spilling waste contents. • Ensure toilets are rented from a registered company, with whom arrangements should be made for cleaning of these toilets on a weekly basis. • Disposal slips/cleaning slips from this company must be obtained following every cleaning and must be filed in the Environmental File. • Ensure an adequate quantity of toilets are provided at each working area. • Hazardous substances including oil/fuel etc. should be: • Stored in bunded areas, on hardened/impermeable surfaces, where the barrels/drums/containers are protected from the natural elements. • Hazardous substances storage area must be treated as a no-go zone to unauthorised personnel. • Appropriate signage indicating what kind hazardous/flammable materials are stored. • Material Safety Data Sheet (MSDSs) must be available. • A fire extinguisher and contact details for the fire department and other emergency numbers must be positioned in close proximity. • A spill kit must be positioned inside the hazardous substances storage area. • Spill kits must be available on site at all times. • Where fuelling does occur on site, a drip tray must be used to contain any spilled fuel. • All construction vehicles must be equipped with drip trays at all times. • All construction vehicles must be properly maintained to prevent leaks. • No vehicle maintenance activities may occur on site for the duration of the construction phase. • Where emergency maintenance is required, such maintenance must be communicated with the independent Environmental Control Officer appointed to oversee the alignment of the construction works with the applicable environmental legislation. • May only be decanted/filled on the aforementioned surface or with the use of drip trays. • If any spills do occur, the soil must be excavated and disposed of as hazardous waste at an appropriately registered facility. **Waste Management:** • Designate areas for temporary waste storage, this area should be: • Protected from wind/rain displacement. • Should be on a levelled surface.		

- An appropriate number of skips/bins must be made available on site, to accommodate for waste separation of the various types of waste generated.
- Waste bins/skips must be weather and animal proof. Ensure weighted covers are positioned on skips/bins, to ensure that animals cannot get into the bins as well as to avoid waste dispersion.
- Label bins appropriately.
- No waste/excavated soil/ etc. intended to be removed from site may remain on site for more than 90-days.
- Ensure that disposal is undertaken when waste has reached 75% capacity of the bin/skip.
- The waste must be disposed of at a registered waste disposal facility. The manifest and safe disposal certificates from the facility must be kept in the Environmental File.
- Ensure waste receptacles are available where works are being undertaken, this can take the form of black bin bags, etc. however it must:
- Be sufficient hold the waste without tearing/spilling.
- It must be removed from site on a daily basis and re-established at the start of every day, when works occurs in that area.
- Request that the foreman responsible for the labour team in a specific area, is responsible for ensuring that this waste receptacle is utilised, removed and established daily.

Environmental File:

- An environmental file is to be created by the contractor and be situated within the site camp throughout the construction phase and with the applicant thereafter. The environmental file is to include the following:
    - Copies of all approvals, including Environmental Authorisation, Water Use Licence and any other license/permit/approval.
    - A copy of the approved EMPr
    - Copies of waste disposal slips
    - Copies of chemical toilet cleaning/servicing slips
    - Disposal slips or cleaning slips (ablution cleaning)
    - All EMR's (Environmental Monitoring Reports) and ECO instructions
    - Copies of Environmental Induction Register/S
    - A Complaints Register
    - Updated method statements
    - Material Safety Data Sheets for all hazardous substances utilised on site.
    - Copies of audit reports
    - Risk Management, Prevention and Emergency Preparedness Plan
    - An Incident Register
    - Copy of induction registers.
    - Copies of purchase orders for rehabilitation material etc.

Visual Specialist design recommendations:

- Siting proposed buildings to avoid areas of inherent site sensitivity, such as elevated or sloped positions, as far as possible.
- Organising internal roads and proposed buildings along the contours of the landscape to allow for a more organic layout and to better fit in with the existing urban fabric of Riversdale.

• Allowing for varied and well-defined public spaces within the proposed layout to create enjoyable urban experiences and improving the overall liveability of the space. • Siting buildings to be congruent with existing building typologies in the vicinity of the site, i.e. buildings set back from road edges along sensitive visual corridors. • Providing architectural and landscape development guidelines to guide the visual characteristics of proposed developments. Colours and finishes must complement the existing landscape character of Riversdale and allow the proposed new developments to blend in with its surroundings. Material selection must be considered as part of the design in order to ensure that proposed building structures are in harmony with the surrounding landscape as far as possible. • Screening new developments from neighbouring properties and roadways using a combination of earthworks and screening vegetation must be prioritised. • Height and scale of buildings must be minimised where possible. Appropriate building height as identified by the Hessequa Municipality Zoning Scheme By-Law (2018) must be adhered to. Building form should be fragmented to reduce visual scale in the landscape and allow for landscaped areas between buildings to effectively screen new developments. • Extensive landscaping in private open areas and streetscapes to visually integrate new developments with the greater landscape must be undertaken immediately following the completion of building works. • Existing planted tree avenues and earthworks along the N2 area set a precedent for landscape development and can be used to effectively screen new developments from surrounding areas.		
Performance Indicator	Appropriate, well organised, and properly equipped site facilities are available on site prior to commencement of construction activities. The location and set up of the facilities don't impact on the natural resources.	

9.3. Objective 3: Pre-Construction ECO and Environmental Site Officer (ESO) Inspection and Due Diligence

It is essential that the appointed ECO and ESO be advised of the intended construction start date before construction activities commence on site, in order for the ECO to conduct an initial site inspection to assess the pre-commencement condition of the site. The ECO can also advise on the appropriate siting and demarcation of the site facilities, and the identification and demarcation of the no-go areas. The ECO may also conduct the first round of environmental awareness training at this stage, if any construction workers/sub-contractors are present on site.

Impact Management Objective: ***Environmental Control Officer and Environmental Site Officer to conduct an inspection prior to the commencement of construction activities on site.***		
Potential impact to avoid	• Failure to appoint ECO or to notify ECO of commencement prior to commencement may result in non-compliance with the EA. • If a pre-commencement ECO inspection is not performed, the Construction Contractor may be held liable for environmental degradation that took place prior to the Contractor commencing work on site.	
Impact Management Outcome	• Good environmental management is promoted and enforced by the ECO during the full pre-construction and construction phases. • Site facilities are appropriately located on site. • Construction workers receive environmental awareness training before commencing work on site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• The appointed ECO must be advised of the construction start date, before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training (see Section 14 and Appendix I), of construction workers.	Contractor/ ECO	Start of construction phase

• The ECO must ensure all relevant items are in place in terms of Section 7 and 8 of this EMPr, where necessary, and all relevant pre-construction requirements have been complied with in terms of the EA. • Ensure the project timeframe has taken the relevant requirements of the EA and EMPr, into account. • The ECO must take photographs of the site prior to the establishment of ALL facilities (including the site camp), for record purposes. • The ECO is to ensure that the Environmental File is in place on site, with all the relevant content, and emergency numbers for the relevant authorities are available. • The ECO is to consult with the Contractor regarding relevant dates for environmental inductions (with regard to new labour). • If it is recommended that an SEO is appointed, as per the EA, this must be undertaken.		
Performance Indicator	A pre-commencement site inspection is conducted by the appointed ECO before construction activities commence on site.	

10. ENVIRONMENTAL IMPACT MANAGEMENT: CONSTRUCTION PHASE

A number of potential environmental impacts may arise during the construction phase of the development. These impacts have been identified and assessed during the Environmental Impact Assessment process. Environmental Management objectives and actions that will prevent the identified potential impacts from arising – or where avoidance is not possible, that will minimise and mitigate the impacts – are provided in this section.

The environmental management actions and mitigation measures prescribed in this section must be implemented throughout the construction phase and must be implemented in conjunction with the general management measures specified in Section 6 of this EMPr, as well as any other conditions which may be stated in the Environmental Authorisation. The Environmental Control Officer must monitor and enforce the implementation of the relevant environmental management measures and may provide guidance on the implementation of these environmental management measures as and when required.

The environmental management objectives (goals) for the Construction phase are:

- Erosion, Earthworks and Land clearance
- Loss of vegetation and disruption to ecological processes
- Disturbance and displacement of faunal habitat and faunal species of conservation concern
- Management of the loss and impacts on the freshwater resources
- Management of socio-economic impacts
- Groundwater, surface water and soil contamination control
- Traffic impacts Control
- Air Quality Impact Control
- Noise and Visual Impact Control

The environmental management actions that must be implemented in order to achieve the desired objectives and avoid/minimise potential impacts are discussed in more detail in the sections below.

10.1. Objective 1: Erosion, Earthworks and Land Clearance

Impact Management Objective: ***To prevent soil loss, and destruction to heritage resources on site.***			
Potential impact(s) to avoid	Susceptibility of some areas to erosion because of construction related disturbances due to the clearance of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion, during heavy rainfall events, after completion of the activity. Stockpiled soils and materials can be displaced in heavy rainfall and windy conditions, resulting in sediment dispersal. Likely loss of heritage material findings, such as the discovery of fossil deposits, during excavation and trenching.		
Impact Management Outcome	Stormwater systems are not impacted significantly.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General: • Any significant spills or leak incidents must be reported in terms of the National Environmental Management Act, 1997 (Act 107 of 1998),the Water Act, 1998 (Act 36 of 1998). • Tanker delivery drivers must be present during delivery of fuel with the emergency cut off switch. • In the event of the pump dispenser or the hoses being knocked over or ripped off, the fuel supply must be cut off by shear-off valves. • An Emergency Response Plan must be in place for the site, this must clearly describe emergency procedures and include emergency contact numbers. • The Applicant must report any significant incidents that could potentially lead to soil, groundwater pollution and soil. • Monitoring for and removal of weeds, invasive aliens and other non-desirable vegetation must take place regularly, as once alien, or weedy seedlings are established, their control will become more difficult. • Be mindful of rainfall events, and plan construction works during dry season. • Ensure programme of works includes rehabilitation after each section has been backfilled, to avoid bare surfaces remaining exposed for extended periods of time. • Ensure all works on site, remain within the proposed development area identified in this EMPr (this includes stockpiling, if necessary, on site). **Stockpiling:** • Ensure stockpiles do not exceed 2m in height. • Prohibit stockpiling of material close to slopes. • Separate topsoil and subsoils during excavations. • When backfilling, ensure subsoils are backfilled first, and top-soil thereafter. • If topsoil is of poor-quality purchase new topsoil to ensure rehabilitation will be successful. • Remove alien invasives/weeds established on stockpiled soils prior to re-instatement. • Continue with weed management throughout construction, in line with the EMPr.		Contractor/ECO	Construction phase

Excavations:

- Topsoil & subsoil that has been excavated must be stockpiled separately, along & adjacent to the excavation pits and must be covered with a suitable cover crop or tarpaulin.
- Ensure excavations are undertaken as per specifications.
- Ensure that excavations are not left open overnight. If it is necessary to do so, the excavations must be checked by the safety officer.
- Integrate shoring measures if pit walls are collapsing.
- Whenever any excavation is undertaken, the following procedures shall be adhered to:
    - Topsoil shall be handled as described in this EMP.
    - Excavations shall take place only within the approved demarcated site.
    - The construction site will not be left in any way to deteriorate into an unacceptable state.
    - The excavated area must serve as a final depositing area for waste rock and overburden during the rehabilitation process.
    - Once excavations have been filled with overburden, rocks and coarse natural materials and profiled with acceptable contours (including erosion control measures), the previous stored topsoil shall be returned to its original depth over the area.

Exposed surfaces:

- Implement weed management measures as detailed in the EMPr.
- After backfilling an area, immediately commence with rehabilitation, as detailed in the EMPr, and continue with weed management.
- Ensure dust creation is controlled, as detailed in the EMPr.
- No surface should be left exposed for extended periods of time.
- On completion of construction, the surface of the processing areas especially if compacted due to hauling and dumping operations shall be scarified to a depth of at least 200 mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area.
- The area shall be fertilised, if necessary, to allow vegetation to establish rapidly. The site shall be seeded with suitable grasses and local indigenous seed mix. If excavated material is to be utilised for reestablishment, this may not contain alien invasive species, or other waste products, as approved by the ECO.
- Waste (non-biodegradable refuse) will not be permitted to be deposited in the excavations.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the KNPS may require that the soil be analysed and any deleterious effects on the soil arising from the activity, be corrected and the area be seeded with a vegetation seed mix to his or her satisfaction. This must be done in conjunction with the ECO.
- Final rehabilitation must comply with the requirements mention in the Rehabilitation Plan.
- During rehabilitation, the subsoil must be replaced before replacing the topsoil.

Alien invasive management:

- Ensure that alien invasive species are identified, and measures are taken to consistently remove alien invasive species from within the development footprint – implement weed management plan/alien invasive management plan as per EMPr.

- Stockpiled alien invasive species cleared from site, should be contained and removed from site as soon as possible, so as to not allow dispersal.
- Indigenous vegetation must be utilised where possible.
- Implement rehabilitation plan.

Erosion Management

- Suitable measures must be implemented in areas that are susceptible to erosion. Areas must be rehabilitated, and a suitable cover crop planted once construction is completed.
- Topsoil must be stripped and stockpiled separately and replaced on completion.
- If natural vegetation re-establishment does not occur, a suitable grass must be applied.
- Be mindful of weather conditions that may cause runoff.
- Utilise silt fences, if necessary, to capture runoff.

Soil Aspects:

- Sufficient topsoil must be stored for later use during decommissioning, particularly from outcrop areas.
- Topsoil shall be removed from all areas where physical disturbance of the surface will occur.
- All available topsoil shall be removed after consultation with the botanist and horticulturalist prior to commencement of any operations.
- The removed topsoil shall be stored on high ground within the site footprint.
- Topsoil shall be kept separate from overburden and shall not be used for building or maintenance of roads.
- The stockpiled topsoil shall be protected from being blown away or being eroded. The application of a suitable grass seed/runner mix will facilitate this and reduce the minimise weeds.

Stormwater and Erosion Control

- Stormwater Management Plans must be developed in accordance with Section 6.11 of the EMPr.
- Stormwater must be prevented from entering or running off site.
- To ensure that site is not subjected to excessive erosion and capable of drainage runoff with minimum risk of scour, their slopes should be profiled at a maximum 1:3 gradient.
- Diversion channels should be constructed ahead of the open cuts, and above emplacement areas and stockpiles to intercept clean runoff and divert it around disturbed areas into the natural drainage system downstream of the site.
- Rehabilitation is necessary to control erosion and sedimentation of all eroded areas (where works will take place).
- Existing vegetation must be retained as far as possible to minimise erosion problems.
- It is important that the rehabilitation of site is planned and completed in such a way that the runoff water will not cause erosion.
- Visual inspections must be done on a regular basis with regard to the stability of water control structure, erosion and siltation.
- Sediment-laden runoff from cleared areas must be prevented from entering rivers and streams.
- No river or surface water may be affected by silt emanating from the site.
- Refuelling and servicing of vehicles must be undertaken at designated service areas and on an impermeable surface.

Operating Procedures in the Site • Construction shall only take place within the approved demarcated site. • The Contractor must ensure that an emergency preparedness plan is in place in order to fight accidental fires or veld fires, should they occur. The adjacent landowners/users/managers should also be informed or otherwise involved. • Enclosed areas for food preparation should be provided and the Contractor must strictly prohibit the use of open fires for cooking and heating purposes. • The use of branches of trees and shrubs for fire-making must be strictly prohibited. • The Contractor should take all reasonable and active steps to avoid increasing the risk of fire through their activities on-site. No fires may be lit except at places approved by the ECO. • The Contractor must ensure that the basic fire-fighting equipment is to the satisfaction of the Local Emergency Services and Koeberg Fire Risk Management. • The Contractor must supply all living quarters, site offices, kitchen areas, workshop areas, materials, stores and any other relevant areas with tested and approved fire-fighting equipment. • Fires and "hot work" must be restricted to demarcated areas. • A braai facility may be considered at the discretion of the Contractor and in consultation with the ECO. The area must be away from flammable stores. All events must be under management's supervision and a fire extinguisher will be immediately available. "Low-smoke" fuels must be used (e.g., charcoal) and smoke control regulations, if applicable, must be considered. • The Contractor must take precautions when working with welding or grinding equipment near potential sources of combustion. Such precautions include having a suitable, tested and approved fire extinguisher immediately at hand and the use of welding curtains. **Palaeontology and Heritage Specialists recommendations:** • Implement Chance Finds Procedure such that isolated fossils can be collected during development and safeguarded for future research.		
Performance Indicator	No soil and / or groundwater contamination incidences and potential fossil find disturbed	

10.2. Objective 2: Loss of vegetation and disruption to ecological processes

Impact Management Objective: ***Reduce the impacts caused by land disturbance and impacts on surrounding indigenous vegetation.***		
Potential impact(s) to avoid	Prevention of vegetation loss immediately outside the development site/ no-go areas	
Impact Management Outcome	The disturbance of indigenous vegetation and faunal species is minimised.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period

General: • Demarcate the construction site boundaries upon site establishment and limit all activities to inside these boundaries. **Clearance of vegetation:** • Limit the footprint area of the construction activity to the immediate site. • Designate areas outside the approved project footprint as highlighted in Section 6.3 of this EMPr. as No-Go areas. • Contractors must drive on existing access roads as far as possible to prevent formation of unnecessary tracks for access roads. • Prohibit temporary storage of building material or soil within areas of natural vegetation falling outside of the construction footprint. • Remove all alien and weed species encountered within areas disturbed by construction activities. Removal of species should take place throughout the construction and operational phases of the development. • Rehabilitate the development footprint and areas disturbed during construction with species indigenous to the vegetation type during the decommissioning phase of the development. • Blanket clearing of vegetation must be limited to the development footprint, and the area to be cleared must be demarcated before any clearing commences. • No clearing outside of footprint to take place. • Such measures include a survey of the route before commencement in order to microsite the route to avoid large or important fynbos species and may require hand excavation in certain areas to reduce the footprint so as not to significantly disturbance. • Topsoil must be striped and stockpiled separately during site preparation and replaced on completion where revegetation will take place. • Any site camps and laydown areas requiring clearing must be located within already disturbed areas. **Alien Invasive Vegetation:** • During the construction phase, alien species must be removed from the working areas as per the National Environmental Management: Biodiversity Act (No. 10 of 2004) requirements. Following the conclusion of the installation activities, the onus will rest on the EA Holder/Landowner to ensure management of the species on site. • The Contractor is responsible for the removal of alien species within all areas disturbed during construction activities. Disturbed areas include (but are not limited to) access roads, construction camps, site areas and temporary storage areas. • In consultation with relevant authorities and the Project Engineer may order the removal of alien plants (when necessary). Areas within the confines of the site are to be included. • All alien invasive plant material (including brushwood and seeds) should be removed from site and disposed of at a registered waste disposal site. Should brushwood be utilised for soil stabilisation or mulching, it must be seed free. • After clearing is completed, an appropriate cover crop may be required, should natural re-establishment of grasses not take place in a timely manner. **Fires** • The Contractor must ensure that an emergency preparedness plan is in place in order to fight accidental fires or veld fires, should they occur. The adjacent landowners/users/managers should also be informed or otherwise involved.	Contractor/ Belladonna (Pty) Ltd	Construction phase

• Enclosed areas for food preparation should be provided and the Contractor must strictly prohibit the use of open fires for cooking and heating purposes. • The use of branches of trees and shrubs for fire-making must be strictly prohibited. • The Contractor should take all reasonable and active steps to avoid increasing the risk of fire through their activities on-site. No fires may be lit except at places approved by the ECO. • The Contractor must ensure that the basic fire-fighting equipment is to the satisfaction of the Local Emergency Services. • The Contractor must supply all living quarters, site offices, kitchen areas, workshop areas, materials, stores and any other relevant areas with tested and approved fire-fighting equipment. • Fires and "hot work" must be restricted to demarcated areas. **Soil Aspects** • Sufficient topsoil must be stored for later use during decommissioning, particularly from outcrop areas. • Topsoil shall be removed from all areas where physical disturbance of the surface will occur. • All available topsoil shall be removed after consultation with the botanist and horticulturalist prior to commencement of any operations. • The removed topsoil shall be stored on high ground within the footprint of the proposed development footprint. • Topsoils shall be kept separate from overburden and shall not be used for building or maintenance of roads. • The stockpiled topsoil shall be protected from being blown away or being eroded. The application of a suitable grass seed/runner mix will facilitate this and reduce the minimise weeds. **Dust** • To manage complaints relation to impacts on the nearby communities, a dust register must be developed. • If required, water spray vehicles will be used to control wind cause by strong winds during activities on the works. • No over-watering of the cleared areas or road surfaces must take place. • Wind screens should be used to reduce wind and dust in open areas. • Should complaints be received by this office, should the local authority require for such an action, it may be necessary for the responsible person to submit an area/site specific Dust Management Plan (DMP), directly to the City's Air Quality Management Branch, for scrutiny. • The aforementioned DMP will have to comply with the provisions of the National Dust Control Regulations (GN. 36974) dated 1 November 2013. • Once authorised, the DMP must be instated on site and must be adhered to.		

Performance Indicator	Construction team limit disturbance to the surrounding vegetation.

10.3. Objective 3: Disturbance and displacement of Faunal habitat and faunal species of conservation concern

Impact Management Objective: ***Reduce the impacts caused by land disturbance and impacts on the faunal habitat and faunal species of conservation concern***			
Potential impact(s) to avoid	• Permanent loss of faunal habitat cover due to construction activities. • Increased susceptibility to erosion caused by construction activities. • Disturbance and displacement of faunal species, their processes.		
Impact Management Outcome	The disturbance of faunal habitat and faunal species is minimised.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General: • Ensure contact numbers for emergency assistance is available. • Reptiles such as lizards are less mobile compared to mammals, and some mortalities could arise. • Should vegetation regrowth be significant prior to the commencement of the construction phase of the proposed development, it is recommended that a faunal search and rescue be conducted before construction commences, although experience has shown that there could still be some mortalities as these species are mobile and may thus move onto site once construction is underway. • A reptile handler should be on call for such circumstances. • No animals are to be harmed or killed during the course of operations. • It is important that clearing activities are kept to the minimum and take place in a phased manner. This allows animal species to move into safe areas and prevents wind and water erosion of the cleared areas. • Workers are NOT allowed to collect any flora or snare any faunal species. All flora and fauna remain the property of the landowner and must not be disturbed, upset or used without their expressed consent. • Trees and shrubs that are directly affected by the operations may be felled or cleared but only by the expressed written permission of the ECO. • Where landscaping will be done, indigenous vegetation must be used as far as reasonably possible. • Materials used during construction must be sourced and transported responsibly to minimise the risk of further introductions of new IAPs and contamination of the site, and especially the areas surrounding the site. • Should animals wander onto site, the animals must be captured and released into the adjoining nature reserve grounds. • The site is to be always kept clean and tidy so as to not attract the animals to the site.		Contractor	Construction phase
Performance Indicator	Construction team limit disturbance to the surrounding vegetation and faunal species.		

10.4. Objective 4: Loss of Agricultural Resources

Impact Management Objective: ***Reduce the impacts caused by land disturbance and impacts on the Agricultural Resources***	
Potential impact(s) to avoid	• Loss of Agricultural Resources beyond the boundaries of the proposed development footprint.

Impact Management Outcome	Minimisation of the impacts of the proposed development on the agricultural resources.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General: • No activities are allowed beyond the boundaries of the approved development area. • Where construction works are required beyond the boundaries of Erf 21 and Erf 266, these areas must be demarcated in accordance with the layout (once approved). • No workers may be permitted to enter into areas beyond the demarcated boundaries of the construction footprint.		Contractor	Construction phase
Performance Indicator	Construction team limit disturbance to the agricultural resources within proximity to the proposed development area.		

10.5. Objective 5: Impacts on Freshwater resources

***Impact Management Objective:* Reduce the impacts caused by land disturbance and impacts on the Freshwater Resources**			
Potential impact(s) to avoid	• Damage to instream and riparian habitats of identified water resource as a direct result of construction activities. • Pollution of identified water resources as a direct result of contaminated runoff from construction areas. • Soil and Groundwater Contamination as a result of infiltration of construction-related pollutants. • Disturbance to aquatic and terrestrial fauna within the identified water resources as a result of construction activities.		
Impact Management Outcome	Minimisation of the impacts of the proposed development on the freshwater resources.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General: • Suitable measures must be implemented in areas that are susceptible to erosion. Areas must be rehabilitated, and a suitable cover crop planted once construction is completed. • Topsoil must be stripped and stockpiled separately and replaced on completion. • Be mindful of weather conditions that may cause runoff. • Utilize silt fences, if necessary, at demarcated working corridor fence line, to capture runoff. • If feasible, chemical toilets must be kept at the site camp. Chemical toilets must be placed on a level surface and secured from blowing over. • Toilets may not be linked to the storm water drainage system in any way. • Chemical toilets must be regularly emptied, and the waste disposed of at an appropriately registered waste water disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets.		Contractor	Construction phase

Specialist mitigation measures:

- Contractor laydown areas are to be established outside of the identified water resource and only for a short duration in consultation with the appropriate authority.
- All development footprint areas are to remain as small as feasibly possible and vegetation clearing is to be limited to what is absolutely essential to complete the required scope-of-works.
- Construction Activities should preferably be undertaken during the drier summer months, to minimise the impact on the Hydrological & Geomorphological Functioning of the water resource.
- Excavated topsoil is to be stockpiled and re-utilised during backfilling.
- All construction debris and litter must be removed. It may be temporarily stockpiled outside the extent of the identified water resource but must be removed and disposed of at a licensed Processing Facility.
- Only authorised construction personnel may be permitted to enter the construction zones to prevent excessive compaction of the soil.
- Care must be taken, and all construction personnel must receive training on the risks of chemical contamination of the water resource.
- Chemical spills within and surrounding the water resource should be immediately remediated through the implementation of an Emergency Chemical Spill Procedure that must form part of a legally binding Environmental Management Plan (EMP) and be audited for compliance by a suitably qualified Environmental Control Officer (ECO).
- Sediment control measures (silt traps) are to be installed to ensure that no sediment as a result of the construction activities enters the identified water resource. The location of these silt traps is to be established during the audits by the appointed Environmental Control Officer (ECO).
- The mitigation measures above are to be incorporated into the approved Environmental Management Plan (EMP) and audited for compliance by a suitably qualified Environmental Control Officer (ECO) and submitted to the Competent Authority at intervals specified by the Competent Authority.
- The delineated seep wetland area is to form part of a stormwater management structure (stormwater detention area). The relevant civil engineers are to be consulted to provide input regarding the practicable/feasible design of this structure. This structure is to be incorporated into the Stormwater Management Plan for the proposed development which is to be approved by the competent authority and local municipality. Additionally, this area is to be demarcated and zoned for Open Space within the proposed Spatial Development Plan (SDP) which is to be submitted to the Competent Authority and Local Municipality for approval.
- All development footprint areas should remain as small as feasibly possible to complete the proposed scope of work.
- The boundaries of footprint areas, including contractor laydown areas, are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. Edge effects will need to be extremely carefully controlled.
- Temporary access routes during the construction phase should be restricted to existing gravel roads where feasible.
- Appropriate sanitary facilities must be provided during the construction phase for all personnel and services at regular intervals.
- All hazardous chemicals, as well as stockpiles, should be stored on bunded surfaces and have facilities constructed to control runoff from these areas.
- It must be ensured that all hazardous storage containers and storage areas comply with the relevant SANS codes to prevent leakage and contamination of surface and groundwater.
- No fires should be permitted.

• All construction vehicles must be regularly inspected for leaks. Refuelling must take place on a sealed surface area to prevent the ingress of hydrocarbons into the topsoil. • In the event of a vehicle breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practised near the surface area to prevent the ingress of hydrocarbons into the topsoil. • All spills should they occur should be immediately cleaned up and treated accordingly. • Sheet runoff from access roads should be slowed down by the strategic placement of silt traps in accordance with the approved Environmental Management Plan (EMP). • As far as feasibly possible, all construction activities should occur during the dry summer months (December – February). • The delineated seep wetland area is to form part of a stormwater management structure (stormwater detention area). The relevant civil engineers are to be consulted to provide input regarding the practicable/feasible design of this structure. This structure is to be incorporated into the Stormwater Management Plan for the proposed development which is to be approved by the competent authority and local municipality. Additionally, this area is to be demarcated and zoned for Open Space within the proposed Spatial Development Plan (SDP) which is to be submitted to the Competent Authority and Local Municipality for approval. • All development footprint areas should remain as small as feasibly possible to complete the proposed scope of work.		
Performance Indicator	Construction team limit disturbance to the freshwater resources within proximity to the proposed development area.	

10.6. Objective 6: Impacts of Pollution on the environmental resources

Impact Management Objective: ***Reduce the impacts caused by pollution sources***		
Potential impact(s) to avoid	• Poor housekeeping could potentially lead to groundwater, freshwater and soil contamination.	
Impact Management Outcome	Minimisation of the impacts of the proposed development on the biophysical environment.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• **Pollution Management – Hazardous Substances** o Vehicles and machinery must be in good working order and must be regularly inspected for leaks. o If a vehicle or machinery is leaking pollutants it must, as soon as possible, be taken to an appropriate location for repair. The ECO has the authority to request that any vehicle or piece of equipment that is contaminating the environment be removed from the site until it has been satisfactorily repaired. o Repairs to vehicles/ machinery may take place on site, within a designated maintenance area at the site camp. Drip trays, tarpaulin or other impermeable layer must be laid down prior to undertaking repairs. o Refuelling of vehicles/ machinery may only take place at the site camp or vehicle maintenance yard. Where refuelling must occur, drip trays should be utilised to catch potential spills/ drips.	Contractor	Construction phase

○ Drip trays must be utilised during decanting of hazardous substances and when refilling chemical/ fuel storage tanks. ○ Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant, or where there is risk of leakage/spillage. ○ Any hazardous substances (materials, fuels, other chemicals etc.) that may be required on site must be stored according to the manufacturers' product-storage requirements, which may include a covered, waterproof bunded housing structure. ○ Material Safety Data Sheets (MSDSs) must be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases. ○ Hazardous chemicals and fuels should be stored on bunded, impermeable surfaces with sufficient capacity to hold at least 110% of the capacity of the storage tanks. ○ Where feasible, fuel tanks should be elevated so that leaks are easily detected. ○ A spill kit to neutralise/treat spills of fuel/ oil/ lubricants must be available on site, and workers must be educated on how to utilise the spill kit. ○ Soil contaminated by hazardous substances must be excavated and disposed of as hazardous waste. ○ If cement is to be mixed, ensure this is done on a bunded impermeable surface, and transferred so that there is no interaction with natural ground. ○ No contaminated soil may be utilized during backfilling. • **Pollution Management – Cement handling** ○ Cement batching must take place on an impermeable surface large enough to retain any slurry or cement water run-off. If necessary, plastic/ bidem lined detention ponds (or similar) should be constructed to catch the run-off from batching areas. Once the water content of the cement water/ slurry has evaporated the dried cement should be scraped out of the detention pond and disposed of at an appropriate disposal facility authorised to deal with such waste ○ Cement batching must take place on already transformed areas within the footprint of the facility. ○ Unused cement bags must be stored in such a way that they will be protected from rain. Empty cement bags must not be left lying on the ground and must be disposed of in the appropriate waste bin. ○ Washing of excess cement/concrete into the ground is not allowed. All excess concrete/ cement must be removed from site and disposed of at an appropriate location. • **General Waste Management** ○ Dedicated waste bins or skips must be provided on site and kept in a demarcated area on an impermeable surfaces. ○ Separate waste bins/skips must be provided for recyclable waste, general waste and hazardous waste. Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until removal. ○ Waste must be placed in the appropriate waste bins/skips/ stockpiles. ○ Hazardous waste bins must be kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins.		

○ Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown waste or dust. ○ Waste bins/skips must be regularly emptied and must not be allowed to overflow. ○ Construction workers must be instructed not to litter and to place all waste in the appropriate waste bins provided on site. ○ The Contractor must ensure that all workers on site are familiar with the correct waste disposal procedures to be followed. ○ Waste generated on site must be classified and managed in accordance with the National Environmental Management: Waste Act – Waste Classification and Management Regulations (GN No. R. 634 of August 2013). ○ Disposal of waste to landfill must be undertaken in accordance with the National Environmental Management: Waste Act – National Norms and Standard for the Assessment of Waste for Landfill Disposal (GN No. R. 635 of August 2013). ○ All waste, hazardous as well as general, which result from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF).		
Performance Indicator	Housekeeping is in order in all working areas forming part of the proposed development.	

