



DRAFT BASIC ASSESSMENT REPORT




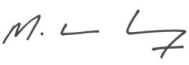
PROPOSED ROUTINE MAINTENANCE OF THE MOST SOUTHERN SECTION OF THE DR02091 ALONG THE RIET RIVER ESTUARY, NDLAMBE LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE

DEDEAT Ref No.: EC05/C/LN1&3/M/25-2020

NOVEMBER 2020

JGA Ref No.: 4797

Prepared by:
JG AFRIKA (PTY) LTD
PORT ELIZABETH
PO Box 27308
Greenacres
6057
Tel: 041 390 8700
Contact Person: Ms Cherize Coetzee
Email: coetzeec@jgafrika.com

VERIFICATION PAGE				Qual-frm-026
				Rev 14
TITLE: PROPOSED ROUTINE MAINTENANCE OF THE MOST SOUTHERN SECTION OF THE DR02091 ALONG THE RIET RIVER ESTUARY, NDLAMBE LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE - DEDEAT REF NO.: EC05/C/LN1&3/M/25-2020				
JGA REF. NO. 4797		DATE: November 2020		REPORT STATUS Draft for Public Comment
CARRIED OUT BY: JG AFRIKA (PTY) LTD – PORT ELIZABETH OFFICE PO Box 27308 Greenacres 6057 Tel.: +27 41 390 8700 Email: coetzeec@jgafrika.com			COMMISSIONED BY: MADAN SINGH BESTER & ASSOCIATES CC ON BEHALF OF THE EASTERN CAPE DEPARTMENT OF TRANSPORT 29 6 th Avenue Newton Park Port Elizabeth Tel: +27 41 365 6467 Email: gerhard@msba.co.za	
AUTHOR Cherize Coetzee			CLIENT CONTACT PERSON Gerhard Bester	
SYNOPSIS Draft Basic Assessment Report for the proposed routine maintenance of the most southern section of the DR02091 along the Riet River Estuary, Ndlambe Local Municipality				
KEY WORDS: Legislative Requirements; Riet River Access Road, Basic Assessment, Erosion				
© COPYRIGHT: JG Afrika (Pty) Ltd				
QUALITY VERIFICATION				
This report has been prepared under the controls established by a quality management system that meets the requirements of ISO 9001: 2015 which has been independently certified by DEKRA Certification.				
Verification	Capacity	Name	Signature	Date
By Author:	Environmental Scientist	Cherize Coetzee		November 2020
Checked by:	Manager: Environmental Management & Sustainability	Kim Brent		November 2020
Authorised by:	Executive Associate	Magnus van Rooyen		November 2020
Filename:	Riet River DBAR.docx			

DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

According to Appendix 1 Section 3(1)(a) of the 2014 EIA Regulations (as amended in 2017), “A basic assessment report must... include-

a) details of –

i. The EAP who prepared the report; and

ii. The expertise of the EAP, including a curriculum vitae”

In fulfilment of the above-mentioned legislative requirement, as well as Section 13 of the 2014 EIA Regulations (as amended in 2017), which states that, “an EAP... must- have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity”, provided below are the details of the Environmental Assessment Practitioner (EAP) who prepared this Basic Assessment Report, as well as the expertise of the individual members of the study team.

DETAILS OF THE EAP

EAP: Kim Brent *Pri.Sci.Nat*

Company: JG Afrika (Pty) Ltd., Port Elizabeth Branch

Southern Life Gardens

Block D – Ground Floor

70 – 2nd Avenue

Newton Park

Port Elizabeth

6045

Telephone: +27 41 390 8700

Fax: +27 41 363 1922

Email: brentk@jgafrika.com

EAP: Cherize Coetzee

Company: JG Afrika (Pty) Ltd., Port Elizabeth Branch

Southern Life Gardens

Block D – Ground Floor

70 – 2nd Avenue

Newton Park

Port Elizabeth

6045

Telephone: +27 41 390 8700

Fax: +27 41 363 1922

Email: coetzeec@jgafrika.com

Curriculum Vitae are provided in **Appendix G** of this report.

EXPERTISE OF THE EAP

Mrs Kim Brent *Pri.Sci.Nat*

Kim is a Senior Environmental Scientist and the Manager of the Environmental Management and Sustainability division for the Port Elizabeth Office, with close to 10 years' experience. She joined the JG Afrika (Pty) Ltd team in September 2018. Kim is registered as a Professional Scientist with the South African Council for Natural Scientific Professional (SACNASP) and holds a BSc degree with majors in Botany and Geography as well as a BSc (Hons) degree in Botany focusing on Environmental Management and GIS systems; both from NMMU. Her honour's year focused on Environmental Impact Assessments, Environmental Management and Geographic Information Systems. Kim's interests include Environmental Auditing, Scoping and Environmental Impact Assessments, Geographic information systems and Ecological Assessments. Kim's is well versed in the environmental legislation such as NEMA, the EIA regulations, the National Water Act, the MPRDA etc., as well as the local and provincial biodiversity spatial and planning tools for the Eastern, Western and Northern Cape Provinces. Kim has conducted a number of Prospecting Right Applications (in accordance with the MPRDA and NEMA), Basic Assessments and EIAs (in accordance with NEMA) in South Africa and has been involved in a number of local mining projects within South Africa. At Kim's previous position, she assisted on various international mining ESIA's and ESMPs. Kim has good knowledge of the applicable Biodiversity legislation such as the CARA Regulations, the NEM Biodiversity Act and the NEM Protected Areas Act. Kim has recently completed the Rhodes University short course on Tools for Wetland Assessments as well as a training course on IWRM, the NWA, and Water Use Authorisations, focusing on WULAs and IWWMPs.

Mrs Cherize Coetzee

Cherize has 7 years of experience within a variety of environmentally related spheres. These include Basic Assessments (BA), the development of Environmental Management Programmes (EMPr), Compliance Auditing, applications for Waste Management Licences (WML), and Water Use Authorisations in terms of the Specific Environmental Management Acts, and the Public Participation Process, as well as the undertaking of pre-application Screening Assessments.

Projects undertaken include road upgrades, municipal infrastructure installations, such as wastewater and water treatment works powerlines and substation upgrades, augmentation of bulk water supply, bridge and causeway reconstructions, wind farm establishments, mixed-use developments, etc.



BASIC ASSESSMENT REPORT

(For official use only)

File Reference Number:

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The report must be compiled by an independent environmental assessment practitioner (EAP).
9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

"Innovation for Sustainable Development"



SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES

NO

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail

JG Afrika (Pty) Ltd has been appointed by Madan Singh Bester and Associates cc (MSBA), on behalf of the Eastern Cape Department of Transport (DoT), to conduct an Application for Environmental Authorisation (EA), subject to the undertaking of a Basic Assessment process, for the proposed routine maintenance of the Riet River Access Road, located within the Ndlambe Local Municipality, Eastern Cape province.

The section of road under investigation for Environmental Authorisation (EA) occurs along the Riet River Access Road, which runs between the R72 road and the mouth of the Riet River. A section of road, approximately 120 m in length, approximately 4 m wide and located in closest proximity to the mouth of the Riet River, is currently under consideration to be upgraded. Being located in such close proximity to the Riet River and the mouth of the river, this section of road has, over the last few years, come under significant threat from erosion. This section of road has, therefore been identified as requiring routine maintenance, predominantly in the form of erosion protection. The location of the proposed development site is shown in Figure 1.

“Innovation for Sustainable Development”



Figure 1: Location of the proposed Riet River access road under investigation.

A concept design has been compiled and the currently two options will be investigated for the construction works (Figure 2 and 3). Construction is anticipated to be for the duration of 6 weeks.

It is the intention of the DoT to re-establish the embankment which has deteriorated and been lost to erosion, as well as to widen the existing road, to a total width of 5.5 m. The proposed erosion protection measures will prevent future erosion and cutback of the road embankment and surface.

The scope of the erosion protection in terms of Option A includes:

- The establishment of erosion protection measures on the eastern bank of the most southern section of the Riet River Access Road (approximately 120 m in length);
- Such erosion protection measures will comprise of a combination of dump or crushed rock, to be placed in the river bed, over a length of approximately 100 m, to form a base on which to re-establish / widen and protect the road embankment, which has been lost to erosion. This will require the importation of G5 and G4 material, in combination with the placement of Geotextile

“Innovation for Sustainable Development”

protection on the side of the river;

- Topsoil will be imported to the site and vegetation will be established on benching that is created on the side slope of the road;
- In addition to this, a gabion protection wall, of approximately 25 m in length and 2 m wide, is proposed on the southern side of the above-mentioned protection works, as an extension to the protection works, to protect the end of the road from possible erosion in future.
- Road surface drainage is extremely limited and will purely be by means of allowing the run-off stormwater to drain into the river directly by means of a crossfall of 2% to the gravel road.

A conceptual layout for Option A is shown in Figure 2.

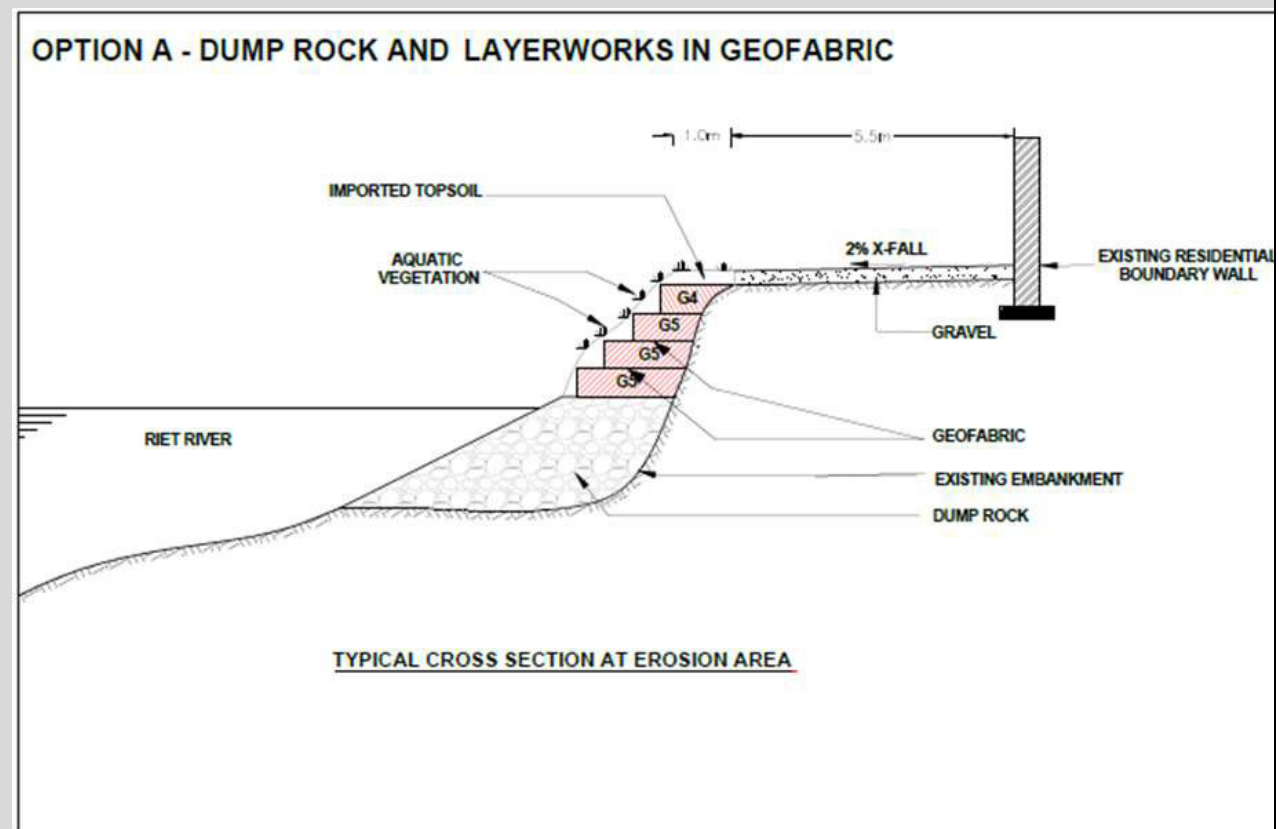


Figure 2: Conceptual layout for Option A of the construction works.

The scope of the erosion protection in terms of Option B includes:

- The establishment of erosion protection measures on the eastern bank of the most southern section of the Riet River Access Road (measuring approximately 120 m in length);
- Similar to Option A, such erosion protection measures will require the placement of dump or crushed rock (G4 or G5 material) in the river bed, over a length of approximately 100 m, to form

“Innovation for Sustainable Development”

- a base for the widened and protected road embankment;
- Where Option B differs from Option A is in the creation of geotextile-bags, containing sand, with no revegetation;
- As with Option A, a gabion protection wall, of approximately 25 m in length and 2 m wide, is proposed on the southern side of the above-mentioned protection works, as an extension to the protection works, to protect the end of the road from possible erosion in future. Road surface drainage is extremely limited and will purely be by means of allowing the run-off stormwater to drain into the river directly by means of a crossfall of 2% to the gravel road.

A conceptual layout for Option B is shown in Figure 3.

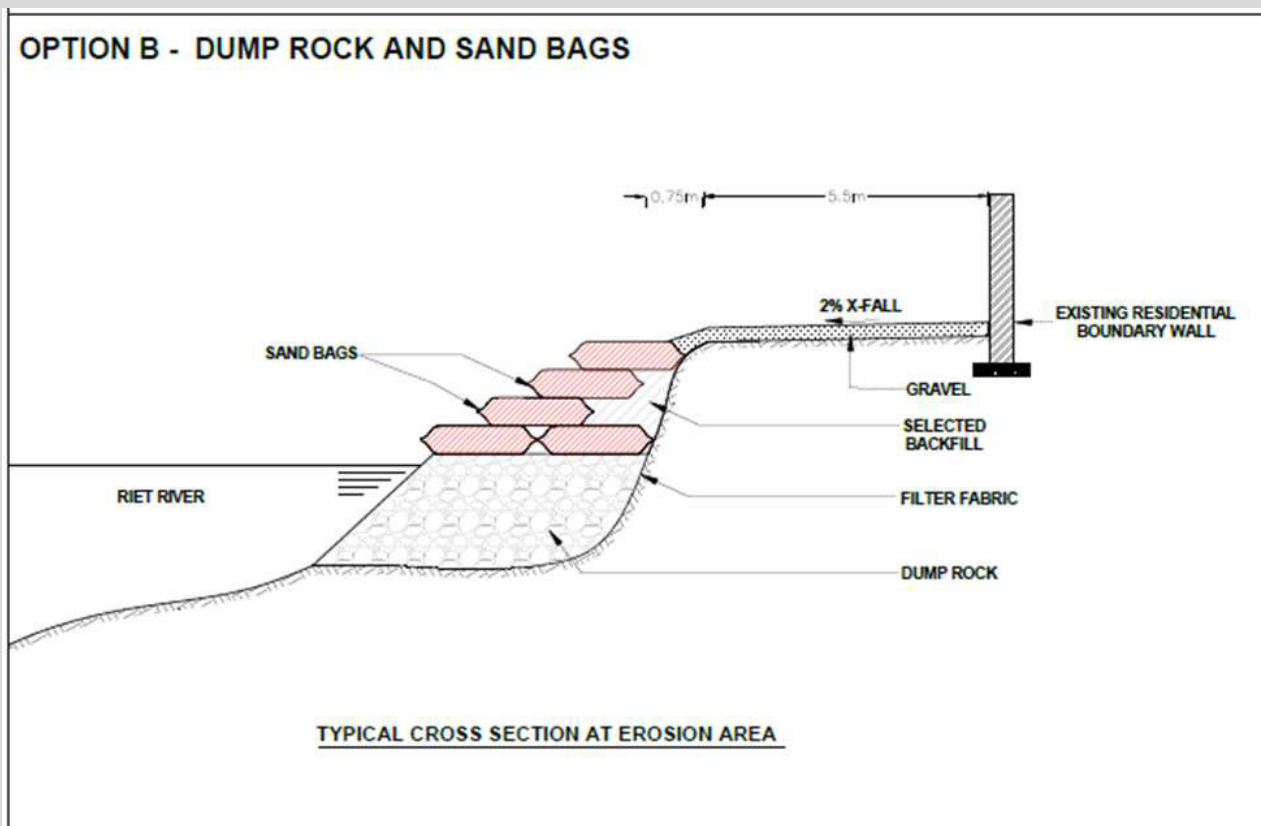


Figure 3: Conceptual layout for Option B of the construction works.

