

APPENDIX E:
BASIC ASSESSMENT REPORT

WILMAR VEGETABLE OIL PIPELINE

KwaZulu-Natal Province

FINAL BASIC ASSESSMENT REPORT

August 2019

KZN EDTEA Ref No.: DC28/0010/2019

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PROJECT DETAILS

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PURPOSE OF THE BASIC ASSESSMENT REPORT

Wilmar Processing (Pty) Ltd proposes the development of a vegetable oil pipeline in the Richards Bay Port (RBT), located approximately 3km south-west of Arboretum, 4km south-east of the Richard's Bay Central Business District and 16km east of Empangeni. The proposed development of the vegetable oil pipeline will also be located within the Transnet National Port Authority (TPNA) precinct in the KwaZulu-Natal Province. The project is known as the Wilmar Vegetable Oil Pipeline and will be located within the Remainder of the Farm Lot 233 Umhlatuzi No. 16230, Remainder of Portion 21 of Erf 5333, Portion 153 of Erf 5333, Erf 16856, Erf 16182, Erf 17424 and Erf 17422 of Phase 1A of the Richards Bay Industrial Development Zone (RB IDZ) which lie within the jurisdiction of the City of uMhlatuze Local Municipality and the greater King Cetshwayo District Municipality. The vegetable pipeline will transport raw materials from vessels docking at the RBT to a proposed oil processing facility within Erf 17422 of Phase 1A of the RB IDZ. The pipeline will have transport 250cm³ per hour of vegetable oil/raw material from the RBT to the proposed oil processing facility.

Wilmar Processing (Pty) Ltd has appointed Savannah Environmental as independent environmental consultant to undertake Basic Assessment Process for the proposed Wilmar Vegetable Oil Pipeline. The BA process is being undertaken in accordance with the requirements of the EIA Regulations of December 2014 (GNR 326), as amended on 07 April 2017, promulgated in terms of the National Environmental Management Act (NEMA; Act No. 107 of 1998).

This Final Basic Assessment Report aims to:

- » Identify and evaluate potential environmental (biophysical and social) impacts and benefits of the proposed development (including design, construction, operation and decommissioning) within the broader study area through a desktop review of existing baseline data and specialist studies.
- » Identify potentially sensitive environmental features and areas on the site.
- » Define the scope of studies to be undertaken within the Basic Assessment process.
- » Provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the Basic Assessment process, as well as regarding the scope and extent of specialist studies that will be required to be undertaken as part of the Basic Assessment Phase of the process.

Within this context, the objectives of this Basic Assessment process are to, through a consultative process:

- » Identify the relevant policies and legislation relevant to the project;
- » Motivate the need and desirability of the proposed project, including the need and desirability of the activity in the context of the preferred location;
- » Identify and confirm the preferred activity and technology alternative;
- » Identify and confirm the preferred site;
- » Identify the key issues to be addressed in the Basic Assessment Process;
- » Identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

LEGAL REQUIREMENTS IN TERMS OF THE EIA REGULATIONS

An overview of the contents of the Final Basic Assessment Report, as prescribed by Appendix 1 of the 2014 EIA Regulations (GNR 326) as amended; and where the corresponding information can be found within the report is provided in **Table 1**.

Table 1: Legal requirements in terms of the EIA regulations

EIA REGULATIONS 2014 (as amended) GNR 326: Appendix 1 CONTENT OF THE BASIC ASSESSMENT REPORTS		Cross-reference in this Basic Assessment Report
A Basic Assessment Report must contain all the information that is necessary for the competent authority to consider and come to a decision on the application, and must include-		
(a)	Details of – (i) The EAP who prepared the report. (ii) The expertise of the EAP, including a curriculum vitae.	Section 1.5 Appendix A
(b)	The location of the activity, including – (i) The 21 digit Surveyor General code of each cadastral land parcel. (ii) Where available, the physical address and farm name. (iii) Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	Chapter 2 Section 2.1
(c)	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken. (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Chapter 2 Section 2.2
(d)	A description of the scope of the proposed activity, including – (i) All listed and specified activities triggered. (ii) A description of the activities to be undertaken, including associated structures and infrastructure.	Chapter 3 Section 3.1
(e)	A description of the policy and legislative context within which the development is proposed including- (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools, frameworks and instruments.	Chapter 3 Section 3.4
(f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Chapter 2 Section 2.4
(g)	A motivation for the preferred site, activity and technology alternative.	
(h)	A full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including –	
	(i) Details of all the alternatives considered.	Chapter 2 Section 2.5
	(ii) Details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs.	Chapter 3 Section 3.2.1 – 3.2.2
	(iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	Chapter 3 Section 3.2.3