10.7. Objective 7: Impact on Socio-Economic Environment

Impact Management Objective: ***To create employment opportunities with potential for skills transfer, for members of the local community.***		
Potential impact(s) to be promoted.	• A number of temporary job opportunities for skilled and unskilled labour will be created during the construction phase of the development. • Potential transfer of skills from more experienced workers to less experienced workers. • Increase in business for local businesses within the construction industry.	
Impact Management Outcome	• Social benefits from the employment opportunities created during the construction phase. • Increased revenue for local businesses during the construction phase.	
IMPACT MANAGEMENT ACTIONS		
Promotion measure	Responsible party	Time period
General mitigations: • All mitigation measures proposed under the visual impacts above must be implemented on site. • All mitigation measures proposed under the traffic impacts above must be implemented on site. • An independent Community Liaison Officer (CLO) must be appointed by the Contractor/Developer to ensure that employment of local labour is fair. • The CLO must engage with the Ward Councillor prior to and during the construction works regarding the employment of local labourers.	Belladonna (Pty) Ltd / Contractor	Construction phase

• If applicable, the CLO must engage with any business forums and/or community groups regarding the opportunities available on site. • Where applicable, Local SMME's should be approached and afforded with the opportunity to provide services to the construction works, • Where possible, local labourers must be used on site (should the skill sets allow for it). • If applicable, local labourers must be trained and provided with the possibility to obtain or improve skillsets which would be transferrable to future employment opportunities. **Safety and Security** • There must be a 24/7 security team on the proposed development site during the construction phase of the project. • No local workers may access the proposed development area outside of the designated clock in times. • An attendance register must be available on site at all times. • All labourers must sign the attendance register upon entrance and exit of the workday. • Workers must be encouraged to wear distinguishable clothing in order for surrounding landowners to clearly identify workers associated with the proposed development site. • From the onset of the project, a notice must be placed at all entrances to the site that no 'Off the Street' opportunities are available.		

Performance Indicator	A substantial proportion of the construction team is from the local community, with preference given to historically disadvantaged individuals and, where appropriate, unskilled labourers. Skills transfer from experienced to less experienced workers is actively encouraged on site.

10.8. Objective 8: Impact on Traffic regime in the area

***Impact Management Objective:* To minimise the impact of traffic disruptions to the local community and commuters of the N2-Highway.**		
Potential impact(s) to be promoted.	• Poor traffic management to disrupt the road network in the residential area associated with the Riversdale residential area.	
Impact Management Outcome	• Minimal traffic management complaints by the local community.	
IMPACT MANAGEMENT ACTIONS		
Promotion measure	Responsible party	Time period
General mitigations: • A traffic management plan must be compiled by the Contractor for the construction phase of the proposed development. • This management plan must be submitted to both SANRAL and the Municipality for approval prior to the commencement of works.	Belladonna (Pty) Ltd / Contractor	Construction phase

• Construction vehicles must remain on designated routes and only access points into the site, as permitted by the Contractor, may be used. • All construction vehicles must be in good working condition. • No site access to the main development area may be obtained directly from the N2-Highway.		
Performance Indicator	Minimal Traffic related incidents and negative feedback pertaining to the construction works associated with the proposed development.	

10.9. Objective 9: Air Quality Control

Impact Management Objective: ***Minimise the effect on air quality from dust and emissions complaints.***			
Potential impact(s) to be avoided.	• Generated dust from exposed soil, and ground disturbance. • Construction vehicles emitting exhaust fumes		
Impact Management Outcome	• Minimise the incidence of dust. • Minimised emission related complaints.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General: • Dust suppression methods, such as wetting with non-potable such water or laying must be used during the construction phase of the proposed development. • Stockpiles and spoil heaps must be covered to prevent fugitive dust. • All construction vehicles must be appropriately maintained to minimise exhaust Emissions. • All mitigation measures described in the EMPr relating to dust and vehicle emissions must be adhered to. • All spills or accidents involving such materials are to be recorded by the Contractor. • A phased vegetation clearance procedure must be encouraged. • Vegetation rehabilitation must take place as installation and backfilling activities in any one area has concluded. • Contractor to provide details to ECO. • Vehicular speed must be controlled at all times with no indiscriminatory driving permitted by any construction vehicles, or the general public. • Construction vehicles shall comply with speed limits and haul distances shall be minimised. Material loads shall be suitably covered and secured during transportation. • During high wind conditions, the ER will evaluate the situation and make recommendations as to whether dust damping measures are adequate, or weather working will cease altogether until the wind speed drops to an acceptable level. • Exposed soil and material stockpiles shall be protected against wind erosion and the location of stockpiles shall take into consideration the prevailing wind directions and locations of sensitive receptors. • The Contractor shall implement dust suppression measures (e.g. water spray vehicles (must be used in line with the Water Use By-Laws), covering of material stockpiles, chemical soil binders, shade cloth erected on fencing etc.) if and when required. Straw, brush packs and chipping must be considered prior to the use of water spray vehicles. • Plastic, shade cloth or other suitable material may be used for covering stockpiles. Topsoil stock piles are not to be covered with plastic or shade cloth but hessian or similar to prevent composting occurring.		Contractor	Construction phase
Performance Indicator	No air quality complaints, good visibility and no fume complaints.		

10.10. Objective 10: Noise and Visual Impact Control

Impact Management Objective: ***Minimised noise complaints***		
Potential impact(s) to be avoided.	• Noise from construction vehicles and machinery. • Impacts on the Visual and Cultural Landscape	
Impact Management Outcome	• Avoid excessive noise and visual impacts due to construction activities	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
Noise • All construction vehicles must be fitted with silencers to avoid excessive noise. • All construction vehicles must be equipped with muffled reverse sirens (which are to the standard of the Occupational Health & Safety Act (Act 85 of 1993). • No constructions activities are permitted between 17:00 and 7:00 unless previously agreed upon between the Contacting team and the Municipality. • Construction workers are to remain within the designated site boundary at all time. • Eating areas are to be located away from any residential units/homesteads and tourists' attractions within proximity to the current working areas. • All equipment to be adequately maintained and kept in good working order to reduce noise. • All employees must be given the necessary ear protection gear. • Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels), as well as the Western Cape Noise Control Regulations (Provincial Notice 200/2013) of 20 June 2013. • All mitigation measures relating to noise control as described in the EMPr must be adhered to. **Visual** • A clean site policy must be adopted at all time during the construction phase. • Where possible, storage and disposal of waste must take place in a sustainable manner, where clearly marked recycle bins must be provided to workers at the site camp. • The visual impact experienced during the construction phase would be relatively short term and be mitigated by good housekeeping and regular removal of rubble on the site. • An approved EMPr must be adhered to in order to minimize the visual impacts of construction phase activities. • An ECO must be appointed. The EMPr must be enforced and monitored by the ECO. • The site must be kept clean and tidy at all times. • No stockpiles may exceed 2m in height. **Recommendations by the specialist:** • Screening the construction site with visually appropriate site hoarding. • Rehabilitate and revegetate disturbed areas on site immediately following construction. • Limit disturbance to the least possible area needed for construction.	Contractor/ ECO	Construction phase

• Developing the proposed developments in phases to reduce the overall construction effect to a smaller portion of the site. • Locate site camp and temporary structures within an appropriate area that is not visible from the most • prominent views from neighbouring properties and prominent tourist routes. • Signage must be managed not to be excessive and must be maintained in a neat and tidy condition throughout the construction period. • Construction woks must be screened as appropriate. • Disturbance area and hoarding must be limited to the smallest area possible needed for construction. • Erosion control measures must be put in place as required to reduce visual scarring during extreme rainfall events. • The site is exposed to the predominantly south-easterly and south-westerly breezes during summer months and dust control measures must be implemented during the construction phase. • Temporary site lighting, if required, must be kept to a minimum and must not be flood lighting. • The construction site must be kept clean and in a neat condition at all times during the construction period. • Make good and rehabilitate all areas disturbed during the construction period within 3 months after completion of the building works. • Re-vegetation on site must be undertaken as soon as possible after completion of civil engineering- and building works to provide dust control and visually integrate new developments with the greater landscape. All new landscaping must be maintained until it is fully established.		
Performance Indicator	No noise or visual impact complaints.	

11. ENVIRONMENTAL IMPACT MANAGEMENT: POST CONSTRUCTION REHABILITATION PHASE & OPERATIONAL PHASE

After all construction activities have ceased, the sites must be cleared of all construction related equipment, materials, facilities and waste. In addition, all disturbed surfaces – including disturbed areas around the structures and all areas utilised for site facilities – must be stabilised, rehabilitated and provided with a suitable cover. All temporary access roads constructed must be rehabilitated and access must be restricted from the public.

The environmental management objectives (goals) for this phase are:

- Alien invasive species clearance and site management
- Minimise impacts on Freshwater resources
- Visual Impact management

11.1. Objective 1: Alien invasive species clearance, rehabilitation and site management

***Impact Management Objective:* Alien invasive species controlled and reduced**			
Potential impact(s) to be avoided	• The spread of alien invasive species to other areas. • Increased fire risk • Potential loss to biodiversity • Environmental degradation from the change of vegetation structure and soil chemistry.		
Impact Management Outcome	Limited infestation and establishment of alien invasive species population and limit fire risks		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
General • An Emergency Response Plan must be in place for the site, this must clearly describe emergency procedures and include emergency contact numbers Alien invasive vegetation management • Spread of alien invasive vegetation associated with the soil disturbance caused by construction must be managed appropriately. • The risk of spreading of invasive alien vegetation is expected to be low significance after the proposed mitigation measures are implemented found in Appendix G. • After the clearing of any invasive alien vegetation, follow-up clearances must be undertaken twice a year for two years, with a view to becoming standard practice by the Koeberg Facilities Management/Environmental Group. • Following the conclusion of the installation activities in any one area, any disturbed areas must be rehabilitated by the Contractor, with suitable indigenous flora as soon as possible. The onus will rest on the EA Holder to ensure the prolonged success of the rehabilitation measures. • Removal of weedy or invasive plant material is to be done by hand and in accordance with applicable and recognised methods. No machinery may be used.		Developer / Belladonna (Pty) Ltd / Contractor	• Operational phase

• Areas that have been cleared must be considered for replanting with the locally indigenous species. Clearing must take place before invasive alien plants flower and set seed. All cleared material is to be removed from site to a suitable refuse facility. • If herbicides are to be used, only registered herbicides are to be used. • All equipment must be suited to the task at hand and be in good working order. • Herbicide application must be done in such a way as to prevent over-spray and spray drift. Herbicide application should not be undertaken during windy conditions. • No water may be collected from any natural sources for mixing of herbicide or cleaning of equipment. • Alien invasive vegetation management around the site is to take place in accordance with the Alien Vegetation Management Programme provided in the Environmental Management Programme. • The Vegetation Rehabilitation Plan included in the Environmental Management Programme must be implemented on site until successful rehabilitation has been confirmed by the ECO. **Fires:** • Operational Fire extinguishers must be present on site. • During construction and post-construction activities no uncontrolled fires are allowed. • Ensure emergency numbers are readily available with a working phone on site, the foreman responsible for the team is to ensure that he has these emergency numbers, and can contact emergency services immediately,		
Performance Indicator	Limited alien species, protected indigenous vegetation, limit fire risks.	

11.2. Objective 5: Impacts on Freshwater resources

***Impact Management Objective:* Reduce the impacts caused by land disturbance and impacts on the Freshwater Resources**		
Potential impact(s) to avoid	• Damage to instream and riparian habitats of identified water resource as a direct result of construction activities. • Pollution of identified water resources as a direct result of contaminated runoff from construction areas. • Soil and Groundwater Contamination as a result of infiltration of construction-related pollutants. • Disturbance to aquatic and terrestrial fauna within the identified water resources as a result of construction activities.	
Impact Management Outcome	Minimisation of the impacts of the proposed development on the freshwater resources.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
Specialist mitigation measures: • Hydrological and Geomorphological impacts on the identified water resources as a result of the establishment of the proposed mixed-use development. • Damage to instream and riparian habitats of the identified water resources through vegetation removal and excavations relating to potential periodic maintenance activities.	Contractor	Construction phase

• Soil and groundwater contamination as a result of the establishment of the mixed-use development and associated potential periodic maintenance activities.		

Performance Indicator	Construction team limit disturbance to the freshwater resources within proximity to the proposed development area.

11.3. Objective 2: Visual impact

***Impact Management Objective:* Visual Impact**		
Potential impact(s) to be avoided.	Unsightly views of the clearance activities associated with the project due to delayed revegetation and rehabilitation.	
Impact Management Outcome	• Development remains fire wise. • Development protected from wildfires. • Implementation of the National Veld and Forest Fire Act (Act No. 101 of 1998) • No unnecessary disturbance to the view.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
General: • Rehabilitate the area where the clearance and installation activities may have impacted. • Follow the rehabilitation plan and ensure that all alien invasives are cleared and indigenous cover is successful. • Re-vegetation and landscaping with plant species indigenous to the Cape Flats Dune Strandveld biome must be undertaken, where possible. • The Applicant must ensure that the vegetation is reinstated and monitor vegetation growth to ensure regrowth until its fully established. **Recommendations of the specialist** • Design of buildings and landscape to complement the existing landscape character and sense of place. • The design of the proposed development layout to better fit into the existing urban fabric of Riversdale by allowing internal roads and residential buildings to follow the contours of the landscape rather than imposing a rigid grid pattern onto the site. • Use of materials and finishes that will allow new developments to blend in with their visual surroundings and reduce visual intrusion. • Appropriate screening by new planting. • Management of outdoor lighting to reduce visual intrusion and avoid light pollution. • Design parameters set out in the • Hessequa Municipality's Zoning Scheme By-Law (2018) must be followed, in terms of coverage, building setback lines and maximum building heights. Building lines between residential buildings and along the borders of the property can provide an opportunity for the planting of vegetated buffers to reduce the overall impact of the development, as well as the visual intrusion thereof. • Buildings should be sited in visually less sensitive portions of the site, where possible.	Developer / Belladonna (Pty) Ltd	Operational phase

• Height and size of buildings should be restricted to blend in with existing typology to support landscape character and preserve special features on site and in surrounding areas. Buildings must be of a scale in keeping with what the site topography will allow so as to reduce visual impact. To mitigate the overall visual impact of the development when viewed from afar, buildings must be of a similar nature and scale as neighbouring properties. Building platforms should be sited along contours as much as possible and not at right angles to the direction of the slope to minimise cut and fill operations, that could cause visual scarring, to a minimum. • Development and building guidelines should address planning, aesthetic and procedural considerations to • safeguard the visual environment and scenic resources. Architectural guidelines should promote overall design sensitivity rather than be a set of restrictive conditions. • Landscaping with indigenous trees and tree buffers within the development and in between residential buildings can in time provide screening and visually integrate new developments with the greater landscape. Regulations regarding open spaces in a group housing complex, as set out in the Hessequa Municipality's Zoning Scheme By-Law (2018), must be followed and can provide meaningful and enjoyable spaces within the development. • Guidelines should be drawn up by a suitably qualified electrical- or lighting specialist. Outdoor lighting to buildings or landscape areas should be restricted and directed as per architectural guidelines. Low level bollard-type lighting is recommended as opposed to overhead post top lighting to reduce visual intrusion of lighting at night. • Use visually permeable fencing rather than boundary walls, to visually integrate new developments with • the existing rural landscape. • Maintain new tree and shrub planting until it is self-sufficient. • Buildings and roadways must be positioned along contours to limit cut and fill operations wherever possible. • Use finishes and colours on external building envelope that will fit in with surrounding buildings. • Reflective surfaces must be kept to a minimum and shaded with roof overhangs and / or screens to limit glare. Use mat finish paint on external surfaces		
Performance Indicator	• No alien vegetation present. • No dead vegetation present.	

12. MONITORING COMPLIANCE, ROLES AND RESPONSIBILITIES

This EMPr, once approved by the competent authority (DFFE), must be seen as binding to the *Holder*, and any person acting on the *Holder's* behalf, including but not limited to agents, employees, associates, contractors and service providers.

The *Holder* and all other persons who may be directly involved in the development are also bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998:

> ***Duty of Care:***
> *"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, or, in so far as such harm cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment"*

12.1. Environmental Authorisation (EA) *Holder* / Proponent

It is the EA *Holder's* responsibility to ensure that all agents/contractors/subconsultants appointed to provide services towards the fulfilment of the proposed activities, are fully aware of the EMPr, Environmental Authorisation and any other relevant licenses/permits, which must be considered prior to actioning any activity on site. The EA *Holder* may choose to hold the Contractor responsible for any fines incurred as a result of non-compliant activities during implementation, however this must be done through the agent and by legal procedure. The EA *Holder* must ensure that:

- Financial allowances are incorporated into the Bill of Quantities, to accommodate for the requirements of the licenses and EMPr.
- An appropriately experienced/qualified Environmental Control Officer (ECO) is appointed to monitor compliance, prior to commencement of site establishment activities.
- Should the granted EA stipulate the need for the appointment of an Environmental Auditor, ensure an appropriated experienced/qualified Environmental Auditor is appointed to audit compliance, prior to commencement of site establishment activities.

The *Holder* is ultimately responsible for ensuring that the environmental management measures specified in this EMPr, as well as any other conditions specified by the competent authority, are implemented and adhered to during the construction and post-construction phase (maintenance activities) of the proposed development.

The *Holder* or delegated party is responsible for monitoring and maintenance during the post-construction phase. The *Holder* must ensure that all appointed service providers, contractors and maintenance workers are capable of complying with all statutory requirements of this EMPr and the conditions of the Environmental Authorisation. The *Holder* is responsible for ensuring that this EMPr and the conditions of the Environmental Authorisation are implemented and adhered to during construction.

The *Holder* or appointed consultant is responsible for identifying emergency situations that may arise during operational and maintenance activities and must formulate appropriate emergency response procedures for these emergency scenarios.

During the post-construction and maintenance phase of the project the following maintenance measures are to be implemented in order to ensure the functioning of the infrastructure when needed:

- A monitoring register is to be upheld by the EA *Holder* indicating when the checks to the vegetation was undertaken. Where rehabilitation was deemed insufficient, and appropriately qualified specialist must be approached to provide further revegetation measures.

12.2. Contractor

It is the Contractors responsibility to be aware of the requirements of the EMPr, Environmental Authorisation and any other relevant permits/licences and ensure that all labour, appointed sub-contractors/consultants are also made aware of these documents. The Contractor is required to ensure that as per EMPr, EA conditions, and other permits or licences:

- Time allowances/considerations are given to accommodate all relevant activities, when compiling the project programme of works.
- Financial allowances are made to meet all relevant requirements.
- All activities are implemented in an environmentally conscience manner, in line with the EMPr.
- Produce method statements for approval by the ECO and Site Engineer, prior to implementing activities.

The "Construction Contractor" is the entity responsible for undertaking the physical construction of the residential development. The construction contractor is responsible for ensuring that all environmental management measures specified in this EMPr and in the EA are implemented during the pre-construction, construction and post-construction rehabilitation phases, unless agreed otherwise with the Holder. The contractor will be responsible for all costs incurred, in relation to any non-compliances which may occur during implementation of construction activities/rehabilitation activities. The contractor must therefore make adequate financial provision for the implementation of all prescribed measures, in accordance with the Bill of Quantities and the EMPr.

It is strongly recommended that the Construction Contractor appoint an Environmental Site Officer (ESO), who will act as the Contractor's representative to enforce compliance with the conditions of this EMPr, throughout all phases of construction.

- In addition to the above, the Construction Contractor is responsible for the following:
- Identify emergency situations that may arise as a result of construction activities and formulate appropriate emergency response procedures.
- Ensure that all construction workers, including sub-consultants and service providers, undergo environmental awareness training prior to commencing work on site, or as soon as possible thereafter.
- Compile the required method statements, which must be to the satisfaction of the ECO, before commencing with the activity to be governed by the method statement.
- Respond to concerns or issues identified by the ECO, as relates to environmental management, and implement the appropriate management or remediation measures, at the Contractor's own expense (unless agreed otherwise).
- Any damage to the surrounding environment (site camp location and outskirts of working corridor) must be noted by the contractor with photo evidence. Any damage identified throughout the operational phase of the proposed extension will be the contractor's responsibility to repair.
- Should third parties be called to the site to perform clean up and rehabilitation procedures, the Construction Contractor will be responsible for all associated costs.

Note that failure to comply with the requirements and conditions of this EMPr and the Environmental Authorisation may result in fines or other penalties being levied against the Construction Contractor by the Competent Authority.

- **Construction Phase Record Keeping**

A copy of the approved EMPr, the Environmental Authorisation and any relevant construction method statements must be kept on site at all times during pre-construction, construction and rehabilitation activities. The ECO Reports must be retained by the *Holder* for a period of at least 5 years and must be provided to the Competent Authority upon request.

The set up and organisation of the site camp is paramount to ensuring compliance. An environmental file is to be created by the contractor and be situated within the site camp throughout the construction phase and with the applicant thereafter. The environmental file is to include the following;

- A copy of the Environmental Authorisation
- A copy of General Authorisation or any other relative permits
- A copy of the approved EMPr
- Updated Waste slips
- Disposal slips or cleaning slips (ablution cleaning)
- All EMR's (Environmental Monitoring Reports) and ECO instructions
- Copies of Environmental induction register/s
- The Protocol for chance Palaeontological Findings
- A complaints register
- Updated method statements
- Any and all emergency procedure/s applicable to site activities
- An Incident Register

- **Method Statements**

The Competent Authority and/or the ECO may require the *Holder* or Construction Contractor to submit Method Statements for one or more construction-related activity, or any aspect of the management of the site, before the activity is undertaken or during the performance of the activity, if the activity is causing or may cause significant environmental damage, or pose a health and safety risk.

Method Statements need not be complex and lengthy, but must clearly state **how**, **when** and **where** the activity concerned will be undertaken, and must specify **who** will be responsible for undertaking each component of that activity. Method Statements must be prepared by the Construction Contractor and submitted to the ECO for approval before undertaking the activity concerned.

The ECO and / or Competent Authority have the authority to request method statements for activities, including but not limited to:

- Establishment of site camp and stockpile area.
- Site clearing
- Cement/ concrete batching, disposal and emergency contingencies.
- Topsoil and sub-soil storage/ stockpiling.
- Storage of fuels and hazardous chemicals and emergency contingencies.
- Waste management system.
- Storm water management and control.
- Dust Mitigation
- Alien invasive plant species management.
- Fire Control & Fire Emergency Plan.
- Emergency preparedness plan / emergency response procedure.
- Post-construction rehabilitation.

The ECO has the authority to prevent activities from being undertaken until such time as a satisfactory Method Statement has been submitted to the ECO and approved by the ECO.

12.3. ECO Monitoring

The appointed ECO is responsible for undertaking regular site visits to monitor and report on the implementation of the EMPr and adherence to the conditions of the Environmental Authorisation during the pre-construction, construction and post-construction rehabilitation phases. The ECO is not required to monitor the site during the operational (maintenance) phase of the development.

Frequency of ECO visits:

- The ECO must conduct **monthly** site visits during the construction phase, in addition to the start-up and closure inspections.
- The ECO must conduct a site visit 3 months after practical completion of the construction period.
- The ECO has the discretion to undertake additional visits if he / she feels this is justified due to the actions of the contractors, and to make *ad hoc* visits in order to ensure compliance.

Monitoring Reports:

- Must be produced **monthly** and submitted to the Competent Authority, Engineer, Proponent and Contractor.

- **Competency of the ECO**

The ECO must be independent of the Environmental Auditor, Holder, Engineer, Construction Contractor and their service providers. The appointed ECO must be suitably qualified and experienced and must be able to demonstrate that he / she is of sufficient competency to undertake the required task. The ECO must preferably be a resident in close proximity to the development area to ensure quick response if required. The ECO must work in close co-operation with the Construction Contractor, resident engineer or EO (where applicable) and all contractors in order to identify potential problems before they occur, and provide suitable guidance as to how the identified problems (environmental impacts) can be avoided.

- **Duties of the ECO**

The duties of the ECO include, but are not limited to:

- Conduct a pre-construction site inspection to ascertain the pre-commencement condition of the site (i.e. the status quo);
    - Conduct environmental awareness training, which must include;
    - A brief description of the surrounding environment
    - Importance of the EMPr
    - Roles and responsibilities
    - Identified environmental risks
    - Mitigation measures to be implemented
    - No-go areas
    - Emergency procedures (Hydrocarbon spill)

- Undertake regular site visits to monitor compliance with all mitigation, monitoring and management measures contained in the EMPr and the Environmental Authorisation, during the pre-construction, construction and rehabilitation phases of the development;

- Evaluate the achievement of the performance indicators associated with each impact management objective specified in this EMPr;
- Liaise with site contractors, engineers and other members of the development team with regard to the requirements of the EMPr; Provide guidance as and when required regarding the implementation of the environmental management measures contained in the EMPr and EA, so as to assist the Holder and contractor in remaining compliant with these measures;
- Assist in finding environmentally acceptable solutions to construction problems;
- Ensure that the working areas, site camp facilities, access roads and no-go areas are properly demarcated;
- Ensure that proper topsoil management practices are adhered to on site;
- Ensure that proper waste management & pollution prevention strategies are practised on site;
- Examine method statements, where required;
- Recommend additional environmental protection measures, should this be necessary;
- Furnish contractors with verbal warnings in case of contravention of the EMPr;
- Recommend that the competent authority furnish errant contractors with predetermined fines, when verbal and / or written warnings are ignored;
- Ensure satisfactory rehabilitation of disturbed areas on site, after construction is complete;
- Keep detailed records of all site activities that may pertain to the environment, and produce monthly compliance-monitoring reports (ECO Reports) for submission to the Holder, and the Competent Authority at regular intervals during the construction phase;
- Submit a final post-construction inspection report, within 6 months of completion of the construction phase. The audit report must detail the rehabilitation measures undertaken, describe all major incidents or issues of non-compliance and any issues or aspects that require attention or follow-up.
- All ECO Reports and Inspection Reports must be submitted to the Holder and Competent Authority.

- **Authority of the ECO**

The ECO has the authority to recommend to the decision-making authorities that they suspend all works (or part thereof) occurring on site, should any action being undertaken on site not comply with the environmental requirements, and where such actions pose a serious threat to any element of the surrounding environment.

The ECO has the authority to issue instructions to the Construction Contractor and/or Holder, regarding measures that must be implemented on site in order to ensure compliance with the EMPr and Environmental Authorisation, and/or to prevent environmental degradation or pollution from occurring.

The ECO has the authority to issue verbal and written warnings to contractors. Should verbal and written instructions and/or warnings be ignored, the ECO has the authority to request the Competent Authority to issue pre-determined fines or other penalties.

The ECO has the authority to report incidents of non-compliance to the Competent Authority at any time.

- **ECO Inspections - Written Records**

The following record-keeping during the pre-construction, construction and rehabilitation phases of the development is recommended:

- The ECO must complete an ECO Checklist after each ECO site visit.
- The ECO must compile an ECO monitoring report and submit this to the *Holder*, the Contractor and the Competent Authority (the latter only if required by the Competent Authority). The monthly reports must be a summary of the ECO inspections from the preceding month, and must highlight the key concerns/ issues on site, instances of non- compliance with the EA and EMPr, all instructions issued to the contractor, actions taken and aspects that still require attention.

- All ECO reports and ECO instructions must be retained on file at least for the duration of the construction period (retaining reports for a period of at least 5 years is recommended, in the event that the Competent Authority must request information).
- A record (minutes) of construction site meetings, liaison site meetings between the ECO and resident engineer or contractor, monitoring reports, ECO instructions and ECO observations must be clearly documented and filed on a master file off-site for safe keeping.
- It is recommended that a site register (incident register) be kept on site at the site office for the recording of any environmental incidents (e.g. fires, spills etc.), observations which are contrary to the stipulations within the EMPr, and any other contravention deemed necessary for the attention of the resident engineer. Actions taken to remedy the incidents must also be recorded.
- A complaints register must be kept on site in which complaints by any member of the public must be logged.

The ECO must compile a final post-construction audit report, within 6 months of completion of each construction phase. The audit report must detail the rehabilitation measures undertaken, describe all major incidents or issues of non-compliance and any issues or aspects that require attention or follow-up.

12.4. ESO Monitoring

Due to the nature of this development, an Environmental Site Officer (ESO) must be appointed. The site officer will be responsible for implementing and monitoring the site activities daily. This individual must be appointed by the Main Contractor. The ESO will be responsible for actively managing activities on-site. The ESO must:

- Have a site diary wherein they report all environmental incidents daily;
- Ensure that all environmental filing relevant to the project is up to date;
- Keep proper Incident reports on record of all incidents, including all remediation action-documents. These reports and documents must be made available to the ECO, Site Contractor, Site Engineer and the DFFE when required;
- Be present and give report on all incidents at all site meetings for the project.

12.5. Auditing by Environmental Auditor

In accordance with the requirements of the Environmental Impact Assessment Regulations, 2014 (as amended), the Holder of the Environmental Authorisation must, for the period that the Environmental Authorisation is valid, appoint a suitably qualified independent (external) person to conduct an environmental audit to audit compliance with the conditions of the Environmental Authorisation and the EMPr. As per Section 34 of the EIA Regulations (GN R326 of 2017), the duty of an Environmental Auditor is to be in dependent and is responsible for:

- Ensuring compliance with the conditions of the environmental authorisation and the EMPr; and
- Submit an environmental audit report to the relevant competent authority, which provides verifiable findings, in a structured and systematic manner, as per Appendix 7 of GN R326.
- Any amendments to the EMPr, which must be recorded in Appendix F.

The Holder is responsible for appointing, managing and remunerating the appointed auditor. The auditor may **not** be the appointed ECO.

The appointed auditor is to be provided with the completed EMR's and Checklists, as well as any other crucial information that may be relevant or requested (incident report, waybills etc) in order to effectively report on the level of compliance with the conditions of the environmental authorisation and

the EMPr. The appointed auditor must undertake environmental audits during prior to the commencement of each phase, at the following stages;

- **6 months after the commencement of construction activities;**
- **Annually for the remainder of the construction phase;**
- **Upon completion of construction phase; and**
- **3 months after the practical completion of construction.**

Following each audit, the environmental auditor must submit an audit report to the Competent Authority (in this instance the DFFE) Environmental auditing and environmental audit reports must adhere to the requirements of the amended 2014 Environmental Impact Assessment Regulations, in particular Section 34 (*Auditing of Compliance with Environmental Authorisation, Environmental Management Programme*) and Appendix 7 (*Objective and Content of Environmental Audit Report*)

The audit report must provide verifiable findings on the level of compliance with the provisions/ conditions of the Environmental Authorisation and the EMPr and must also comment on the ability of the measures contained in this EMPr to sufficiently avoid, manage and mitigate environmental impacts.
Where the findings of the audit report indicate that the impact management measures stated in the EMPr are insufficient to adequately address environmental impacts, recommendations as to how the EMPr must be amended so as to address the identified shortcomings must be made and submitted to the competent authority together with the audit report.

The Environmental auditor must undertake an audit as per Appendix 7 of GN R326 at the following stages;

- **6 months after the commencement of construction activities;**
- **Annually for the remainder of the construction phase;**
- **Upon completion of construction phase; and**
- **3 months after the practical completion of construction.**

13. PENALTIES, CLAIMS AND DAMAGES

The contractor will be responsible for all costs incurred in the rehabilitation of the site and for ensuring that all procedures required to rehabilitate the site are implemented. If third parties are called to the site to perform clean up and rehabilitation procedures, the contractor will be responsible for all costs. The competent authority may impose penalties on the *Holder* or any of the contractors if conditions contained in this EMPr are contravened. This would be based on an agreement or contract between the *Holder* and the contractor.

Penalties could be imposed in terms of Chapter 11 of the Western Cape Bill on Planning and Development as published in the Extraordinary Provincial Gazette No 5183, 3 October 1997, and would be applicable for any action which leads to damage to the natural environment. Please note that the payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.

In cases where severe environmental damage occurs, the competent authority law enforcement division may take legal action against the responsible parties. The reasons for this could include, among others:

- Not implementing the conditions of the EMPr;
- Spillage that results in environmental damage;
- Incorrect handling and storage of construction materials and chemicals;
- Sensitive areas that are not clearly demarcated;

- Performing ablutions in areas other than facilities provided for such actions; and
- Occurrence of unattended and out of control fire.

The Contractor shall comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the ECO to issue the contractor with penalty / fine as described in the following section.

The following offences, level of severity and value of the financial fines have been drafted according to the sensitivities on the proposed site, the mitigation measures proposed, and the construction methods proposed. It must be noted that the level of severity is at the discretion of the ECO and any offences or fines will be recorded in the ECO's monitoring report. The fineable offences are not limited to the table below, additional offences may be applied by the ECO with prior agreement with the EA *Holder*.