The proposed maintenance work along this stretch of road triggers a Basic Assessment Process in terms of the NEMA (Act No. 107 of 1998 and subsequent amendments) 2014 EIA Regulations (as amended in 2017). The applicable listed activities applied for during the application process has been included in Table 1 below.

“Innovation for Sustainable Development”



Table 1: Listed activities triggered by the proposed road upgrade.

NOTICE	LISTED ACTIVITY	RELEVANCE
<p>GNR. 327 Listing Notice 1</p>	<p>18 – <i>The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square meters, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion...</i></p>	<p>The proposed maintenance work is intended to prevent erosion of the road, and will occur within the littoral active zone, defined as “...any land forming part of, or adjacent to, the seashore, that is unstable and dynamic as a result of natural processes, and [which is] characterised by dunes, beaches, sand bars and other landforms composed of unconsolidated sand, pebbles or other such material which is either unvegetated or only partially vegetated.”</p>
<p>GNR. 327 Listing Notice 1</p>	<p>19A – <i>The infilling or depositing of any material of more than 5 cubic meters into... (ii) ...an estuary...</i></p>	<p>The proposed road maintenance / rehabilitation works will require the deposition of in excess of 5m³ of material into the Riet River Estuary.</p>
<p>GNR. 327 Listing Notice 1</p>	<p>48 – <i>The expansion of – (i) Infrastructure or structures where the physical footprint is expanded by 100 square meters or more... Where such expansion occurs – (a) Within a watercourse; or (c) ...within 32 meters of a watercourse, measured from the edge of a watercourse...</i></p>	<p>The interventions proposed for the maintenance / rehabilitation of the section of road identified, will result in the expansion of the physical footprint of the existing road by more than 100 m².</p> <p>The proposed interventions will require works both within and in proximity to the Riet River and its associated estuary.</p>
<p>GNR. 324 Listing Notice 3</p>	<p>23 – <i>The expansion of – (ii) Infrastructure or structures where the physical footprint is expanded by 10 square meters or more Where such development occurs – (a) Within a watercourse; ...or (c) ...within 32 meters of a watercourse, measured from the edge of the watercourse... a. Eastern Cape (i) Outside urban areas: (hh) Areas...within 1 kilometre from the high-water mark of the sea...; or (ii) In an estuarine functional zone...</i></p>	<p>The interventions proposed for the maintenance / rehabilitation of the section of road identified, will result in the expansion of the physical footprint of the existing road by more than 10 m².</p> <p>The proposed interventions will require works both within and in proximity to the Riet River and its associated estuary.</p> <p>The proposed site is located outside an urban area within Critical Biodiversity Area (CBA) as identified by the ECBCP (2007), 3 km from the Waters Meeting Nature Reserve (a protected area in terms of NEMPAA), 1 km from the high-water mark of the sea and also within an estuarine functional zone (Riet River Estuary).</p>

“Innovation for Sustainable Development”

No water will be extracted from the Riet River during construction. Construction water will be obtained from alternative sources – being trucked to site.

As the proposed section of road to be upgraded falls within the estuarine floodplain, a Water Use Authorisation (WUA) in terms of the National Water Act (NWA, Act 36 of 1998) will not be required.

2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Alternatives:

Locality Alternatives

This application is for the routine maintenance, predominantly in the form of erosion protection and minor road widening, of an existing road that runs along the Riet River Estuary and the Riet River. As this road is an existing road currently used by the local community to access their properties and tourists to access the estuary/beach, no location alternatives have been considered for this application.

Activity Alternatives

“Innovation for Sustainable Development”



The proposed activity is for the routine maintenance, predominantly in the form of erosion protection and minor road widening, of an existing road, no activity alternatives have been considered for this application.

Design or Layout Alternatives

Currently 2 design / layout alternatives are being considered. Both alternatives will disturb the same footprint area but will make use of different methods of erosion and maintenance works. Option or Alternative A, which is also the preferred alternative, entails very similar erosion protection measures as proposed for Option or Alternative B but differs in the manner in which revegetation will be done. For Alternative A, topsoil will be imported to the site and vegetation will be established on benching that is created on the side slope of the road; where with Alternative B, geotextile-bags will be created, containing sand, with no revegetation. In terms of the site camp location, the site camp will be placed in an area that has already been transformed and will not be located within 50 m of the River or Estuary.

Technology Alternatives

This is not applicable as the activity relates to the routine maintenance, predominantly in the form of erosion protection and minor road widening, of an existing road.

Operational Alternatives

The operational phase of the project is directly related to the use of the road by vehicles and pedestrians. Routine/continuous maintenance is recommended for this section of road in order to avoid future issues. There are therefore no operational alternatives considered for this project.

No-Go Alternative

This alternative assumes that the current state of the road will remain unchanged from its current state. Being located in such close proximity to the Riet River and the mouth of the river, this section of road has, over the last few years, come under significant threat from erosion and also poses a risk to road users should the road collapse. The study area contains patches of intact or less disturbed vegetation typical of coastal dune thicket close to the mouth of the estuary and is surrounded by residential and grassed areas cleared for recreational use (storing of canoes, picnics etc.). If the proposed road is not reconstructed and the erosion works are not implemented, it is anticipated that the road will eventually deteriorate to the point where it could collapse. The no-go alternative is thus not the preferred alternative.

Paragraphs 3 – 13 below should be completed for each alternative.

It must be noted that the locality and physical footprint of both proposed alternatives are the same hence this section has only been completed once.

“Innovation for Sustainable Development”



3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

List alternative sites if applicable.

Alternative:

Alternative S1[±] (preferred or only site alternative)

Alternative S2 (if any)

Alternative S3 (if any)

In the case of linear activities:

Alternative:

Alternative S1 (preferred or only route alternative)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S2 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S):

Longitude €:

Latitude (S):

Longitude (E):

33°	33'37.29"	27°	00'44.52"
33°	33'37.33"	27°	00'45.40"
33°	33'37.91	27°	00'54.78"

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

¹ "Alternative S.." refer to site alternatives.



4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1² (~~preferred activity alternative~~)

For both design alternatives:

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

Alternative:

Alternative A1 (~~preferred activity alternative~~)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

For both design alternatives:

710 m²

Temporary site camp and laydown area of approximately 850 m².

Cumulative extent = 1 560 m²

Length of the activity:

∞
∞
∞

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:

Road upgrade: 660 m²

Embankment erosion works: 50 m²

Temporary site camp and laydown area of approximately 850 m².

² "Alternative A.." refer to activity, process, technology or other alternatives.

"Innovation for Sustainable Development"



5. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	NO
	m

Describe the type of access road planned:

The site can be accessed via the existing Riet River Access road which runs from the R72 in the north towards the south, along the Riet River and the Riet River Estuary. The majority of the road is gravelled and is approximately 4 m in width.



Plates 1 – 4: Photographs of existing access to the Riet River Access Road.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014

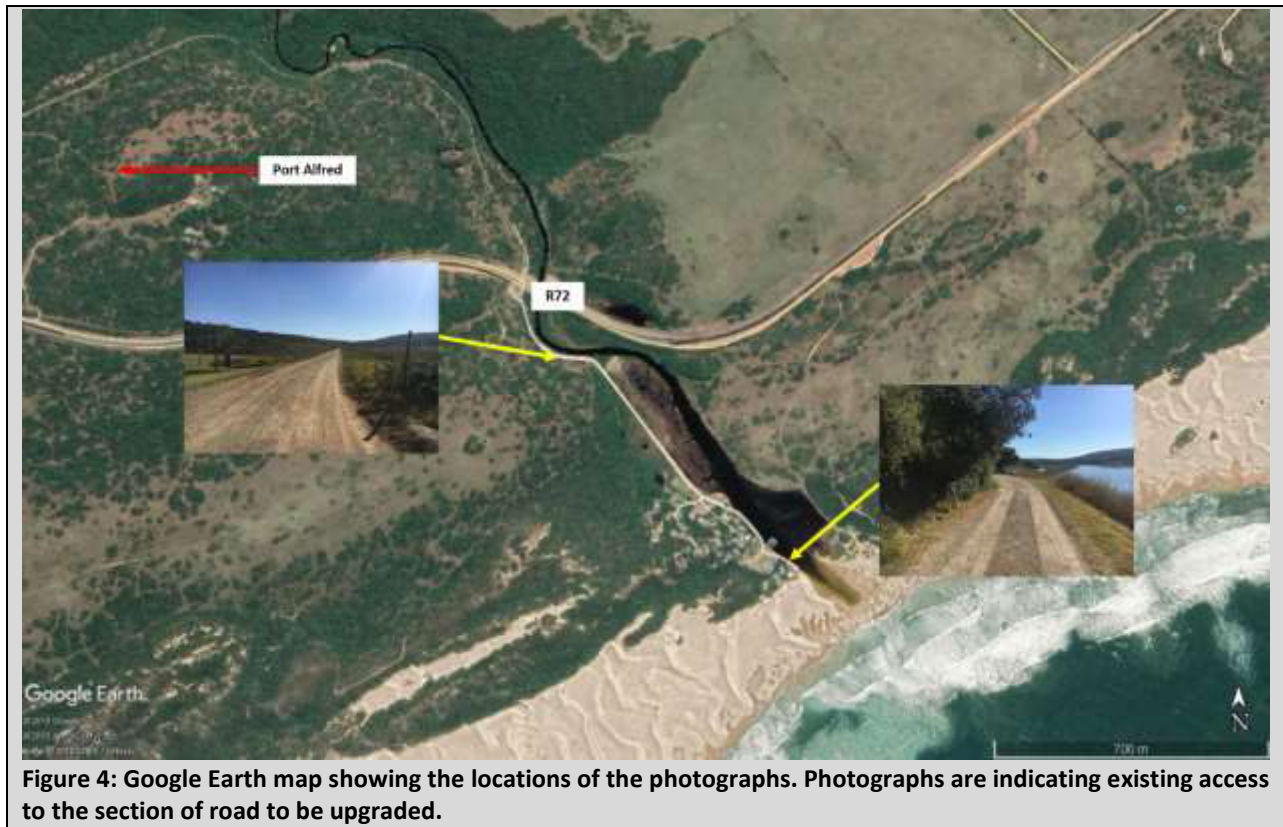


Figure 4: Google Earth map showing the locations of the photographs. Photographs are indicating existing access to the section of road to be upgraded.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;

“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William's Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014



- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.10 the positions from where photographs of the site were taken.

A site plan has been attached as Appendix A.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Site Photographs has been attached as Appendix B.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

A facility illustration has been attached as Appendix C.

“Innovation for Sustainable Development”



10. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 725 000.00	
What is the expected yearly income that will be generated by or as a result of the activity?	N/A	
Will the activity contribute to service infrastructure?	YES	
Is the activity a public amenity?	YES	
How many new employment opportunities will be created in the development phase of the activity?	6	
What is the expected value of the employment opportunities during the development phase?	R 220 000.00	
What percentage of this will accrue to previously disadvantaged individuals?	76%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	0	
What is the expected current value of the employment opportunities during the first 10 years?	N/A	
What percentage of this will accrue to previously disadvantaged individuals?	N/A	

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The Provincial Spatial Development Framework (Cacadu SDF, 2013) indicates that the *“majority of the roads throughout the District, regardless of hierarchical function, are in need of maintenance and upgrading.”* This is especially problematic *“given the potential for agricultural export”* and the *“relation to the tourism industry (in coastal regions).”*

“Innovation for Sustainable Development”



According to the Ndlambe Municipality SDF (2006) the transportation network within the municipal area plays an important role in sustaining nodal points within the area. For this reason a transportation policy has been developed to ensure that the municipality provides a safe and efficient road network system, built to appropriate standards in order to optimise the accessibility of services and facilities for local communities, improve transport efficiency for economic activities and allow tourist access to the region's assets.

A more recent update of the SDF (Second Draft Ndlambe SDF December 2012, Rev3, 12 February 2013) does not mention the transportation policy, but notes that *“Most of the roads in the area are in a poor condition and need upgrading especially those within the urban centres and those leading to surrounding farms. The roads to and from farms are in a poor state of repair and thus impacts the transportation of goods and services between the farming area and urban area/ it affects the quality of agricultural produce.”* In addition, the SDP states that there is a network of link roads which come off the R72 connecting the various towns and gravel roads that give access to surrounding farming communities and Villages, which are in need of attention.

According to the Ndlambe Municipality Integrated Development Plan (Ndlambe LM Final IDP 2018-2019), roads remain a problem due to shrinking internal maintenance budget and ageing infrastructure and the unwillingness of both national and provincial government to provide grants in this regard. The IDP identifies the need many roads which require reconstruction while others require periodic maintenance (reseal or regravel).

Considering the role of roads in the economic activities of the area (tourism/transport of agricultural products), as well as the numerous rural settlements that rely on economic activities at centres like Port Alfred and Alexandria, the matter of road upgrades and maintenance requires urgent attention. In addition, Ndlambe is the Municipality that has been most affected by floods in the District, resulting in damages to roads. The upgrading of the road network is development priority number 4 of the Integrated Development Plan. The proposed project is thus in line with both the SDF and the IDP for the Ndlambe Municipality.

If the proposed section of road is not reconstructed and the erosion works is not conducted, it is anticipated that the current erosion and consequent sedimentation in this area will continue to the point where the entire road may eventually collapse.

Indicate any benefits that the activity will have for society in general:

- Provide a safe access road for all road users in the area (farmers, tourists or visitors to the River and camp site etc.);
- Result in a decrease in erosion and sedimentation along the river banks; and
- Temporary jobs during the construction and maintenance phase.

“Innovation for Sustainable Development”



Indicate any benefits that the activity will have for the local communities where the activity will be located:

- Provide a safe access road for all road users in the area (farmers, tourists or visitors to the River and camp site etc.);
- Result in a decrease in erosion and sedimentation along the river banks;
- Temporary jobs during the construction and maintenance phase; and
- Supporting local shops and suppliers during the construction phase as the contractors are likely to require materials and supplies from a nearby source.

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Table 2: Legislation, policies and/or guidelines applicable to this application.