(iv)	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Chapter 4 Section 4.2 – 4.6
(v)	The impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts – (aa) Can be reversed. (bb) May cause irreplaceable loss of resources. (cc) Can be avoided, managed or mitigated.	Chapter 5 Section 5.2 – 5.7
(vi)	The methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	Chapter 3 Section 3.2.3
(vii)	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	Chapter 5 Section 5.2 – 5.7
(viii)	The possible mitigation measures that could be applied and level of residual risk.	Chapter 5 Section 5.2 – 5.6
(ix)	The outcome of the site selection matrix.	Chapter 2 Section 2.5.1
(x)	If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such.	Chapter 2 Section 2.5
(xi)	A concluding statement indicating the preferred alternatives, including preferred location of the activity.	Chapter 6 Section 6.6
(i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- (i) A description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.	Chapter 3 Section 3.2.3
(j)	An assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated.	Chapter 5 Section 5.2 – 5.6 Appendix I
(k)	Where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 of to these Regulations and an indication as to how these findings and recommendations have been included in this Report;	Chapter 5 Section 6.2
(l)	An environmental impact statement which contains- (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale of which superimposes the proposed activity and its associated structures and infrastructures on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and	Chapter 6 Section 6.5

	(iii) a summary of the positive and negative and risks of the proposed activity and identified alternatives.	
(m)	Based on the assessment and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr	Appendix D – H
(n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	Chapter 6 Section 6.6
(o)	A description of any assumptions, uncertainties, and gaps of knowledge which relate to the assessment and mitigation measures proposed.	Chapter 3 Section 3.3 Appendix D – H
(p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if it the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	Chapter 6 Section 6.5 – 6.6
(q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised.	N/A
(r)	An undertaking under oath or affirmation by the EAP in relation to- (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	N/A
(s)	Where applicable, details of the financial provision for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts.	N/A
(t)	Any specific information that may be required by the Competent Authority.	N/A
(u)	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A
2.	Where a government notice gazetted by the Minister Provides for any protocol or minimum information requirement to be applied to a scoping report, the requirements as indicated in such notice will apply.	N/A

INVITATION TO COMMENT ON THE DRAFT BASIC ASSESSMENT REPORT

This **Final Basic Assessment Report** has been prepared by Savannah Environmental in accordance with the requirement of the EIA Regulations of GNR326. The Draft Basic Assessment Report was made available for public review at the following places (which lie in the vicinity of the proposed project area) from **17 May 2019 – 18 June 2019**:

- » Richards Bay Public Library, No. 5 Kruger Rand Road, Richards Bay; and
- » <https://www.savannahsa.com/public-documents/other/>

This Final BA Report includes all comments received, as well as responses to those comments (refer to **Appendix C8**). Where applicable, this Final BA Report has been amended to address these comments. All amendments/changes and/or additions to this BA Report have been underlined for ease of reference.

EXECUTIVE SUMMARY

Background

Wilmar Processing (Pty) Ltd is proposing the construction of a vegetable pipeline within the Richards Bay Port (RBT) located approximately 3km south-west of Arboretum, 4km south-east of the Richard's Bay Central Business District and 16km east of Empangeni in the KwaZulu-Natal Province. The project is proposed on the Remainder of the Farm Lot 233 Umhlatuzi No. 16230, Remainder of Portion 21 of Erf 5333, Portion 153 of Erf 5333, Erf 16856, Erf 16182, Erf 17424 and Erf 17422 of Phase 1A of the Richards Bay Industrial Development Zone (RB IDZ) which is located within the City of uMhlatuze Local Municipality within the greater King Cetshwayo District Municipality. The proposed development is to be known as the Wilmar Vegetable Oil Pipeline (refer to **Figure 1**).