The following fine structure shall apply:

Table 2: Fines and offences

Finable Transgression	Min Fine	Max Fine
Failure to notify the ECO of the commencement of construction or pre-construction activities, prior to the commencement of such activities.	R1 000	R2 000
Failure to comply with the provisions relating to the demarcation of the working area, site camp and associated facilities, and the maintenance of the demarcated boundaries.	R1 000	R5 000
Failure to comply with the provisions relating to the demarcation of all "no-go" areas, and the maintenance of the demarcated boundaries.	R2 000	R5 000
Failure to provide secured ablution facilities (1:30 ratio) on site.	R500	R15 000
Failure to comply with the provisions relating to the clearance of vegetation on site.	R2 000	R5 000
Clearance of indigenous vegetation (regardless of the density of alien vegetation present) outside of the demarcated boundaries of the working area and site camp.	R2 500	R15 000
Failure to apply herbicide to alien vegetation when required to do so.	R500	R2 000
Failure to adhere to designated access routes and/or the driving of vehicles through undeveloped vegetation outside of the demarcated working area or site camp.	R1 000	R5 000
Movement of vehicles and/or construction workers in no-go areas;	R1 000	R10 000
Parking or storage of vehicles, machinery, tools and other materials or equipment related to the Contractors operations, within designated "no-go" areas.	R1 000	R10 000
Parking or storage of vehicles, machinery, tools and other materials or equipment related to the Contractors operations, outside of the areas demarcated for such parking/storage.	R500	R5 000
Failure to comply with the provisions relating to the management of topsoil and subsoil.	R1 000	R5 000
Excessive excavation of material in areas not depicted for such purpose / activity on the approved design plans.	R2 500	R10 000
Failure to comply with the provisions relating to waste management on site i.e. recycling of wastes.	R500	R5 000
Failure to comply with the provisions relating to the storage, use and management of hazardous substances and fuels on site and/or the spillage of hydrocarbons or hazardous substances on site leading to environmental damage.	R1 000	R10 000
Mixing cement or concrete on bare ground and/or failure to comply with any other provision regarding cement/ concrete batching.	R1 000	R5 000
Failure to provide adequate fire-fighting equipment (in working order) on site at all times and/or failure to comply with the provisions relating to fire prevention and/or the occurrence of unattended or out of control fires.	R500	R5 000

Refueling of vehicles, machinery or equipment outside of the designated refueling area.	R500	R2 000
Maintenance of vehicles, machinery or equipment outside of the designated maintenance yard, except in emergencies.	R500	R2 000
Failure to undertake refueling or repairs over a drip tray or other impermeable bunded surface to collect spilled hydrocarbons (fuels, lubricants, oils etc.) and other hazardous substances; failure to provide drip trays under fuel burning equipment (including pumps and generators) where there is a risk of hydrocarbon leakage.	R500	R2 000
Failure to produce a required method statement/s to the engineer's and ECO's satisfaction prior to undertaking the activity concerned and/or failure to adhere to an approved method statement.	R1 000	R5 000

The above does not absolve the transgressor from being prosecuted in terms of the ***National Environmental Management Act (Act 107 of 1998)*** which may result in further penalties and other actions by State Departments.

14. EMERGENCY PREPAREDNESS

14.1. Emergency response procedures

The potential environmental risks that may arise as a result of construction activities, or during the maintenance of the structures must be identified, and appropriate emergency response procedures must be compiled for each emergency scenario. Potential environmental emergencies that require an emergency response include, but are not limited to, unplanned fires, sewage spills, spills of hazardous chemicals, snake bites etc.

The construction contractor Is responsible for identifying potential significant environmental risks that may arise as a result of pre-construction, construction and rehabilitation activities, and the contractor must formulate emergency response procedures for these potential incidents.

The ECO, contractor and the EA *Holder* are responsible for ensuring that all construction workers appointed to the project are aware of the emergency procedures and are properly trained on how to identify and respond to an emergency incident during construction.

Please note that this EMPr only applies to the labourers, contractors, site managers, and engineers appointed, unless specified otherwise, to fulfil the requirements of the proposed development.

An emergency procedure must clearly indicate who will take charge during an emergency, and the roles and responsibilities of workers and authorities during an emergency.

The construction contractor is responsible for ensuring that the requirements of the Occupational Health & Safety Act (Act 85 of 1993) (OHS Act) are adhered to during the construction phase. The *Holder* is responsible for ensuring compliance with the OHS Act during the undertaking of operational and maintenance activities.

All workers on site during the construction and operational phase must be properly educated about possible emergency incidents that may arise, how to avoid such incidents and how to respond in the event of an incident. "Refresher" training sessions on emergency procedures must be held if needed.

All workers must ideally be given basic fire-awareness training, as well as be advised on basic firefighting and safety techniques. Fire-fighting equipment must be available on-site during construction and operational activities.

All workers must be trained on how to respond in the event of a spill of a hazardous substance (fuel, chemicals etc.), if hazardous substances are to be used on site.

A spill kit for containing and/or neutralising spills of hazardous substances (e.g. hydrocarbons) must be available on site at all times, when hazardous substances are present.

Any incidents of pollution or spillage of hazardous materials during construction must be reported to the ECO as soon as possible. The ECO must then (depending on the nature of the spill) notify the relevant authorities, if needed. During the operational phase of the development, the EA *Holder* is responsible for notifying the relevant authorities of any pollution incidents that arise.

A first aid kit must be available on site at all times.

Emergency contact numbers (including the fire department, police and ambulance) must be prominently displayed on site at all times and regularly updated.

All emergency incidents must be recorded in a site incident log. The cause of the incident, the measures taken in response to the incident and the efficacy of those measures must also be recorded. This information must be used to inform future emergency preparedness planning, and to avoid prevent similar incidents from arising again.

14.2. Emergency preparedness

The following measures must be implemented, as appropriate, to ensure effective responses to emergencies:

- All workers on site during the construction and operational phase must be properly educated about possible emergency incidents that may arise, how to avoid such incidents and how to respond in the event of an incident. "Refresher" training sessions on emergency procedures must be held if needed.
- All workers must ideally be given basic fire-awareness training, as well as be advised on basic firefighting and safety techniques. Fire-fighting equipment must be available on-site during construction and maintenance activities.
- All workers must be trained on how to respond in the event of a spill of a hazardous substance (fuel, chemicals etc.), if hazardous substances are to be used on site.
- A spill kit for containing and/or neutralising spills of hazardous substances (e.g. hydrocarbons) must be available on site at all times, when hazardous substances are present.
- Any incidents of pollution or spillage of hazardous materials during construction must be reported to the ECO as soon as possible. The ECO must then (depending on the nature of the spill) notify the relevant authorities, if needed. During the operational phase of the development, the *Holder* is responsible for notifying the relevant authorities of any pollution incidents that arise as a result of maintenance activities.
- A first aid kit must be available on site at all times.
- Emergency contact numbers (including the fire department, police and ambulance) must be prominently displayed on site at all times and regularly updated.
- All emergency incidents must be recorded in a site incident log. The cause of the incident, the measures taken in response to the incident and the efficacy of those measures must also be

recorded. This information must be used to inform future emergency preparedness planning, and to avoid prevent similar incidents from arising again.

15. ENVIRONMENTAL AWARENESS PLAN

Environmental Awareness Training must be conducted prior to the commencement of construction activities. It is the *Holder's* responsibility to familiarise himself/herself with the content and requirements of this EMPr. The *Holder* is also responsible to ensure that the contractor and all labourers working on site during the construction phase are familiar with the content of this EMPr.

The following actions must be taken to ensure that all relevant parties are aware of their environmental role and duties:

- This EMPr must be kept on site at all times.
- The provisions of this EMPr and the conditions of the Environmental Authorisation must be explained in detail to all staff during Awareness Training.
- Training booklets will be handed out to all labourers and must be explained to them.
- Weekly checks to be done by the *Holder's* environmental representative who must be on site at all times.
- The ECO to conduct frequent site visits.
- Monthly monitoring reports to be compiled by the ECO. These reports will be circulated to all parties involved (including the *Holder*, contractor and the competent authority where required).

The Construction Contractor must make allowance for all construction site staff, including all subcontractors that will be working at the site, to attend environmental awareness training sessions (undertaken by the ECO) before commencing any work on site. During this training, the ECO will explain the EMPr, and the conditions contained therein. Attention will be given to the construction process and how the EMPr fits into this process. Other items relating to sound environmental management which must be discussed and explained during the environmental awareness training sessions include:

- The demarcated "no-go" areas.
- General dos and don'ts of the site.
- Making of fires.
- Waste management, use of waste receptacles and littering.
- Use of the toilets provided.
- Use and control of construction materials and equipment etc.
- Control, maintenance and refuelling of vehicles.
- Methods for cleaning up any spillage.
- Access and road safety.
- Emergency procedures (e.g. in case of fire, spillage etc.).
- Explanation of the importance of complying with the EMPr.
- Discussion of the potential environmental impacts of construction activities.
- The benefits of improved personal performance.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.)
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.
- General "best practice" principles, with regards to the protection of environmental resources.

Environmental awareness training and education must be ongoing throughout the construction phase and must be undertaken regularly if deemed necessary (especially if it becomes apparent that there are repeat contraventions of the conditions of the EMPr), or as new workers come to site. Translators must be utilised where needed.

Notwithstanding the specific provisions of this particular section it is incumbent upon the Contractor to convey the sentiments of the EMPr to all personnel involved with the works.

APPENDIX A – CURRICULUM VITAES OF EAPS

GEORGE
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EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
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TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
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ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

CURRICULUM VITAE

MADELEINE KNOETZE

PERSONAL

Profession: Senior Environmmental Assessment Practitioner
Nationality: South African
Languages: English & Afrikaans (read, write and speak) – Fluent
Drivers License: Code B
EAPASA Registration: No. 3230

SUMMARY

Madeleine holds a Bachelor of Science in Environmental Sciences from the Nelson Mandela Metropolitan University obtained in 2014. She has 10 years' experience in the environmental field, she has proven competency in the compilation of environmental assessments, water use licence applications, legal compliance, on-site monitoring, rehabilitation reporting, aquatic impact assessments and Geographic Information Systems (GIS). To date she has completed numerous environmental assessments, management plans, licencing applications, aquatic assessments and audits within the private and governmental spheres. Madeleine is registered with EAPASA as a certified Environmental Practitioner (EAPASA #3230).

WORK EXPERIENCE

October 2022 – Present: Sharples Environmental Services cc, Cape Town, WC

Environmental Assessment Practitioner

- Basic Assessments Reports;
- Environmental Impact Assessments;
- Environmental Management Programmes;
- Legislative documentation;
- Administration.

February 2015 – September 2022: Exigent Engineering Consultants CC, Johannesburg, GTN

Environmental Assessment Practitioner and GIS Specialist

- Management and compilation of GIS database;
- Advanced GIS Applications;
- Environmental Impact Assessments;
- Water Use License Applications;

- Environmental Monitoring/Auditing
- Stakeholder Engagement
- Rehabilitation and Monitoring Programmes
- Ecological and Wetland Assessments
- Project Management

TERTIARY EDUCATION

2014: Nelson Mandela Metropolitan Municipality

- Bachelor of Science Degree specialising in Environmental Sciences**.**

ACCREDITATION / ASSOCIATION

- **EAPASA** Registration: No. 3230
- **Member IAIA South Africa**

KEY PROJECTS

2025 Paarl Nexus[AG] (Pty) Ltd (ongoing)

- Environmental Control Officer for the expansion of a hazardous goods facility in Paarl, Western Cape.

2024 Beaufort West Mulilo Renewable Project Developers

- Basic Assessment Report in terms of GN114 of 2018 for the proposed Wind Energy Facility Cluster near Beaufort West, Western Cape.

2024-2025 Cape Town City of Cape Town (ongoing)

- Environmental Control Officer for the upgrades to the Potsdam Waste Water Treatment Works, City of Cape Town, Western Cape.

2022/2024 De Aar Mulilo Renewable Energies

- Scoping and Environmental Impact Assessment for the proposed Hercules solar cluster near De Aar, Northern Cape.

2023 Plettenberg Bay Private Developer (ongoing)

- Scoping Report for a proposed mixed-use development in Kranshoek, Bitou Local Municipality.

2023 Plettenberg Bay Private Developer (ongoing)

- Scoping Report for the proposed Kurland housing development on Erf 920, Kurland, Bitou Local Municipality.

2023 Plettenberg Bay Private Developer (ongoing)

- Basic Assessment for the proposed Kurland Bulk Water infrastructure scheme in Bitou Local Municipality.

2022-2024 Cape Town Allweld on behalf of Eskom

- Basic Assessment for the proposed construction of a reservoir located within the Koeberg Nuclear Power Station.

2022-2024 Oudtshoorn Department of Infrastructure

- Basic Assessment for the proposed re-establishment of Trunk Road (TR75/1) near Oudtshoorn. – Environmental Authorisation Granted

2022/2023 Mossel Bay Confuel (Pty) Ltd

- Basic Assessment for the proposed establishment of a truck stop and associated infrastructure on Erf 56 and 57, Mossdustria – Environmental Authorisation Granted

2022 Northam Spitskop Energy

- Scoping and Environmental Impact Assessment for the proposed Spitskop photovoltaic power plant located near Northam, Limpopo.

2022 Dealesville Antlia Energy

- Basic Assessment for the proposed Good Hope 1 and 2 photovoltaic power plants located near Dealesville, Free State (Fell under the ambit of GN113).

2022 Richards Bay

- Scoping Report for the proposed Thermal Energy Power Plant and associated infrastructure development in Richards Bay, KwaZulu-Natal.

2022 Midrand Central Developments

- Environment Control Officer for the external infrastructure associated with the proposed Extension 56 and 57 of Louwlardia, Midrand, Gauteng.

2021/2022 Pienaarsrivier MDV Developments

- Basic Assessment for the proposed Filling Station on Erf 425 and Erf 426 in Pienaarsriver, Bela-Bela Local Municipality.

2022 Johannesburg Central Developments

- Basic Assessment and Water Use Licence Application for the construction of the Proposed Residential Development on Holding 194 of Erand Agricultural Holdings and Portion 1687 (A Portion of Portion 9) of the Farm Randjesfontein No.405-Jr, City of Johannesburg.

2021/2022 Pretoria Snowy Owl Developments

- Basic Assessment for the Proposed Development of a Sewer Line for the Proposed Sammy Marks Township, City of Tshwane.

2021/2022 Johannesburg Central Developments

- Part 2 Amendment of the Environmental Authorisations Amendments to the proposed Northgate Mixed Use Development in North Riding, City of Johannesburg.
- This project included the complex integrated design mapping, the compilation of an Operational Stormwater Management Programme.

2020/2022 Johannesburg Central Developments

- Part 2 Amendment of the Environmental Authorisation of the proposed Blue Hills housing development located in the City of Johannesburg.

2020 Derdepoort Central Developments

- Environment Control Officer for the external infrastructure associated with the residential developments located on Erf 452, Derdepoort, Gauteng.

2020 Johannesburg Central Developments

- Environment Control Officer for the external infrastructure associated with the proposed Northgate Mixed Use Development in North Riding, City of Johannesburg.

2020 Pretoria Central Developments

- Environment Control Officer for the external infrastructure associated with the residential developments at Bronberg X9 and X13, Gauteng.

2019 Empangeni Accurate Trading

- Basic Assessment for the proposed Filling Station and associated infrastructure of Erf 3961, Empangeni.

2018/2019 Richards Bay City of uMhlathuze Local Municipality

- Environment Control Officer for the internal infrastructure associated with the Aquadene housing development, Richards Bay, KwaZulu-Natal.

2018/2019 Empangeni City of uMhlathuze Local Municipality

- Basic Assessment Report for the proposed Upgrade of Water Supply Infrastructure for Khoza water supply area phase 1: Empangeni.
- General Authorisation obtained for the proposed project.

2018/2019 Richards Bay City of uMhlathuze Local Municipality

- Basic Assessment Report for the proposed upgrade of the rural roads in Mandlazini – Phase 2, Richards Bay, KwaZulu-Natal.
- General Authorisation obtained for the proposed project.

2018/2019 Melmoth Mthonajaneni Local Municipality

- Basic Assessment Report for the proposed upgrade of the Melmoth Sanitation Scheme (Phase 3): Outfall Sewers and Water Water Treatment Works, Melmoth, KwaZulu-Natal.
- Water Use Licence for the proposed project.

2016-2019 Esikhaleni City of uMhlathuze Local Municipality

- Basic Assessment Report for the proposed upgrade of the rural roads in Mandlazini – Phase 2, Richards Bay, KwaZulu-Natal.
- General Authorisation obtained for the project (2016-2017).
- Environmental Control Officer (including water quality surveyor) and the required DAFF permitting and further monitoring (2018-2019).

2016/2017 Melmoth Mthonajaneni Local Municipality

- All mapping for the Mthonjaneni Local Municipality Land Use Management Scheme, KwaZulu-Natal.

2015-2016 Richards Bay City of uMhlathuze Local Municipality

- Basic Assessment Report for the proposed upgrade of the Richards Bay Outfall Sewer and Nkoninga pump station, Veld en Vlei, KwaZulu-Natal.
- Water Use Licence Technical Documentation completed for the proposed project.

2015-2017 Mkuze Private

- Scoping Report and Environmental Impact Assessment for the proposed agricultural development near Mkuze, KwaZulu-Natal.
- Environmental Control Officer for the project 2017.

2015/2016 Richards Bay uMhlathuze Water

- Basic Assessment Report for the proposed Installation of a Diesel Generator at the Existing Mhlathuze Transfer Pump Station, Richards Bay.

2015 Hammarsdale SANRAL

- Water Use Licence Application for the proposed interchange upgrade along the N3 highway, near Hammarsdale, KwaZulu-Natal.

2015 Gauteng Gautrain

- Province wide mapping of all public transport infrastructure for the purpose of sensitivity mapping required to evaluate the environmental feasibility of future expansions of the Gautrain Transport network.

GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Unit 17 Cathedral Square,
Cathedral Street, George, 6530
PO BOX: 9087, George, 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

CURRICULUM VITAE

BETSY-JANE DITCHAM

PERSONAL

Profession: Director & Environmental Assessment Practitioner
Nationality: South African
Languages: English (read, write and speak) & Afrikaans (read, write and speak)
Drivers License: Code B
EAPASA Registration: No. 1480

SUMMARY

Betsy has a Bachelor of Science Honours Degree in Wildlife Management from the University of Pretoria and a Bachelor of Science Degree (Zoology and Ecology) obtained from the University of Cape Town in 2005. She has 13 years' experience in the environmental field, including environmental assessments, legal compliance, on-site compliance monitoring, cleaner production and business greening and sustainability (carbon and environmental footprinting). In her time as a consultant, she has compiled a number of environment assessments and management plans for both private and governmental clients. Betsy is a co-owner of SES and is Registered with EAPASA (**Reg No. 1480**).

WORK EXPERIENCE

March 2020 - Present: Sharples Environmental Services cc, Cape Town, WC
Co-Owner and Cape Town Office Manager: Principal Environmental Assessment Practitioner

- Project Management / Client Liaison
- Environmental Authorisation
- Environmental Management Programmes
- Public Participation
- Legal Compliance
- On-site compliance auditing

2018 – Feb 2020: Sharples Environmental Services cc, Cape Town, WC
Cape Town Office Manager: Principal Environmental Assessment Practitioner

- Environmental Authorisation
- Environmental Management Programmes
- Public Participation
- Legal Compliance
- On-site compliance auditing

August 2017 to December 2017: WSP, Cape Town, WC
Assistant Consultant

- Environmental Authorisation
- Legal compliance
- Air quality monitoring
- Public participation

October 2009 to October 2015: Jeffares & Green Engineering & Environmental Consultants, Pinelands, WC
Environmental Scientist
- On-site compliance auditing
- Environmental footprinting (carbon, water, waste)
- Business greening & sustainability
- Environmental authorisations
- In-house newsletter

July 2009 to September 2009: Freelance, Cape Town, WC
Environmental Control Officer
- Environmental auditing of construction related projects

TERTIARY EDUCATION

2005 University of Cape Town
- Bachelor of Science Degree with a double specialision in Zoology and Ecology

2006 University of Pretoria
- Bachelor of Science Honours Degree in Wildlife Management

ACCREDITATION / ASSOCIATION

- **EAPASA** Registration: No. 1480
- **Member IAIA South Africa**
- **Green Building Council of South Africa:** Green Star Accredited Professional

KEY PROJECTS

2021-2023 Cape Town Trans-Africa Projects on behalf of Eskom
- Environmental Control Officer for the Construction of the Original Steam Generator Interim Storage Facility within Koeberg Nuclear Power Station, Duynefontein, Western Cape

2020/2021 Cape Town Gridbow on behalf of Eskom
- Environmental Control Officer for the expansion of the car park within Koeberg Nuclear Power Station, Duynefontein, Western Cape

2020/2021 George George Municipality
- Environmental Impact Assessment for proposed University Precinct Development at the Garden Route Dam and Associated Infrastructure on a Portion of Remainder Farm 464, George, Western Cape

2020 George GrowGreen
- Waste Registration Process for the Composting Activities being undertaken by GrowGreen in George, Western Cape

2019/2020 Herolds Bay Mr Abraham Jacobus Cronje

- Basic Assessment for the proposed Development of Herolds Bay Country Estate on a Portion of Portion 7 Farm Buffelsfontein No. 204, Herolds Bay, Western Cape

2019/2020 Groot Brak Rooikat Recycling

- Basic Assessment and Waste Management Licence for the proposed Pilot Deploymerisation Processing Plant in Mossel Bay

2019/2020 Plettenberg Bay Status Homes Property Developers (Pty) Ltd

- Environmental Impact Assessment for the proposed Mixed-Use Development on Portion 9 of the Farm Kranshoek No. 432, Knysna Road, Plettenberg Bay

2019 Cape Town City of Cape Town

- Environmental Authorisation Amendment for the Bulk Water Pipeline along Baden Powell Drive, Khayelitsha, WC

2019 Caledon Department of Transport and Public Works Western Cape Government

- Basic Assessment for the proposed replacement and upstream re-alignment of Bridge 0564a, located at Km 23.47 on Divisional Road 1252, crossing the Klein River, south east of Caledon; The replacement of Causeway 12226, located at Km 0.49 on OP4032, on a minor road and close to MR326, linking Stanford with the N2; And the replacement of Culvert 10656, located at Km 3.7 on Divisional Road 1218, east of Stanford

2019 Plettenberg Bay Bitou Municipality

- Environmental Impact Assessment for the proposed Upgrade and Improvement of the existing Stormwater System in Poortjies, Plettenberg Bay

2018 Plettenberg Bay Bitou Municipality

- Environmental Impact Assessment for the proposed New Horizons and Kwanokathula Phase 5 & 6 Mixed-Use Developments & Associated Infrastructure

2018 Cape Town City of Cape Town

- Environmental Impact Assessment and Environmental Authorisation Amendment processes for the Proposed Mixed-Use Housing Development at Symphony Way

2018 East London Buffalo City Metropolitan Municipality

- Environmental Impact Assessment for the Proposed West Bank WWTW Marine Outfall Pipeline

2018 Cape Town Xintong Steel

- Environmental Authorisation Amendment for Xintong Steel, Atlantis Industria, Western Cape

2018 Cape Town Private

- Environmental Control Officer for the replacement of Damaged Seawall, Erf 234, Bloubergstrand

2017/2018 Saldanha/Cape Town Transnet

- Ambient and Stack Air Quality Monitoring for Transnet Ports Terminals

2017 Cape Town Strandfoam
- Waste Storage Registration for Strandfoam

2015 Cape Town EcoStandard
- Development of an Environmental Rating Label for Building Products

2015 Cape Town HatchGOBA
- Basic Assessment for the Upgrade of Trunk Road 11/1 (N7) from Potsdam to the Melkbos Interchange

2015 Cape Town Private
- Environmental Control Officer for the Construction of Clifton Terraces, Clifton, Cape Town

2015 Worcester Eskom
- Environmental Control Officer for the Construction of the Badsberg Substation and Associated Powerlines

2014 Saldanha Transnet
- Environmental Control Officer for the maintenance and upgrade of the Sishen/Saldanha Iron Ore Railway line

2014 Cape Town WasteControl
- Accreditation of Service Provider of Waste Management Services in Cape Town

2014 Cape Town Compass Bakery
- Environmental Footprint – Auditing, data analysis, report writing

2014 Cape Town City of Cape Town
- Wastewise III: Community and schools waste education and awareness campaign

2014 Cape Town City of Cape Town
- Environmental Management Plan for the Dido Valley Housing Project

2013 Western Cape Sunspot
- Environmental Impact Assessment for the construction of Solar farms in De Doorns, Riebeek Kasteel, Wolseley, Porterville, Eendekuil, Bonnievale, Klipheuwel and McGregor.

2013 Nationwide National Cleaner Production Centre
- Cleaner production studies for 4 automotive manufactures

2008-2012 Worcester Department of Public Works
- Environmental Control Officer for Upgrade of the medium security prison at Brandvlei Correctional Facility, Worcester

2010-2012 Cape Town City of Cape Town
- Environmental Control Officer for the Various improvements to various WWTW in Cape Town

2011 Cape Town Svenmills
- Environmental Footprint of the textile factory

2011 Cape Town Clicks (V&A Waterfront)
- Environmental Footprint of the V&A Waterfront Store

2011 Cape Town Pick n Pay (Canal Walk)
- Environmental Footprint of the Canal Walk Store

2010 Cape Town Department of Transport and Public Works
- Environmental Control Officer for the Reseal of TR-77

2010 Cape Town City of Cape Town
- Environmental Control Officer for the Infrastructure work on Coastal Park Landfill site

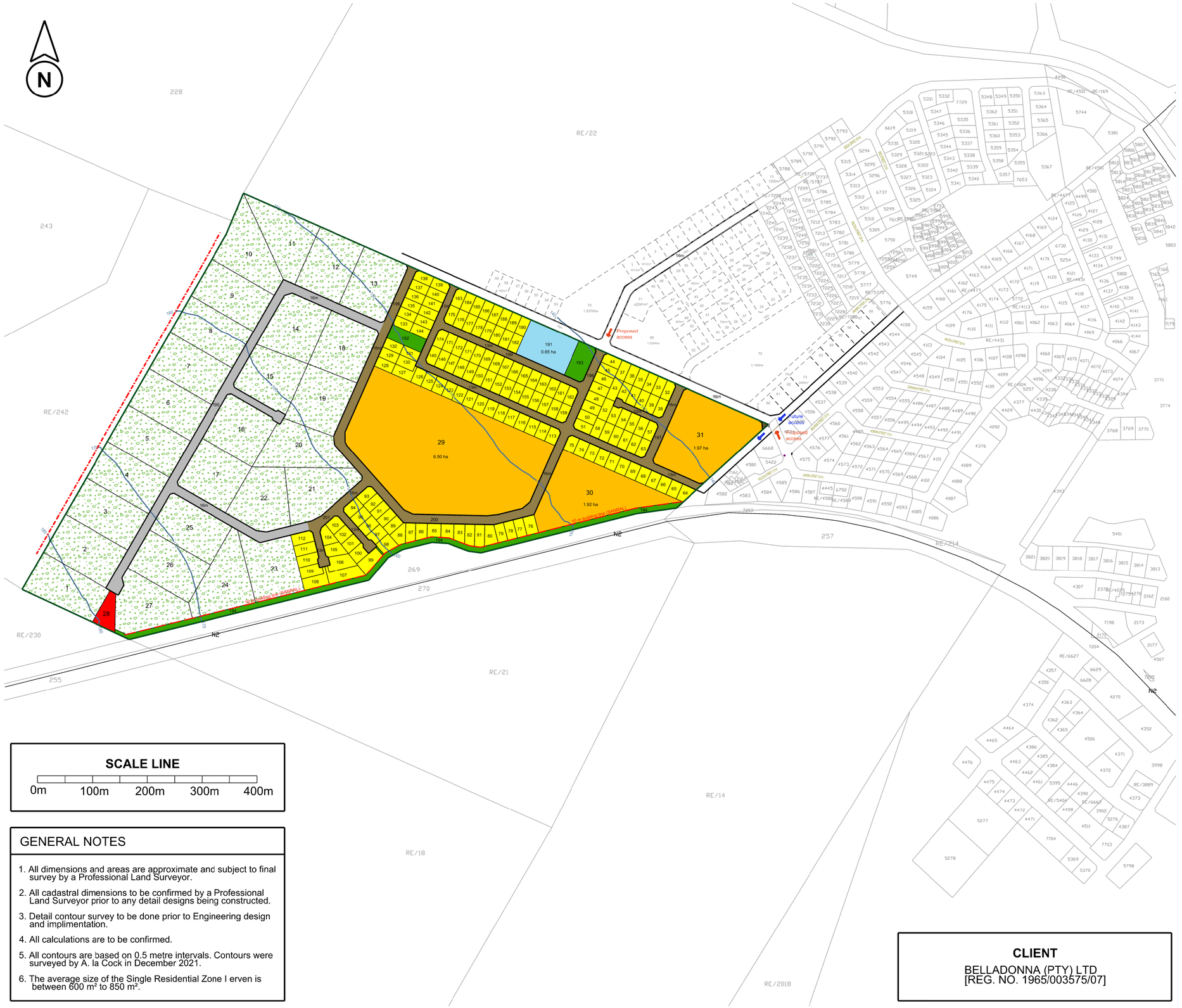
2010 Paarl Novo
- Environmental Control Officer for the Rebuilding of the Packhouse, including environmental training

2009 Oudtshoorn Oudtshoorn Municipality
- Development of the Municipal Strategic Environmental Assessment

2008-2009 Nationwide Department of Envronmental Affairs
- Permit backlog for 581 waste management facilities (landfill & non landfill facilities) in South Africa

2008 Cape Town City of Cape Town
- Environmental Control Officer for the Extension of the Vissershok landfill site

APPENDIX B – LAYOUT PLAN



SCALE LINE

0m 100m 200m 300m 400m

GENERAL NOTES

1. All dimensions and areas are approximate and subject to final survey by a Professional Land Surveyor.
2. All cadastral dimensions to be confirmed by a Professional Land Surveyor prior to any detail designs being constructed.
3. Detail contour survey to be done prior to Engineering design and implimentation.
4. All calculations are to be confirmed.
5. All contours are based on 0.5 metre intervals. Contours were surveyed by A. la Cock in December 2021.
6. The average size of the Single Residential Zone I erven is between 600 m² to 850 m².

LAYOUT PLAN

PROPOSED DEVELOPMENT ON LOT 266 & A PORTION OF REMAINDER OF LOT 21, RIVERSDALE SETTLEMENT, HESSEQUA MUNICIPALITY, WESTERN CAPE PROVINCE

LEGEND

ZONING	NO. OF STANDS	ERF NO.	AREA (ha)	% OF AREA
Agricultural Zone II	27	1-27	27.5	48.8
Single Residential Zone I	159	32-190	10.4	18.4
General Residential Zone II	3	29-31	10.4	18.4
Business Zone III	1	191	0.7	1.2
Transport Zone II	7	196-202	3.8	6.7
Transport Zone III	1	195	1.9	3.4
Utility Zone	1	28	0.2	0.4
Open Space Zone I	3	192-194	1.5	2.7
TOTAL	202		56.4	100

PROFESSIONAL TEAM

CONSULTANT	NAME	COMPANY	CONTACT
Civil Engineer	G Pepler	Hessequa Consulting Engineers	083 447 9297
Electrical Engineer	J de Villiers	CMB	082 331 4740
Survey Technician	A la Cock	La Cock Surveying	083 656 5464
Land Surveyor	C de Jager	CDJ Land Surveyors	076 735 4613
Geotechnical Engineer	E van der Walt	Terra Geotechnical	082 073 8566
Environmental Consultant	R Kapp	Kapp Environmental Consultants	082 675 5233
VIA Consultant	FC Holm	FC Holm Architects	044 874 1606
HIA Consultant	J Orton	ASHA Consulting	083 272 3225
Traffic Engineer	F van Aardt	Urban Engineering	082 923 6171
Town Planner	M Coetzee	PLANSERV	082 923 6171

PROJECT NO.: 217	PLAN NO.: 217/P4 (PREF)
SCALE: 1 : 5 000	DATE: 13/09/2024

CLIENT

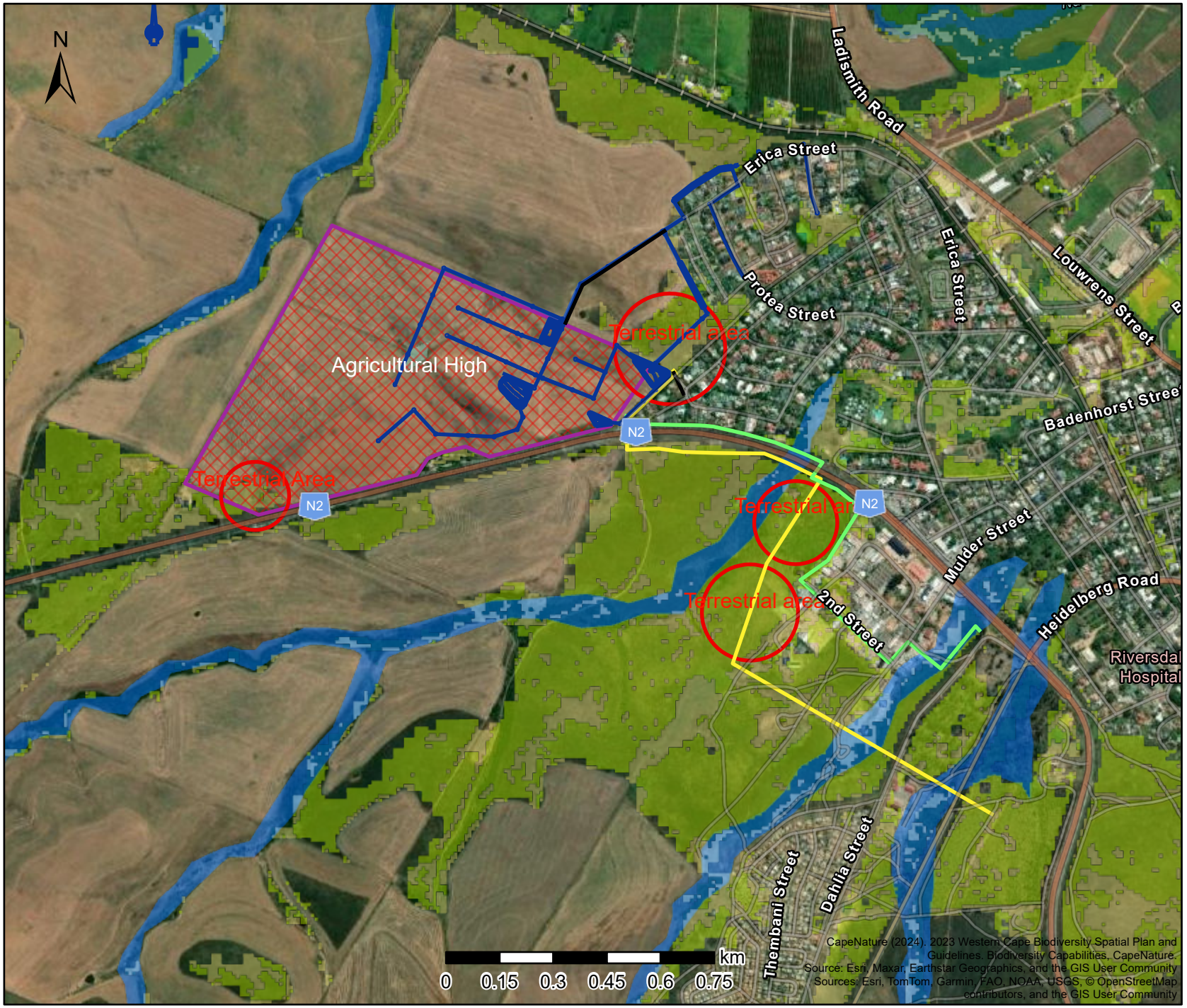
BELLADONNA (PTY) LTD
[REG. NO. 1965/003575/07]

PLANSERV (PTY) LTD
Reg. No. 2013/191660/07

p: PO Box 64 Riversdale 6670
e: madie@planserv.co.za
w: www.planserv.co.za
c: 082 923 6171

APPENDIX C – MAP OF ENVIRONMENTAL SENSITIVITIES

Combined Sensitivity Map



Legend

Critical Biodiversity Areas (Degraded)

- CBA2: Aquatic
- CBA2: Terrestrial

Critical Biodiversity Areas

- CBA: River
- CBA: Terrestrial
- CBA: Wetland

Wetlands (NWM5)

Classification

- Channelled valley-bottom wetland
- Depression wetland
- Floodplain wetland

Map Center: Lon: 21°14'16.6"E
Lat: 34°5'23.3"S

Scale: 1:18,056

Date created: 2025/02/10

Western Cape Government
FOR YOU

APPENDIX D - SCREENING TOOL

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number:

Project name: Proposed Mixed-Use development on Lot 266 and a poriton of Erf 21

Project title: THE PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT ON ERF 266 AND A PORTION OF ERF 21 IN RIVERSDALE, HESSEQUA LOCAL MUNICIPALITY, GARDEN ROUTE DISTRICT MUNICIPALITY, WESTERN CAPE PROVINCE.