TITLE OF LEGISLATION, POLICY OR GUIDELINE:	ADMINISTERING AUTHORITY:	DATE:
National Environmental Management Act (NEMA, Act No. 107 of 1998) and its subsequent amendments	Department of Environmental Affairs (DEA) or the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	1998
National Environmental Management Act (NEMA, Act No. 107 of 1998) 2014 Environmental Impact Assessment (EIA) Regulations (as amended in 2017)	Department of Environmental Affairs (DEA) or the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2017
Constitution Act (Act No. 108 of 1996)	Republic of South Africa	1996
National Heritage Resources Act (NHRA, Act No. 25 of 1999)	Eastern Cape Provincial Heritage Resources Authority (ECPHRA)	1999
National Water Act (NWA, Act No. 36 of 1998) and its subsequent amendments	Department of Water and Sanitation (DWS)	1998
National Environmental Management: Waste Act (NEMWA, Act No. 59 of 2008) and its subsequent amendments	Department of Environmental Affairs (DEA) or the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2008
National Environmental Management: Biodiversity Act (NEMBA, Act No. 10 of 2004)	Department of Environmental Affairs (DEA) or the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2004
National Environmental Management: Biodiversity Act, Alien and Invasive Species Regulations (2014)	Department of Environmental Affairs (DEA) or the Eastern Cape	2014

“Innovation for Sustainable Development”



	Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	
National Environmental Management: Integrated Coastal Management Amendment Act, 2014 (Act 36 of 2014)	Department of Environmental Affairs (DEA)	2014
Occupational Health and Safety Act (OHSA, Act No. 85 of 1993)	Department of Labour (DoL)	1993
Hazardous Substances Act (HS, Act No. 15 of 1973)	Department of Health (DoH)	1973
Ndlambe Local Municipal Spatial Development Framework (SDF, 2013)	Ndlambe Local Municipality	2013
Ndlambe Local Municipality Integrated Development Plan (IDP, 2018 - 2019)	Ndlambe Local Municipality	2018
South African Vegetation Map (Mucina and Rutherford, 2012) and Vegetation Descriptions (2006)	South African National Biodiversity Institute (SANBI)	2006 / 2012
Subtropical Thicket Ecosystem Programme (STEP, 2006)	South African National Biodiversity Institute (SANBI)	2006
Eastern Cape Biodiversity Conservation plan (ECBCP, 2007)	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	2007

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES

If yes, what estimated quantity will be produced per month?

Limited amounts
(maximum of 15m³)

How will the construction solid waste be disposed of (describe)?

Solid waste produced during the construction phase of the proposed development will primarily consist of building rubble. The contractor will remove and discard any waste resulting from construction to the closest registered waste disposal site (Port Alfred Waste Disposal site). Where possible, construction waste must be re-used and/or recycled.

Where will the construction solid waste be disposed of (describe)?

At the nearest registered waste disposal site (Port Alfred).

“Innovation for Sustainable Development”



Will the activity produce solid waste during its operational phase?

NO

If yes, what estimated quantity will be produced per month?

N/A

How will the solid waste be disposed of (describe)?

N/A

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

NO

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?

NO

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

NO

If yes, what estimated quantity will be produced per month?

N/A

Will the activity produce any effluent that will be treated and/or disposed of on site?

NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

"Innovation for Sustainable Development"



Will the activity produce effluent that will be treated and/or disposed of at another facility?

NO

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:	Cell:		
E-mail:	Fax:		

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES	
	NO

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

There is a possibility that dust will be generated during the construction phase, particularly during high wind conditions and given the nature of the development site (beach sands). In addition, there will be

“Innovation for Sustainable Development”



exhaust emissions from vehicles and the construction plant. The following mitigation measures will ensure that dust generated by the proposed development will remain insignificant or that any excessive dust can be mitigated effectively:

- Prompt rehabilitation and wetting down of recently cleared areas should minimize dust creation.
- Construction vehicles must adhere to speed limits.
- Exhaust emissions from construction vehicles can be minimised by ensuring that all vehicles are properly equipped and serviced.
- If fine building materials/sands are to be transported at the back of trucks, they must be adequately covered.
- During high wind conditions construction work should temporarily be placed on hold as far as practically possible.

11(d) Generation of noise

Will the activity generate noise?

YES	
	NO

If yes, is it controlled by any legislation of any sphere of government?

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

The proposed road upgrades will create low level noise emissions during the construction phase due to construction activities. This will not be in conflict with surrounding activities and will not significantly increase noise levels above those which are currently experienced in the area. The following mitigation measures have been included in the Environmental Management Programme (EMPr) to reduce the significance of noise impacts during the construction phase:

- Construction activities, including the movement of heavy construction vehicles, should be restricted to normal working hours (06:00 am – 18:00 pm);
- All construction vehicles must be in sound working order and meet the necessary noise level requirements;
- All relevant municipal by-laws with regards to noise control must apply;
- Construction workers must not make use of portable radios, vehicle radios, whistles, etc. which generate excessive noise while they are on the construction site; and
- Construction staff must not be housed on site.

“Innovation for Sustainable Development”



12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

municipal	water board	groundwater	river, stream, dam or lake	other	the activity will not use water
------------------	-------------	-------------	----------------------------	-------	---------------------------------

Please note that water will be trucked to site from the closest municipal source (most probably Fort D’Acre/Seafield) during the construction phase. No water will be required during the operational phase of the project.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:

Does the activity require a water use permit from the Department of Water Affairs?

NO

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

As the proposed section of road to be upgraded falls within the estuarine floodplain, a Water Use Authorisation (WUA) in terms of the National Water Act (NWA, Act 36 of 1998) will not be required.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

“Innovation for Sustainable Development”



N/A. The proposed project is for the upgrading of an existing road. The activity will not require any power from the national grid and engineers will consider the energy efficiency (fuel usage) of the equipment that is used on site.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

As above.



SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.
(e.g. A):

1

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section?

YES

NO

If YES, please complete form XX for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

Please refer to Appendix D for a copy of the Aquatic and Terrestrial Assessment.

It is important to note that all aspects of the study area are the same for both alternatives that will be assessed – such as gradient, groundwater, location etc. As such only the first column (preferred alternative) has been completed given that the change in alternatives will not affect a change in the landscape/study area.

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

“Innovation for Sustainable Development”



Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------



Figure 5: Topographical map of the proposed section of road under investigation.

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

2.1 Ridgeline

2.2 Plateau

“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel: 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedea.gov.za

VERSION 1 dated 8 December 2014



- 2.3 Side slope of hill/mountain
- 2.4 Closed valley
- 2.5 Open valley
- 2.6 Plain
- 2.7 Undulating plain/low hills

- 2.8 Dune
- 2.9 Seafront

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES		YES	NO	YES	NO
Dolomite, sinkhole or doline areas		NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES		YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)		NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO	YES	NO	YES	NO
Any other unstable soil or geological feature		NO	YES	NO	YES	NO
An area sensitive to erosion	YES		YES	NO	YES	NO

"Innovation for Sustainable Development"



If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

GEOLOGY

According to the South African Geology II spatial data, the site is situated within the Alexandria Formation – calcareous sandstone, shelly limestone (Figure 6). The Alexandria Formation generally consists of some basal conglomerate rich in oyster shells overlain by calcareous sandstones, shelly coquinas and thin conglomerates. The Alexandria Formation ranges from three to 13 m in thickness, with an average of 9 m to 10 m (Le Roux 1987b, Goedhart and Hattingh, 1997). It reaches its greatest thickness between the Swartkops and Sundays Rivers.

“Innovation for Sustainable Development”

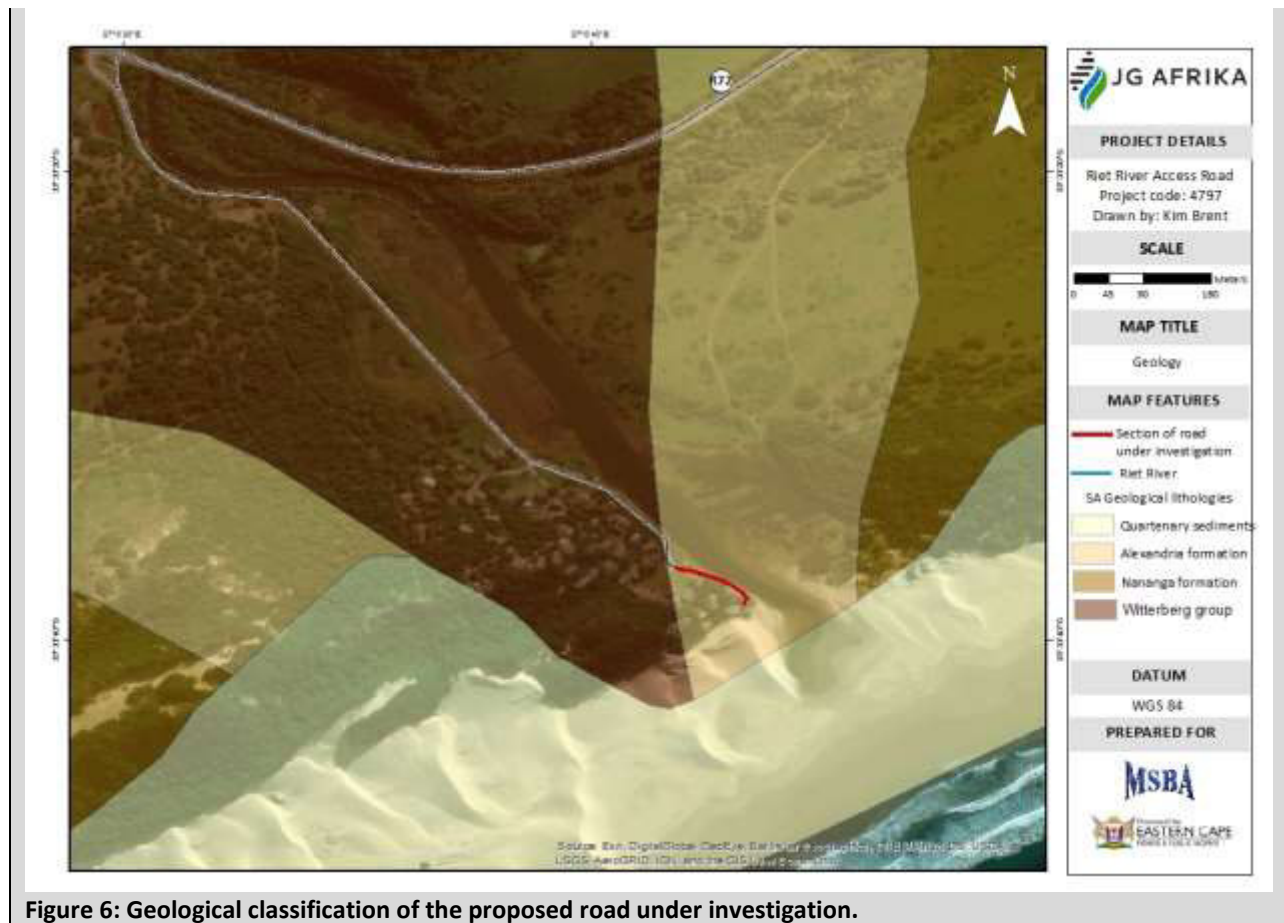


Figure 6: Geological classification of the proposed road under investigation.

4. GROUND COVER

Indicate the types of groundcover present on the site:

4.1 Natural veld – good condition^E

4.2 Natural veld – scattered aliens^E

4.3 Natural veld with heavy alien infestation^E

4.4 Veld dominated by alien species^E

4.5 Gardens

4.6 Sport field

4.7 Cultivated land

4.8 Paved surface

4.9 Building or other structure

4.10 Bare soil

“Innovation for Sustainable Development”

¹ Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel: 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014



The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld – good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “^E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

DESKTOP CLASSIFICATION

National Vegetation Map of South Africa

Mucina and Rutherford (2012) updated the South African vegetation map (SA VEGMAP) of 2006 as part of a South African National Biodiversity Institute (SANBI) funded project “...in order to provide floristically based vegetation units of South Africa, Lesotho and Swaziland at a greater level of detail than had been available before.” The map was developed using a wealth of data from several contributors and resulted in the best national vegetation map to date, the last being that of Acocks, developed over 50 years ago. The map and accompanying book describe each vegetation type in detail, along with the most important species, including endemic species and those that are biogeographically important. Although the SA VEGMAP and accompanying shapefiles were updated in 2012, no progress was made to integrate the STEP vegetation map (see below) or any recent updates on the Thicket biome mapping and there falls short in terms of describing the Thicket vegetation types.

According to the SA VEGMAP, the historic vegetation of the study area is classified as Albany Dune Strandveld (Figure 7).

Albany Dune Strandveld occurs in a narrow coastal strip along the Indian Ocean seaboard from the mouth of the Tsitsikamma River to the Sunday River mouth in the Eastern Cape. This vegetation type is characterised by tall dense thickets on dunes mainly outside the influence of salt spray, dominated by stunted trees, shrubs (often armed with spines and thorns), abundant lianas and sparse herbaceous and grassy undergrowth. The conservation status of this vegetation type is classified as “**Least Threatened**”. More than 10% is already transformed for cultivation, urban development and road building. Some of the dune systems suffer heavy infestation by *Acacia cyclops* and *Acacia saligna*, which are now being removed by the local Working for Water activities.

“Innovation for Sustainable Development”

This vegetation unit has not been listed, in terms of Section 52 of the National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004) (NEMBA) as threatened or endangered.

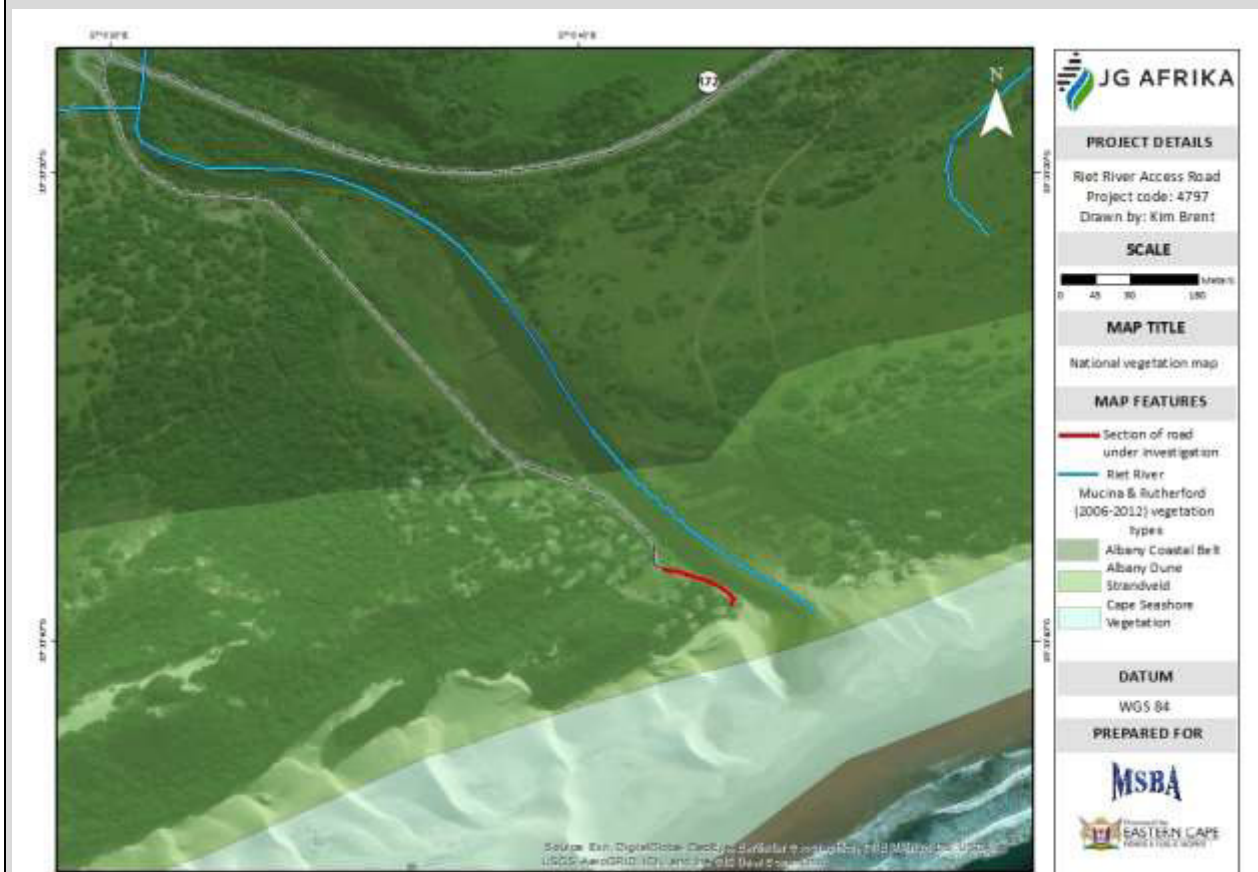


Figure 7: National vegetation classification of the proposed road under investigation.