The purpose of the vegetable oil pipeline is to transport raw materials from vessels docking at the Richards Bay Port to the proposed oil processing facility on Erf 17422 of Phase 1A of the Richards Bay Industrial Development Zone (RB IDZ). The proposed pipeline will transport 250m³ of vegetable oil/raw material from the Port to the proposed processing facility.

The development of the pipeline is a direct response to identified objectives of the national and provincial governments, as well as local and district municipalities to develop agri-processing and manufacturing industries.

The main infrastructure associated with the Wilmar Vegetable Oil Pipeline includes the following:

- » Four (4) x 216mm steel pipes; and
- » 12m high and 4m wide overhead steel bridges.

Potential impacts associated with the development of the Wilmar Vegetable Oil Pipeline are expected to occur during both the construction and operation phases. The

conclusion of the findings of the independent specialist studies are the potential impacts identified to be associated with the construction and operation of the Wilmar Vegetable Oil Pipeline are anticipated to be at a localised level. The following provides a summary of the findings of the specialist studies undertaken:

- » *Ecology:*
From the findings of the Ecological Impact Assessment (**Appendix D**), it can be concluded that no impacts of high ecological significance were identified which could hinder the development of the vegetable oil pipeline. The proposed development is considered to be appropriate and acceptable from an ecological perspective and will not result in detrimental impacts to ecosystems and habitat features present with the identified corridor, and within the surrounding area.
- » *Wetland delineations:*
From the findings of the Wetland Delineation study (**Appendix E**), it can be concluded that the overall impacts of the construction of the pipeline will be low following the implementation of the recommended mitigation measures by the specialist. The development of the pipeline is supported from a wetland delineation perspective and considered acceptable, subject to obtaining the necessary water use licence (WUL) or general authorisation (GA) from the Department of Water and Sanitation (DWS).
- » *Soil and Agricultural Potential:*
From the findings of the Soil and Agricultural Potential Impact Assessment (**Appendix F**), the identified impacts will have a low significance following the implementation of the recommended mitigation measures by the specialist. No fatal flaws have been identified from a soils and agricultural potential perspective and all impacts can be mitigated to be within low and acceptable levels, hence the development of the Wilmar Vegetable Oil Pipeline is considered acceptable from a soils and agricultural potential perspective.

- » *Heritage and Palaeontological Impacts:*
From the findings of the Heritage Impact Assessment (**Appendix G**), no fossils have been reported within the area to date, as such, the proposed development of the Wilmar Vegetable Oil Pipeline is supported from a heritage and palaeontological perspective.
- » *Social Impacts:*
From the findings of the Social Impact Assessment (**Appendix H**), impacts will be medium following the implementation of the recommended enhancement measures by the specialist.
- » *Cumulative Impacts:*
Due to limited footprint of the proposed pipeline, and the location within the Richards

Bay Port and the RB IDZ (i.e. areas already largely transformed and designated for future industrial development), potential cumulative impacts associated with the project are expected to be low.

No environmental fatal flaws or impacts of very high or high significance were identified to be associated with the development of the Wilmar Vegetable Oil Pipeline within the identified corridor at this stage in the process.