Date screening report generated: 16/09/2025 14:51:17

Applicant: Belladonna (Pty) Ltd

Compiler: Sharples Environmental Services cc

Compiler signature: 

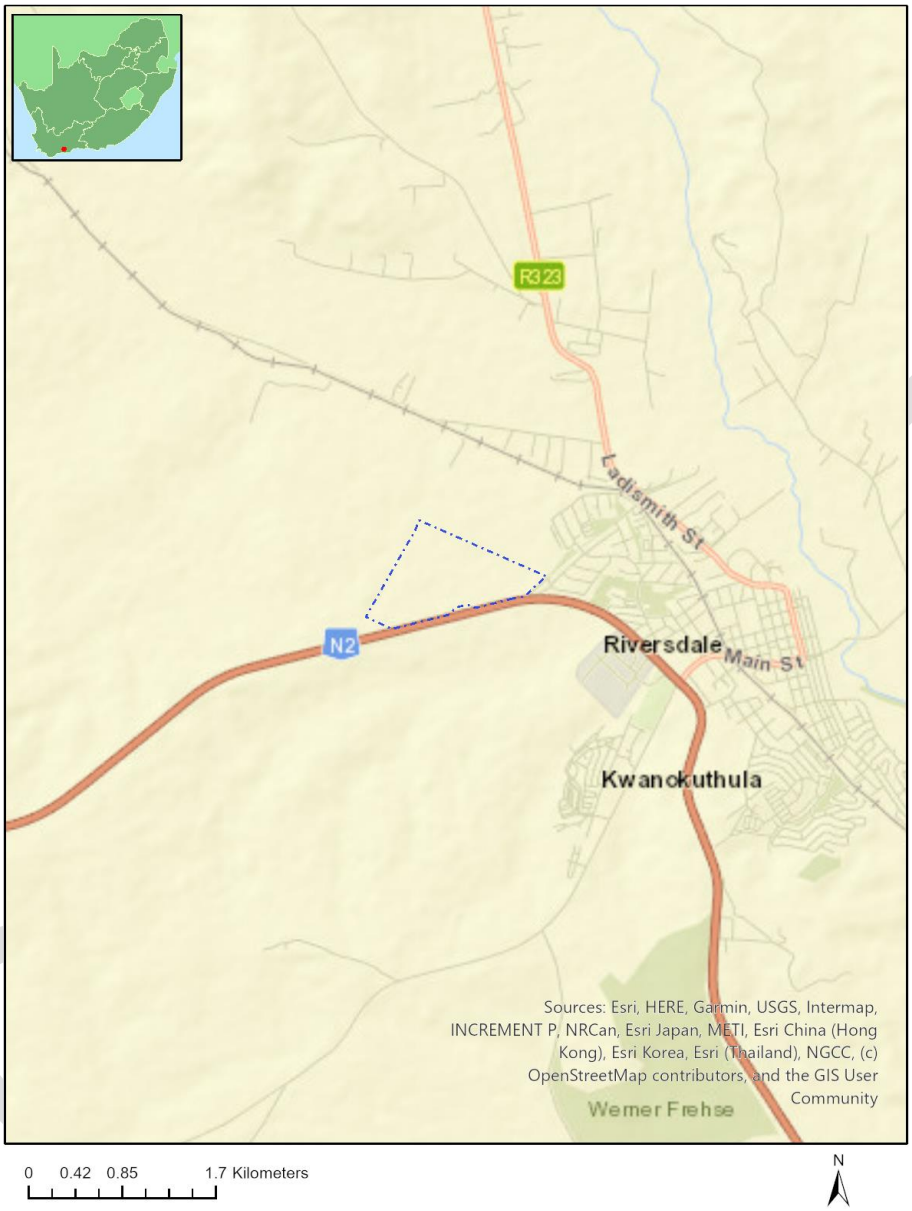
Application Category: Transformation of land|From agriculture or afforestation

Table of Contents

Proposed Project Location

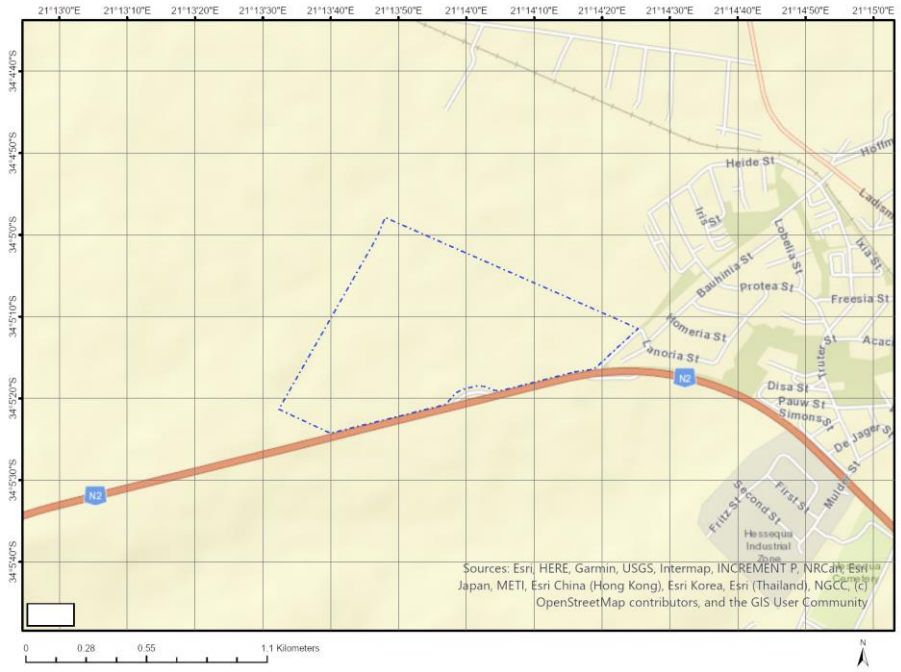
Orientation map 1: General location

General Orientation: Proposed Mixed-Use development on Lot 266 and a poriton of Erf 21



16/09/2025

Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	RIVERSDALE SETTLEMENT	21	0	34°5'8.99S	21°13'53.66E	Erven
2	RIVERSDALE SETTLEMENT	266	0	34°5'17.96S	21°13'56.2E	Erven

Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/1815/3	Wind	Approved	27.8

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Transformation of land|From agriculture or afforestation**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Gas Pipeline Corridors-Phase 1a & 1b: Saldanha to Ankerlig and Saldanha to Mossel Bay	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf
South African Conservation Areas	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/SACAD_OR_2025_Q1_Metadata.pdf

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the

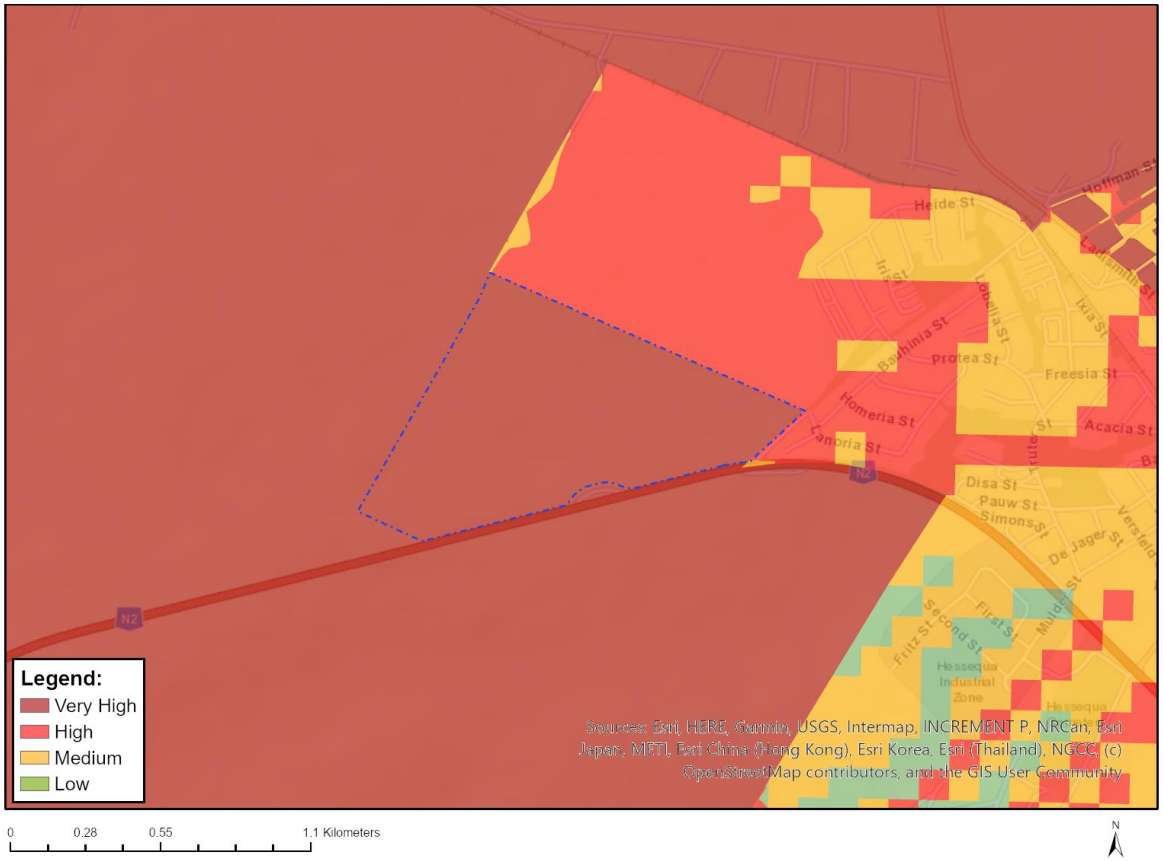
assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforHIA.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforPIA.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
7	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
9	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
10	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

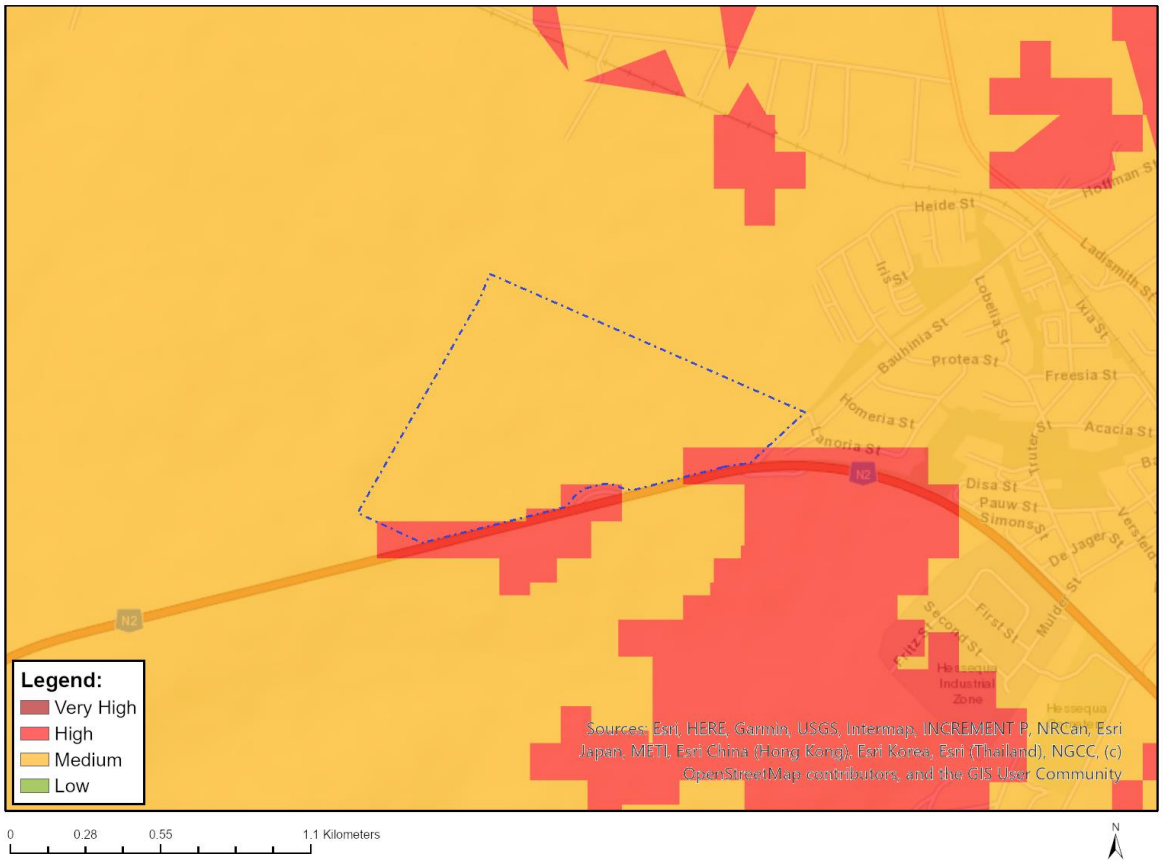


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Rainfed Annual Crop Cultivation / Planted Pastures
High	09. Moderate-High
High	08. Moderate
Medium	07. Low-Moderate
Medium	06. Low-Moderate
Very High	Heidelberg-Slangrivier PAA

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



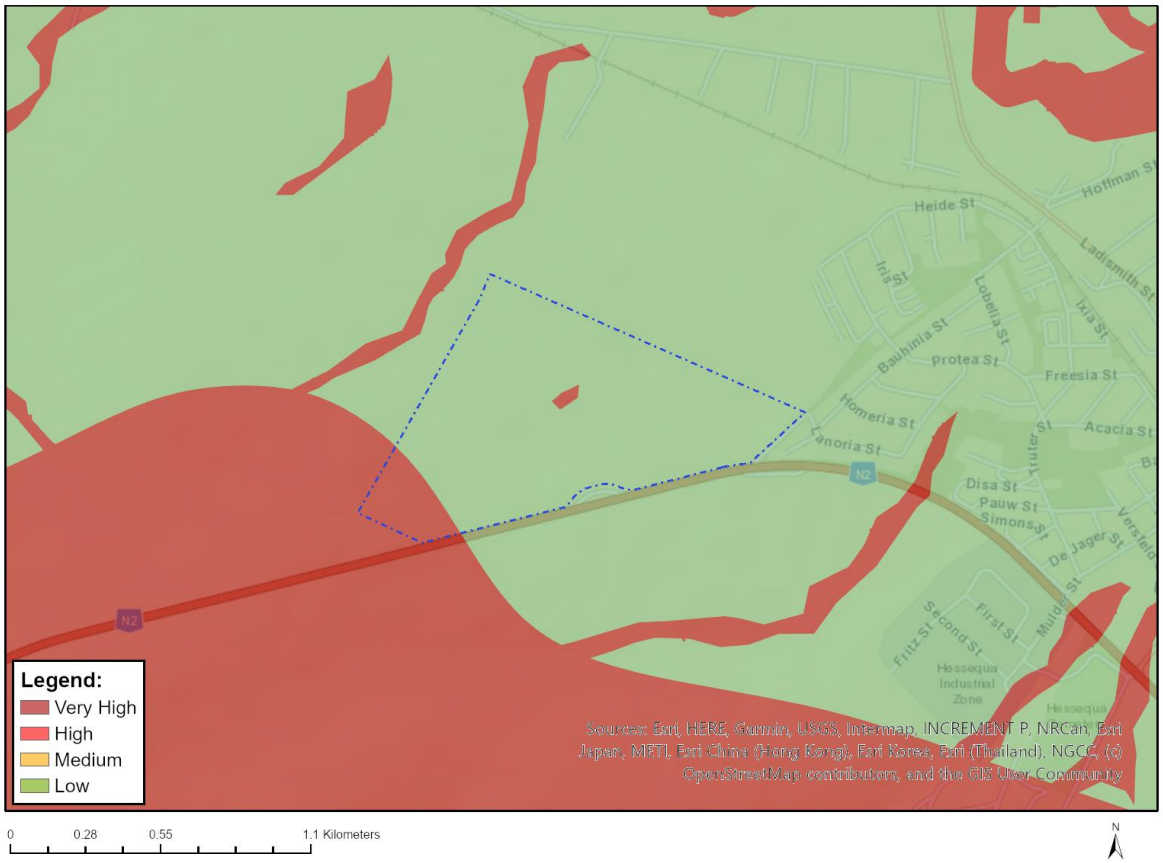
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Neotis denhami
High	Aves-Afrotis afra
Medium	Aves-Circus ranivorus
Medium	Invertebrate-Aneuryphymus montanus

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

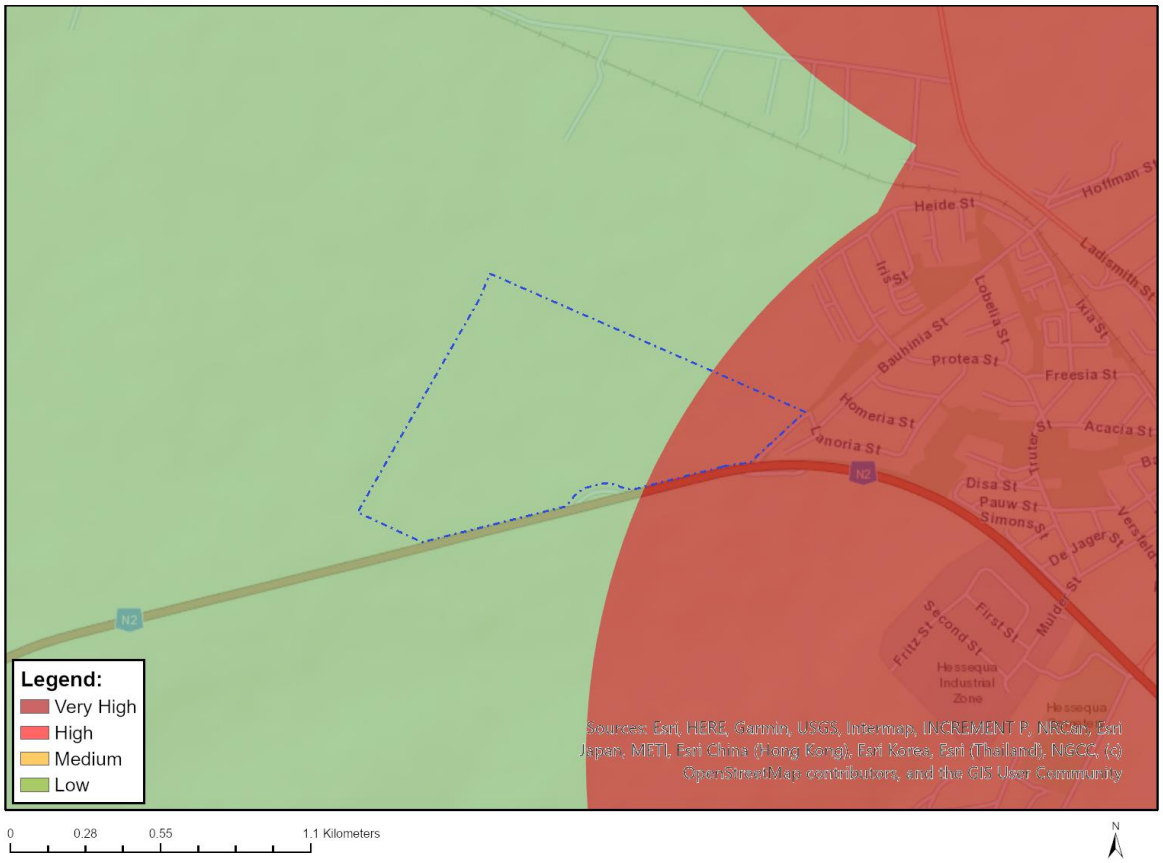


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	Wetlands_Depression
Very High	SWSA (sw)_Langeberg

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

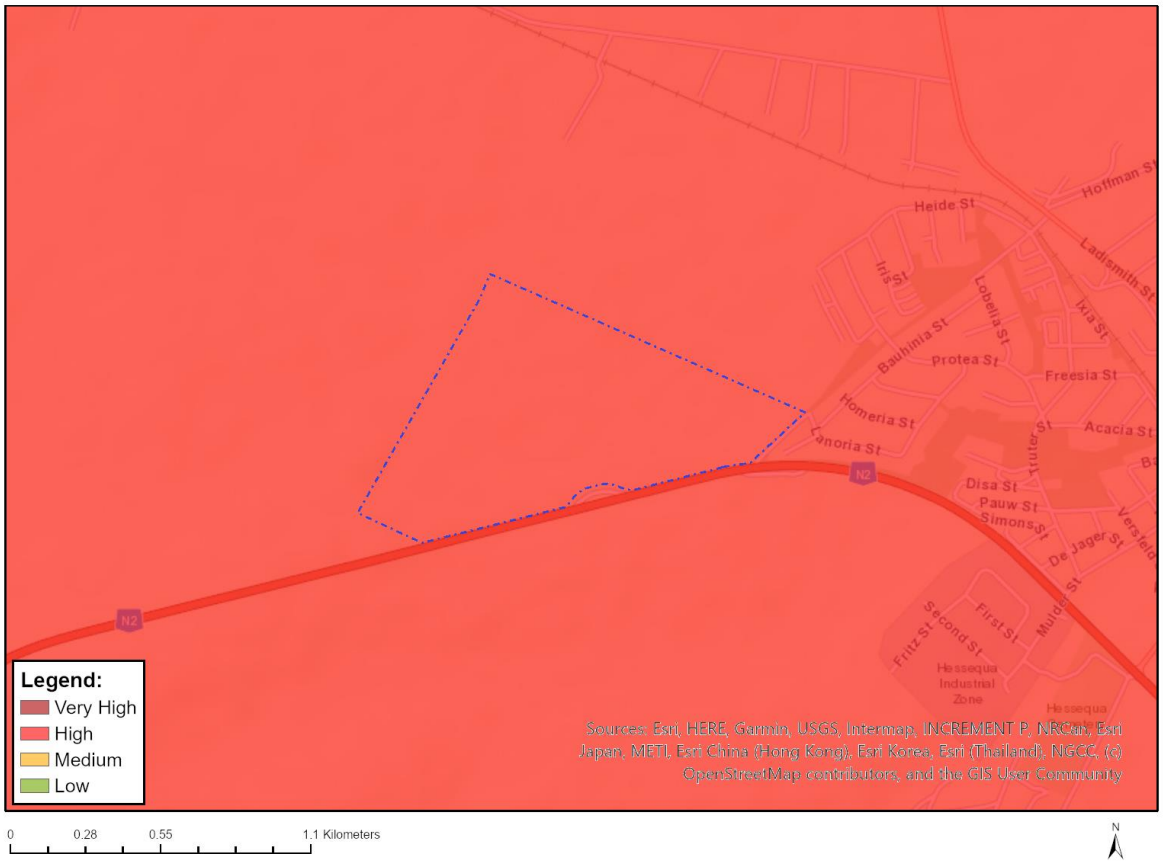


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	Within 2km of a Grade II Heritage site