Regional vegetation map: Subtropical Thicket Ecosystem programme (STEP)

The Subtropical Thicket Ecosystem Planning (STEP, 2006) Project aimed to identify priority areas that would ensure the long-term conservation of the subtropical thicket biome and to ensure that the conservation of this biome was considered in the policies and practices of the private and public sector that are responsible for land-use planning and the management of natural resources in the region (Pierce et al. 2005). STEP looked specifically at the Albany thicket biome and provided a finer scale map of the study area than the SA VEGMAP.

According to STEP, the study area is situated within the Albany Dune Thicket vegetation unit (Figure 8).

Albany Dune Thicket is dominated by trees such as milkwood trees (*Sideroxylon inerme*) and coast silver oak (*Brachylaena discolor*). The dune false current (*Allophylus natalensis*) is characteristic of this

“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099• Fax: 043 605 7300 | Email: • Web: www.dedeaat.gov.za

VERSION 1 dated 8 December 2014

vegetation unit. These forest communities typically display a high degree of patchiness, with some forest communities having established in the ex-Grassland-Savanna sites, while others established in the Thicket clumps. This vegetation unit is classified as **'Least Threatened'** by STEP (2006).



Figure 8: Regional vegetation classification of the proposed road under investigation.

Eastern Cape Biodiversity Conservation Plan – not gazetted

The ECBCP (2007) is the first attempt at detailed, low-level conservation mapping for land-use planning purposes in the Eastern Cape Province. Specifically, the aims of the Plan were to map critical biodiversity areas through a systematic conservation planning process.

The current biodiversity plan includes the mapping of priority aquatic features, land-use pressures, and critical biodiversity areas and develops guidelines for land and resource-use planning and decision-making. ECBCP, although mapped at a finer scale than the National Spatial Biodiversity Assessment (Driver et al., 2005) is still, for the large part, inaccurate and “coarse”. Therefore it is imperative that the status of the environment, for any proposed development **MUST** first be verified before the management recommendations associated with the ECBCP are considered (Berliner and Desmet, 2007).

“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeaat.gov.za

VERSION 1 dated 8 December 2014



The ECBCP is currently under review however the most recent 2016 datasets and report is not yet available to the public as it has not yet undergone the public review phase.

The main outputs of the ECBCP are “critical biodiversity areas” or CBAs, which are allocated the following management categories:

- CBA 1 = Maintain in a natural state
- CBA 2 = Maintain in a near-natural state
- CBA 3 = Other natural areas: Functional landscapes

The study area is situated within an area classified as a CBA 1 (Maintain in a natural state) (Figure 9). Terrestrial CBA 1 areas are defined by:

- Critically endangered vegetation types (ecosystems) identified through ECBCP the systematic conservation assessment;
- Critically endangered vegetation types from STEP;
- Critically endangered forest patches in terms of the National Forest Assessment;
- Areas essential for meeting biodiversity targets for biodiversity features (SA vegetation types, expert mapped priority areas);
- KZN systematic conservation planning priorities; and
- Forest clusters identified as critical in the forestry planning process (Berliner et al 2006).

In addition, in terms of aquatic CBAs, the P40D catchment is categorised as an Estuarine CBA 2 area (Figure 10). Estuarine CBA 2 areas are defined by:

- Important sub-catchments;
- Free-flowing rivers important for fish migration; and
- Important estuaries.

“Innovation for Sustainable Development”

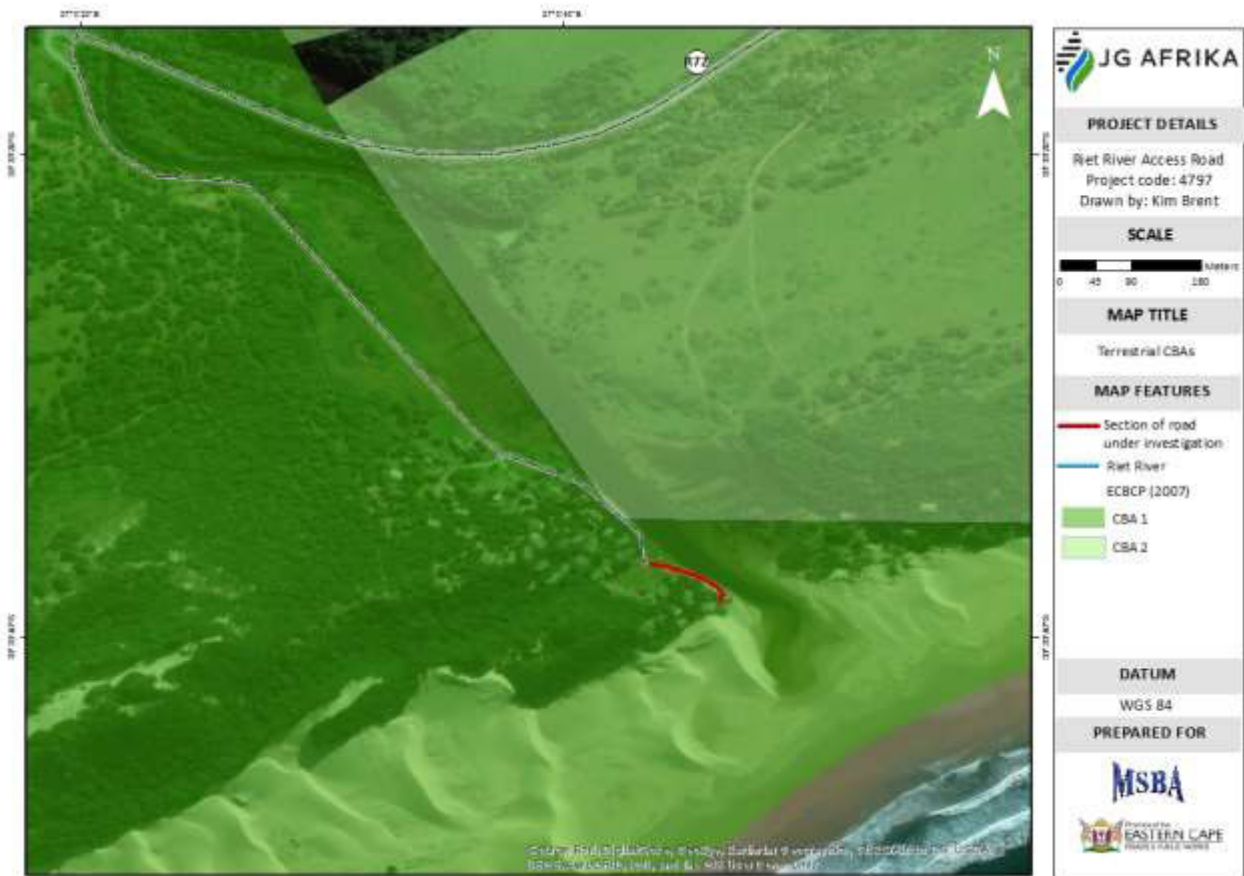


Figure 9: Terrestrial CBA classification of the proposed road under investigation.

“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014

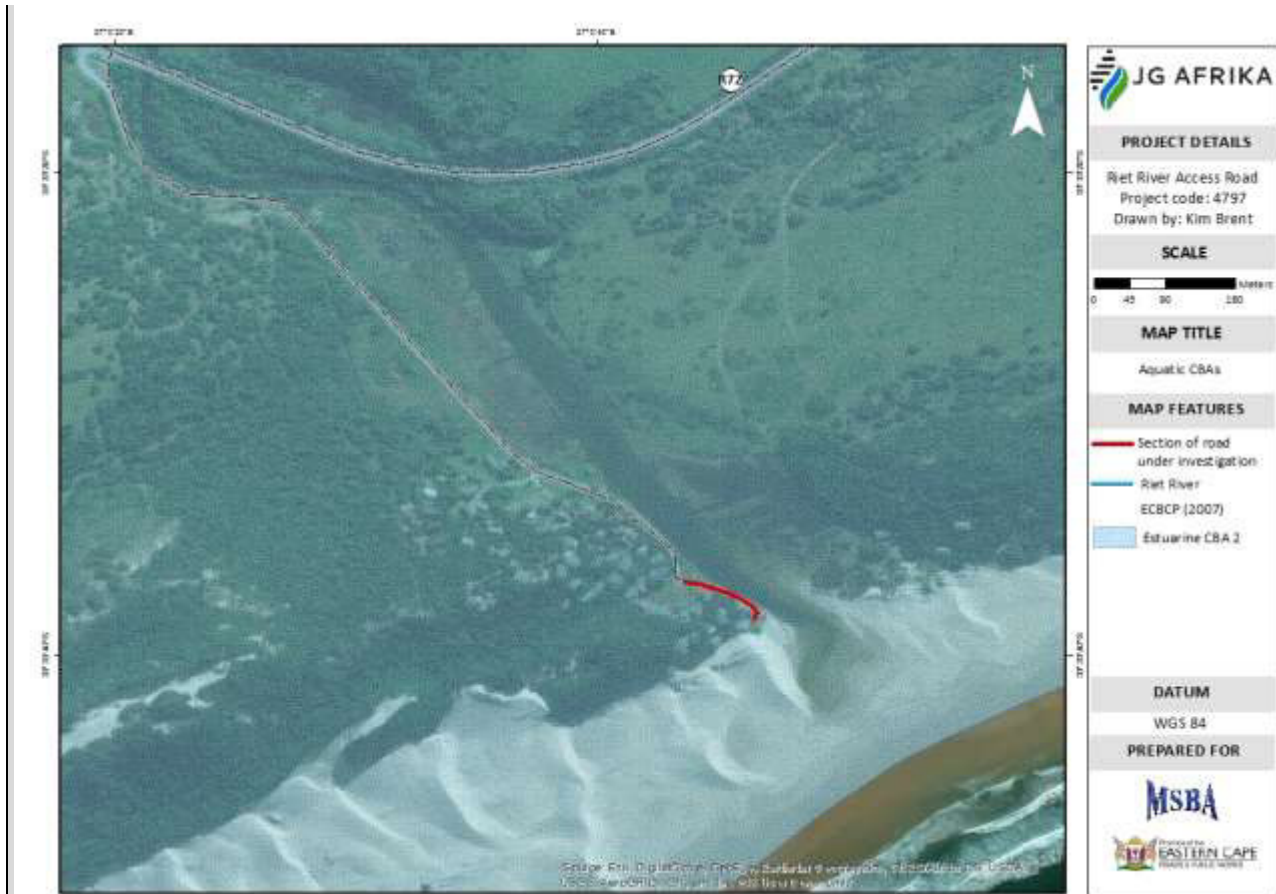


Figure 10: Aquatic CBA classification of the proposed road under investigation.

Surface Water Features

The National Freshwater Ecosystem Priority Areas (NFEPAs) programme provides strategic spatial priorities for conserving South Africa's freshwater ecosystems and supports sustainable use of water resources. These priority areas are called Freshwater Ecosystem Priority Areas, or FEPAs. Wetland ecosystem types are used by NFEPAs for representing natural examples of the diversity of wetland ecosystem types across South Africa. Wetlands of the same ecosystem type are expected to share similar functionality and ecological characteristics. Information used to classify FEPAs included:

- Representation of ecosystem types and flagship free-flowing rivers;
- Maintenance of water supply areas in areas with high water yield;
- Identification of connected ecosystems;
- Representation of threatened and near-threatened fish species and associated migration corridors; and
- Preferential identification of FEPAs that overlapped with:
 - Any free-flowing river

"Innovation for Sustainable Development"

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William's Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014



- Priority estuaries identified in the National Biodiversity Assessment 2011
- Existing protected areas and focus areas for protected area expansion identified in the National Protected Area Expansion Strategy.

According to 1:50 000 topographic maps (2016) and the (NFEPA) database (2011-2014), the study area occurs along the Riet River and within proximity to the Riet River Estuary (see Figure 10). In addition, the NFEPA database also identifies one natural wetland within the study area, namely an “unchanneled valley bottom wetland”. An unchanneled valley bottom wetland is defined by the NFEPA as “a mostly flat valley-bottom wetland area without a well-defined stream channel running through it, characterised by an absence of distinct channel banks and the prevalence of diffuse flows, even during and after rainfall events. Water inputs are typically from an upstream channel, as the flow becomes dispersed, and from adjacent slopes (if present)”. According to the Aquatic Specialist, this area is however not a wetland and is part of the Estuarine floodplain. This area is dominated by supratidal salt marsh, reed & sedges.

According to the Desktop Assessment undertaken by the Department of Water and Sanitation (DWS) in 2014, the Riet River has a Present Ecological State (PES) of B, an Ecological Importance (EI) = High and an Ecological Sensitivity (ES) = High. The PES is intended to describe the condition of the river according to ecological status or health compared to natural conditions. As per the score assigned to the river, the Riet River is in a Largely Natural condition, implying that limited loss of natural habitat, biota and basic ecosystem functioning has occurred to date.

“Innovation for Sustainable Development”



Figure 11: Surface water features along the proposed road under investigation.

ONSITE CLASSIFICATION

An Ecological (Vegetation and Aquatic) Assessment was conducted by a suitably qualified specialist for the proposed road upgrade and erosion works. Dr. B. Colloty from Enviro-Sci conducted a site visit in October 2018 in order to assess the present ecological state of the study area. A summary of his findings has been included below and the report can be viewed in Appendix D of this report.