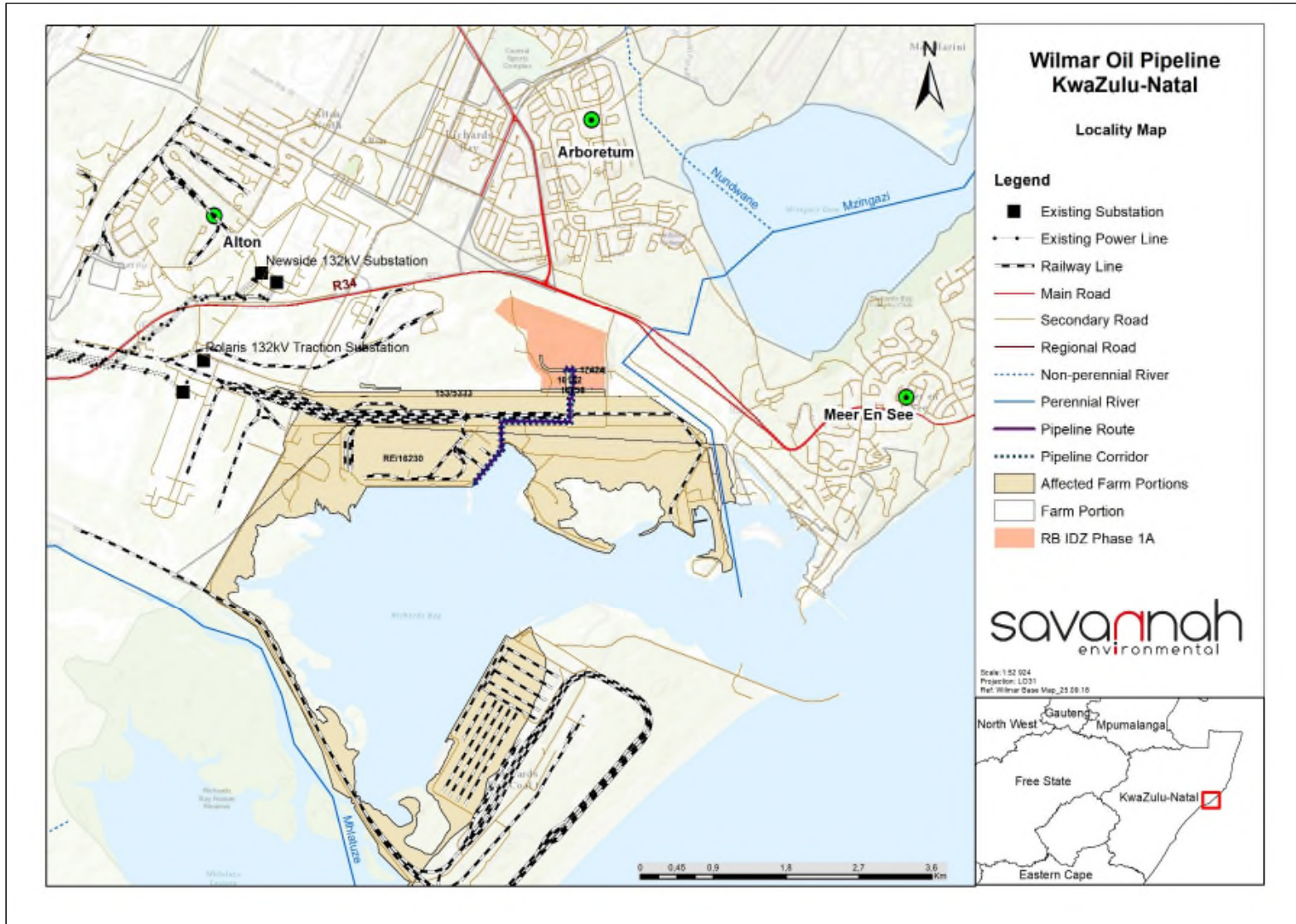


Figure 1. A Locality Map showing the area proposed for the establishment of Wilmar Vegetable Oil Pipeline in the KwaZulu-Natal Province.

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DEFINITIONS AND TERMINOLOGY

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Commence: The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Commissioning: Commissioning commences once construction is completed.

Construction: Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity. Construction begins with any activity which requires Environmental Authorisation.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

Decommissioning: To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned. This usually occurs at the end of the life of a facility.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation, or maintenance of an activity and are generally obvious and quantifiable.

Disturbing noise: A noise level that exceeds the ambient sound level measured continuously at the same measuring point by 7 dB or more.

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Emergency: An undesired/ unplanned event that results in a significant environmental impact and requires the notification of the relevant statutory body, such as a local authority.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that are made up of:

- i. The land, water and atmosphere of the earth;
- ii. Micro-organisms, plant and animal life;
- iii. Any part or combination of (i) and (ii) and the interrelationships among and between them; and
- iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental impact: An action or series of actions that have an effect on the environment.

Environmental impact assessment: Environmental Impact Assessment, as defined in the NEMA EIA Regulations and in relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental management programme: An operational plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a proposal and its ongoing maintenance after implementation.

Hazardous Substances: substances that are toxic, corrosive, irritant, strongly sensitising, flammable and pressure generating under certain circumstances and may injure, cause ill-health or even death in animals.

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act of 2000).

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800.

Indirect impacts: Indirect or induced changes that may occur because of the activity (e.g. the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place because of the activity.

Interested and affected party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups, and the public.