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

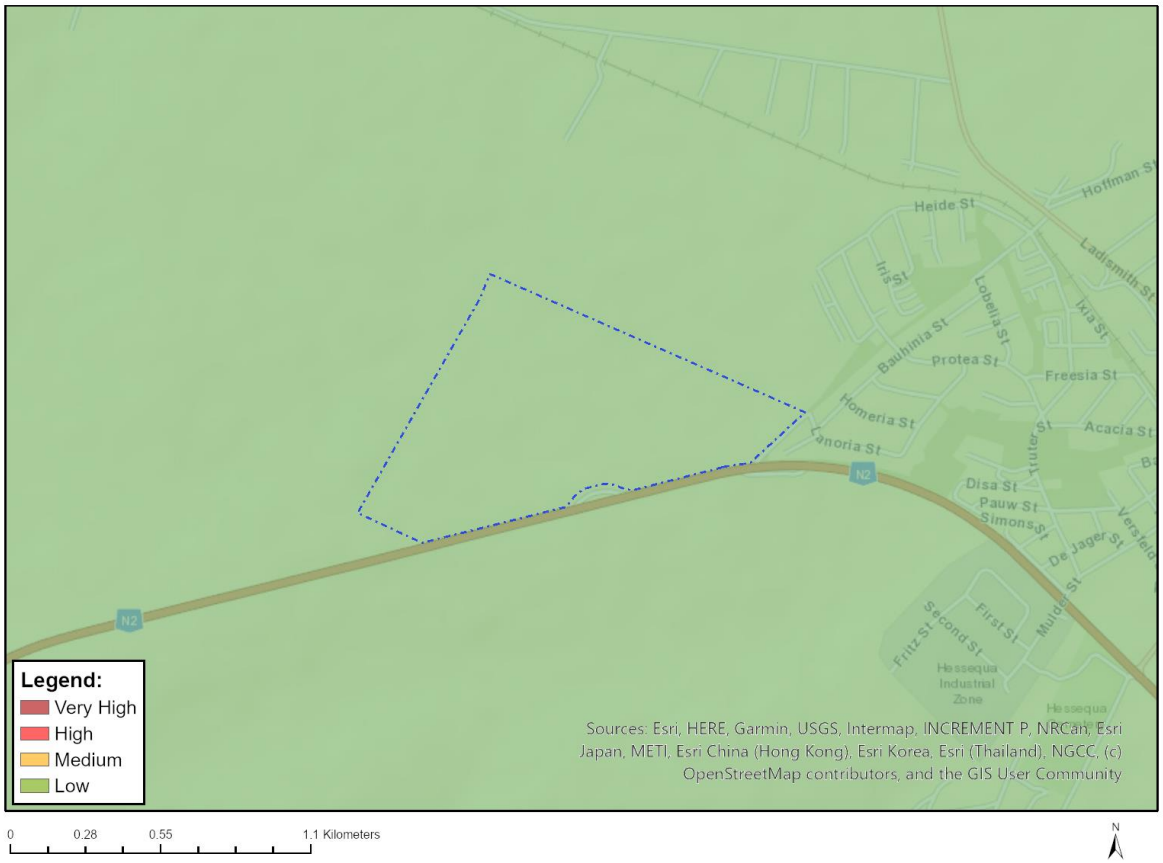


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

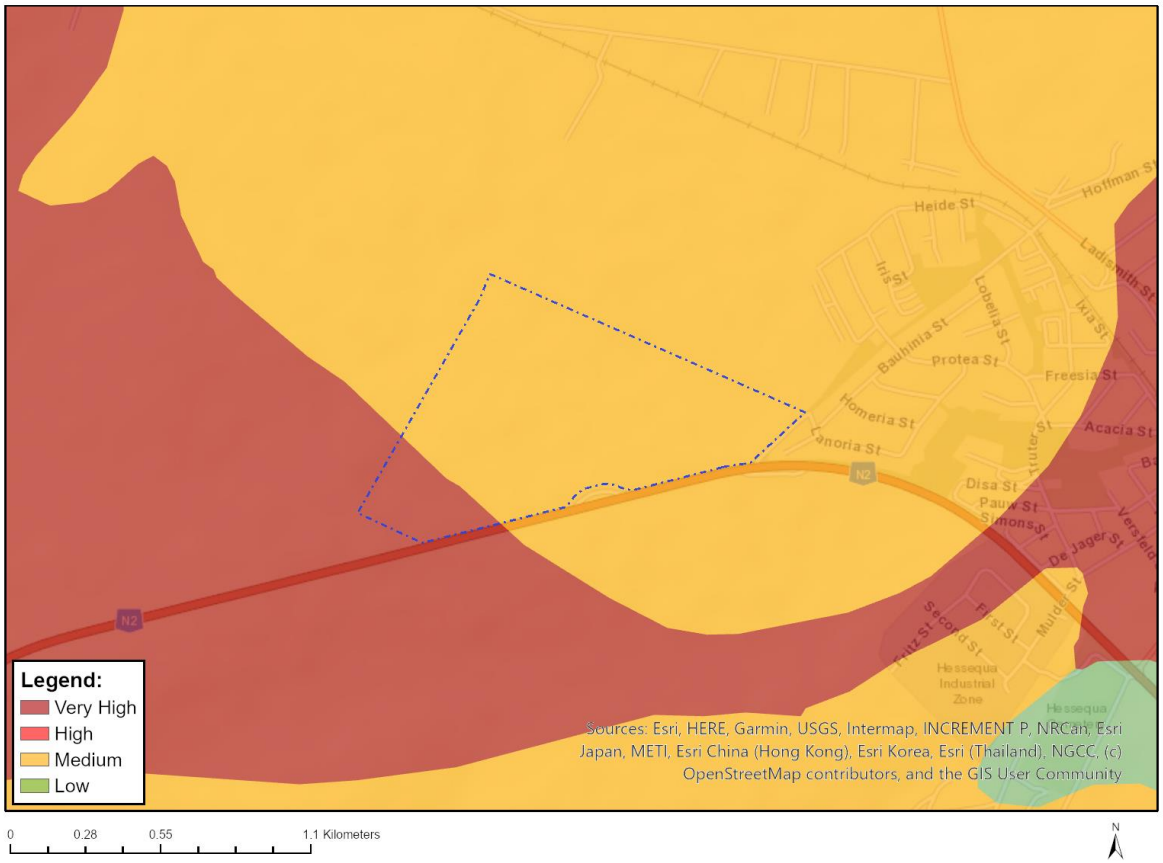


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

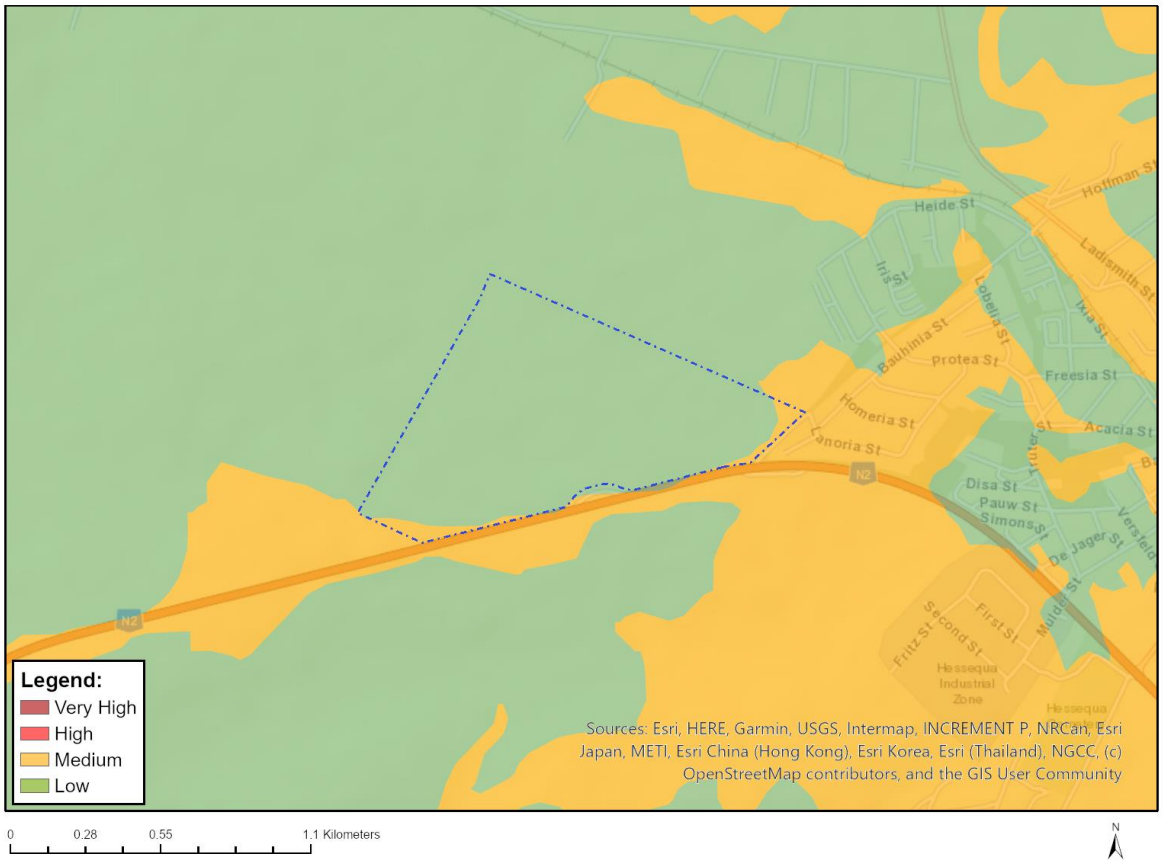


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

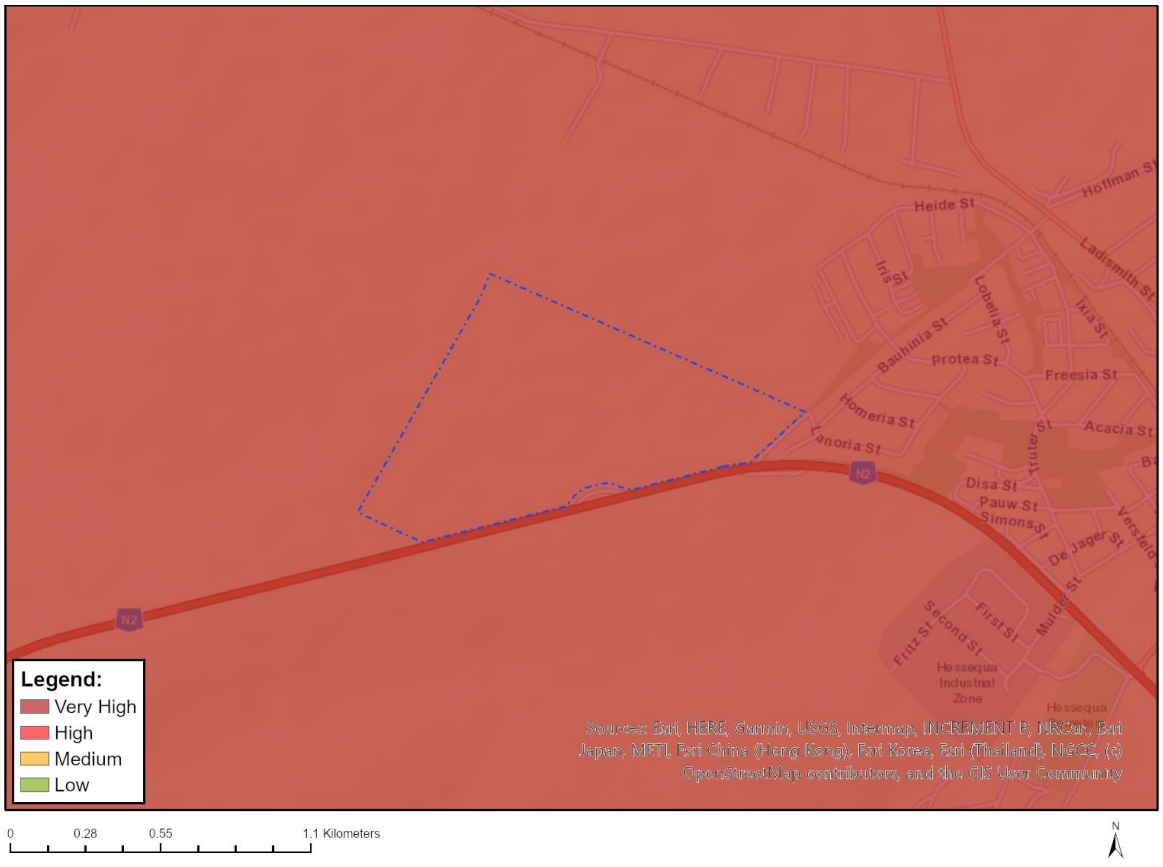
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Aspalathus campestris
Medium	Aspalathus millefolia
Medium	Aspalathus steudeliana
Medium	Aspalathus zeyheri
Medium	Otholobium pungens
Medium	Lotononis viborgioides
Medium	Leucadendron coriaceum
Medium	Hesperantha muirii
Medium	Freesia fergusoniae
Medium	Sensitive species 157
Medium	Hermannia lavandulifolia
Medium	Sensitive species 1142

Medium	Sensitive species 339
Medium	Anisodontea pseudocapensis
Medium	Duvalia elegans
Medium	Sensitive species 1024
Medium	Gnidia ericoides
Medium	Chrysocoma flava
Medium	Stoebe rugulosa
Medium	Relhania garnotii
Medium	Acmadenia macropetala
Medium	Muraltia cliffortiifolia
Medium	Polygala pubiflora
Medium	Sensitive species 692
Medium	Sensitive species 980
Medium	Ruellia pilosa
Medium	Phylica elimensis
Medium	Sensitive species 822
Medium	Drosanthemum lavisii
Medium	Drosanthemum micans
Medium	Drosanthemum striatum
Medium	Romulea jugicola
Medium	Sensitive species 521
Medium	Sensitive species 142
Medium	Elegia squamosa
Medium	Diosma passerinoides
Medium	Agathosma microcarpa

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	CBA: Terrestrial
Very High	CBA2: Terrestrial
Very High	SWSA (sw)_Langeberg
Very High	EN_Eastern Ruens Shale Renosterveld

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: TBC

Project name: Proposed Mixed-Use development on Lot 266 and a poriton of Erf 21

Project title: THE PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT ON ERF 266 AND A PORTION OF ERF 21 IN RIVERSDALE, HESSEQUA LOCAL MUNICIPALITY, GARDEN ROUTE DISTRICT MUNICIPALITY, WESTERN CAPE PROVINCE.

Date screening report generated: 28/02/2025 10:32:17

Applicant: Belladonna (Pty) Ltd

Compiler: Sharples Environmental Services cc

Compiler signature:

.....

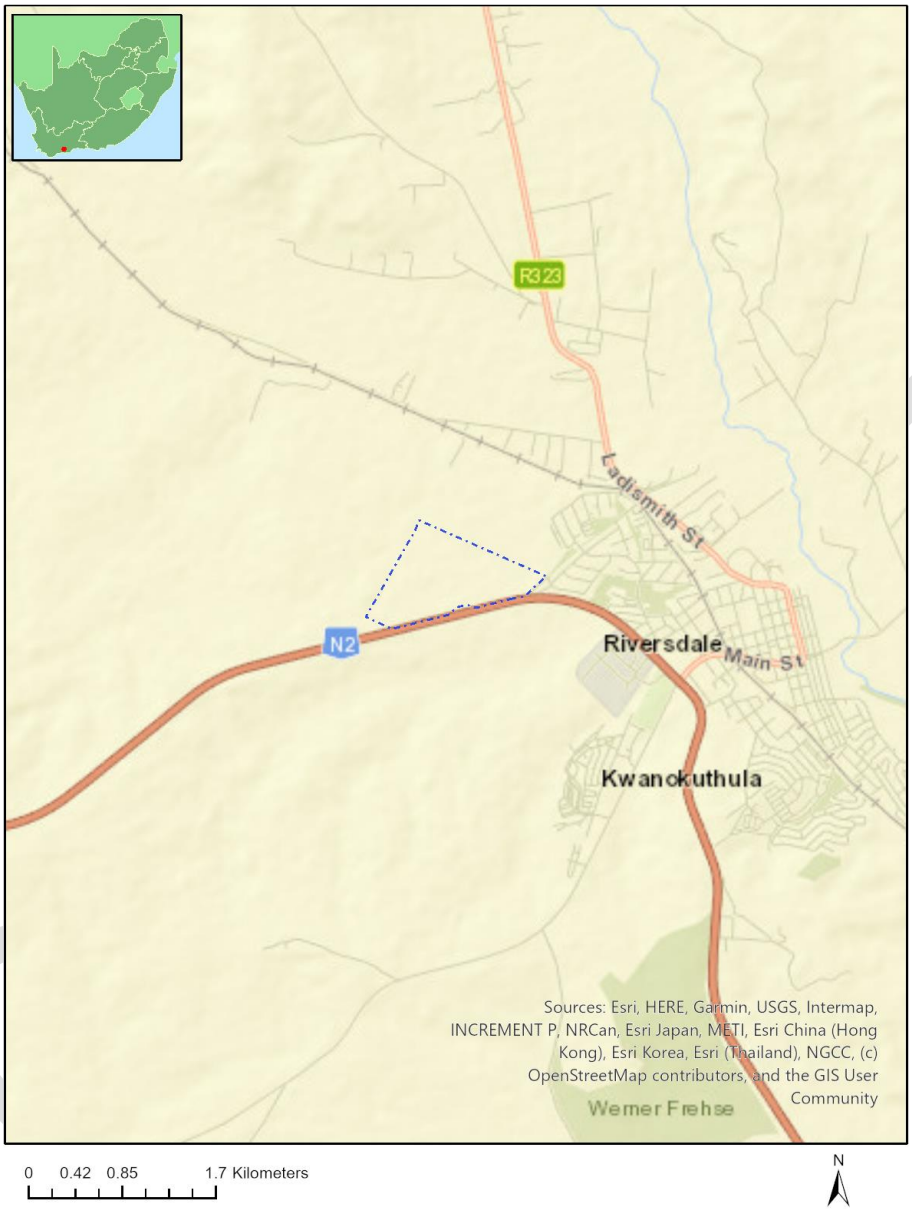
Application Category: Transformation of land|From agriculture or afforestation

Table of Contents

Proposed Project Location

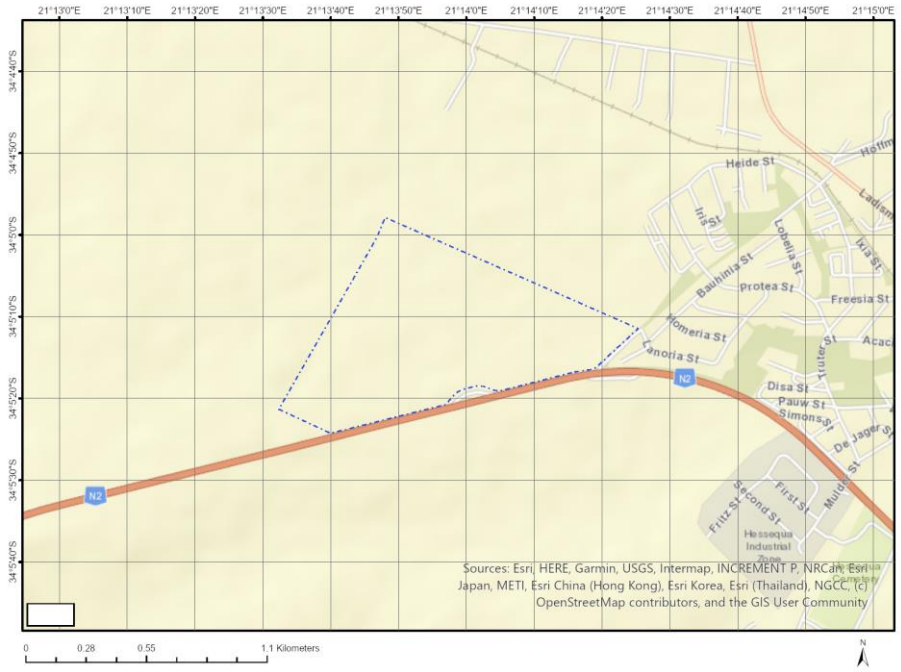
Orientation map 1: General location

General Orientation: Proposed Mixed-Use development on Lot 266 and a poriton of Erf 21



28/02/2025

Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	RIVERSDALE SETTLEMENT	21	0	34°5'8.99S	21°13'53.66E	Erven
2	RIVERSDALE SETTLEMENT	266	0	34°5'17.96S	21°13'56.2E	Erven

Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/1815/3	Wind	Approved	27.8

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Transformation of land|From agriculture or afforestation**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Gas Pipeline Corridors-Phase 1a & 1b: Saldanha to Ankerlig and Saldanha to Mossel Bay	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the

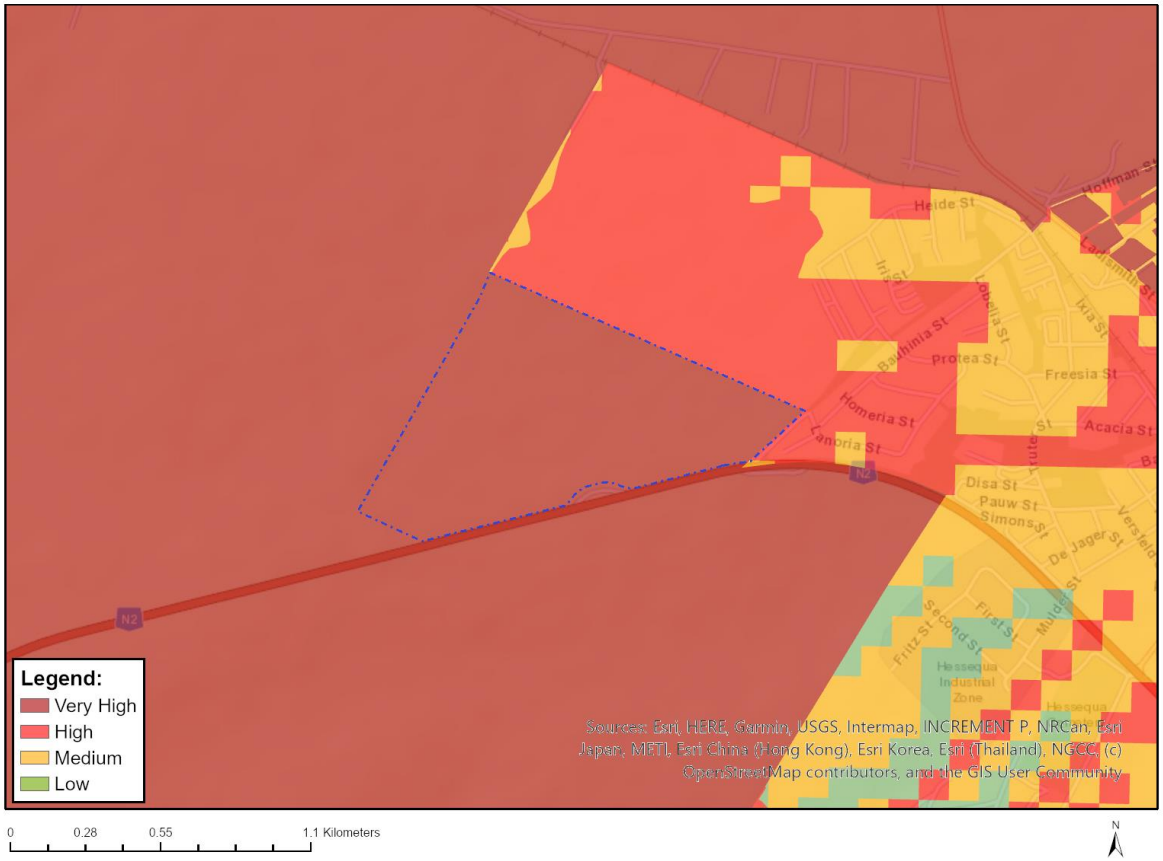
assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
7	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
9	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
10	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

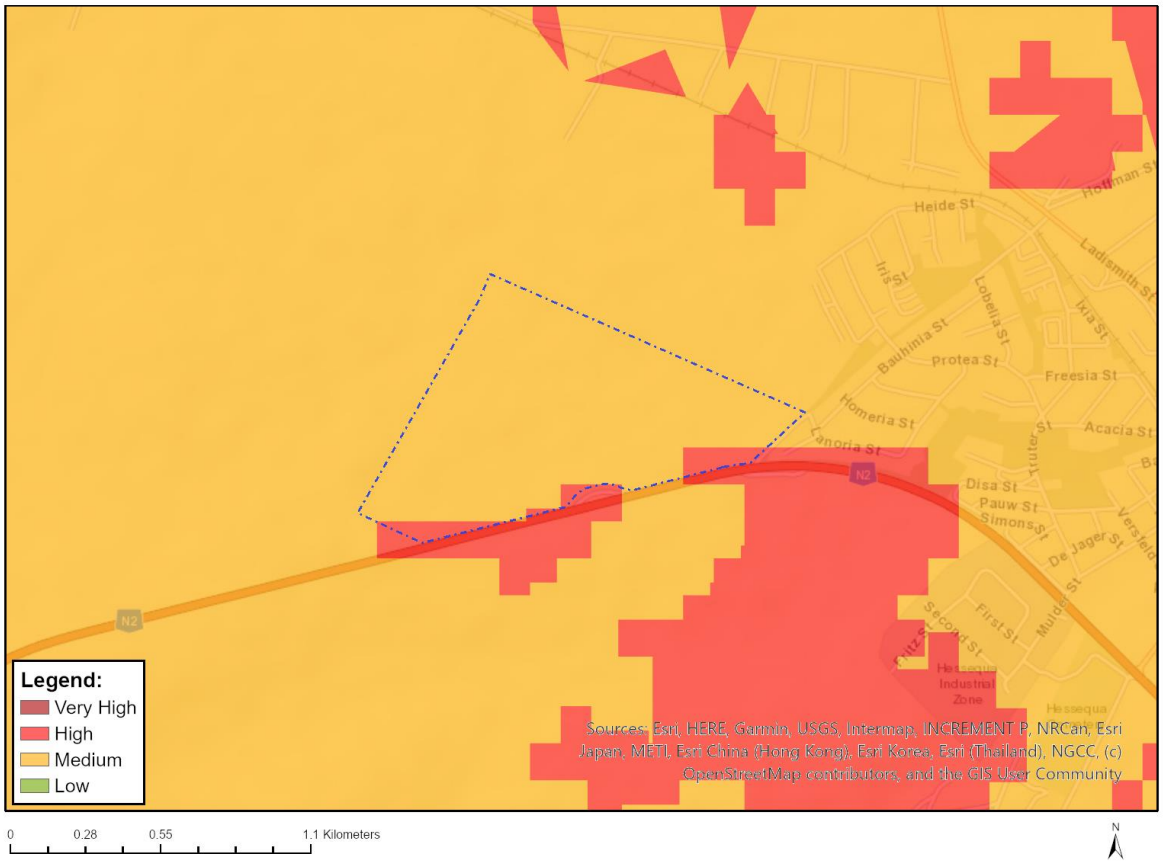


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Rainfed Annual Crop Cultivation / Planted Pastures
High	08. Moderate
High	09. Moderate-High
Medium	06. Low-Moderate
Medium	07. Low-Moderate
Very High	Heidelberg-Slangrivier PAA

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



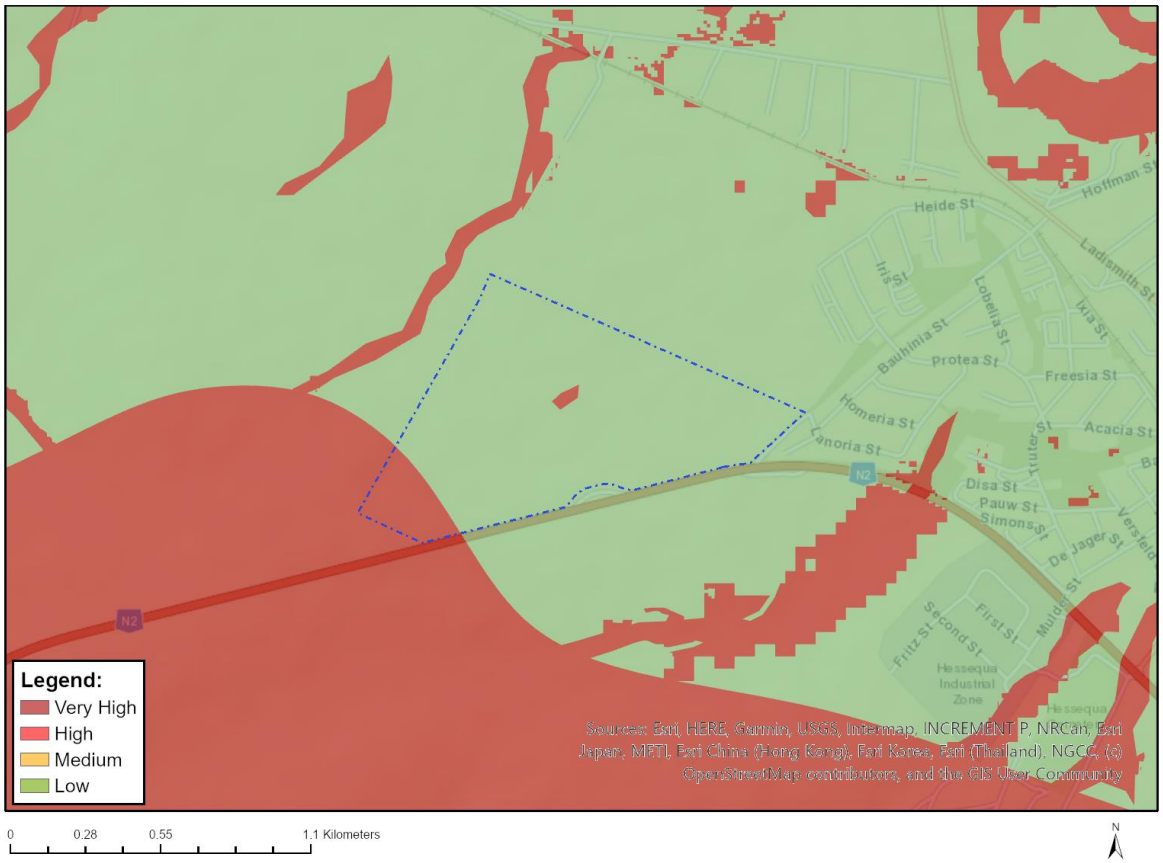
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Neotis denhami
High	Aves-Afrotis afra
Medium	Aves-Circus ranivorus
Medium	Invertebrate-Aneuryphymus montanus

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

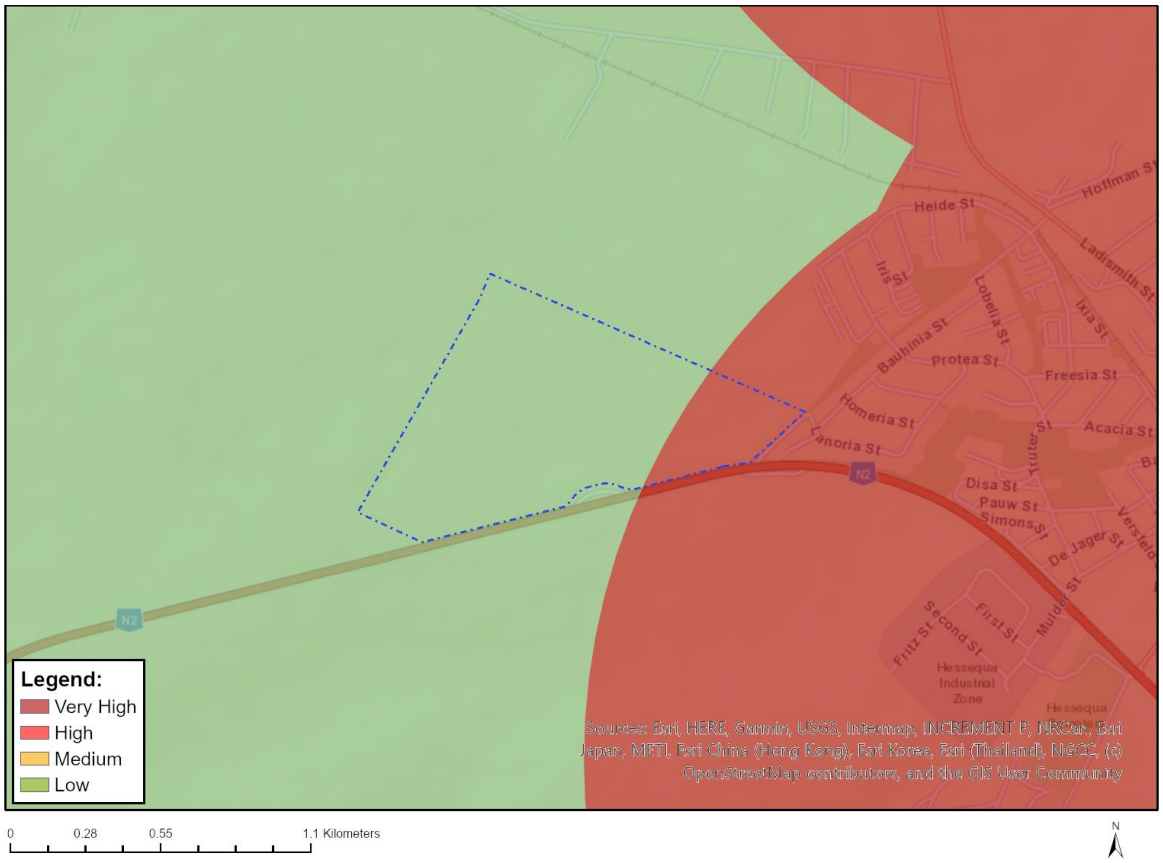


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	SWSA (SW) _Langeberg
Very High	Wetlands_East Coast Renosterveld Bioregion (Depression)

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

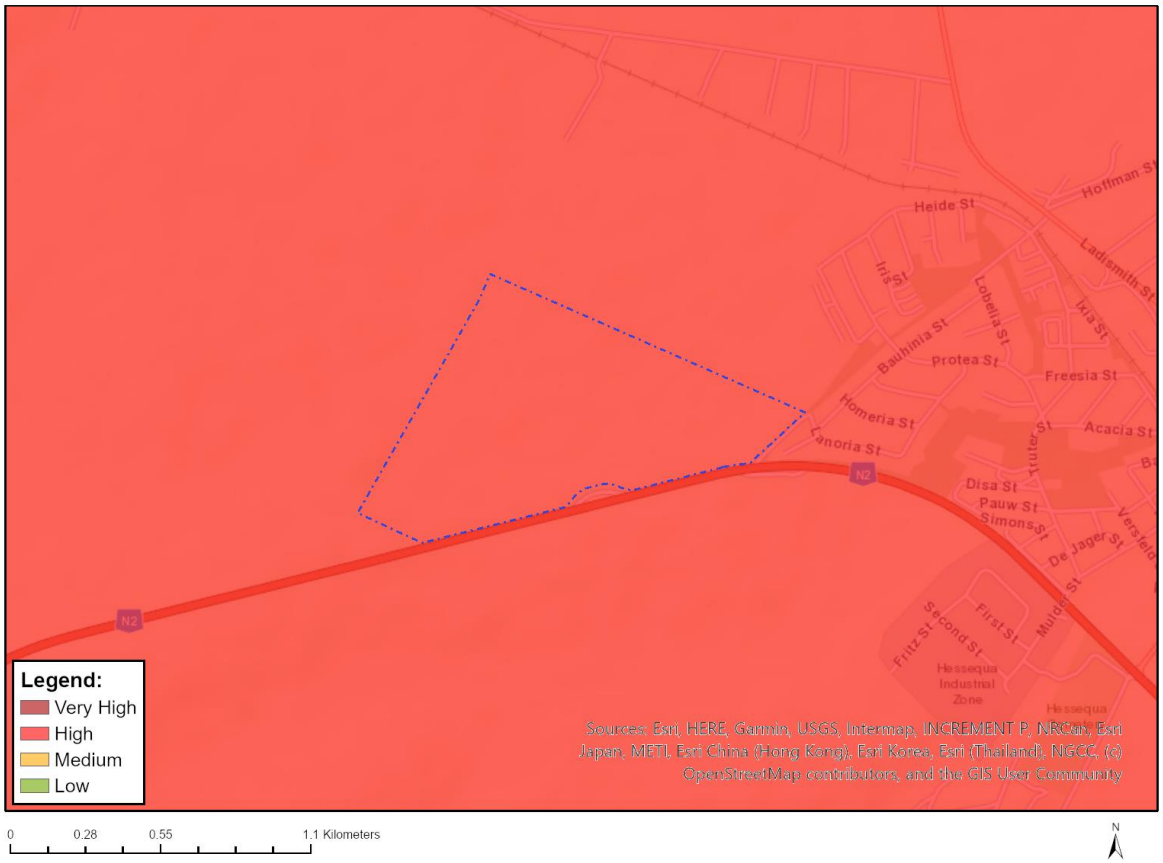


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Within 2km of a Grade II Heritage site