“The proposed works falls in the P40D Quaternary catchment located within the estuarine portion of the Riet River. Thus, all the wetlands observed are directly associated with the estuary floodplain where inundation levels fluctuate in response to the length or period of mouth closure. Also, while the mouth is closed any runoff from the upper catchment is retained within the open water areas, back flooding the supratidal floodplain areas. Salinities measured during this assessment ranged from 28 ppm at the mouth to 15 ppm near the R72 bridge, which is typical of these systems early in the summer rainfall period after good rainfall. As and when summer temperatures increase, and evaporation occurs, salinities can increase beyond that of seawater (35ppm), particularly if little to no rainfall occurs. This

“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel: 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedea.gov.za

VERSION 1 dated 8 December 2014

estuary a typical clear water system was described in some detail during an assessment conducted by the CSIR and the various habitat cover associated with this Temporary Open / Closed system was summarised as follows (van Niekerk and Turpie, 2011):

Estuary	Intertidal salt marsh	Supratidal salt marsh	Submerged macrophytes	Reeds and sedges	Mangroves	Sand/mud banks	Channel	Rocks	Swamp	Total (ha)
Riet	0	17.4	2.64	12.3	0	3	36.2	1.52	0	73.06

Thus, the Riet River Estuary is dominated by Supratidal salt marsh, reed & sedges and open water. The proposed erosion structures will however be placed along the banks and inundated areas of the estuary and open space (maintained parking area) of the site. The NFEPA database had indicated a freshwater wetland on the eastern bank of the estuary but this was confirmed to form part of the Supratidal saltmarsh area (estuarine) during the site visit. The only freshwater wetland observed was located upstream of the R72, and is not directly associated with the river/estuary and is also more than 500 m from the project footprint. Plants observed along the banks of the estuary included the following, with those shown in **BOLD** located within the proposed works area:

- **Stenotaphrum secundatum;**
- *Ficinia lateralis;*
- *Juncus kraussii;*
- *Phragmites australis;*
- *Cyperus obtusiflorus var. obtusiflorus;*
- *Centella asiatica;*
- *Carex clavate;*
- *Typha capensis;*
- *Sarcocornia perennis;*
- **Cynodon dactylon;** and
- **Sporobolus virginicus.**

None of these species are listed as protected.

A Provisional Present Ecological State of the estuary, including pressures and health condition, was determined as follows (van Niekerk and Turpie, 2011):

- ❖ Excellent (dark blue), good (blue), fair (green) to poor (brown).
- ❖ Pressure levels are indicated as very high (VH), high (H), medium (M) or low (L). A Blank indicates the absence of a pressure.

From a conservation importance standpoint, the estuary was included in both Ecosystem Priority Area, as most of the catchment remains low, with no impacts on the regional hydrology (e.g. dams) and the

“Innovation for Sustainable Development”

Ndlambe Biodiversity Sector Plan Critical Biodiversity Areas (part of the Addo Elephant National Park Sector Plan – Vromans et al., 2012). However, from an aquatic perspective this system was not considered an Aquatic CBA in the provincial wide assessment contained in the Eastern Cape Biodiversity Conservation Assessment (ECBCP) (Berliner & Desmet, 2007). Nonetheless, in a national assessment the Riet River Estuary was ranked 91 out of 250 South African estuaries assessed from a Conservation Importance perspective (Turpie et al., 2012).

NAME	Pressures							Health Condition													
	Change in flow	Pollution	Habitat loss	Mining	Artificial Breaching	Fishing Effort(Fishing Effort(Catches in tones)	Bait collection	Hydrology	Hydrodynamics	Water Quality	Physical habitat	Habitat State	Microalgae	Macrophytes	Invertebrates	Fish Final	Birds	Biological State	Estuary Health State (Mean)	Ecological Category
Riet	L	L	L			L	2.2	Y													B

In terms of the terrestrial environment, the proposed works will occur within the Albany Dune Strandveld vegetation type as defined by Mucina and Rutherford (2006) as amended in the National Vegetation Map 2012 spatial information. This vegetation type is located on the dunes along the coastline. Some of the dominant species of this habitat comprise, for example, the trees and shrubs: *Azima tetraacantha*, *Brachyleana discolor*, *Sideroxylon inerme*, *Zanthoxylum capense*, *Cassine peragua*, *Cussonia thyriflora*; Climbers: *Asparagus asparagoides*, *Rhoicissus digitata*; Herbs: *Dietses iridooides*, *Sansevieria hyacanthoides*. In terms of the **National Biodiversity Thresholds/Targets (Ecosystem Status)**, Albany Dune Strandveld is **Least Threatened**. It is well protected. The observed terrestrial species included the following located mostly in a small patch surrounding the affect homes:

- *Azima tetraacantha*;
- *Brachyleana discolor*;
- *Sideroxylon inerme*;
- *Zanthoxylum capense*;
- *Cassine peragua*;
- *Asparagus asparagoides*; and
- *Rhoicissus digitate*.

Several grass species already mentioned in the aquatic section will be the most affected. However, except for the White Milkwood tree (*Sideroxylon inerme*) none of these species are protected under the PNCO or The National Forestry Act. The Milkwood in question is located behind the affect house in the works area, and should not be affected by the proposed development. Several trees are located along the narrow access road in the village and could be disturbed if large machines need to access the site.

“Innovation for Sustainable Development”



These are located along a 100 m section of the road in a small thicket patch (33.5594065S 27.011330E – 33.560102S 27.011979E). In summary the proposed works area is largely disturbed by the existing road, houses or maintenance of the vegetation (mowed grass areas to create parking)”.

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area

5.2 Low density residential – Riet River holiday settlement

~~5.3 Medium density residential~~

~~5.4 High density residential~~

~~5.5 Informal residential~~

~~5.6 Retail commercial & warehousing~~

~~5.7 Light industrial~~

~~5.8 Medium industrial^{AN}~~

~~5.9 Heavy industrial^{AN}~~

~~5.10 Power station~~

~~5.11 Office/consulting room~~

~~5.12 Military or police base/station/compound~~

~~5.13 Spoil heap or slimes dam^A~~

~~5.14 Quarry, sand or borrow pit~~

~~5.15 Dam or reservoir~~

~~5.16 Hospital/medical centre~~

~~5.17 School~~

~~5.18 Tertiary education facility~~

~~5.19 Church~~

~~5.20 Old age home~~

~~5.21 Sewage treatment plant^A~~

~~5.22 Train station or shunting yard^N~~

~~5.23 Railway line^N~~

~~5.24 Major road (4 lanes or more)^N~~

~~5.25 Airport^N~~

~~5.26 Harbour~~

~~5.27 Sport facilities~~

~~5.28 Golf course~~

~~5.29 Polo fields~~

~~5.30 Filling station⁺~~

“Innovation for Sustainable Development”



5.31 Landfill or waste treatment site

5.32 Plantation

5.33 Agriculture

5.34 River, stream or wetland – Riet River Estuary and Riet River.

5.35 Nature conservation area

5.36 Mountain, koppie or ridge

5.37 Museum

5.38 Historical building

5.39 Protected Area

5.40 Graveyard

5.41 Archaeological site

5.42 Other land uses (describe) – A hotel is located within 500 m of the proposed road under investigation.

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity.

If yes, explain:

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.

If yes, explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If yes, explain:

"Innovation for Sustainable Development"



6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?

NO

If YES, explain:

If **uncertain**, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:

Section 38(1)(a) of the National Heritage Resources Act, No. 25 of 1999 states that the construction of a road or other similar form of linear development exceeding 300 m in length may be subject to a Heritage Impact Assessment if required by ECPHRA. This development is only 120 m in length and located in an area previously disturbed. As such an Archaeological Impact Assessment (AIA) will not be required in terms of the Act and a letter of exemption is therefore also not applicable.

It is however advisable to follow a cautionary approach due to the location of the road (it is in close proximity to a river mouth where one can expect archaeological material to be present) and that the following recommendation form part of the Authorisation:

Should any archaeological material be exposed during construction, all work must cease in the immediate area and reported to the archaeologist at the Albany Museum in Grahamstown (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 7450888), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material.

Will any building or structure older than 60 years be affected in any way?

YES

NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES

NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

"Innovation for Sustainable Development"



SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;

Three (3) colour notice boards, A3 in size, were placed at conspicuous places in close proximity to the development site and along the approach road leading to the Riet River Access Road on 21 June 2018 and 27 August 2020. In addition, A5 flyers, providing a summary of the proposed development, were placed in plastic sleeves and attached to the notice boards erected on 27 August 2020. Refer to Appendix E for proof of notice boards placed at and in close proximity to the development site.

- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
 - (vii) any other party as required by the competent authority;

Notification e-mails, accompanied with the Background Information Document, were circulated to various stakeholders, affected landowners, neighbouring properties and potential I&APs on 20 July 2018, 12 April 2019, 15 May 2019 and 8 September 2020. Letter drops, also accompanied with the Background Information Document, were made on 11 July 2018 and 17 August 2020 to all neighbouring properties. Refer to Appendix E for proof of e-mails and proof of letter delivered.

- (c) placing an advertisement in—
 - (i) one local newspaper; or

“Innovation for Sustainable Development”



- (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and

An Initial Advert was placed in The Herald on 21 June 2018 and 07 September 2020 in order to inform the public of the Application and to provide them with the opportunity to register as an I&AP. Refer to Appendix E for proof of the published adverts.

All registered I&APs have registered by e-mail. All stakeholders and registered I&APs have indicated that they would prefer an electronic copy of the Draft Basic Assessment Report once circulated for public review.

- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
 - (i) illiteracy;
 - (ii) disability; or
 - (iii) any other disadvantage.

At this stage a Public Meeting is not anticipated. The need for such meeting will be determined by further comments from I&APs during the public review process.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
 - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
 - (iii) the nature and location of the activity to which the application relates;
 - (iv) where further information on the application or activity can be obtained; and

“Innovation for Sustainable Development”



- (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations. Advertisements and notices must make provision for all alternatives.

Proof of the Site notice boards, Initial Notification to I&APs and stakeholders and initial advert can be viewed in Appendix E.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

Please refer to Appendix E for additional Public participation documentation that has been circulated during the pre-assessment phase of this development.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

Please refer to Appendix E for a copy of all comments received to date.

“Innovation for Sustainable Development”

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

Table 3 lists all the authorities who have been informed of the application.

Table 3: List of authorities informed

COMPANY/DEPARTMENT	CONTACT PERSON	EMAIL
Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT)	Manager EQM: Andries Struwig	andries.Struwig@dedea.gov.za
	Regional Director: Jeff Govender	dayalan.govender@deaet.ecape.gov.za
	Senior Administrative Clerk: Charmaine Struwig	Charmaine.Mostert@dedea.gov.za
	Case Officer: Andiswa Mhlaba	Andiswa.Mhlaba@dedea.gov.za
Eastern Cape Provincial Heritage Resources Authority (ECPHRA)	Sello Mokhanya	smokhanya@ecphra.org.za
	Mzikayise Zote	mlzote@ecphra.org.za
South African Heritage Resource Agency (SAHRA)	Veliswa Baduza (Chief Executive Office)	vbaduza@sahra.org.za
Department of Water and Sanitation (DWS)	Marisa Bloem	BloemM@dws.gov.za
	Lizna Fourie	FourieL4@dws.gov.za
Department of Agriculture Forestry and Fisheries (DAFF)	Thabo Nokoyo	NokoyoT@daff.gov.za
	Babalwa Layini	Babalwal@daff.gov.za
	Nokoyo Davey	NokoyoD@daff.gov.za
SANRAL	Danfred Adams	AdamsD@nra.co.za
	Iqbal Hoosen	HoosenG@nra.co.za
Ndlambe Local Municipality: Municipal Manager	Advocate Rolly Dumezweni	rdumezweni@ndlambe.gov.za
Ndlambe Local Municipality: Director: Infrastructure Development	Noluthando Vithi	nvithi@ndlambe.gov.za
Sarah Baartman District Municipality: Municipal Manager	Ted Pillay B Botha - PA	tpillay@sbdm.co.za bbotha@sbdm.co.za

"Innovation for Sustainable Development"

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William's Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014



COMPANY/DEPARTMENT	CONTACT PERSON	EMAIL
Sarah Baartman District Municipality – Manager: Environmental Health	Kellelo Makgoka Z Somi	kmakgoka@sbdm.co.za zsomi@sbdm.co.za
Sarah Baartman District Municipality - Acting CEO of the Cacadu District Development Agency	G Mvoko	gmvoko@sbdm.co.za
Sarah Baartman DM - Director: Economic Development	PM Kate	pmkate@sbdm.co.za
Sarah Baartman District Municipality	Eunice Kekana	kkekana@cacadu.co.za ;
Sarah Baartman District Municipality: Infrastructure Planning	P Wentzel	pwentzel@sbdm.co.za tbetha@sbdm.co.za
Sarah Baartman District Municipality: Planning and Economic Development	U Daniels	udaniels@sbdm.co.za
Department of Rural Development and Land Reform	Ms Thabile Mehlomakhulu	thabile.mehlomakhulu@drdlr.gov.za
	Ms Nomfundo Mbewana – Districts Director	nomfundo.mbewana@drdlr.gov.za
Eskom	Sterk Hibana	HibanaS@eskom.co.za
	Eddie Leach	eddie.leach@eskom.co.za
Eastern Cape Parks and Tourism Agency (ECPTA)	Kagiso Mangwale Wayne Erlank Shané Gertze	Kagiso.Mangwale@ecpta.co.za Wayne.Erlank@ecpta.co.za Shane.Gertze@ecpta.co.za
Ndlambe Local Municipality - Ward 6 Councillor	Mkhululi Raco	Racomkhululi05@gmail.com

List of authorities from whom comments have been received:

No comments have been received from the authorities at this point. This section will be updated once the Draft BAR has undergone the legislated thirty (30) day public review period.

“Innovation for Sustainable Development”



7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES

NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

"Innovation for Sustainable Development"

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

This section will be updated once the Draft BAR (this report) has undergone the thirty (30) day public review period. For comments / issues raised during the initial Public Participation phase conducted between 2018 and 2020, please refer to Appendix E.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

A complete Comments and Responses Report will be appended to the Final BAR, once the Draft BAR has undergone public review. For comments / issues raised during the initial Public Participation phase conducted between 2018 and 2020, please refer to Appendix E.

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

METHODOLOGY FOR ASSESSING THE SIGNIFICANCE OF IMPACTS

Likely impacts associated with the proposed development have been identified through the undertaking of site visits, consultation of published information and independent assessment by the Environmental Project Team. Impacts have also been identified by the specialist assessments undertaken.

1. Impact Assessment Methodology

The EIA Regulations (2014, as amended), prescribe requirements to be adhered to and objectives to be reached when undertaking Impact Assessments. These are noted in the following sections contained within the EIA Regulations (2014, as amended):

“Innovation for Sustainable Development”



- Regulation 326, Appendix 1, Section 2 and Section 3 – Basic Assessment Impact Requirements; and
- Regulation 326, Appendix 2 and Appendix 3 – Environmental Impact Assessment Requirements.

In terms of these Regulations, the following should be considered when undertaking an Impact Assessment:

- A description and assessment of the significance of any environmental impact including:
 - Cumulative impacts that may occur as a result of the undertaking of the activity during the project life cycle;
 - Nature of the impact;
 - Extent and duration of the impact;
 - The probability of the impact occurring;
 - The degree to which the impact can be reversed;
 - The degree to which the impact may cause irreplaceable loss of resources; and
 - The degree to which the impact can be mitigated.

The overall significance of an impact / effect has been ascertained by attributing numerical ratings to each identified impact. The numerical scores obtained for each identified impact have been multiplied by the probability of the impact occurring before and after mitigation:

$$((\text{Spatial Extent} + \text{Severity} + \text{Duration} + \text{Resource Lost} + \text{Reversibility}) * \text{Probability}) = \text{Significance}$$

High values suggest that a predicted impact / effect is more significant, whilst low values suggest that a predicted impact / effect is less significant.

The interpretation of the overall significance of impacts is presented in Table 4.