Method statement: A written submission to the ECO and the site manager (or engineer) by the EPC Contractor in collaboration with his/her EO.

No-go areas: Areas of environmental sensitivity that should not be impacted on or utilised during the development of a project as identified in any environmental reports.

Pollution: A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment or waste or substances).

Pre-construction: The period prior to the commencement of construction, this may include activities which do not require Environmental Authorisation (e.g. geotechnical surveys).

Rare species: Taxa with small world populations that are not at present Endangered or Vulnerable, but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare."

Red data species: Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

Significant impact: An impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.

ABBREVIATIONS AND ACRONYMS

BID	Background Information Document
CBOs	Community Based Organisations
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Forestry and Fishery
DEA	National Department of Environmental Affairs
DMR	Department of Minerals Resources
DWS	Department of Water and Sanitation
DOT	Department of Transport
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
<u>GA</u>	<u>General Authorisation</u>
GIS	Geographical Information Systems
GG	Government Gazette
GN	Government Notice
Ha	Hectare
I&AP	Interested and Affected Party
IDZ	Industrial Development Zone
km ²	Square kilometres
km/hr	Kilometres per hour
KZN EDTEA	KwaZulu-Natal Provincial Department of Economic Development, Tourism and Environmental Affairs
m ²	Square meters
m ³	Cubic meters
NEMA	National Environmental Management Act (Act No 107 of 1998)
NHRA	National Heritage Resources Act (Act No 25 of 1999)
NGOs	Non-Governmental Organisations
NWA	National Water Act (Act No 36 of 1998)
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency Limited
SEZ	Special Economic Zone
SDF	Spatial Development Framework
RBT	Richards Bay Port
RB IDZ	Richards Bay Industrial Development Zone
<u>WUL</u>	<u>Water Use License</u>

CHAPTER 1: INTRODUCTION

Wilmar Processing (Pty) Ltd proposes the development of a vegetable oil pipeline in the Richards Bay Port (RBT), located approximately 3km south-west of Arboretum, 4km south-east of the Richard's Bay Central Business District and 16km east of Empangeni. The proposed development of the vegetable oil pipeline will also be located within the Transnet National Port Authority (TPNA) precinct in the KwaZulu-Natal Province. The project is known as the Wilmar Vegetable Oil Pipeline and will be located within the Remainder of the Farm Lot 233 Umhlatuzi No. 16230, Remainder of Portion 21 of Erf 5333, Portion 153 of Erf 5333, Erf 16856, Erf 16182, Erf 17424 and Erf 17422 of Phase 1A of the Richards Bay Industrial Development Zone (RB IDZ) which lie within the jurisdiction of the City of uMhlatuze Local Municipality and the greater King Cetshwayo District Municipality. The vegetable pipeline will transport raw materials from vessels docking at the RBT to a proposed oil processing facility within Erf 17422 of Phase 1A of the RB IDZ. The pipeline will have transport 250cm³ per hour of vegetable oil/raw material from the RBT to the proposed oil processing facility.

The TPNA is a division of Transnet Limited and is mandated to control and managed all eight (8) commercial ports of the 2954km South African coastline. The TPNA owns, operates and controls South Africa's port system on behalf of the state. The port system consists of eight (8) commercial seaports along the South African coastline. The authority is responsible for the safe, effective and efficient economic functioning of the national port system. TPNA's role includes managing the port system in a landlord capacity and providing port infrastructure and marine services to the eight (8) ports in Richards Bay, Durban, East London, Ngqura, Port Elizabeth, Mossel Bay, Cape Town and Saldanha Bay.

The Richards Bay Industrial Development Zone (RBIDZ) is a purpose built and secure industrial estate on the north-eastern extremes of the South African coastline. The N2 business corridor links the Province's two major ports, Durban and Richards Bay, and connects with Maputo in Mozambique, and ultimately, areas in East Africa. The estate is linked to an international seaport of Richards Bay, tailored for manufacturing and storage of minerals and products to boost beneficiation, investment, economic growth, and most importantly, the development of skills and employment. First-world bulk cargo transportation infrastructure within the zone allows for the full exploitation of the areas' natural and strategic advantages.