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

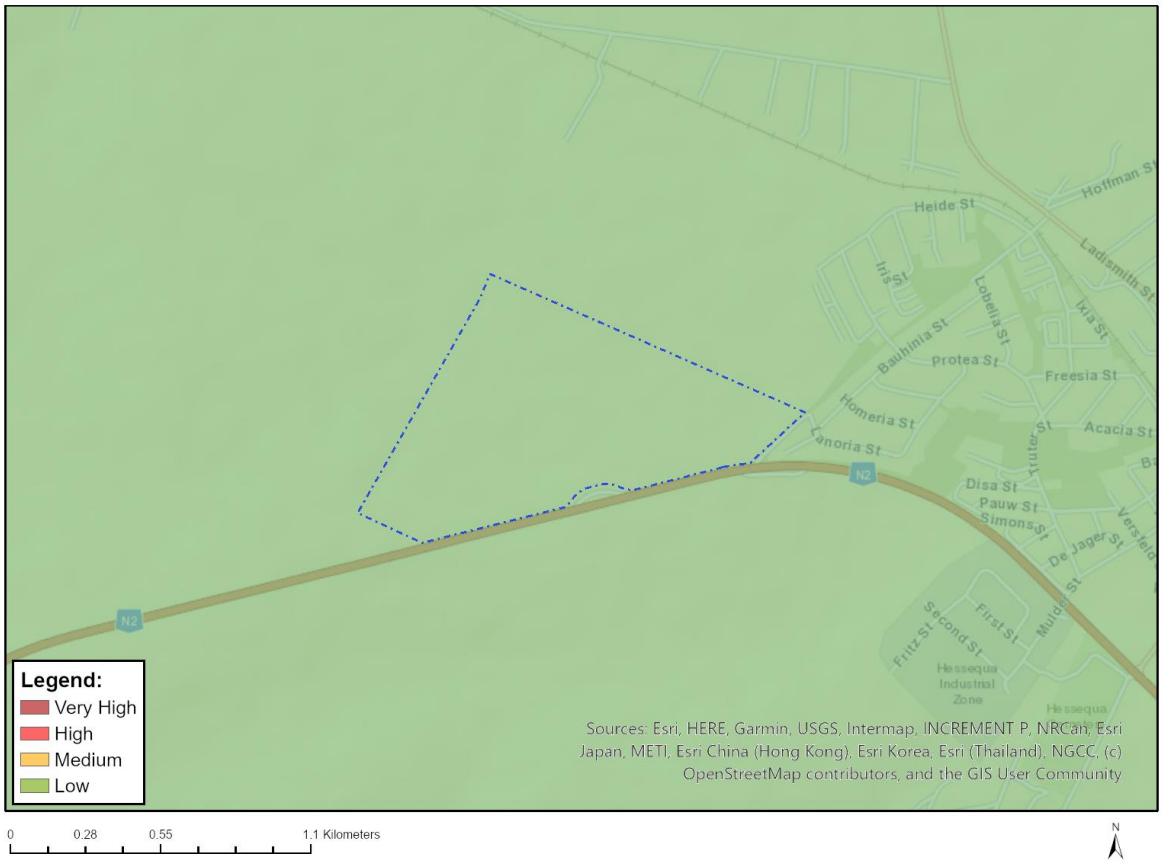


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

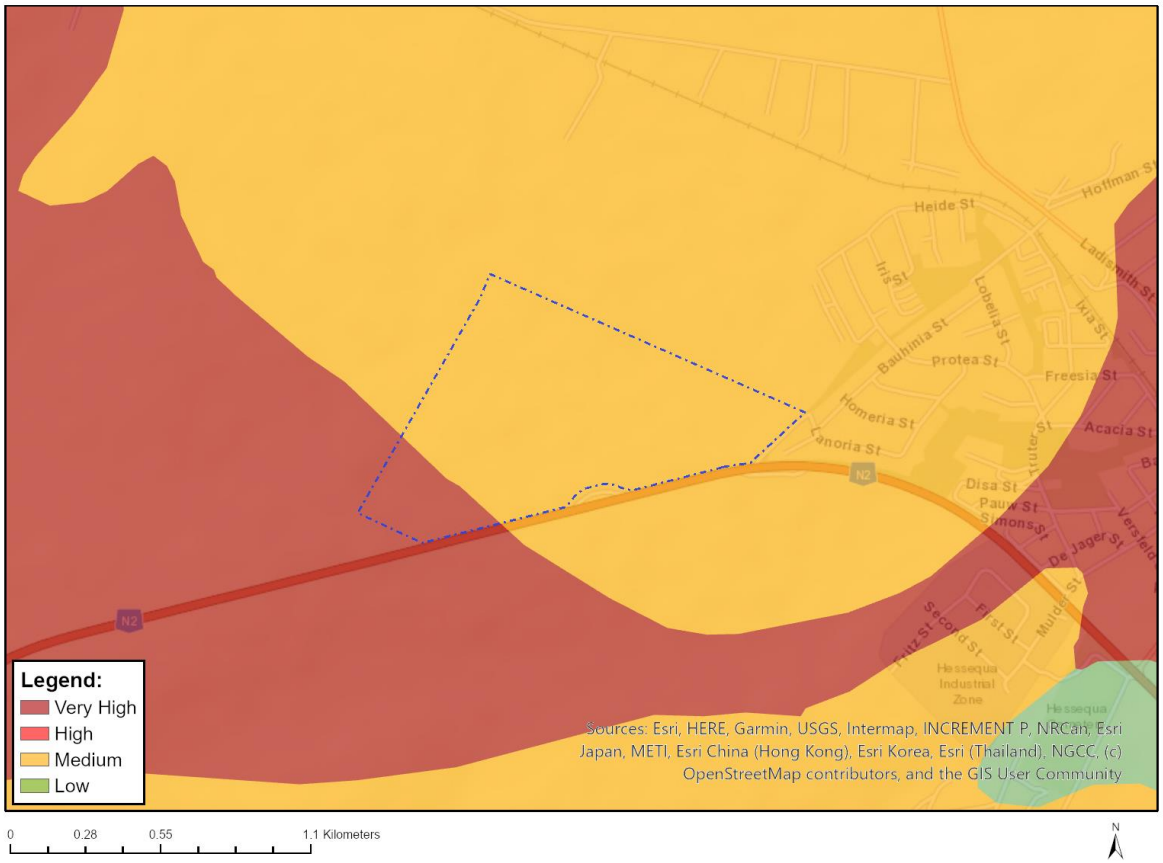


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

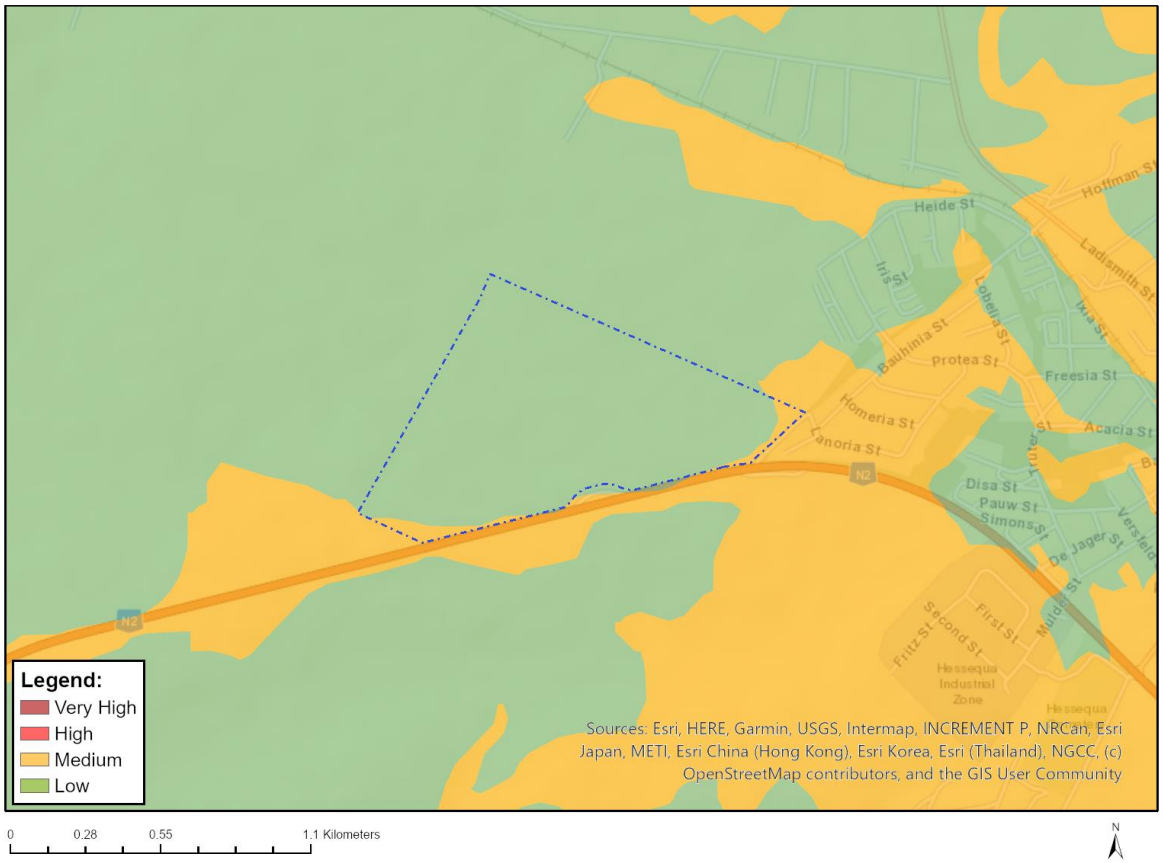


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

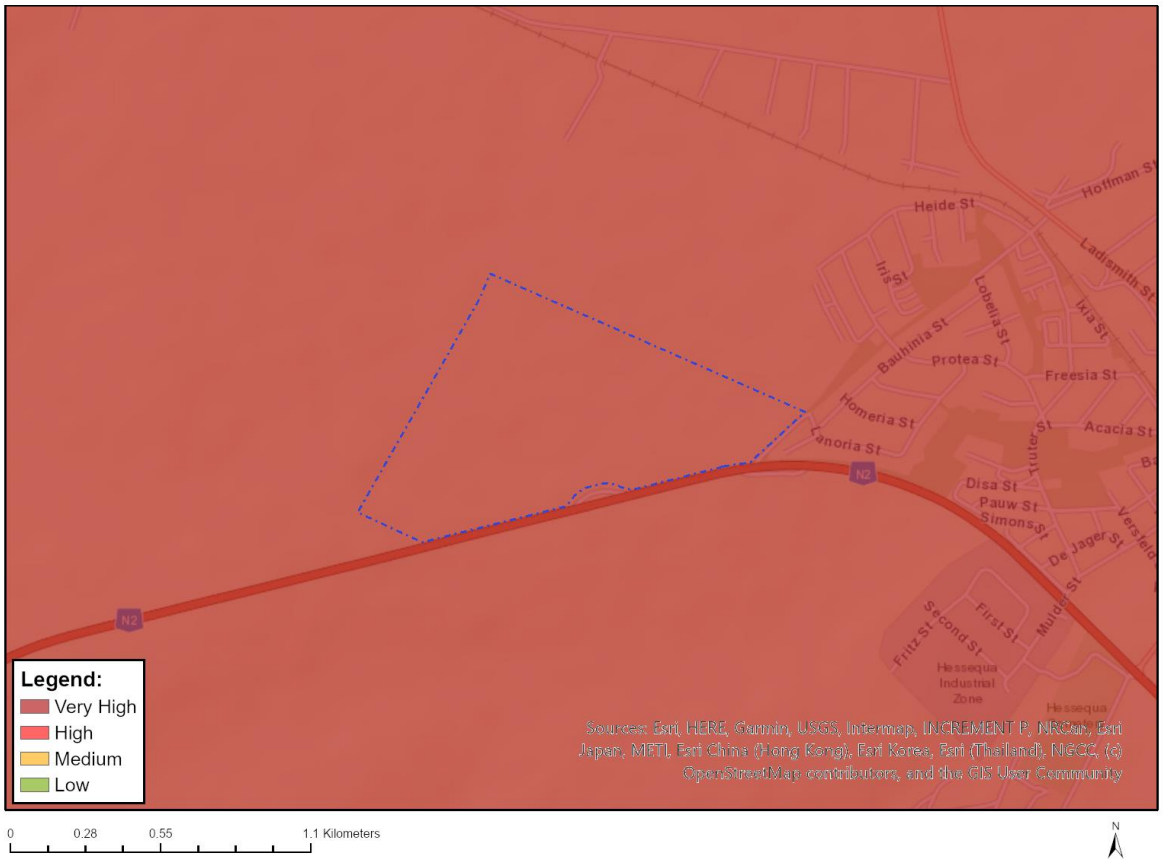
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Aspalathus campestris
Medium	Aspalathus millefolia
Medium	Aspalathus steudeliana
Medium	Aspalathus zeyheri
Medium	Otholobium pungens
Medium	Lotononis viborgioides
Medium	Leucadendron coriaceum
Medium	Hesperantha muirii
Medium	Freesia fergusoniae
Medium	Sensitive species 157
Medium	Hermannia lavandulifolia
Medium	Sensitive species 1142

Medium	Sensitive species 339
Medium	Anisodontea pseudocapensis
Medium	Duvalia elegans
Medium	Sensitive species 1024
Medium	Gnidia ericoides
Medium	Chrysocoma flava
Medium	Stoebe rugulosa
Medium	Relhania garnotii
Medium	Acmadenia macropetala
Medium	Muraltia cliffortiifolia
Medium	Polygala pubiflora
Medium	Sensitive species 692
Medium	Sensitive species 980
Medium	Ruellia pilosa
Medium	Phylica elimensis
Medium	Sensitive species 822
Medium	Drosanthemum lavisii
Medium	Drosanthemum micans
Medium	Drosanthemum striatum
Medium	Romulea jugicola
Medium	Sensitive species 521
Medium	Sensitive species 142
Medium	Elegia squamosa
Medium	Diosma passerinoides
Medium	Agathosma microcarpa

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	ESA 2: Restore from other land use
Very High	CBA 2: Terrestrial
Very High	CBA 1: Terrestrial
Very High	SWSA (SW) _Langeberg
Very High	EN_Eastern Ruens Shale Renosterveld

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: TBC

Project name: Riversdale Mixed Use - External Pipeline

Project title: Riverdale Mixed-Use Development

Date screening report generated: 08/04/2025 09:41:39

Applicant: Belladonna

Compiler: SES

Compiler signature: 

Application Category: Utilities Infrastructure|Pipelines|Water|Fresh_Storm Water

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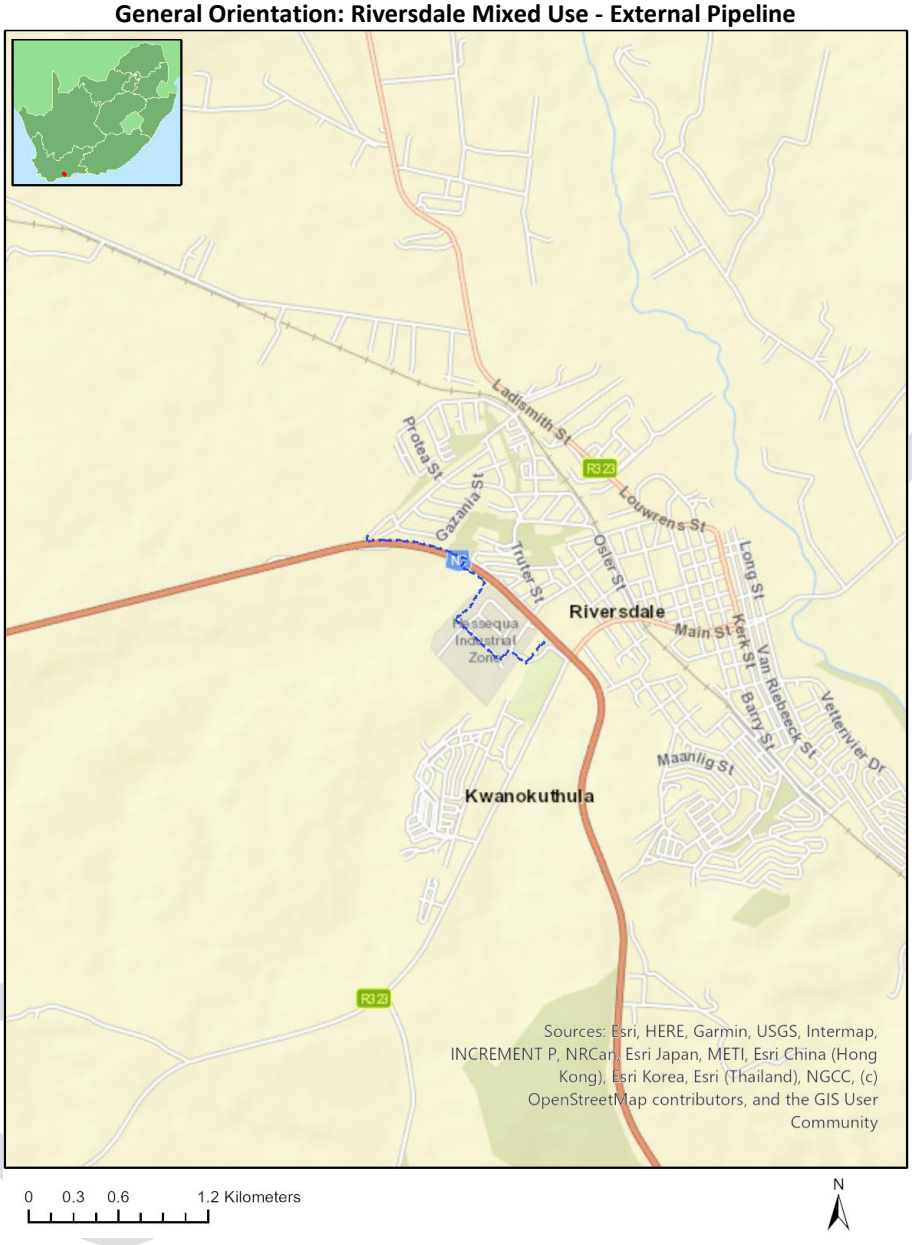
Proposed Project Location

Orientation map 1: General location

General Orientation: Riversdale Mixed Use - External Pipeline



Map of proposed site and relevant area(s)

Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	RIVERSDALE SETTLEMENT	14	0	34°6'38.93S	21°12'48.07E	Erven
2	RIVERSDALE SETTLEMENT	14	0	34°6'39.66S	21°12'48.04E	Erven
3	RIVERSDALE SETTLEMENT	21	0	34°5'8.99S	21°13'53.66E	Erven
4	RIVERSDALE SETTLEMENT	214	0	34°5'18.45S	21°14'38.05E	Erven
5	RIVERSDALE SETTLEMENT	257	0	34°5'18.05S	21°14'29.57E	Erven
6	RIVERSDALE	2015	0	34°6'11.46S	21°14'51.45E	Erven
7	RIVERSDALE	2015	0	34°6'10.64S	21°14'51.4E	Erven
8	RIVERSDALE	2080	0	34°5'35.33S	21°14'59.58E	Erven
9	RIVERSDALE	2080	0	34°5'32.93S	21°15'1.33E	Erven
10	RIVERSDALE	4469	0	34°5'35.99S	21°14'45.4E	Erven
11	RIVERSDALE	4470	0	34°5'35.3S	21°14'44.65E	Erven
12	RIVERSDALE	4471	0	34°5'34.77S	21°14'43.94E	Erven
13	RIVERSDALE	4472	0	34°5'34.22S	21°14'43.22E	Erven
14	RIVERSDALE	4473	0	34°5'33.67S	21°14'42.5E	Erven
15	RIVERSDALE	4474	0	34°5'33.12S	21°14'41.78E	Erven
16	RIVERSDALE	4475	0	34°5'32.56S	21°14'41.04E	Erven
17	RIVERSDALE	4480	0	34°5'35.91S	21°14'49.58E	Erven
18	RIVERSDALE	4481	0	34°5'36.72S	21°14'49.12E	Erven
19	RIVERSDALE	4485	0	34°5'15.42S	21°14'20.55E	Erven
20	RIVERSDALE	4582	0	34°5'15.58S	21°14'22.04E	Erven
21	RIVERSDALE	4583	0	34°5'15.66S	21°14'23.68E	Erven
22	RIVERSDALE	4587	0	34°5'15.46S	21°14'28.3E	Erven

23	RIVERSDALE	4588	0	34°5'15.91S	21°14'29.31E	Erven
24	RIVERSDALE	4589	0	34°5'15.95S	21°14'30.52E	Erven
25	RIVERSDALE	5369	0	34°5'37.12S	21°14'47.04E	Erven
26	RIVERSDALE	5370	0	34°5'37.77S	21°14'47.89E	Erven
27	RIVERSDALE	5394	0	34°5'36.46S	21°14'46.17E	Erven
28	RIVERSDALE	5798	0	34°5'37.51S	21°14'50.99E	Erven
29	RIVERSDALE	7203	0	34°5'16.45S	21°14'21.56E	Erven
30	RIVERSDALE	7650	0	34°5'36.36S	21°14'49.51E	Erven
31	RIVERSDALE	7702	0	34°5'36.74S	21°14'48.75E	Erven
32	RIVERSDALE	7703	0	34°5'36.14S	21°14'49.62E	Erven
33	RIVERSDALE	7704	0	34°5'35.87S	21°14'45.43E	Erven
34	RIVERSDALE	4595	0	34°5'15.91S	21°14'20.28E	Public Place
35	RIVERSDALE	4084	0	34°5'15.21S	21°14'42.43E	Public Place

Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/1815/3	Wind	Approved	29.3

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Utilities Infrastructure|Pipelines|Water|Fresh_Storm Water**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction	Implication

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

or prohibition	
Strategic Gas Pipeline Corridors-Phase 1a & 1b: Saldanha to Ankerlig and Saldanha to Mossel Bay	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

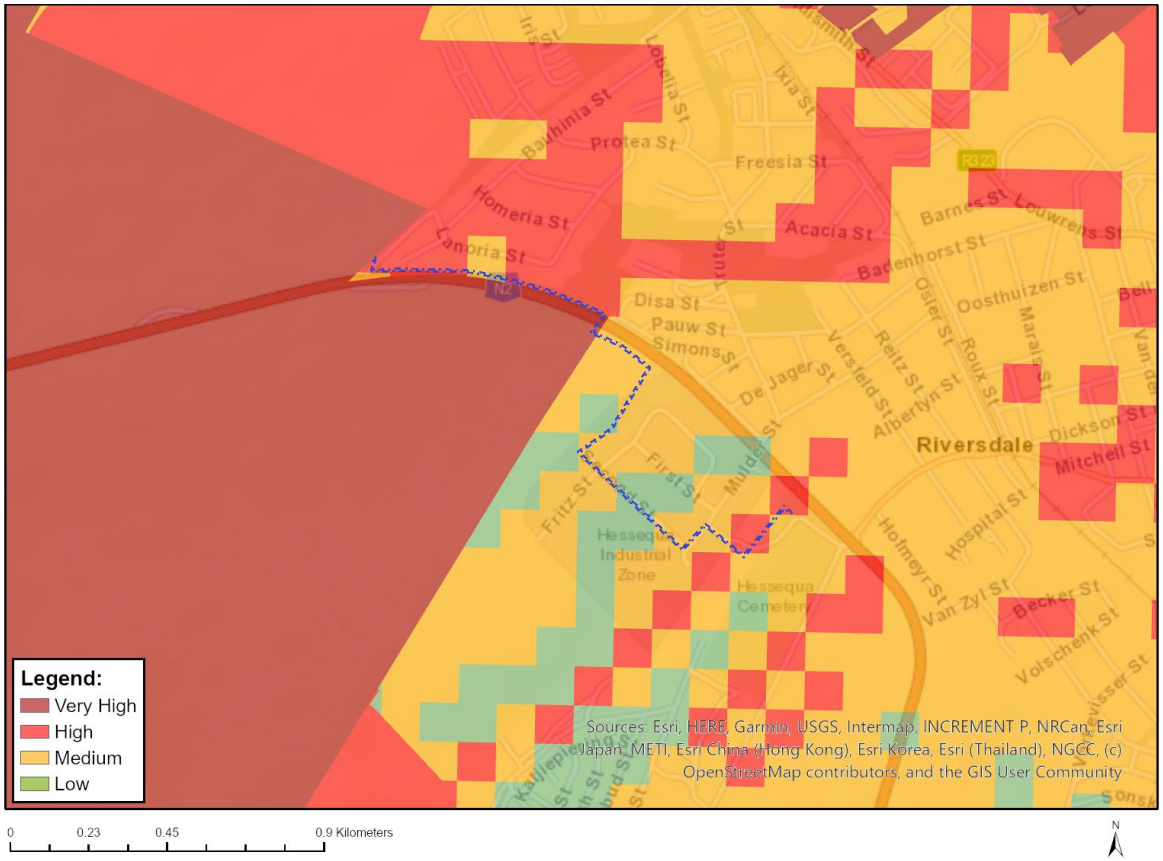
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforHIA.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforPIA.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
6	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_P

		rotocols.pdf
7	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
9	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

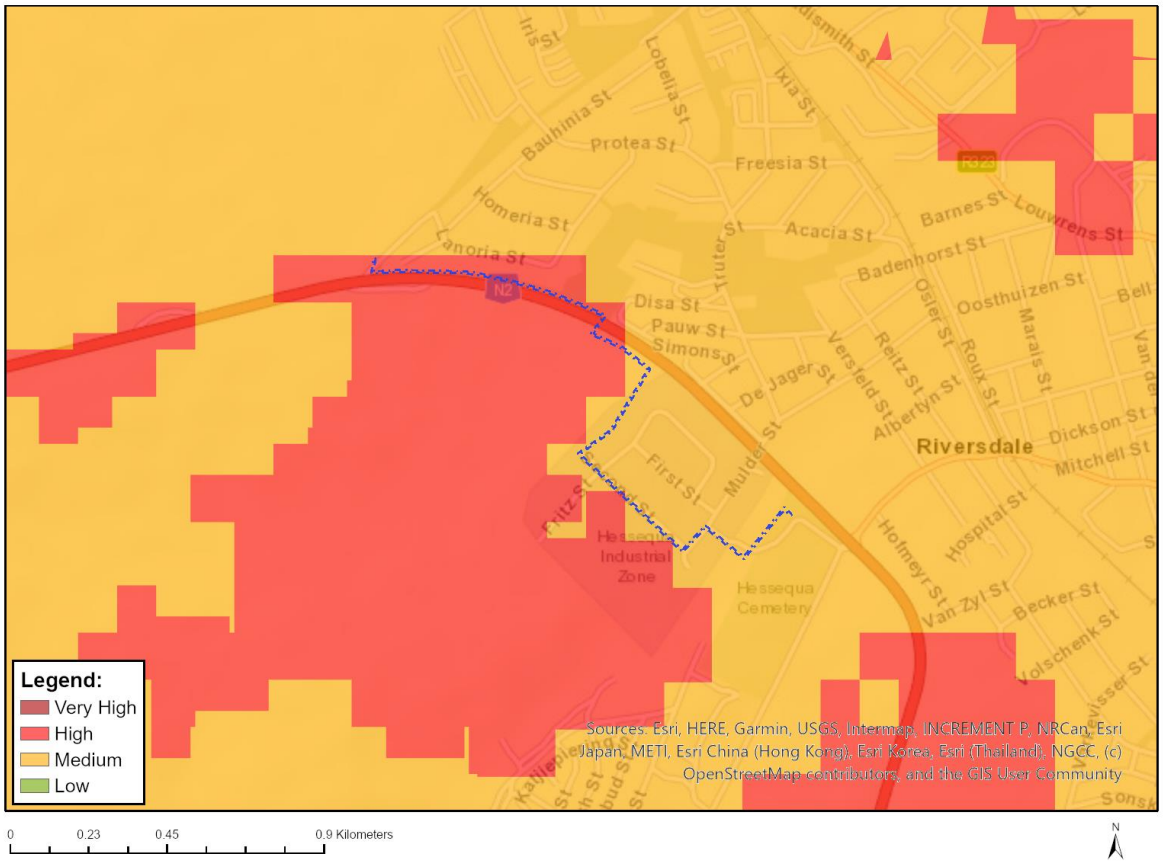


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	08. Moderate
Low	04. Low-Very low
Low	05. Low
Medium	06. Low-Moderate
Medium	07. Low-Moderate
Very High	Heidelberg-Slangrivier PAA

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Circus maurus
High	Aves-Neotis denhami
High	Aves-Polemaetus bellicosus
High	Aves-Afrotis afra
Medium	Aves-Bradypterus sylvaticus
Medium	Aves-Circus ranivorus
Medium	Invertebrate-Aneuryphymus montanus

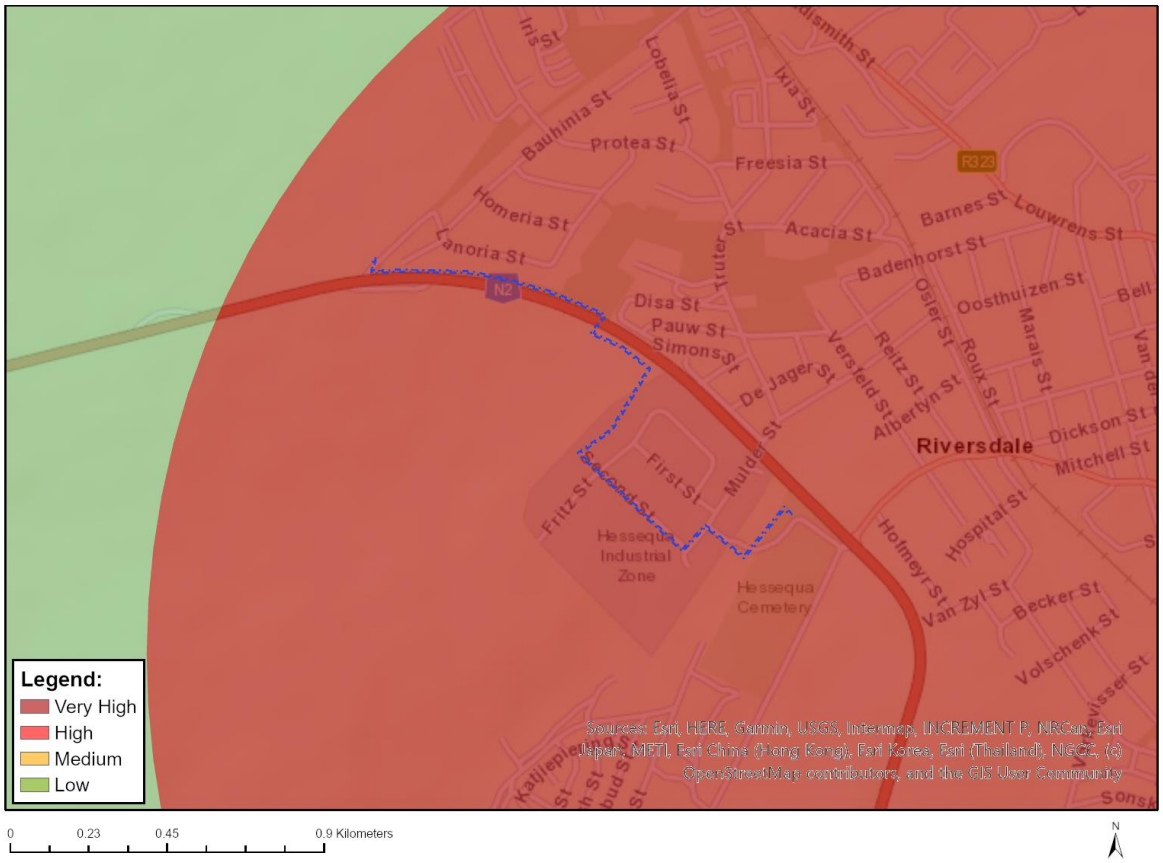
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	CBA 1: Aquatic
Very High	Wetlands_East Coast Renosterveld Bioregion (Valley-bottom)

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

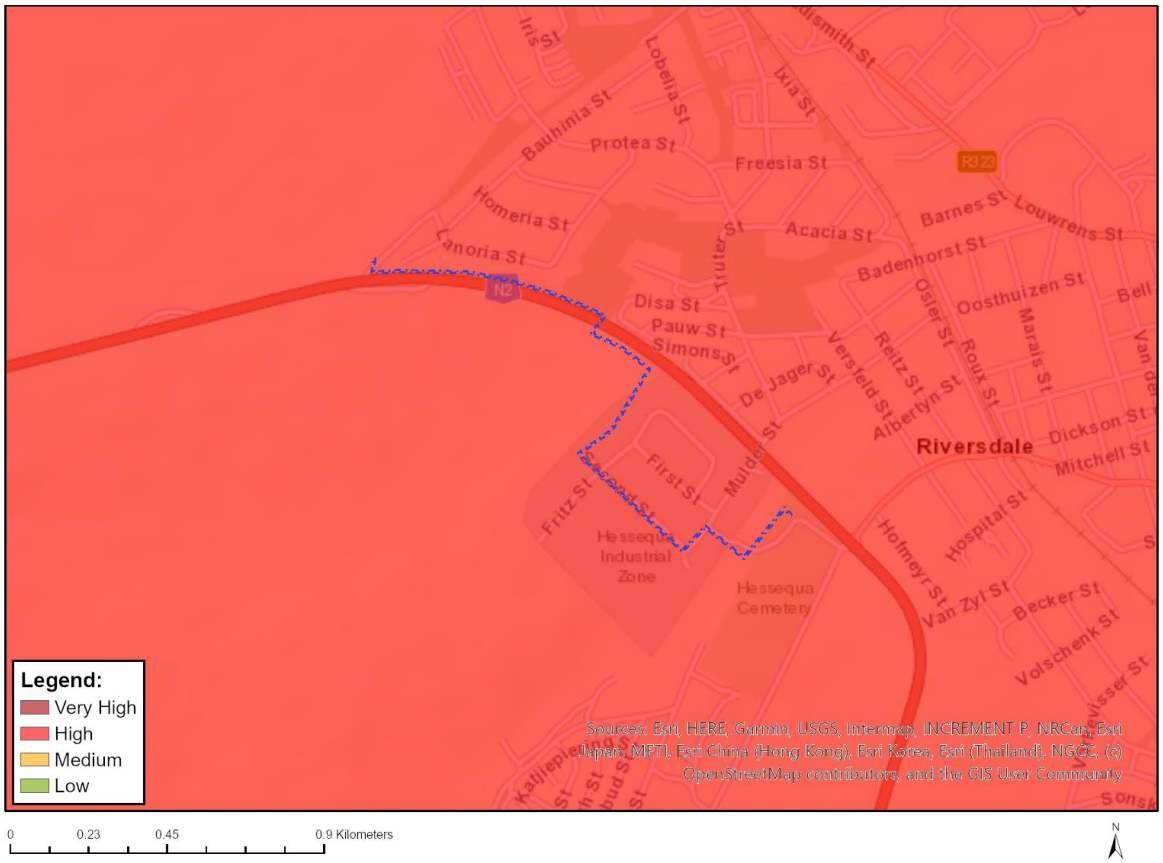


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Within 2km of a Grade II Heritage site