Table 4: Interpretation of the significance scoring of a negative impact / effect³

Scoring value	Significance
>35	High - The impact is total / consuming / eliminating - In the case of adverse impacts, there is no possible mitigation that could offset the impact, or mitigation is difficult, expensive, time-consuming or some combination of these. Social, cultural and economic activities of communities are disrupted to such an extent that these come to a halt. Mitigation may not be possible / practical. <u>Consider a potential fatal flaw in the project.</u>
26 - 35	High - The impact is profound - In the case of adverse impacts, there are few opportunities for mitigation that could offset the impact, or mitigation has a limited effect on the impact. Social, cultural

³ Source: adapted from Glasson J, Therivel R & Chadwick A. Introduction to Environmental Impact Assessment, 2nd Edition. 1999. pp 258. Spoon Press, United Kingdom.



	and economic activities of communities are disrupted to such an extent that their operation is severely impeded. Mitigation may not be possible / practical. <u>Consider a potential fatal flaw in the project.</u>
20 – 25	Medium - The impact is considerable / substantial - The impact is of great importance. Failure to mitigate with the objective of reducing the impact to acceptable levels could render the entire project option or entire project proposal unacceptable. <u>Mitigation is therefore essential.</u>
8 – 19	Medium - The impact is material / important to investigate - The impact is of importance and is therefore considered to have a substantial impact. <u>Mitigation is required to reduce the negative impacts and such impacts need to be evaluated carefully.</u>
4 – 7	Low - The impact is marginal / slight / minor - The impact is of little importance, but may require limited mitigation; or it may be rendered acceptable in light of proposed mitigation.
0 – 4	Low - The impact is unimportant / inconsequential / indiscernible – no mitigation required, or it may be rendered acceptable in light of proposed mitigation.

The significance rating of each identified impact / effect was further reviewed by the Environmental Assessment Practitioner (EAP) by applying professional judgement.

For the purpose of this assessment, the impact significance for each identified impact was evaluated according to the following key criteria outlined in the sub-sections below.

NATURE OF IMPACT

The environmental impacts of a project are those resultant changes in environmental parameters, in space and time, compared with what would have happened had the project not been undertaken. It is an appraisal of the type of effect the activity would have on the affected environmental parameter. Its description includes what is being affected, and how.

The impacts were assessed as having either a:

- **Negative effect** (i.e. at a cost to the environment);
- **Positive effect** (i.e. a benefit to the environment); or
- **Neutral effect** on the environment.

SPATIAL EXTENT

This addresses the physical and spatial scale of the impact. A series of standard terms and ratings used in this assessment relating to the spatial extent of an impact / effect are outlined in Table 5.

Table 5: Rating scale for the assessment of the spatial extent of a predicted effect / impact

RATING	SPATIAL DESCRIPTOR
7	International - The impacted area extends beyond national boundaries.
6	National - The impacted area extends beyond provincial boundaries.
5	Ecosystem - The impact could affect areas essentially linked to the site in terms of significantly impacting

“Innovation for Sustainable Development”

	ecosystem functioning.
4	Regional - The impact could affect the site including the neighbouring areas, transport routes and surrounding towns etc.
3	Landscape - The impact could affect all areas generally visible to the naked eye, as well as those areas essentially linked to the site in terms of ecosystem functioning.
2	Local - The impacted area extends slightly further than the actual physical disturbance footprint and could affect the whole, or a measurable portion of adjacent areas.
1	Site Related - The impacted area extends only as far as the activity e.g. the footprint; the loss is considered inconsequential in terms of the spatial context of the relevant environmental or social aspect.

SEVERITY / INTENSITY / MAGNITUDE

This provides a qualitative assessment of the severity of a predicted impact / effect. A series of standard terms and ratings used in this assessment which relate to the magnitude of an impact / effect are outlined in Table 6.

Table 6: Rating scale for the assessment of the severity / magnitude of a predicted effect / impact

RATING	MAGNITUDE DESCRIPTOR
7	Total / consuming / eliminating - Function or process of the affected environment is altered to the extent that it is permanently changed.
6	Profound / considerable / substantial - Function or process of the affected environment is altered to the extent where it is permanently modified to a sub-optimal state.
5	Material / important - The affected environment is altered, but function and process continue, albeit in a modified way.
4	Discernible / noticeable - Function or process of the affected environment is altered to the extent where it is temporarily altered, be it in a positive or negative manner.
3	Marginal / slight / minor - The affected environment is altered, but natural function and process continue.
2	Unimportant / inconsequential / indiscernible - The impact temporarily alters the affected environment in such a way that the natural processes or functions are negligibly affected.
1	No effect / not applicable

DURATION

This describes the predicted lifetime / temporal scale of the predicted impact. A series of standard terms and ratings used in this assessment are included in Table 7.

Table 7: Rating scale for the assessment of the temporal scale of a predicted effect / impact

RATING	TEMPORAL DESCRIPTOR
7	Long term – Permanent or more than 15 years post decommissioning. The impact remains beyond decommissioning and cannot be negated.
3	Medium term – Lifespan of the project. Reversible between 5 to 15 years post decommissioning.

“Innovation for Sustainable Development”



1	Short term – Quickly reversible. Less than the project lifespan. The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than any of the project phases or within 0 -5 years.
---	--

IRREPLACEABLE LOSS OF RESOURCES

Environmental resources cannot always be replaced; once destroyed, some may be lost forever. It may be possible to replace, compensate for or reconstruct a lost resource in some cases, but substitutions are rarely ideal. The loss of a resource may become more serious later, and the assessment must take this into account. A series of standard terms and ratings used in this assessment are included in Table 8.

Table 8: Rating scale for the assessment of loss of resources due to a predicted effect / impact

RATING	RESOURCE LOSS DESCRIPTOR
7	Permanent – The loss of a non-renewable / threatened resource which cannot be renewed / recovered with, or through, natural process in a time span of over 15 years, <u>or by artificial means.</u>
5	Long term – The loss of a non-renewable / threatened resource which cannot be renewed / recovered with, or through, natural process in a time span of over 15 years, <u>but can be mitigated by other means.</u>
4	Loss of an ‘at risk’ resource - one that is not deemed critical for biodiversity targets, planning goals, community welfare, agricultural production, or other criteria, but cumulative effects may render such loss as significant.
3	Medium term – The resource can be recovered within the lifespan of the project. The resource can be renewed / recovered with mitigation or will be mitigated through natural process in a span between 5 and 15 years.
2	Loss of an ‘expendable’ resource - one that is not deemed critical for biodiversity targets, planning goals, community welfare, agricultural production, or other criteria.
1	Short-term – Quickly recoverable. Less than the project lifespan. The resource can be renewed / recovered with mitigation or will be mitigated through natural process in a span shorter than any of the project phases, or in a time span of 0 to 5 years.

REVERSIBILITY / POTENTIAL FOR REHABILITATION

The distinction between reversible and irreversible impacts is a very important one and the irreversible impacts not susceptible to mitigation can constitute significant impacts in an EIA (Glasson et al, 1999). The potential for rehabilitation is the major determinant factor when considering the temporal scale of most predicted impacts. A series of standard terms and ratings used in this assessment are included in Table 9.

Table 9: Rating scale for the assessment of reversibility of a predicted effect / impact

RATING	REVERSIBILITY DESCRIPTOR
7	Long term – The impact / effect will never be returned to its benchmark state.
3	Medium term – The impact / effect will be returned to its benchmark state through mitigation or natural processes in a span shorter than the lifetime of the project, or in a time span between 5 and 15 years.

“Innovation for Sustainable Development”



1	Short term – The impact / effect will be returned to its benchmark state through mitigation or natural processes in a span shorter than any of the phases of the project, or in a time span of 0 to 5 years.
----------	---

PROBABILITY

The assessment of the probability / likelihood of an impact / effect has been undertaken in accordance with ratings and descriptors provided in Table 10.

Table 10: Rating scale for the assessment of the probability of a predicted effect / impact

RATING	PROBABILITY DESCRIPTOR
1.0	Absolute certainty / will occur
0.9	Near certainty / very high probability
0.7 – 0.8	High probability / to be expected
0.4 - 0.6	Medium probability / strongly anticipated
0.3	Low probability / anticipated
0.2	Possibility
0.0 - 0.1	Remote possibility / unlikely

2. Mitigation

In terms of the assessment process, the potential to mitigate the negative impacts is determined and rated for each identified impact and mitigation objectives that would result in a measurable reduction, or enhancement of the impact, are taken into account. The significance of environmental impacts has therefore been assessed taking into account any proposed mitigation measures. The significance of the impact “without mitigation” is therefore the prime determinant of the nature and degree of mitigation required.

PLANNING & DESIGN PHASE

(i) Impacts Identified:

<p>Alternative A (Preferred Alternative) and Alternative B</p> <p>➤ Direct Impacts:</p> <p>Non-compliance with the relevant legislation and policies of South Africa, as they pertain to the environment, could lead to damage to the environment, unnecessary delays in planned construction activities, and could potentially result in criminal cases, based on the severity of the non-compliance, being brought against the proponent and their Contractors.</p>

“Innovation for Sustainable Development”



➤ **Indirect Impacts:**

No indirect impacts are expected during the planning and design phase of the proposed project.

➤ **Cumulative Impacts:**

No cumulative impacts are expected during the planning and design phase of the proposed project.

No-Go Alternative

➤ **Direct Impacts:**

The road will eventually, over time, deteriorate to a point where it is unusable, should the upgrading, maintenance and erosion protection not be undertaken. Deterioration over time can result in the road collapsing, cutting off access, to and from the southern side of the Riet River residential village. This will result in an increase in erosion and sedimentation along the riverbanks which may lead to long term impacts on the functionality of the river. In addition, should no maintenance and erosion protection be undertaken, safe access of the road to all road users will be jeopardized.

➤ **Indirect Impacts:**

None identified.

➤ **Cumulative Impacts:**

None identified

(ii) Proposed Mitigation:

Alternative A (Preferred Alternative) and Alternative B	No-Go Alternative
<ul style="list-style-type: none"> • All necessary permitting and authorisations must be obtained prior to the commencement of any construction activities; and • A suitably qualified Environmental Control Officer (ECO) must be appointed prior to the commencement of the construction phase. 	<p>The No- Go alternative should not be pursued.</p>

Tables 4 to 9 present the impact assessment findings in relation to the proposed planning and design, construction, and operation related activities for the proposed alternatives as well as the No-Go Alternative.

“Innovation for Sustainable Development”



“Innovation for Sustainable Development”

1 Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014

Table 11: Impact assessment rating associated with the planning and design phase for both alternatives.

PLANNING AND DESIGN PHASE IMPACTS: Alternative A and B	Nature of project impact	Mitigation required	Type	Nature of the impact	Spatial extent		Severity / intensity / magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
					Without	With	Without	With	Without	With		Without	With	Without	With		
					Permitting	Yes	Direct	Negative	1	1		3	0	5	1		
Overall impact significance															LOW 18	INSIGNIFICANT 2	

Table 12: Impact assessment rating associated with the planning and design phase for the No-Go Alternative.

PLANNING AND DESIGN PHASE IMPACTS: No-Go Alternative	Nature of project impact	Mitigation required	Type	Nature of the impact	Spatial extent		Severity / intensity / magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
					Without	With	Without	With	Without	With		Without	With				
					Increase in erosion and sedimentation	Yes	Direct	Negative	3	3		5	5	7	7		
Safety of the road	Yes	Direct	Negative	1	1	5	5	7	7	5	5	5	1	1	23	23	
Overall impact significance															HIGH 26	HIGH 26	

Significance: Based on the outcome of the significance scoring noted in Table 12, the overall significance impact for the No-go Alternative without mitigation, is considered to be HIGH, with a score of 26. As this is the No-go Alternative, mitigation will not be implemented as the *status quo* will continue and therefore impacts as identified will worsen over time.



CONSTRUCTION PHASE

(i) Impacts Identified:

Alternative 1 (Preferred Alternative) and Alternative B

➤ **Direct Impacts:**

1. Ecological Impacts

1.1. Aquatic Environment

1.1.1. Spread of alien vegetation in the aquatic habitat

Several invasive species were recorded during the survey and these could then colonise any structures or areas of disturbance.

1.1.2. Loss of CBA and habitat fragmentation

Based on the information contained within the ECBCP, the site is within CBAs. This will have limited impact on the aquatic environment due to the current levels of fragmentation, *i.e.* the already disturbed banks of the estuary, and the scale and/or type of project.

1.1.3. Loss of aquatic habitat

The proposed works will require disturbance of soils and sandbanks within the estuarine environment. However, this will be limited as the proposed works will occur in an already disturbed area and outside the buffer zone of the identified freshwater wetland (see Figure 8 in the Aquatic and Terrestrial Specialist Report – Appendix D).

1.1.4. Increase in turbidity due to siltation of aquatic habitat

Any disturbance of the banks and bed of the estuarine environment (sand) could result in an increase in turbidity (suspended sediments) which could then result in siltation (smothering) of nearby habitats used by submerged plants (macrophytes – although none observed near the site by the ecological specialist) or invertebrates such as sand prawns.

1.1.5. Water quality impacts

Spills and leaks from any plant or the mixing of cement near or within the estuary.

1.2. Terrestrial Environment

“Innovation for Sustainable Development”



1.2.1. Loss of species of conservation concern of the terrestrial habitat

Several such species are known to occur in the region; however, none are located within the proposed works area. This will be limited to the approach road that contains several Milkwood trees (*Sideroxylon inerme*) protected under the National Forestry Act (Act 84 of 1998). However, it is unlikely that vegetation along this approach road will be disturbed.

1.2.1.1. Spread of alien vegetation in the terrestrial habitat

Several invasive species were recorded during the survey conducted by the ecological specialist which could colonise any structures or areas of disturbance.

2. Pollution / Waste Impacts

2.1. Solid waste generation

It is anticipated that the proposed development will produce solid waste in the form of building rubble such as excavated soil, vegetation, excess concrete, etc. and general waste (produced by the labours) during the construction phase.

2.2. Surface and groundwater contamination

As the proposed project will involve the reconstruction of a section of road along the Riet River Estuary, various activities such as poor vehicle maintenance (e.g. oil leaks), improper storage of hazardous materials (i.e. paint and fuel) and washing down practices may result in the pollution of surface and groundwater sources.

2.3. Soil compaction and erosion

There is a possibility that soil may be compacted by the operation and parking of large construction vehicles. Compacted soil results in the reduced ability for plant growth and water absorption. Exposed soils are easily susceptible to erosion by wind and water (i.e. run-off) during high wind or rainfall conditions. Soil erosion may result in an increase in sediment laden water in the Riet River.

3. Noise and air pollution impacts

3.1. Noise pollution

During construction, noise will be created by the construction equipment, the workers as well as the construction vehicles both on site as well as during travel to and from the site. Noise could also potentially be a nuisance to the Riet River residential village.

3.2. Air pollution

During the construction phase of the activity, minor dust pollution is envisaged at the proposed site and immediate vicinity as a result of moving construction materials to and from the project site, and windblown dust from exposed areas and from material stockpiles. In addition, construction vehicles travelling along the Riet River access road (mainly unpaved) to and from site can potentially exacerbate dust generation during high windy conditions.

“Innovation for Sustainable Development”



4. Other impacts

4.1. Visual impacts

Holiday goers and residents at the Riet River village will encounter visual intrusions in the appearance of the landscape as construction vehicles and equipment as well as building materials will be evident at the proposed site and immediate vicinity. This will however be a short-term impact.