The development of the Wilmar Vegetable Oil Pipeline (as assessed within this Final Basic Assessment Report) and the associated infrastructure is in response to identified objectives of the national and provincial governments, and the local and district municipalities to develop raw material beneficiating infrastructure for economic growth purposes. The proposed project development corridor is located within a TPNA precinct and an Industrial Development Zone (IDZ), otherwise known as the Richards Bay Industrial Development Zone (RBIDZ), a specific area in the country where certain economic activities are promoted through a set of policy measures not generally applicable to the rest of the country. The development of the pipeline is considered favourable due to the need to develop the agri-processing industry within the RBIDZ in the Province.

The nature and extent of the proposed pipeline, as well as the potential environmental impacts associated with the construction, operation and decommissioning phases of infrastructure of this nature are explored in detail in this Final Basic Assessment Report. Site specific environmental issues and constraints within the assessed corridor are considered within independent specialist studies in order to test the environmental suitability of the corridor for the development of the proposed vegetable oil pipeline. The additional

objective of the specialist studies is to delineate areas of sensitivity within the corridor, and ultimately to inform the placement of the pipeline and associated infrastructure with the assessed corridor.

This Final Basic Assessment (BA) Report has been prepared in accordance with the requirements of the Appendix 1 of the EIA Regulations published on 08 December 2014 (as amended in April 2017) promulgated in terms of Chapter 5 of the National Environmental Management Act (Act No 107 of 1998). This report consists of the following sections:

- » **Chapter 1** provides background to the proposed Wilmar Vegetable Oil Pipeline infrastructure and the basic assessment process.
- » **Chapter 2** provides a description of the vegetable oil pipeline infrastructure, the need and desirability and the alternative considered for the development of the pipeline.
- » **Chapter 3** outlines the approach to undertaking the basic assessment process.
- » **Chapter 4** describes the existing biophysical and socio-economic environment within and surrounding the assessed pipeline corridor for the development of the Wilmar Vegetable Oil Pipeline.
- » **Chapter 5** provides an assessment of the potential issues and impacts associated with the proposed pipeline corridor, and presents recommendations for the mitigation of significant impacts,
- » **Chapter 6** presents the conclusions and recommendations based on the findings of the Final BA Report.
- » **Chapter 7** provides references used in compilation of the Final BA Report.

This Chapter of the Final BA Report includes the following information required in terms of Appendix 1:

Requirement	Relevant Section
3(a) the details of the (i) EAP who prepared the report and (ii) the expertise of the EAP, including a curriculum vitae.	The details of the EAP who prepared the report and the expertise of the EAP is included in Section 1.5 . The curriculum vitae of the EAP, project team and independent specialists are included in Appendix A .
3(b) the location of the activity including (i) the 21 digit Surveyor General code of each cadastral land parcel, (ii) where available the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the co-ordinates of the boundary of the property or properties.	The location of the assessed corridor is included in Section 1.3, Table 1.1 and Figure 1.1 . The information provided includes the 21-digit Surveyor General code of the affected properties and the farm names. Additional information is also provided regarding the location of the development which includes the relevant province, local and district municipalities, ward and current land zoning.

1.1 Overview of the Wilmar Vegetable Oil Pipeline

Wilmar Processing (Pty) Ltd is proposing the development of a ~2.8km vegetable oil pipeline within the Richards Bay Port (RBT) and the Richards Bay Industrial Development Zone (RB IDZ) in the KwaZulu-Natal Province. The proposed pipeline is set to transport vegetable oil from vessels docking at the RBT to the proposed Wilmar Oil Processing Facility located approximately 2km north-east of the RBT within the RBIDZ. The Wilmar Oil Processing Facility will be located on Phase 1A of the RBIDZ, which is an area set aside by the KZN Provincial Government for the development of agro-processing facilities within the RB IDZ.

The proposed Wilmar Vegetable Oil Pipeline will consist of the following components/infrastructure:

- » Four (4) x 216mm steel pipes; and
- » 12m high and 4m wide overhead steel bridges.

A single 50m wide and ~ 2.8km long corridor (known as the project development corridor) has been identified and assessed to allow for the optimisation of the pipeline infrastructure to accommodate the

environmental sensitivities identified. Although alternatives were considered by the applicant, no feasible alternatives exist and therefore none are assessed within this BA Report. No new roads will be required for the proposed development, as existing road infrastructure within the RB IDZ will be used to provide access to the pipeline during maintenance periods.