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

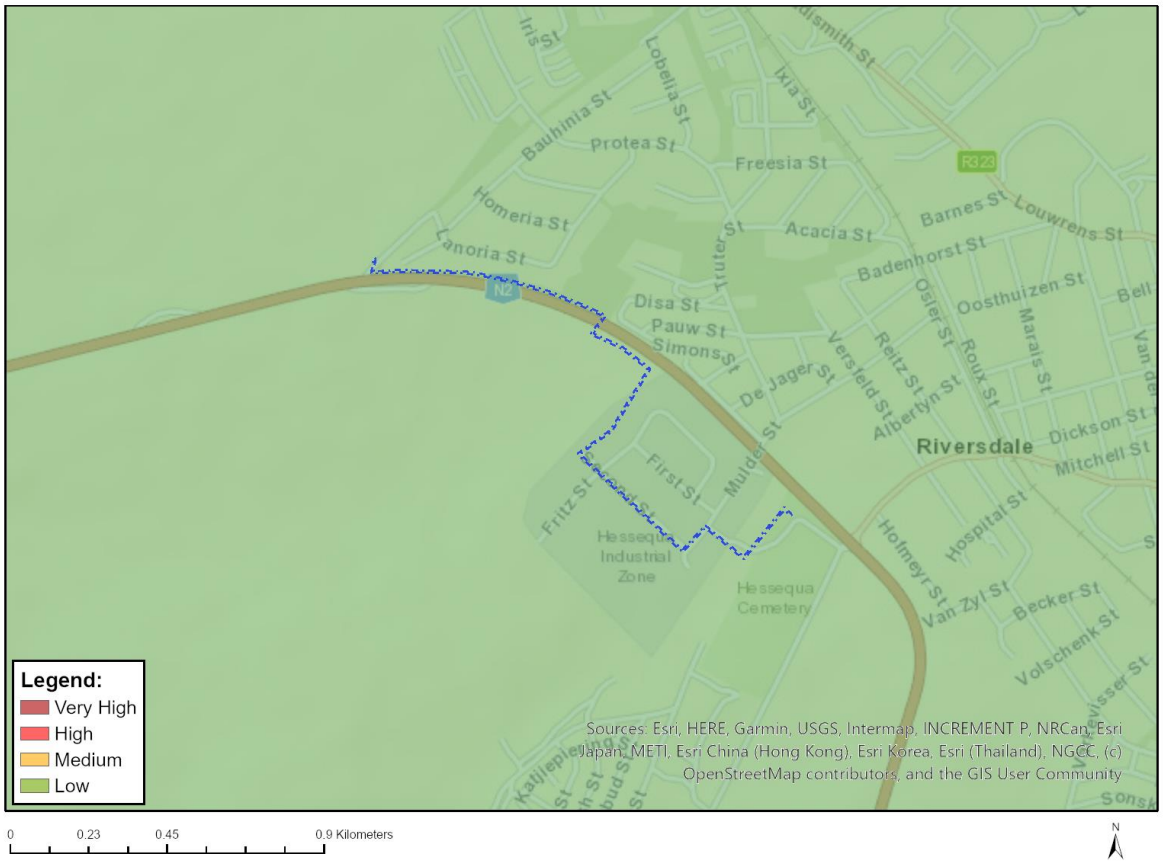


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

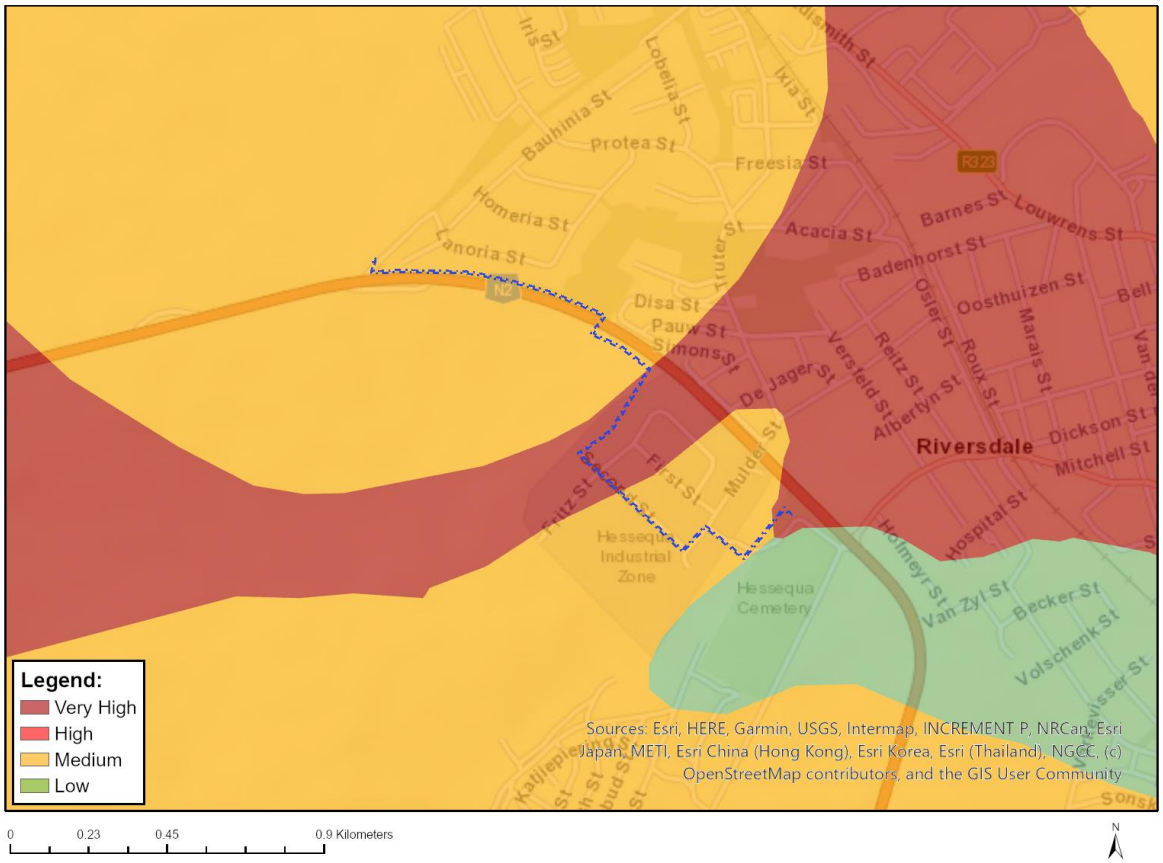


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

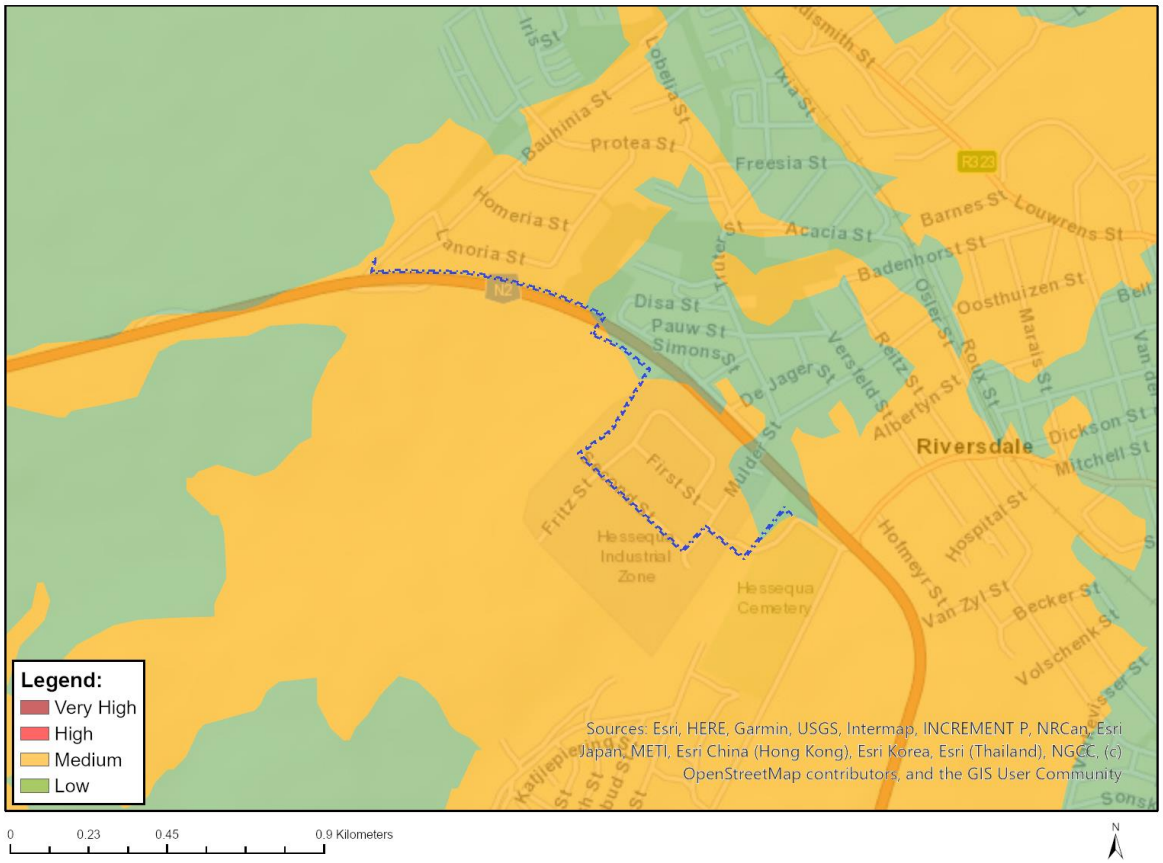


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

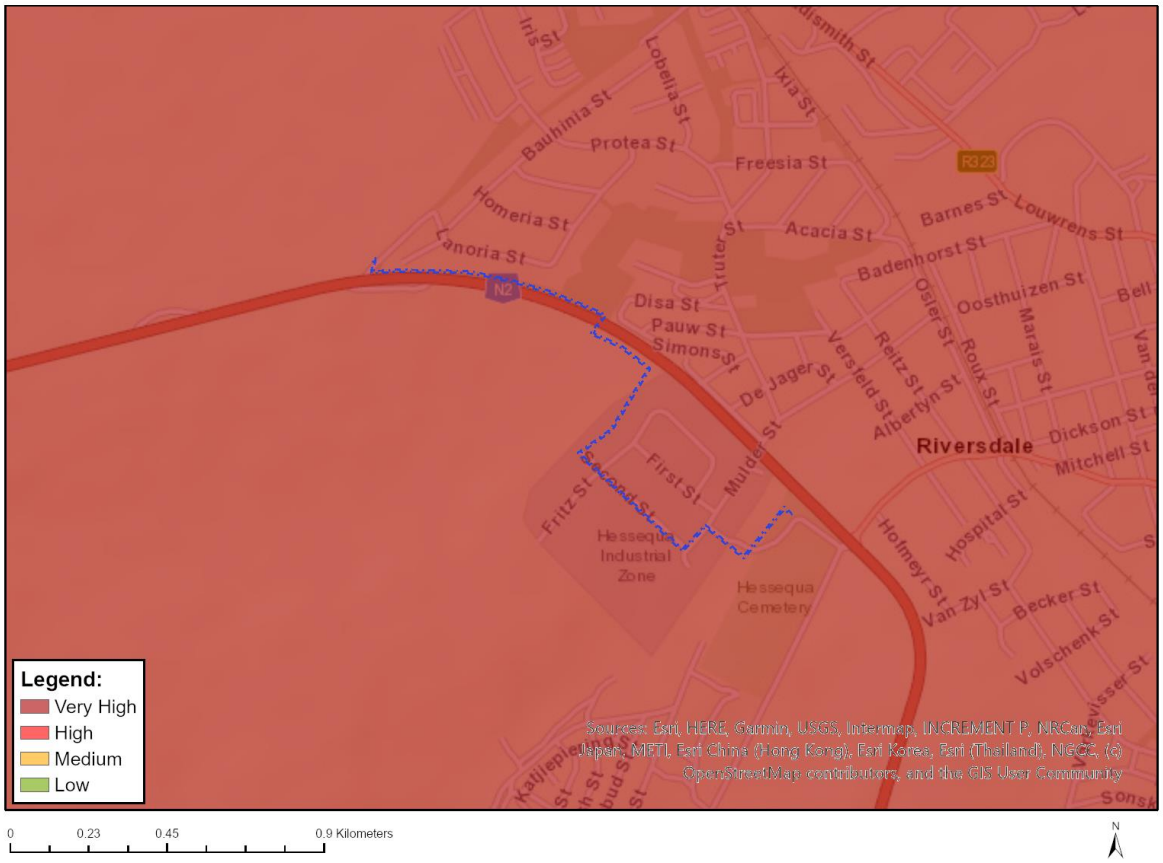
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Aspalathus campestris
Medium	Aspalathus millefolia
Medium	Aspalathus steudeliana
Medium	Aspalathus zeyheri
Medium	Otholobium pungens
Medium	Lotononis viborgioides
Medium	Leucadendron coriaceum
Medium	Selago ramosissima
Medium	Hesperantha muirii
Medium	Freesia fergusoniae
Medium	Sensitive species 157
Medium	Hermannia lavandulifolia

Medium	Sensitive species 1142
Medium	Sensitive species 339
Medium	Anisodontea pseudocapensis
Medium	Duvalia elegans
Medium	Sensitive species 1024
Medium	Gnidia ericoides
Medium	Chrysocoma flava
Medium	Stoebe rugulosa
Medium	Relhania garnotii
Medium	Diosma tenella
Medium	Acmadenia macropetala
Medium	Euchaetis longicornis
Medium	Muraltia cliffortiifolia
Medium	Polygala pubiflora
Medium	Sensitive species 692
Medium	Sensitive species 980
Medium	Ruellia pilosa
Medium	Phylica elimensis
Medium	Sensitive species 822
Medium	Drosanthemum lavisii
Medium	Drosanthemum micans
Medium	Drosanthemum striatum
Medium	Romulea jugicola
Medium	Sensitive species 521
Medium	Sensitive species 142
Medium	Elegia squamosa
Medium	Diosma passerinoides
Medium	Agathosma microcarpa

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	ESA 2: Restore from other land use
Very High	CBA 2: Terrestrial
Very High	CBA 1: Terrestrial
Very High	EN_Eastern Ruens Shale Renosterveld

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: TBC

Project name: Riversdale Mixed Use -Powerline

Project title: Riversdale Mixed-Use development

Date screening report generated: 08/04/2025 10:34:24

Applicant: BellaDonna

Compiler: SES

Compiler signature: 

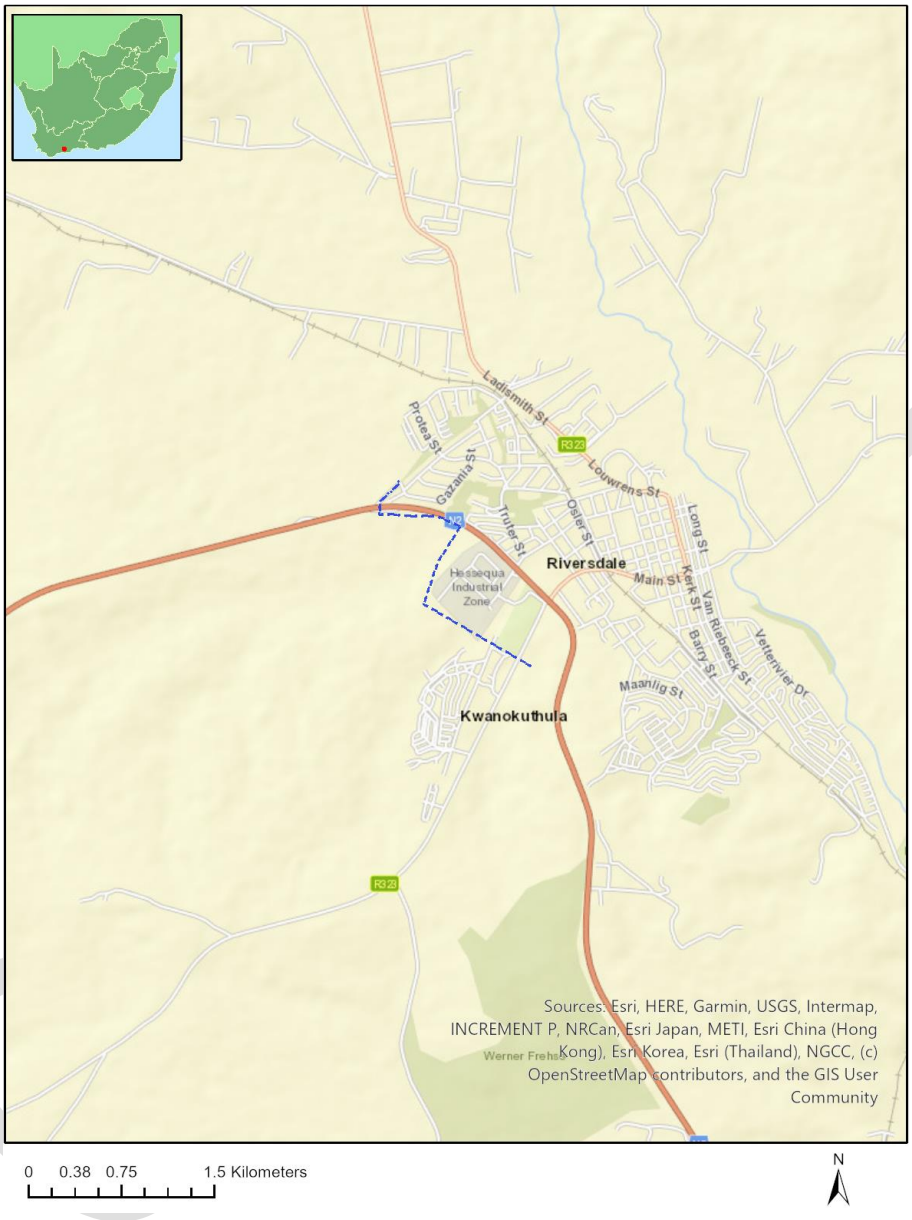
Application Category: Utilities Infrastructure|Electricity|Distribution and Transmission|Powerline

Table of Contents

Proposed Project Location

Orientation map 1: General location

General Orientation: Riversdale Mixed Use -Powerline



Map of proposed site and relevant area(s)

Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	RIVERSDALE SETTLEMENT	14	0	34°6'38.93S	21°12'48.07E	Erven
2	RIVERSDALE SETTLEMENT	14	0	34°6'39.66S	21°12'48.04E	Erven
3	RIVERSDALE SETTLEMENT	22	0	34°4'54.28S	21°14'12.38E	Erven
4	RIVERSDALE SETTLEMENT	257	0	34°5'18.05S	21°14'29.57E	Erven
5	RIVERSDALE	2015	0	34°6'11.46S	21°14'51.45E	Erven
6	RIVERSDALE	2015	0	34°6'10.64S	21°14'51.4E	Erven
7	RIVERSDALE	4485	0	34°5'15.42S	21°14'20.55E	Erven
8	RIVERSDALE	7203	0	34°5'16.45S	21°14'21.56E	Erven
9	RIVERSDALE	7204	0	34°5'24.47S	21°14'48.78E	Erven
10	RIVERSDALE	4595	0	34°5'15.91S	21°14'20.28E	Public Place

Development footprint[1] vertices:
No development footprint(s) specified.

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/1815/3	Wind	Approved	29.2

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Utilities Infrastructure|Electricity|Distribution and Transmission|Powerline**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Gas Pipeline Corridors-Phase 1a & 1b: Saldanha to Ankerlig and Saldanha to Mossel Bay	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme	X			
Civil Aviation Theme		X		
Defence Theme				X

Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

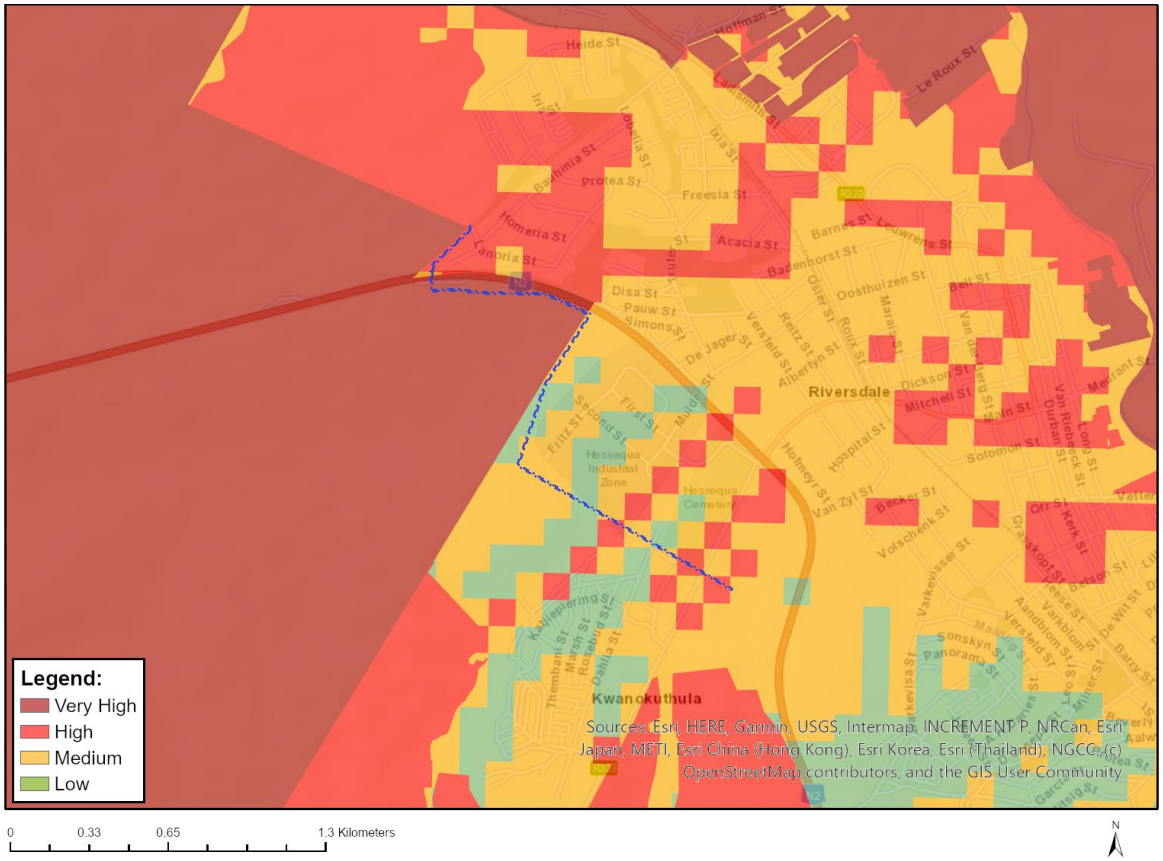
Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforHIA.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforPIA.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
7	Avian Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Avifauna_Assessment_Protocols.pdf
8	Civil Aviation Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Civil_Aviation_Installations_Assessment_Protocols.pdf
9	RFI Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
10	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
11	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
12	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

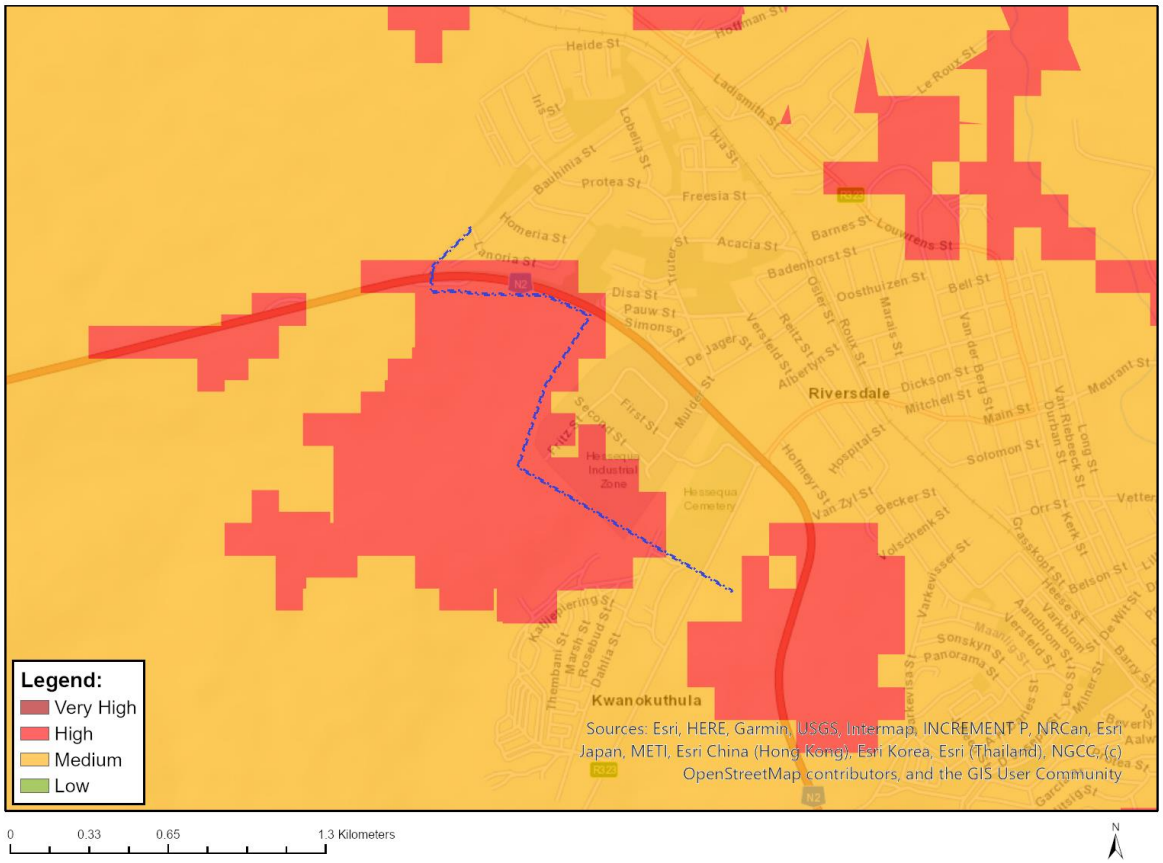


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	08. Moderate
Low	04. Low-Very low
Low	05. Low
Medium	06. Low-Moderate
Medium	07. Low-Moderate
Very High	Heidelberg-Slangrivier PAA

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



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Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Circus maurus
High	Aves-Neotis denhami
High	Aves-Polemaetus bellicosus
High	Aves-Afrotis afra
Medium	Aves-Bradypterus sylvaticus
Medium	Aves-Circus ranivorus
Medium	Invertebrate-Aneuryphymus montanus

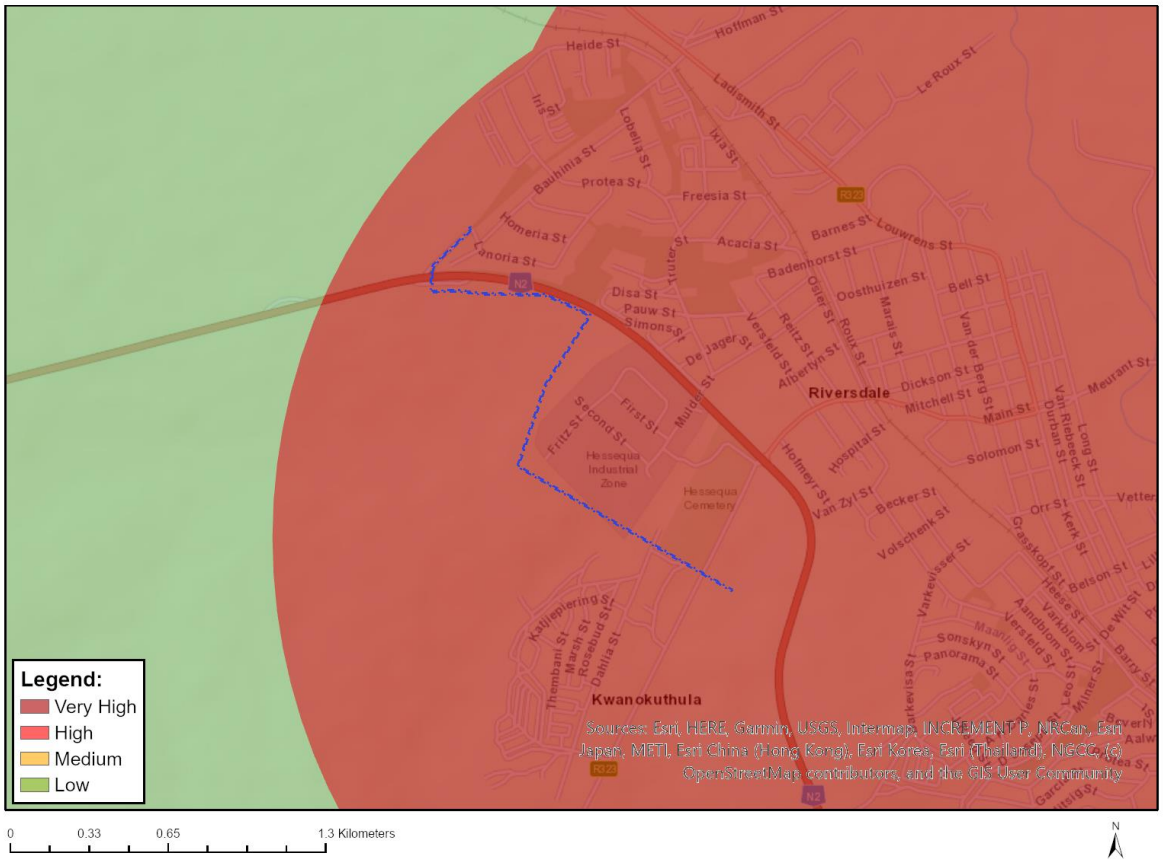
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	CBA 1: Aquatic
Very High	SWSA (SW) _Langeberg
Very High	Wetlands_East Coast Renosterveld Bioregion (Valley-bottom)

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

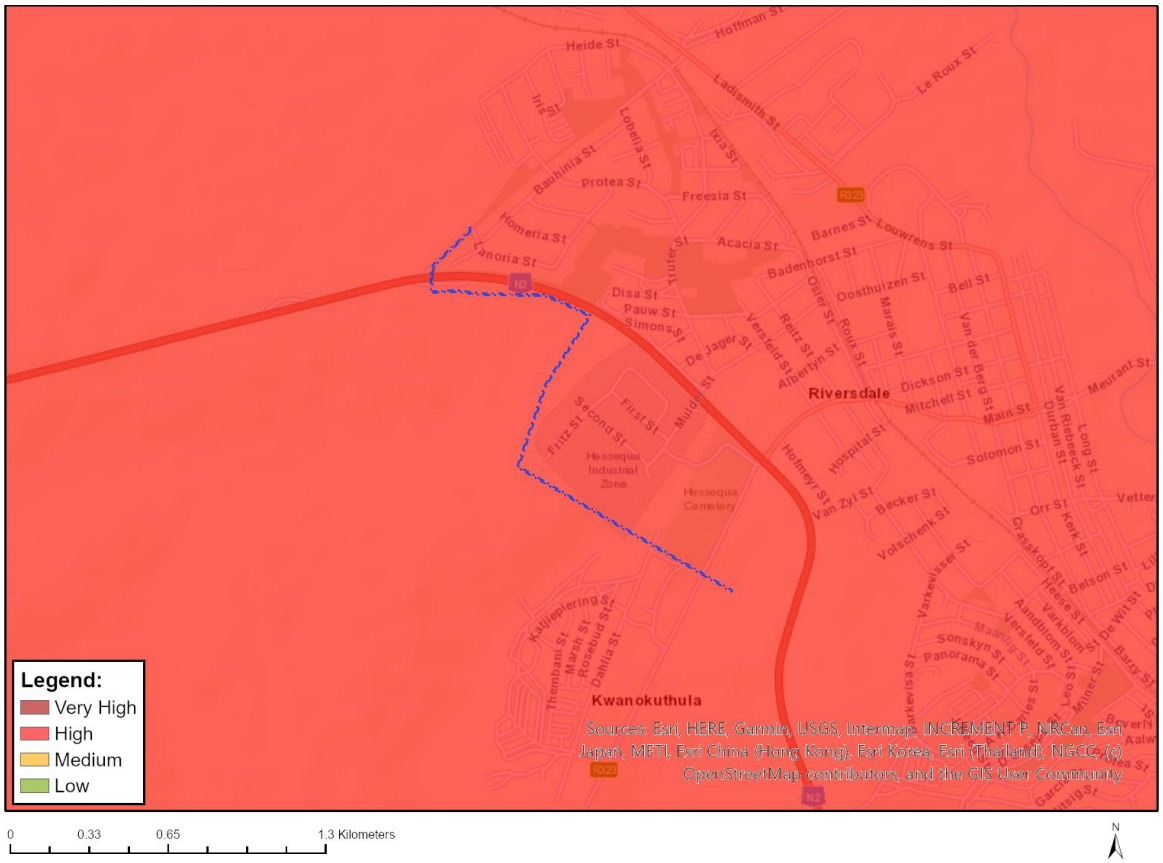


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Within 2km of a Grade II Heritage site

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome

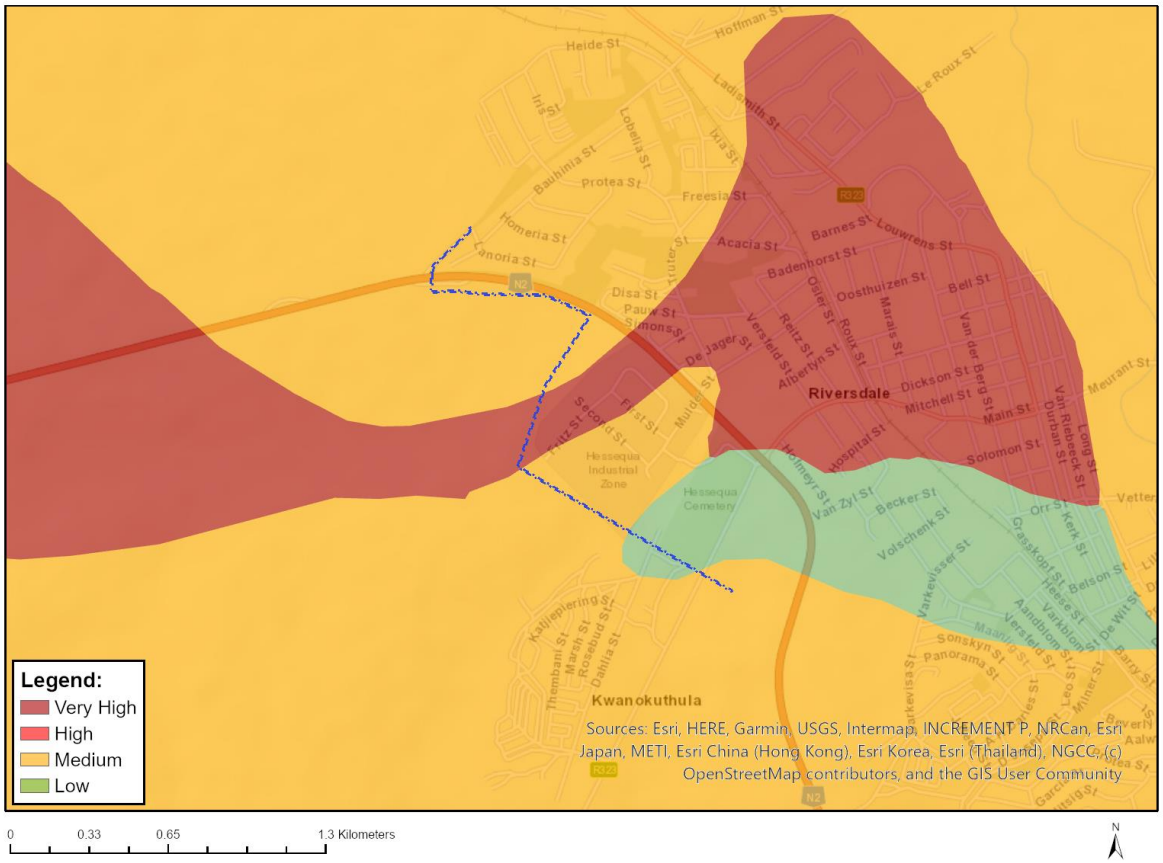
MAP OF RELATIVE DEFENCE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