4.2. Traffic impacts

During the construction phase of the proposed reconstruction, large construction vehicles will be utilizing the remainder of the Riet River access road, which may result in the impeding of traffic and damage to the existing road. Access to certain services and residences (those nearby the section of road in question) will be limited during construction hours.

5. Socio-economic impacts

5.1. Employment creation

The construction phase of the proposed development will create temporary jobs for locals within the area.

➤ **Indirect Impacts:**

5.2. Purchase of materials from local businesses

Where possible materials will be sourced from local businesses, resulting in a boost of the local economy in the immediate vicinity and/or surrounding areas.

➤ **Cumulative Impacts:**

No cumulative impacts of any significance were identified for this project as there are no other developments of this nature in close proximity to the proposed development.

No-Go Alternative

➤ **Direct Impacts:**

- Existing alien vegetation will continue to encroach and invade adjacent natural areas.
- Further loss of CBA's and habitat fragmentation.
- Further loss of the aquatic habitat.
- Potential increase in the turbidity of the aquatic habitat due to siltation.
- Erosion of the riverbank and resultant sedimentation of the river is already evident and will continue to get worse under the no-go scenario.

➤ **Indirect Impacts:**

"Innovation for Sustainable Development"



No indirect impacts were identified.

➤ **Cumulative Impacts:**

No cumulative impacts were identified.

(ii) Proposed Mitigation:

Alternative A (Preferred Alternative) and Alternative B

• **Ecological Impacts**

• **Aquatic Environment**

• **Spread of alien vegetation in the aquatic habitat**

- Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.
- Alien plant regrowth should also be monitored, and any such species should be removed during the construction phase.
- Where soils are slow to revegetate, these areas should be grubbed and planted with species suited to the region.
- The aquatic specialist recommends Alternative A as the preferred alternative as it has the potential to provide a net benefit through the creation of additional estuarine habitat. This will not only increase the structure resilience to future erosion, but also reduce the potential for any habitat loss, while providing an aesthetic advantage over the bare sandbags.

• **Loss of CBA and habitat fragmentation**

- Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.
- Construction activities should not exceed the proposed construction boundaries by more than 2m to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation
- Alternative A is recommended as this would provide areas for the colonisation of additional estuarine habitat with revegetation for suitable plants established as plugs from plants harvested within the estuary and could include:
 - *Ficinia lateralis*
 - *Juncus kraussii*
 - *Sarcocornia perennis*
 - *Cynodon dactylon*
 - *Sporobolus virginicus*

These species have the ability to rapidly establish themselves while binding the

“Innovation for Sustainable Development”



soils.

- **Loss of aquatic habitat**

- Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.
- Construction activities should not exceed the proposed construction boundaries by more than 2m to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation
- Should any watercourses be disturbed, these should be returned / reinstated to follow the natural ground levels, *i.e.* no new embankments that can alter or disturb flow
- Alternative A is recommended as this would provide areas for the colonisation of additional estuarine habitat with revegetation for suitable plants established as plugs from plants harvested within the estuary and could include
 - *Ficinia lateralis*
 - *Juncus kraussii*
 - *Sarcocornia perennis*
 - *Cynodon dactylon*
 - *Sporobolus virginicus*

These species have the ability to rapidly establish themselves while binding the soils.

- **Increase in turbidity due to siltation in aquatic habitat**

- Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.
- Construction activities should not exceed the proposed construction boundaries by more than 2m to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation
- Any bare soils exposed to surface water runoff should be managed to prevent erosion / sedimentation.
- Prior to any construction within the estuary, a silt curtain (fence created from geofabric) must be placed at the toe of the proposed works area and remain until the vegetation (Alternative A) has stabilised any bare or loose soils.

- **Water quality impacts**

- Chemicals used for construction must be stored safely on site and surrounded by bunds. Chemical storage containers must be regularly inspected so that any leaks are detected early.
- Littering and contamination of water sources during construction must be prevented by effective construction camp and on-site management.
- Emergency plans must be in place in case of spillages onto road surfaces and

“Innovation for Sustainable Development”



water courses.

- No stockpiling should take place within a water course.
- All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.
- Stockpiles must be located away from river channels.
- The construction camp and necessary ablution facilities meant for construction workers must not be located in any of the delineated watercourses.

- **Terrestrial Environment**

- **Loss of species of conservation concern of the terrestrial habitat**

- Identified Milkwood trees (*Sideroxylon inerme*) along the approach road must be marked in order to prevent any damage to these specimens, and if any pruning/cutting is required then the requisite permits must be obtained from Department of Agriculture, Forestry and Fisheries (DAFF).

- **Spread of alien vegetation in the terrestrial habitat**

- Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.
- Alien plant regrowth should also be monitored, and any such species should be removed during the construction phase.
- Where soils are slow to revegetate, these areas should be grubbed and planted with species suited to the region.

- **Pollution / Waste Impacts**

- **Solid waste generation**

- Rubble and other construction waste produced should be re-used if possible and where it is not possible must be disposed of at the nearest registered waste disposal facility (Port Alfred).
- Litter must be controlled during construction – adequate bins must be made available on site at all times. These must be made scavenger proof and must be emptied on a regular basis.
- Construction materials stored on site must be secured – i.e. plastics must be anchored to prevent being blown off site. Skips must be regularly emptied and must be covered.
- Any hazardous materials that need to be stored on site must be done under lock and key.
- General good housekeeping should be practiced on site.

- **Surface and groundwater contamination**

- Establish a dedicated area for construction vehicles to refuel and where cement can be

“Innovation for Sustainable Development”



mixed. Vehicle re-fuelling and cement mixing must only take place on impervious surfaces and/or drip trays.

- Ensure all construction machinery is in sound working order to prevent oil leaks.
 - Temporary chemical toilets must be provided for the duration of the construction period. These toilets must be made available for all site staff during the construction phase and should be at least 50m from the Riet River Estuary. The developers should also appoint and enter into a contract with a qualified third-party service provider for the maintenance of the sanitation system.
 - Adequate waste disposal (litter) bins must be available on site. These must be properly secured and scavenger proof.
 - Any hazardous materials that need to be stored on site must be done under lock and key.
- **Soil compaction and erosion**
 - Exposed areas must be promptly rehabilitated with indigenous vegetation to avoid soil erosion at the earliest possible stage. Where necessary, temporary stabilisation measures must be used until vegetation establishes.
 - Plan for the worst case, that is, for heavy rainfall and runoff events, or high winds.
 - Appropriate erosion control measures must be implemented (e.g. silt traps) and a monitoring programme established to ensure that no erosion is taking place. At the first sign of erosion the necessary remedial action must be taken.
 - Care must be taken to ensure that runoff is well dispersed so as to limit erosion.
 - Reasonable measures to limit erosion and sedimentation due to construction activities must be implemented and must comply with such detailed measures as may be required by the EMPr.
 - Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.
 - Construction activities should not exceed the proposed construction boundaries by more than 2m to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation
 - Any bare soils exposed to surface water runoff should be managed to prevent erosion / sedimentation.
 - Prior to any construction within the estuary, a silt curtain (fence created from geofabric) must be placed at the toe of the proposed works area and remain until the vegetation (Alternative A) has stabilised any bare or loose soils.
- **Air and noise impacts**
 - **Noise pollution**
 - All construction vehicles must be in sound working order and meet the necessary noise level requirements.

“Innovation for Sustainable Development”



- The normal municipal by-laws with regards to noise control must apply.
- Restriction of any unnecessary noise e.g. portable radios, vehicle radios, whistles etc.
- Construction staff should not be housed on site.

- **Air pollution**
 - Prompt rehabilitation and wetting down of exposed areas should minimise dust creation.
 - Construction vehicles must adhere to speed limits.
 - If fine building materials/sands are to be transported at the back of trucks, they must be adequately covered.
 - Provide dust masks for the workers where necessary.
 - If possible, bulk earthworks and activities that can create fugitive dust must be ceased during periods of strong winds.

- **Other impacts**
 - **Visual impacts**
 - Generation of dust will increase the visibility of the project, and it is therefore important to employ techniques to suppress dust generation during construction.
 - The contractor should maintain good housekeeping on site to prevent litter and minimise waste.
 - Erosion risks should be assessed and minimised as erosion scarring can create areas of strong visual contrast with the surrounding vegetation.
 - Equipment not being used should be removed from site.

 - **Traffic impacts**
 - Minimize the number of construction vehicles required for the project and prevent any unnecessary travelling of these vehicles especially during peak hours and after hours.
 - ECDOT and/or the appointed Contractor will meet with residents residing at Riet River, those who make use of this road on a daily basis and explore alternative access options in consultation with them prior to commencement of construction.
 - Damaged to public roads caused by large construction vehicles must be repaired immediately.
 - Safety precautions must be taken, and appropriate signage must be placed to ensure that motorists are informed/warned of construction activities.

- **Social impacts**
 - **Employment creation**
 - As far as practically possible local labour should be used.

“Innovation for Sustainable Development”



- **Indirect:**
 - **Purchase of materials from local businesses**
None required.

All of the above-mentioned mitigations have been incorporated into the EMPr for the Construction Phase. An Environmental Control Officer (ECO) must be appointed to oversee the implementation of the EMPr during construction.

No-Go Alternative

The No-Go Alternative is not a feasible option due to the current state of the road and is thus not an alternative to be considered.



Table 13: Impact assessment ratings associated with the construction phase for Alternative A (preferred Alternative)

CONSTRUCTION PHASE IMPACTS: Alternative A	Nature of project impact	Mitigation required	Type	Nature of the impact	Spatial extent		Severity / intensity / magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
					Without	With	Without	With	Without	With		Without	With	Without	With		
					Alien vegetation (aquatic and terrestrial)	Yes	Direct	Negative	3	1		5	1	7	3		
Loss of CBA and habitat fragmentation	Yes	Direct	Negative	3	1	5	1	7	3	3	3	1	1	0.7	21	6.3	
Loss of aquatic habitat	Yes	Direct	Negative	3	1	5	1	7	3	3	3	1	1	0.7	21	6.3	
Turbidity / Siltation	Yes	Direct	Negative	3	1	5	1	7	3	3	3	1	1	0.7	21	6.3	
Water Quality	Yes	Direct	Negative	2	1	5	3	7	1	3	3	1	1	0.8	20	7.2	
Loss of species of conservation concern (terrestrial)	Yes	Direct	Negative	3	1	5	3	7	1	7	7	2	0.9	0.5	26.1	7	
Solid waste	Yes	Direct	Negative	2	1	3	1	1	1	1	1	1	0.8	0.3	6.4	1.5	
Surface and groundwater contamination	Yes	Direct	Negative	2	1	5	3	3	1	3	3	1	0.9	0.3	14.4	2.7	
Soil compaction and erosion	Yes	Direct	Negative	3	1	5	1	7	3	3	3	1	1	0.7	21	6.3	
Noise pollution	Yes	Direct	Negative	2	1	2	1	1	1	1	1	1	1	0.3	7	1.5	
Air pollution	Yes	Direct	Negative	2	1	2	1	1	1	1	1	1	1	0.5	7	2.5	
Visual intrusion	Yes	Direct	Negative	2	1	2	1	1	1	1	1	1	1	0.6	7	3	
Traffic impedance	Yes	Direct	Negative	2	1	3	2	1	1	1	1	1	1	0.7	8	4.2	
Socio-economic	Yes	Direct, Indirect	Postitive	2	2	1	3	2	2	4	1	1	1	1	10	12	
Overall impact significance															LOW 15.5	VERY LOW 5.2	

Significance: Based on the outcome of the significance scoring noted in Table 13, the overall significance impact for the preferred alternative, Alternative A, without mitigation, is considered to be LOW, with a score of 15.5. With mitigation, the overall significance impact is considered to be VERY LOW, with a score of 5.2.

The greatest impact of significance is considered to be the spread of alien vegetation into both the aquatic and terrestrial environments and the loss of terrestrial habitat containing species of conservation concern. The latter impact will only occur should vegetation be disturbed along the approach road. None of such species are located within the proposed works area. However, with the correct mitigation measures employed as above and as per the EMP (Appendix F), these impacts can be significantly reduced. As such, it is recommended that the **proposed Alternative A** be adopted.



Table 14: Impact assessment ratings associated with the construction phase for Alternative B

	Nature of project impact	Mitigation required	Type	Nature of the impact	Spatial extent		Severity / intensity / magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
					Without	With	Without	With	Without	With		Without	With	Without	With		
CONSTRUCTION PHASE IMPACTS: Alternative B	Alien vegetation (aquatic and terrestrial)	Yes	Direct	Negative	3	1	5	3	7	3	5	7	2	1	0.5	27	7
	Loss of CBA and habitat fragmentation	Yes	Direct	Negative	3	1	5	3	7	3	3	3	1	1	0.7	21	7.7
	Loss of aquatic habitat	Yes	Direct	Negative	3	1	5	3	7	3	3	3	3	1	0.7	21	9.1
	Turbidity / Siltation	Yes	Direct	Negative	3	1	5	3	7	3	3	3	1	1	0.7	21	7.7
	Water Quality	Yes	Direct	Negative	2	1	5	3	7	1	3	3	1	1	0.8	20	7.2
	Loss of species of conservation concern (terrestrial)	Yes	Direct	Negative	3	1	5	3	7	1	7	7	2	0.9	0.5	26.1	7
	Solid waste	Yes	Direct	Negative	2	1	3	1	1	1	1	1	1	0.8	0.3	6.4	1.5
	Surface and groundwater contamination	Yes	Direct	Negative	2	1	5	3	3	1	3	3	1	0.9	0.3	14.4	2.7
	Soil compaction and erosion	Yes	Direct	Negative	3	1	5	3	7	3	3	3	1	1	0.7	21	7.7
	Noise pollution	Yes	Direct	Negative	2	1	2	1	1	1	1	1	1	1	0.3	7	1.5
	Air pollution	Yes	Direct	Negative	2	1	2	1	1	1	1	1	1	1	0.5	7	2.5
	Visual intrusion	Yes	Direct	Negative	2	1	2	1	1	1	1	1	1	1	0.6	7	3
	Traffic impedance	Yes	Direct	Negative	2	1	3	2	1	1	1	1	1	1	0.7	8	4.2
Socio-economic	Yes	Direct, Indirect	Postitive	2	2	1	3	2	2	4	1	1	1	1	10	12	
Overall impact significance																LOW 15.5	VERY LOW 5.8

Significance: Based on the outcome of the significance scoring noted in Table 14, the overall significance impact for the Alternative B without mitigation, is considered to be LOW, with a score of 15.5. With mitigation, the overall significance impact is considered to be LOW, with a score of 5.8. It is important to note that the overall significance impact with mitigation is slightly higher for Alternative B. This means that with effective mitigation the impacts will be more reduced with regards to Alternative A than Alternative B.

The greatest impact of significance is considered to be the spread of alien vegetation into both the aquatic and terrestrial environments and the loss of terrestrial habitat containing species of conservation concern. The latter impact will only occur should vegetation be disturbed along the approach road. None of such species are located within the proposed works area. However, with the correct mitigation measures employed as above and as per the EMP (Appendix F), these impacts can be significantly reduced. As such, it is recommended that the proposed Alternative B not be adopted.



Table 15: Impact assessment ratings associated with the construction phase for the No-Go Alternative.