Table 1.1 below provides an overview of the project specific details. The key infrastructure components proposed as part of the pipeline infrastructure are described in greater detail in Chapter 2 of this BA Report.

Table 1.1: A detailed description of Wilmar Vegetable Oil Pipeline corridor

Province	KwaZulu-Natal
District Municipality	King Cetshwayo District Municipality
Local Municipality	City of uMhlatuze Local Municipality
Ward number(s)	02
Nearest town(s)	The Wilmar Vegetable Oil pipeline will be located ~ 3km south-west of Arboretum, 4km south-east of the Richards Bay CBD, 6km south-west of Wilde en Wiede, and 16km south-east of Empangeni.
Farm Name(s) & Portion Number (s)	<ul style="list-style-type: none"> » Remainder of the Farm Lot 233 Umhlatuzi No. 16230 » Remainder of Portion 21 of Erf 5333 » Portion 153 of Erf 5333 » Erf 16856 » Erf 16182 » <u>Erf 16181</u> » Erf 17424 » Erf 17422
SG 21 Digit Code (s)	<ul style="list-style-type: none"> » NOGV00000001623000000 » NOGV0421000053330021 » NOGV04210000533300153 » NOGV042100001685600000 » NOGV04210001618200000 » <u>NOGV04210001618100000</u> » NOGV04210001742400000 » NOGV04210001742200000
Current zoning	Industrial Use - The affected properties are located within the Richards Bay Industrial Development Zone (RBIDZ), Phase 1A, which has been reserved for agro-processing facilities.