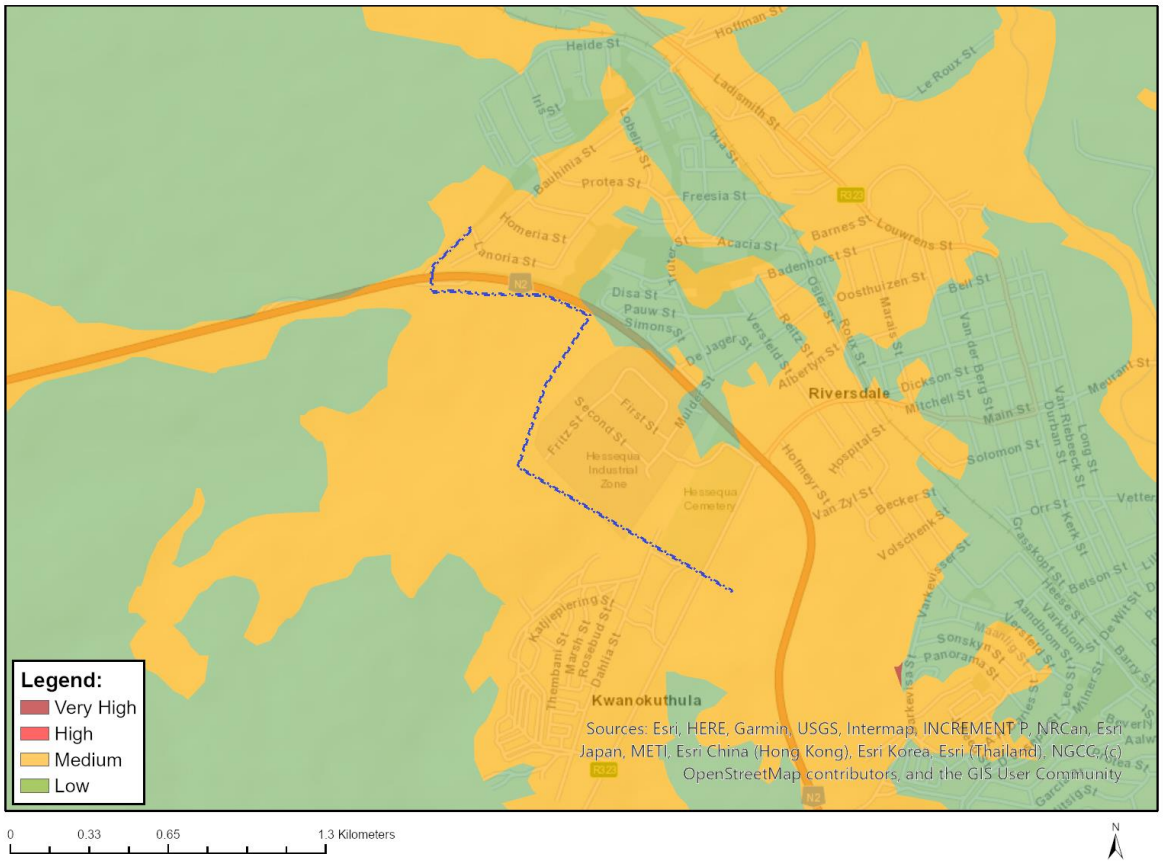


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Features with a Low paleontological sensitivity
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



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Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Aspalathus campestris
Medium	Aspalathus millefolia
Medium	Aspalathus steudeliana
Medium	Aspalathus zeyheri
Medium	Otholobium pungens
Medium	Lotononis viborgioides
Medium	Leucadendron coriaceum
Medium	Selago ramosissima
Medium	Hesperantha muirii
Medium	Freesia fergusoniae
Medium	Sensitive species 157
Medium	Hermannia lavandulifolia
Medium	Sensitive species 1142

Medium	Sensitive species 339
Medium	Anisodontea pseudocapensis
Medium	Duvalia elegans
Medium	Sensitive species 1024
Medium	Gnidia ericoides
Medium	Chrysocoma flava
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Medium	Diosma tenella
Medium	Acmadenia macropetala
Medium	Euchaetis longicornis
Medium	Muraltia cliffortiifolia
Medium	Polygala pubiflora
Medium	Sensitive species 692
Medium	Sensitive species 980
Medium	Ruellia pilosa
Medium	Phylica elimensis
Medium	Sensitive species 822
Medium	Drosanthemum lavisii
Medium	Drosanthemum micans
Medium	Drosanthemum striatum
Medium	Romulea jugicola
Medium	Sensitive species 521
Medium	Sensitive species 142
Medium	Elegia squamosa
Medium	Diosma passerinoides
Medium	Agathosma microcarpa

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	ESA 2: Restore from other land use
Very High	CBA 2: Terrestrial
Very High	CBA 1: Terrestrial
Very High	SWSA (SW) _Langeberg
Very High	EN_Eastern Ruens Shale Renosterveld

APPENDIX E - PROTOCOL FOR CHANCE FOSSIL FINDS

<table>
<tr><td></td><td></td></tr>
<tr><td>Responsible Heritage Resources Agency</td><td>HERITAGE WESTERN CAPE (Contact details: Protea Assurance Building, Green Market Square, Cape Town 8000. Private Bag X9067, Cape Town 8001. Tel: 086-142 142. Fax: 021-483 9842. Email: hwc@pgwc.gov.za)</td></tr>
<tr><td>ECO protocol</td><td>1. Once alerted to fossil occurrence(s): alert site foreman, stop work in area immediately (N.B. safety first!), safeguard site with security tape / fence / sandbags if necessary.</td></tr>
<tr><td colspan="2">2. Record key data while fossil remains are still in situ:
Accurate geographic location – describe and mark on site map / 1: 50 000 map / satellite image / aerial photo
Context – describe position of fossils within stratigraphy (rock layering), depth below surface
Photograph fossil(s) in situ with scale, from different angles, including images showing context (e.g. rock layering)</td></tr>
<tr><td>3. If feasible to leave fossils in situ:
Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation
Ensure fossil site remains safeguarded until clearance is given by the Heritage Resources Agency for work to resume</td><td>3. If not feasible to leave fossils in situ (emergency procedure only):
Carefully remove fossils, as far as possible still enclosed within the original sedimentary matrix (e.g. entire block of fossiliferous rock)
Photograph fossils against a plain, level background, with scale
Carefully wrap fossils in several layers of newspaper / tissue paper / plastic bags
Safeguard fossils together with locality and collection data (including collector and date) in a box in a safe place for examination by a palaeontologist
Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation</td></tr>
<tr><td colspan="2">4. If required by Heritage Resources Agency for the removal and processing of uncovered fossils, ensure that a suitably-qualified specialist palaeontologist is appointed as soon as possible by the developer.</td></tr>
</table>

APPENDIX F - EMPR REVIEW AND AMENDMENT REGISTER

EMPR REVIEW AND AMENDMENT REGISTER

Review Date	Description of Review and/or Amendment	Signature

APPENDIX G - ALIEN INVASIVE MANAGEMENT PROGRAMME

Invasive alien plants have a significant negative impact on the environment by causing direct habitat destruction, increasing the risk and intensity of wildfires, and reducing surface and sub-surface water. Landowners are under legal obligation to control alien plants occurring on their properties. Alien Invasive Plants require removal according to the Conservation of Agricultural Resources Act 43 of 1983 (CARA) and the National Environmental Management: Biodiversity Act (10 of 2004; NEMBA): Alien and Invasive Species Lists (GN R598 and GN R599 of 2014).

Category 1a and 1b listed invasive species must be controlled and eradicated. Category 2 plants may only be grown if a permit is obtained, and the property owner ensures that the invasive species do not spread beyond his or her property. The growing of Category 3 species is subject to various exemptions and prohibitions. Some invasive plants are categorised differently in different provinces. For example: the Spanish Broom plant is categorised as a category 1b (harmful) invasive plant in Eastern Cape and Western Cape, but it is a category 3 (less harmful) invasive plant in the other seven provinces.

Alien control programmes are long-term management projects and a clearing plan, which includes follow up actions for rehabilitation of the cleared area, is essential. This will save time, money and significant effort. Collective management and planning with neighbours allow for more cost-effective clearing and maintenance considering aliens seeds as easily dispersed across boundaries by wind or water courses. All clearing actions should be monitored and documented to keep track of which areas are due for follow-up clearing. Alien grasses are among the worst invaders in lowland ecosystems adjacent to farms but are often the most difficult to detect and control.

Several exotic invasive and other weed species were noted within the site, ranging from a few scattered individuals to dense infestations, in particular Black Wattle, Blackwood & Port Jackson Willow trees are common and abundant. The dense localised infestations of these tree species have a noticeable and definite impact to the habitat present and are a significant source of degradation. A weed management programme, as part of the construction contract including an after-care period will be required, until such time as natural vegetation has become adequately re-established. A two year after-care period is recommended.

Alien species recorded include *Ricinus communis* (castor-oil plant, category 2), *Prosopis glandulosa* (honey mesquite, 1b), *Schinus molle* (pepper tree), *Opuntia ficus-indica* (prickly pear, 1b), *Trichocereus cf spachianus* (torch cactus) and *Nicotiana glauca* (wild tobacco, 1b). As indicated above, four of these are Category 1b and 2 invaders. In terms of the National Environmental Management: Biodiversity Act (NEMBA) (Act 10 of 2004) Alien and Invasive Species List (2016), category 1b invasive species require compulsory control as part of an invasive species control programme. Also, the harbouring of category 2 species, such as *Ricinus communis*, is prohibited without a permit. The presence of these species is not problematic yet but requires attention to curb future problems.

Invasive alien and weed species within the demarcated working corridor must be removed in accordance with the regulations contained in the National Environmental Management: Biodiversity Act (NEM:BA, Act 10 of 2004), the Invasive Species Regulations (October 2014), the Conservation of Agricultural Resources Act (CARA, Act 43 of 1983) and the Duty of Care principle contained in NEMA,

Section 28. Removal of species should take place throughout the construction, operational, and maintenance phases, in accordance with the following:

- In consultation with the ECO, the Contractor must control the establishment of alien invasive species along the working corridor on an ongoing basis during construction and follow-up clearance to be conducted for a 2-year period.
- The Contractor is responsible for the removal of alien species within all areas disturbed during construction activities. Disturbed areas include (but are not limited to) access roads, construction camps, site areas and temporary storage areas.
- In consultation with relevant authorities, the Engineer may order the removal of alien plants (when necessary) within the confines of the site are to be included.
- In consultation with the ECO, any alien vegetation (including brushwood and seed-bearing material) that is cleared must be disposed of at an appropriately registered waste disposal facility.
- Removal of alien vegetation are to be done according to the Working for Water Guidelines.
- The following control measures may be used to ensure that the introduction and spread of alien invasive vegetation is minimised:
- Seedlings and saplings can be removed through hand pulling and hoeing, treated with herbicide through a foliar spray or basal stem treatments.
- Mature trees can be felled, or ring barked or treated with herbicide by means of frilling or cut stump treatment.
- Herbicide should not be applied in wet or windy conditions.
- Care should be taken with the choice of herbicide to ensure that no additional impact and loss of indigenous plant species occurs due to the herbicide used;
- Footprint areas should be kept as small as possible when removing alien plant species; and
- After clearing is completed, an appropriate cover crop may be applied as provided in Rehabilitation Programme, should natural re-establishment of indigenous vegetation not take place in a timely manner.

APPENDIX H - REHABILITATION PROGRAMME

DRAFT REHABILITATION PROGRAMME

Rehabilitation Objective
The overall objective of the rehabilitation plan is to minimize adverse environmental impacts associated with the activity whilst maximizing the future utilization of the site. Significant aspects to be borne in mind in this regard is, revegetation of undeveloped footprint and stability and environmental risk. The depression and immediate area of the working area must also be free of alien vegetation. Additional broad rehabilitation strategies / objectives include the following:

- **Rehabilitating the worked-out areas to take place concurrently within prescribed framework established in the EMPr.**
- **All infrastructure, equipment, plant and other items used during the construction period will be removed from the site.**
- **Waste material of any description, including scrap, rubble and tyres, will be removed entirely from the site and disposed of at a recognised landfill facility. It will not be permitted to be buried or burned on site.**
- **Final rehabilitation shall be completed within a period specified by the DFFE and/or Cape Nature, if stipulated.**
- **Final landscaping and rehabilitation of the site must be done to the satisfaction of the ECO and must adhere to all conditions/ requirements of the Environmental Authorisation.**

Topsoil and Subsoil Replacement
Topsoil and subsoil will be stripped and stockpiled separately and only used in rehabilitation work towards the end of the operation. This is in contract to the gravel activity where rehabilitation and topsoil replacement was earmarked at the completion of each phase.

Stripped overburden will be backfilled into the worked-out areas where needed. Stripped topsoil will be spread over the re-profiled areas to an adequate depth to encourage plant regrowth. The vegetative cover will be stripped with the thin topsoil layer to provide organic matter to the relayed material and to ensure that the seed store contained in the topsoil is not diminished. Reseeding may be required should the stockpiles stand for too long and be considered barren from a seed bank point of view. Stockpiles should ideally be stored for no longer than a year.

The topsoil and overburden will be keyed into the reprofiled surfaces to ensure that they are not eroded or washed away. The topsoiled surface will be left fairly rough to enhance seedling establishment, reduce water runoff and increase infiltration.

Revegetation
All prepared surfaces will be seeded with suitable grass species to provide an initial ground cover and stabilize the soil surface. The following grass seed that is commonly available and suitable.

The overall revegetation plan will, therefore, be as follows:

- **Stabilise disturbed soil and rock faces.**
- **Minimize surface erosion and consequent siltation of natural water course located on site.**
- **Control wind-blown dust problems**
- **Enhance the physical properties of the soil.**
- **Re-establish nutrient cycling.**
- **Re-establish a stable ecological system.**

Every effort must be made to avoid unnecessary disturbance of the natural vegetation during operations.

Visual Impacts Amelioration
The overall visual impact of the proposed activities will be minimised by the following mitigating measures:

- **Confining the footprint to an area as small as possible**
- **Re-topsoiling and vegetating all disturbed areas.**

Monitoring and Reporting
Adequate management, maintenance and monitoring of rehabilitation success will be carried out annually for at least 2 years by the EA Holder to ensure successful rehabilitation of the property until a closure certificate is obtained.

To minimise adverse environmental impacts associated with operations it is intended to adopt a progressive rehabilitation programme, which will entail carrying out the proposed rehabilitation procedures concurrently with activity.

APPENDIX J: ENVIRONMENTAL AWARENESS BOOKLET

GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Unit 17 Cathedral Square,
Cathedral Street, George, 6530
PO BOX: 9087, George, 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

ENVIRONMENTAL AWARENESS TRAINING BOOKLET

Environmental Monitor's Forward

SES is here to ensure that everyone complies with the conditions of "Duty to Care". If these conditions are not complied with the project can be stopped and fines can be issued.

We hope that with your co-operation the project won't be stopped and fines won't be issued, and a successful project can be finished on time.

Notes:

- Workers working on this project must undergo environmental training.

- The information contained in this document should be used during day-to-day activities.

HOW IS THIS PROJECT IMPLEMENTING ENVIRONMENTAL MANAGEMENT?

This project is implementing Environmental Management on an ongoing basis throughout the duration of the project. The following aspects would be implemented to achieve the above stated:

- A dedicated Environmental Manager or Environmental Control Officer appointment to the project to implement and monitor Environmental Management.
- Regular environmental inspection on the site.
- Regular environmental training for workers
- Environmental audits on a regular basis.

WASTE TREATMENT

Refuse:

- Refuse waste includes: waste food, food containers, packaging materials, cans, bottles, newspapers and magazines.
- Day to day household waste should always be disposed of in the containers provided on site by the company.
- No dumping of waste anywhere other than in the bins provided.
- No burning of refuse.
- If there are not enough refuse containers on site, the ECO or supervisor needs to be informed.

Construction Waste:

- Construction waste includes: concrete, steel, cement, rock, pre-coated chips, wood, plastic, empty bags and rubble.
- Construction waste must be discarded in skips located in strategic areas for removal.
- Construction waste must not be discarded in holes or burned on site.

- Small amounts of construction waste should be collected and not discarded into vegetation or down fill slopes.
- Material should only be spoiled if a rehabilitation plan has been designed for the area.

Liquid waste:

- Liquid waste includes: concrete, paint, thinners, diesel, hydraulic fluids, cooking oil, chemicals, other fuel and sewage.
- Use facilities provided for waste.
- The liquid waste should be recycled as far as possible.
- Use chemical toilets and ablution facilities.

INFORM THE ENVIRONMENTAL CONTROL OFFICER (ECO) IMMEDIATELY OF ANY IMMEDIATE OR POTENTIAL ENVIRONMENTAL INCIDENT.

SPECIFIC ENVIRONMENTAL ISSUES

SPESIFIEKE OMGEWINGSKWESSIES
IMIBA ETHILE YEZOBUME BEMEKO YENDALO

The basic Do's and Don'ts towards environmental awareness are as follows:

Die basiese Moets en Moenies van omgewingsbesinning is as volg:

Oondoqo bo mawukwenze no mawungakwenzi kwilinge lezobume be meko yendalo bume ngoluhlobo:

Toilet Facilities:
Toilet Fasiliteite:
Izindlu Zangasese:

DO:

USE THE TOILET FACILITIES PROVIDED - REPORT FULL FACILITIES
MOET:
GEBRUIK MAAK VAN TOILET FASILITEITE WAT VOORSIEN WORD – RAPPORTEER AS FASILITEITE VOL IS
OMAWUKWENZE: SEBENZISA IZINDLU ZANGASESE EZIBONELELWEYO- NIKA INGXELO NGAMALUNGISELELO AGCWELEYO.

DO NOT:
USE THE BUSH
MOENIE:
DIE BOS GEBRUIK NIE
OMAWUNGAKWENZI: UKUSEBENZISA ITYHOLO.

Vehicles operation and maintenance:
Voertuig werking en onderhoud:
Ulawulo nophatho lezithuthi:

DO:
ENSURE THAT VEHICLES AND MACHINERY DO NOT LEAK FUEL OR OILS. REFUELLING, MAINTENANCE, SERVICING OR WASHING MUST BE DONE WITHIN THE DESIGNATED AREA IN THE CONSTRUCTION CAMP AREA ONLY.
MOET:
VERSEKER DAT VOERTUIE EN MASJINERIE NIE OLIES OF BRANDSTOF LEK NIE. VOLMAAK, ONDERHOUD, DIENS OF SKOONMAAK VAN VOERTUIE MOET SLEGS IN AANGEWYSTE AREAS IN DIE KONSTRUKSIE KAMP GESKIED.
OMAWUKWENZE: QINISEKISA IZITHUTHI NOMATSHINI ABAVUZI MAFUTHA OKANYE I OYILE, UKUGALELA, UKUPHATHA, UKULUNGISA OKANYE UKUHLAMBA KUFUNEKA KWENZIWE KUMMANDLA OTYUNJIWEYO KWINKAMPI YOLWAKHIWO KUPHELA NGOKUKHAWULEZILEYO.

DO:
REPORT ALL FUEL OR OIL SPILLS IMMEDIATELY & STOP THE SPILL CONTINUING.
MOET:
RAPPORTEER ENIGE BRANDSTOF OF OLIE STORTE & VERHOED DAT DIE STORT AANHOU.
OMAWUKWENZE: NIKA INGXELO NGE OLI NAMAFUTHA ACHITHEKILEYO, UZE UNQANDE UCHITHEKO LUNGAQHUBEKI.

DO:
PREVENT CONTAMINATION OR POLLUTION OF STREAMS AND WATER CHANNELS.
MOET:
VERHOED DIE KONTAMINASIE EN BESOEDELING VAN STROME & WATERKANALE.
OMAWUKWENZE : NQANDA USULELEKO OKANYE UNGCOLISEKO LWEMILAMBO NEMISELE YAMANZI.

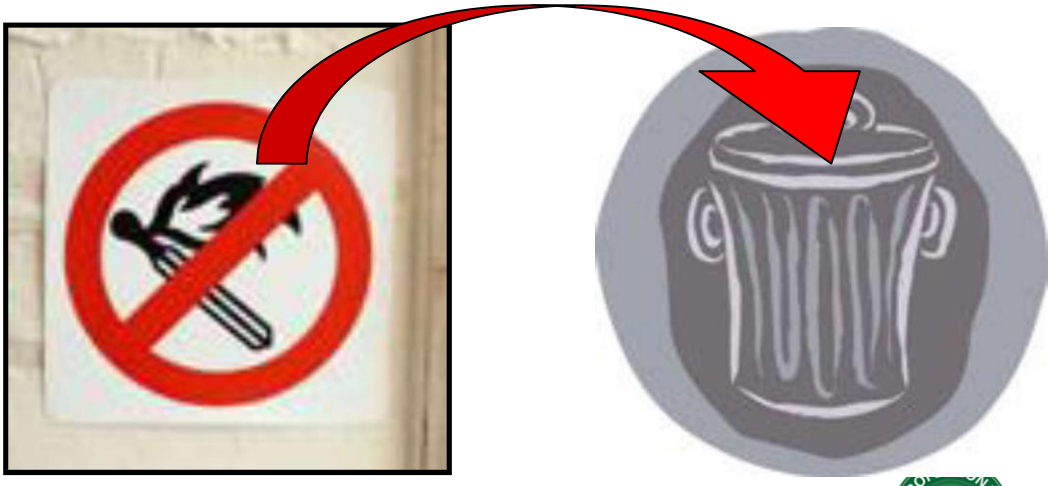
DO NOT:
ALLOW WASTE, LITTER, OILS OR FOREIGN MATERIALS INTO THE STREAM
MOENIE:
TOELAAT DAT AFVALPRODUKTE, GEMORS, OLIES OF VREEMDE MATERIALE IN STROME BELAND NIE.
OMAWUNGAKWENZI: MUSA UKUVUMELA INCITHO, ULAHLO, IOYILE OKANYE EZINYE IZINTO EMILANJENI.

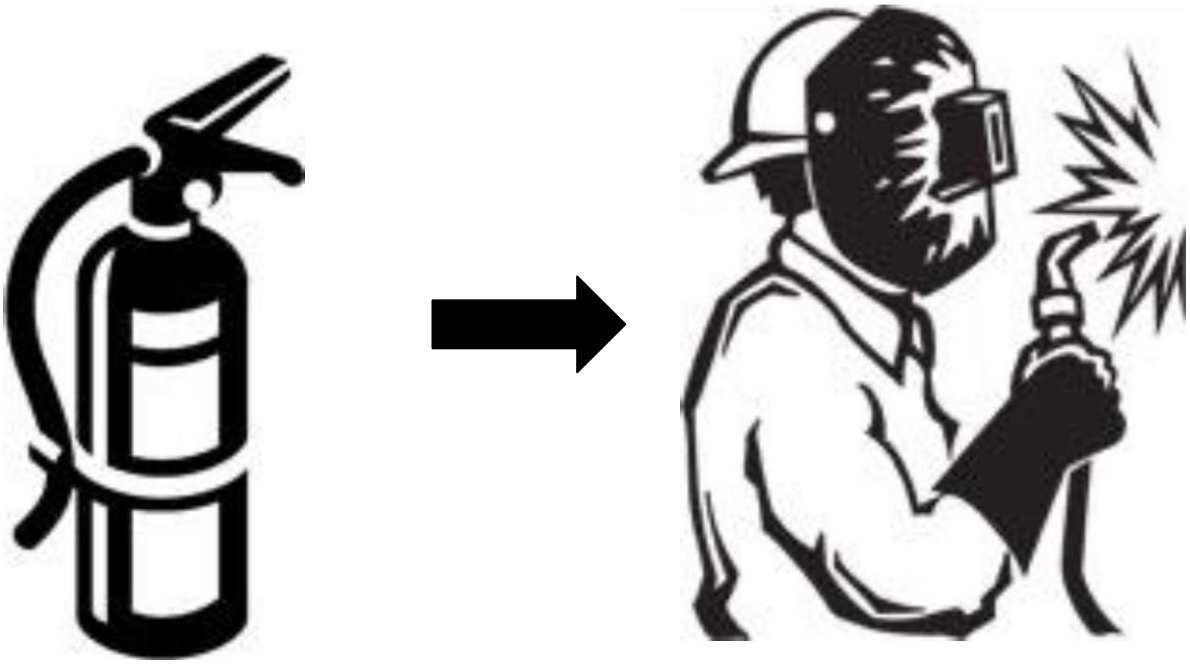
Fire Control:
Vuur Beheer:
Ulawulo Lemililo:

DO:
DISPOSE OF CIGARETTES AND MATCHES CAREFULLY. (Littering is an offence.)
MOET:
GOOI SIGARETTE & VUURHOUTJIES OP GEPASTE MANIER WEG WEG (rommelstrooi is 'n oortreding)
OMAWUKWENZE: LAHLA ISIGARETE NOOMATSHISI NGONONOPHELO (ukulahla lityala).

DO:
ENSURE A WORKING FIRE EXTINGUISHER IS IMMEDIATELY AT HAND IF ANY "HOT WORK" IS UNDERTAKEN e.g. welding, grinding, gas cutting etc.
MOET:
VERSEKER DAT 'N WERKENDE BRANDBLUSSER BYDERHAND IS INDIEN "WARM WERK" GEDOEN WORD bv. Sweiswerk.
OMAWUKWENZE: QINISEKISA ISICIMA-MLILO ESISEBENZAYO SISESANDLENI UKUBA KUKHO UMSEBENZI "OTSHISAYO" OWENZIWAYO, umz. ukuwelda, ugubo, ukuqhawula ugesi, njl.

DO NOT:
MAKE ANY FIRES
MOENIE:
ENIGE VURE MAAK OF ENIGEIETS VERBRAND NIE
OMAWUNGAKWENZI: UKWENZA IMILILO OKANYE UTSHISE NOKUBA YINTONI.





Fencing and Restricted Areas:
Omheining en Beperkte Areas:
Ubiyelo Nemimanndla Engavumelekanga:

DO:

CONFINE WORK AND STORAGE OF EQUIPMENT TO WITHIN THE IMMEDIATE WORK AREA.
MOET:
BEPERK ALLE WERK EN STOOR VAN GEREEDSKAP TOT IN DIE GEGEWE WERKAREA.
OMAWUKWENZE:GCINA UMSEBENZI NEZIXHOBO ZOKUSEBENZA NGAKUMMANDLA OKUSETYENZELWA KUWO.

DO NOT:
ENTER ANY FENCED OFF OR MARKED AREA. SUCH AREAS HAVE BEEN MARKED WITH "NO-GO AREA" SIGNS AND SHOULD BE ADHERED TO.
MOENIE:
ENIGE OMHEINDE OF GEMERKTE AREAS BINNEGAAN NIE. SULKE AREAS IS MET "NO-GO AREA" TEKENS GEMERK EN MOET GEHOORSAAM WORD.
OMAWUNGAKWENZI: MUSA UKUNGENA KWI NDAWO EBIYIWEYO OKANYE EPHAWULWEYO. IMIMANDLA ENJALO IPHAWULWE NGAMAGAMA ATHI "**NO-GO AREA** "

NO-GO AREA

Safety:
Veiligheid:
Ukhuseleko:

DO:
USE ALL SAFETY EQUIPMENT AND COMPLY WITH ALL SAFETY PROCEDURES.
MOET:
GEBRUIK ALLE VEILIGHEIDSGEREEDSKAP EN VOLDOEN AAN ALLE VEILIGHEIDS PROSEDURES.
OMAWUKWENZE: SEBENZISA ZONKE IZIXHOBO ZOKHUSELEKO, UZE UTHOBELE YONKE IMIGAQO YOKHUSELO.

Driving and Dust:
Bestuur en Stof:
Uqhubo Nothuli:

DO:
DRIVE ON DESIGNATED ROUTES ONLY.
MOET:
NET OP AANGEWYSTE ROETES BESTUUR.
OMAWUKWENZE: QHUBA KWIMIMANDLA EPHAWULWEYO KUPHELA.

DO NOT:
SPEED OR DRIVE RECKLESSLY
MOENIE:
JAAG OF ROEKELOOS BESTUUR NIE.
OMAWUNGAKWENZI: SUKUQHUBA NGESANTYA ESIPHEZULU OKANYE NGOKUNGAKHATHALI.

DO NOT:
ALLOW CEMENT TO BLOW AROUND.
MOENIE;
TOELAAT DAT SEMENT WEGWAAI NIE.
OMAWUNGAKWENZI: MUSUKUVUMELA ISAMENTE ISASAZWE.

DO NOT:
CAUSE EXCESSIVE DUST
MOENIE:
OORDREWE STOF VEROORSAAK NIE.


SLOW


PPC

Vegetation protection:
Plantegroei Beskerming:
Ukhuselo Lwezityalo:

DO NOT:
DAMAGE OR REMOVE ANY VEGETATION WITHOUT DIRECT INSTRUCTION.
MOENIE:
ENIGE PLANTEGROEI SONDER DIREKTE INSTRUKSIE BESKADIG OF VERWYDER NIE.
OMAWUNGAKWENZI: MUSA UKUTSHABALALISA OKANYE USUSE NASIPHINA ISITYALO NGAPHANDLE KOMYALELO.

Animals:
Diere:
Izilwanyana:

DO NOT:
INJURE, CAPTURE/SNARE, FEED OR CHASE ANIMALS – this includes birds, frogs, snakes, lizards, tortoises, etc.
MOENIE:
ENIGE DIERE BESEER, VANG, VOER OF JAAG NIE – dit sluit in: voëls, paddas, slange akkedisse, skilpaaie ens.
OMAWUNGAKWENZI: MUSA UKWENZAKALISA, UKUBAMBA, UKONDLA OKANYE UKULEQA IZILWANYANA- okuquka iintaka, amasele, iinyoka, amacilikishe, izikolopati.

DO:
REPORT ANY INJURY OF AN ANIMAL.
MOET:
DIE BESERING VAN 'N DIER RAPPORTEER.
OMAWUKWENZE: XELA NASIPHI ISENZAKALO SESILWANYANA.

Preventing Pollution:
Voorkoming van Besoedeling:
Ukhuselo Longcoliseko:

DO:
CLEAR YOUR WORK AREAS OF LITTER AND BUILDING RUBBLE AT THE END OF EACH DAY – use the waste bins provided and ensure that litter will not blow away.
MOET:
RUIM NA ELKE DAG DIE WERK AREA OP EN GOOI ENIGE ROMMEL WEG IN DIE GEGEWE HOUERS – maak seker dat rommel nie kan wegwaai nie.
OMAWUKWENZE: COCA INDAWO OSEBENZA KUYO, IZINTO EZILAHLIWEYO NENKUNKUMA YOKWAKHA QHO EKUPHELENI KWEMINI-sebenzisa imigqomo yenkunkuma uze uqiniseke ukuba inkunkuma ayivuthuzwa ngumoya.

DO NOT:
ALLOW WASTE BINS TO OVERFLOW OR WASTE TO BLOWAROUND.
MOENIE:
TOELAAT DAT ROMMELHOUERS OORVLOEI OF DAT ROMMEL ROND WAAI NIE.
OMAWUNGAKWENZI: MUSA UKUVUMELA IMIGQOMO YENKUNKUMA IGCWALE KAKHULU OKANYE INKUNKUMA ISASAZEKE.

DO NOT:
LITTER OR LEAVE FOOD LAYING AROUND
MOENIE:
ROMMEL OF KOS LAAT RONDLÊ NIE.
OMAWUNGAKWENZI: MUSA UKUNGCOLISA OKANYE USHIYE UKUTYA KULELE INDAWO YONKE.

DO NOT:
BURY ANY LITTER OR WASTE IN THE GROUND.
MOENIE:
ENIGE ROMMEL OF GEMORS IN DIE GROND BEGRAWE NIE.
OMAWUNGAKWENZI: MUSA UKUNGCWABA INKUNKUMA EMHLABENI.


GLASS
CARDBOARD
PAPER