CONSTRUCTION PHASE IMPACTS: No-Go Alternative	Nature of project impact	Mitigation required	Type	Nature of the impact	Spatial extent		Severity / intensity / magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
					Without	With	Without	With	Without	With		Without	With	Without	With		
					Alien vegetation (aquatic and terrestrial)	Yes	Direct	Negative	3	3		6	6	7	7		
Loss of CBA and habitat fragmentation	Yes	Direct	Negative	3	3	6	6	7	7	5	7	7	1	1	28	28	
Loss of aquatic habitat	Yes	Direct	Negative	3	3	6	6	7	7	5	7	7	1	1	28	28	
Turbidity / Siltation	Yes	Direct	Negative	3	3	6	6	7	7	5	7	7	1	1	28	28	
Erosion of riverbank	Yes	Direct	Negative	3	3	6	6	7	7	5	7	7	1	1	28	28	
Overall impact significance															MEDIUM 28	MEDIUM 28	

Significance: Based on the outcome of the significance scoring noted in Table 15, the overall significance impact for the No-go Alternative without mitigation, is considered to be MEDIUM, with a score of 28. As this is the No-go Alternative, mitigation will not be implemented as the *status quo* will continue and therefore impacts as identified will worsen over time.



OPERATIONAL PHASE

(i) Impacts Identified:

Alternative 1 (Preferred Alternative) and Alternative B

➤ **Direct Impacts:**

1. Ecological Impacts

1.1. Invasion of alien vegetation

The removal of existing vegetation creates 'open' habitats that will inevitably be colonised by pioneer plant species. While this is part of a natural process of regeneration, which would ultimately lead to the re-establishment of a secondary vegetation cover, it also favours the establishment of undesirable species in the area. These species colonise areas of disturbance and once established, they are typically very difficult to eradicate and can pose a threat to the ecosystem. The project area has a number of alien species present and the seedbank is therefore likely to contain seeds primarily from these undesirable species.

1.2. Reduction of erosion and siltation

The embankment of the section of road in question has, over the last few years, come under significant threat from erosion. Implementing the proposed erosion protection measures will prevent future erosion and cutback of the road / river embankment and road surface. A reduction in erosion will result in a reduction in the suspended sediment (turbidity) input to the river. As such, the ecological integrity of the river should not be exacerbated.

1.3. Recovery of the estuarine habitat and CBA

The reconstructed river embankment would provide, over time, areas for the colonisation of additional estuarine vegetation species.

2. Other Impacts

2.1. Safety to road users

New reconstructed road will provide a much safer route for the local motorists utilising this section of road.

3. Socio-economic impacts

Service provision would facilitate general contentment among rate payers that their needs in terms of service delivery have been met. The Ndlambe Local Municipality will meet its goal / objective, of upgrading roads that are in poor condition, as indicated in the IDP and SDF.

"Innovation for Sustainable Development"



➤ **Indirect Impacts:**

No indirect impacts of any significance were identified for the operational phase of this project.

➤ **Cumulative Impacts:**

No cumulative impacts of any significance were identified for the operational phase of this project.

No-Go Alternative

➤ **Direct Impacts:**

The road will eventually, over time, deteriorate if no upgrading is undertaken and no erosion protection measures are implemented. Deterioration over time can result in the road collapsing, cutting off access to and from the southern side of the Riet River residential village.

➤ **Indirect Impacts:**

None identified.

➤ **Cumulative Impacts:**

None identified.

(ii) Proposed Mitigation:

Alternative 1 (Preferred Alternative) and Alternative B

4. Ecological Impacts

4.1. Invasion of alien vegetation

- Implement an Alien Management Plan.
- Eradicate alien plants from the impacted area as they appear; and
- Monitor the project area for any new growth of invasive plants.

4.2. Reduction of erosion and siltation

- Banks must be rehabilitated, including re-establishment of vegetation cover.
- Continued maintenance of the section of road, i.e. repair of the embankment after period of heavy rainfall.
- Vegetation removed during construction must be replanted to contribute towards the ecological state of the estuarine system.

4.3. Recovery of the estuarine habitat and CBA

- The embankment should be revegetated with suitable plants established as plugs from plants harvested within the estuary and could include:

“Innovation for Sustainable Development”



- *Ficinia lateralis*
- *Juncus kraussii*
- *Sarcocornia perennis*
- *Cynodon dactylon*
- *Sporobolus virginicus*

These species have the ability to rapidly establish themselves while binding the soils.

5. Other Impacts

5.1. Safety to road users

Road maintenance checks and any necessary maintenance work must be conducted on an annual basis especially in the period following heavy rains or flooding.

6. Socio-economic impacts

The Ndlambe Local Municipality must undertake the necessary maintenance in response to any reports of erosion associated with this section of road.

No-Go Alternative

The No-Go Alternative should not be pursued.



Table 16: Impact assessment ratings associated with the operational phase for the both Alternatives.

PLANNING AND DESIGN PHASE IMPACTS: No-Go Alternative	Nature of project impact	Mitigation required	Type	Nature of the impact	Spatial extent		Severity / intensity / magnitude		Duration		Resource loss	Reversibility		Probability		Significance without mitigation	Significance with mitigation
					Without	With	Without	With	Without	With		Without	With	Without	With		
					Alien vegetation (aquatic and terrestrial)	Yes	Direct	Negative	3	1		5	3	7	3		
Erosion / Siltation	Yes	Direct	Positive	2	2	7	7	3	3	5	3	1	1	1	20	18	
Recovery of estuarine habitat and CBA	Yes	Direct	Positive	2	2	7	7	3	3	5	3	1	1	1	20	18	
Safety to road users	Yes	Direct	Positive	2	2	7	7	7	7	5	3	0	1	1	24	21	
Socio-economic	Yes	Direct	Positive	2	2	1	3	2	2	4	1	1	1	1	10	12	
Overall impact significance															MEDIUM 20.2	LOW 15.2	

Significance: Based on the outcome of the significance scoring noted in Table 16, the overall significance impact for both alternatives without mitigation, is considered to be MEDIUM, with a score of 20.2. With mitigation, the overall significance impact is considered to be LOW, with a score of 15.2.

The greatest impact of significance is considered to be the invasion of alien vegetation species. The proposed mitigation measures should be employed. As such, it is recommended that the proposed Alternative A be adopted.



DECOMMISSIONING PHASE IMPACTS

(i) Impacts Identified:

There are no impacts associated with the decommissioning and closure phase of the project as the proposed reconstruction of the road and implementation of erosion protection will be a permanent structure.

Alternative 1 (Preferred Alternative)

➤ **Direct Impacts:**

There are no direct impacts associated with the decommissioning and closure phase of the project as the proposed reconstruction of the road and implementation of erosion protection will be a permanent structure. Should the road at any point need to be decommissioned, the impacts will be the same as rated for the construction phase.

➤ **Indirect Impacts:**

There are no indirect impacts associated with the decommissioning and closure phase.

➤ **Cumulative Impacts:**

There are no cumulative impacts associated with the decommissioning and closure phase.

No-Go Alternative

➤ **Direct Impacts:**

None required

➤ **Indirect Impacts:**

None required.

➤ **Cumulative Impacts:**

None required.

(ii) Proposed Mitigation:

Alternative 1 (Preferred Alternative)

No-Go Alternative

There are no foreseeable impacts, therefore no mitigation measures are necessary.	None
---	------

“Innovation for Sustainable Development”

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (Preferred Alternative)

Being located in such close proximity to the Riet River Estuary and its mouth, the section of road proposed for upgrading has, over the last few years, come under significant threat from erosion. This section of road has, therefore been identified as requiring routine maintenance, predominantly in the form of erosion protection. It is the intention of the DoT to re-establish the embankment which has deteriorated and been lost to erosion, as well as to widen the existing road. The proposed erosion protection measures will prevent future erosion and cutback of the road embankment and surface.

The proposed activity falls within the ambit of the Ndlambe Local Municipality. This local municipality has been most affected by floods in the Sarah Baartman District Municipal area, resulting in damages to roads. Therefore, the upgrading of the road network is development priority number 4 according to the Ndlambe Municipality Integrated Development Plan (Ndlambe LM Final IDP 2018-2019).

Positive environmental impacts associated with the proposed upgrading include:

- Provide a safe access road for all road users in the area (farmers, tourists or visitors to the River and camp site etc.);
- Result in a decrease in erosion and sedimentation along the riverbanks;
- Temporary jobs during the construction and maintenance phase; and
- Supporting local shops and suppliers during the construction phase as the contractors are likely to require materials and supplies from a nearby source.

The careful implementation of the proposed mitigation measures is likely to significantly reduce the overall significance of the negative impacts as well as enhance the overall significance of the positive impacts (where recommendations have been provided). Proposed mitigation measures included in the EMPr and Ecological Specialist Report, if implemented appropriately, are likely to result in an overall post-mitigation significance score rated insignificant to low. It is recommended that:

- Prior to any construction within the estuary, a silt curtain (fence created from geofabric) be placed at the toe of the proposed works area and remain until the vegetation has stabilised on bare or loose soils;
- Care be taken to ensure that runoff is well dispersed so as to limit erosion;
- Alien plant regrowth be monitored, and any such species should be removed during the

“Innovation for Sustainable Development”

construction phase;

- Impacted areas be revegetated / rehabilitated with suitable plant species, which have the ability to rapidly establish themselves to binding soils, from plugs harvested within the estuary to facilitate colonisation of additional estuarine habitat.

In terms of erosion protection measures to be implemented for this section of road along the Riet River Estuary, the preferred Alternative, Alternative A, will comprise of a combination of dump or crushed rock, to be placed in the river bed, over a length of approximately 100 m, to form a base on which to re-establish / widen and protect the road embankment, which has been lost to erosion. This will require the importation of G5 and G4 material, in combination with the placement of Geotextile protection on the side of the river. Topsoil will be imported to the site and vegetation will be established on benching that is created on the side slope of the road/river. Alternative B differs from Alternative A in the creation of geotextile-bags, containing sand, with no revegetation. Both Alternatives A have the similar negative impacts associated with them as indicated in the tables above; however, what differentiates them are the implementation of mitigation measures, with specific reference to the revegetation that will be employed for Alternative A. As documented in the Aquatic and Terrestrial Assessment Report, Alternative A is recommended as this would provide areas for the colonization of additional estuarine habitat with revegetation for suitable plants established as plug from plants harvested within the estuary and could include *Ficinia lateralis*, *Juncus kraussii*, *Sarcocornia perennis*, *Cynodon dactylon* and/or *Sporobolus virginicus* as these species have the ability to rapidly establish themselves while binding the soils.

The greatest impact of significance is considered to be spread of alien vegetation into both the aquatic and terrestrial environments and the loss of terrestrial habitat containing species of conservation concern. The latter impact will only occur should vegetation be disturbed along the approach road. None of such species are located within the proposed works area. These aforementioned impacts were rated as 'high' pre-mitigation while the remainder of impacts were rated as low to medium. However, the majority of these impacts can be reduced to low negative or insignificant with the adequate implementation of mitigation measures as proposed above. In addition, benefits are associated with the proposed upgrading, mainly related to socio-economic. As such, it is recommended that the **proposed Alternative A** be adopted.

The operational aspect of the proposed activity is anticipated to have environmental and socio-economic benefits. No significant detrimental impacts, associated with the operational phase, have been identified.

It is recommended that the proposed development be issued with an Environmental Authorisation, as:

- The environmental impacts identified in this report are considered insignificant to low, provided they are successfully mitigated; and,
- To prevent future erosion and cutback of the road embankment and surface.

"Innovation for Sustainable Development"



No-Go Alternative

Negative environmental impacts associated with the No-Go Alternative include:

- Existing alien vegetation will continue to encroach and invade adjacent natural areas;
- Further loss of CBA's and habitat fragmentation;
- Further of the aquatic habitat;
- Potential increase in the turbidity of the aquatic habitat due to siltation; and,
- Erosion of the riverbank and resultant sedimentation of the river is already evident and will continue to get worse.

If the proposed section of road is not reconstructed and the erosion works is not conducted, the No-Go Alternative would maintain the status quo, the current erosion and consequent sedimentation in this area will continue. Deterioration over time can result in the road collapsing, cutting off access to and from the southern side of the Riet River residential village.



SECTION E. RECOMMENDATIONS OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	NO
YES	NO

Is an EMPr attached?

The EMPr must be attached as Appendix F.

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

If the proposed development is to be approved, then it is recommended that all of the mitigation measures described in this Report and the EMPr (see Appendix F) should be included as conditions of the authorisation. It is recommended that an ECO be appointed to oversee the implementation of the EMPr and authorisation during the construction phase of the project.

In particular, the following recommendations / mitigations associated with the construction and operational / maintenance phase of the proposed project are made:

- Clearing of vegetation should be kept to a minimum, keeping the width and length of the earth works to a minimum.
- Alien plant regrowth should also be monitored, and any such species should be removed during the construction phase.
- Construction activities should not exceed the proposed construction boundaries by more than 2m to avoid the secondary impact of construction and increasing the areas that would require clearing and rehabilitation (e.g. terrestrial habitats)
- Alternative A is recommended as this would provide areas for the colonisation of additional estuarine habitat with revegetation for suitable plants established as plug from plants harvested within the estuary and could include:
 - *Ficinia lateralis*
 - *Juncus kraussii*
 - *Sarcocornia perennis*

"Innovation for Sustainable Development"



- *Cynodon dactylon*
- *Sporobolus virginicus*

The species selected are able to rapidly colonise areas (2 – 6 months) while binding the soils with proper care.

- Should any water courses be disturbed these should be returned / reinstated to follow the natural ground levels, i.e. no mounds that can alter or disturb flow
- Any bare soils exposed to surface water runoff should be managed to prevent erosion / sedimentation.
- Prior to any construction within the estuary, a silt curtain (fence created from geofabric) must be placed at the toe of the proposed works area and remain until the vegetation (Alternative A) has stabilised any bare or loose soils.
- Chemicals used for construction must be stored safely on site and surrounded by bunds. Chemical storage containers must be regularly inspected so that any leaks are detected early.
- Littering and contamination of water sources during construction must be prevented by effective construction camp and on-site management.
- Emergency plans must be in place in case of spillages onto road surfaces and water courses.
- No stockpiling should take place within a watercourse. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.
- The construction camp and necessary ablution facilities meant for construction workers must not be located in any of the delineated watercourses.
- Should any of these be disturbed, these must be marked in order to minimise any damage to these specimens, and if any pruning/cutting is required then the requisite permits must be obtained from DAFF.
- Revegetation must take place using plants listed above and should be monitored by a suitable specialist.
- Road maintenance checks and any necessary maintenance work must be conducted on an annual basis especially in the period following heavy rains or flooding.

“Innovation for Sustainable Development”



SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

- ✓ Appendix A: Site plan(s)

- ✓ Appendix B: Photographs

- ✓ Appendix C: Facility Illustration(s)

- ✓ Appendix D: Specialist Reports

- ✓ Appendix E: Comments and Responses Report

- ✓ Appendix F: Environmental Management Programme (EMPr)

- ✓ Appendix G: Other Information

“Innovation for Sustainable Development”

¹ Floor Room 274 • Beacon Hill • Hockley Close • Kind William’s Town • 5600 | Private Bag X0054 • 5605 • Republic of South Africa
Tel; 043 605 7099 • Fax: 043 605 7300 | Email: • Web: www.dedeat.gov.za

VERSION 1 dated 8 December 2014