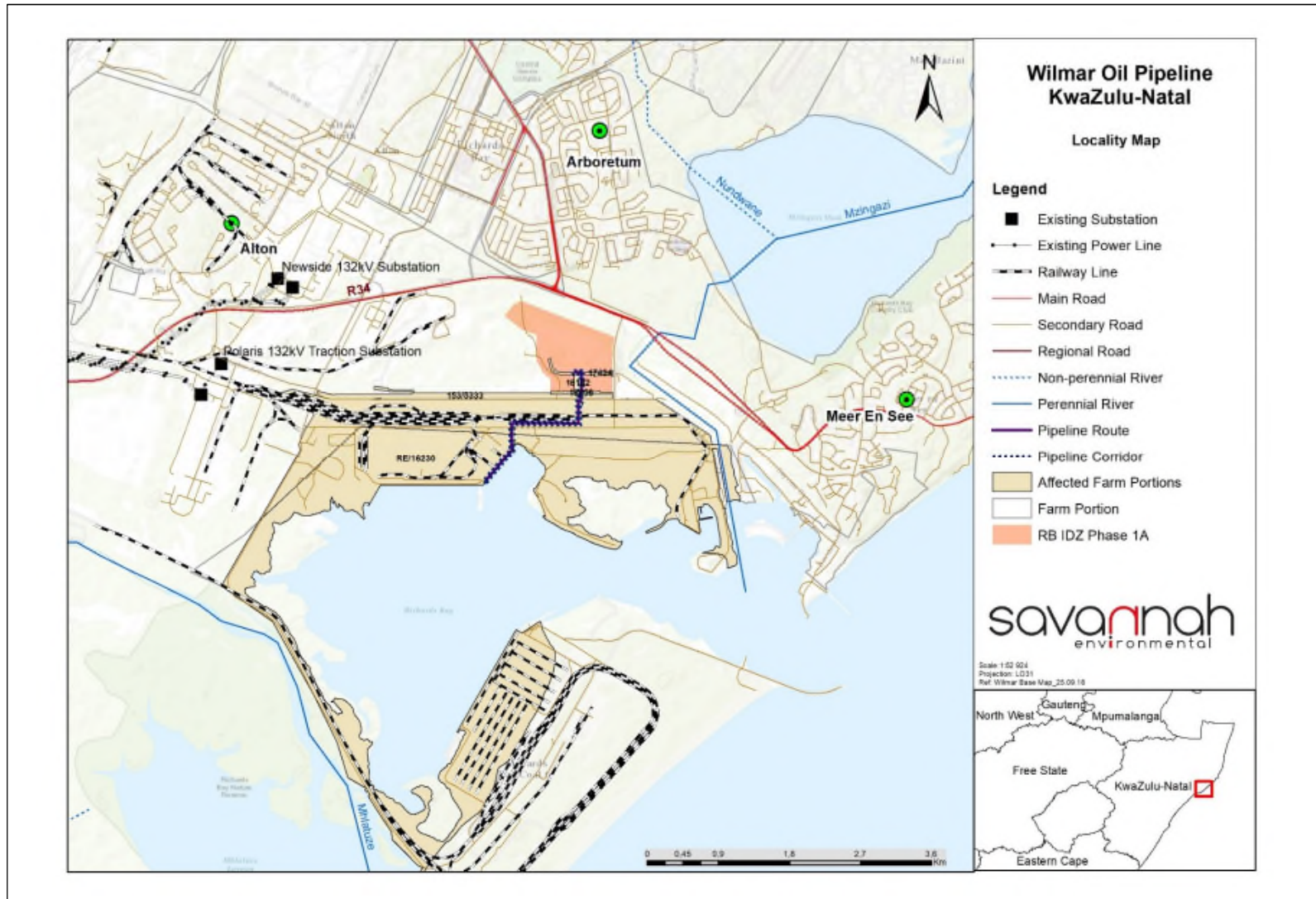


Figure 1.1: A locality map showing the proposed pipeline corridor (highlighted in green) of the proposed Wilmar Vegetable Oil Pipeline in Richards Bay, KwaZulu-Natal

1.2 Requirements for an Environmental Impact Assessment Process

The construction and operation of the pipeline is subject to the requirements of the EIA Regulations, 2014 (as amended), published in terms of Section 24(5) of the National Environmental Management Act (NEMA) 107 of 1998. The NEMA is the national legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed, and reported on to the Competent Authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation.

In terms of the EIA Regulations of 2014 (as amended on 07 April 2017) promulgated under Sections 24 and 24D of the NEMA, various aspects of the project are listed as activities that may have a detrimental impact on the environment. The main listed activity triggered by the development of the Wilmar Vegetable Oil Pipeline is Activity (12)(ii) of Listing Notice 1 (GN R327 of the EIA Regulations, 2014 (as amended)), which relates to the development of infrastructure or structures with a physical footprint of 100m² or more where such development occurs within a watercourse; or if no watercourse exists, within 32m metres of a watercourse.

Due to the triggering of Activity 12(ii) of Listing Notice 1, of the EIA Regulations, 2014 (as amended), a BA process must be undertaken in order to obtain Environmental Authorisation for the construction and operation of the Wilmar Vegetable Oil Pipeline. The application for authorisation for this project is therefore required to be supported by a BA process.

1.3 Overview of the Basic Assessment (BA) Process

A BA is an effective planning and decision-making tool for the project developer as it allows for the identification and management of potential environmental impacts. It provides the opportunity for the developer to be forewarned of potential environmental issues and allows for resolution of the issues reported on in the Final BA Report as well as dialogue with interested and affected parties (I&APs).

The BA process comprises one phase and involves the identification and assessment of environmental impacts through specialist studies, as well as public participation. The process followed in the BA involves a detailed assessment of potentially significant positive and negative impacts (direct, indirect, and cumulative). This includes detailed specialist investigations and one round of public consultation. Following the public review period of the BA Report and Environmental Management Programme (EMPr), a final BA Report and an EMPr is submitted to the Competent Authority, which includes the recommendations for practical and achievable mitigation and management measures for final review and decision-making.

The need to comply with the requirements of the EIA Regulations ensures that the competent authority is provided with the opportunity to consider the potential environmental impacts of a project early in the project development process and to assess if potential environmental impacts can be avoided, minimised or mitigated to acceptable levels. Environmental issues are considered through specialist assessments in order to: test the environmental suitability of the assessed corridor for the vegetable oil pipeline, delineate areas of sensitivity within the assessed corridor, and ultimately to inform the placement of the vegetable oil pipeline within the assessed corridor. Comprehensive, independent environmental studies are required in

accordance with the EIA Regulations to provide the Competent Authority with sufficient information in order to make an informed decision.

In terms of Section 24 of NEMA, the KwaZulu-Natal Economic Development, Tourism and Environmental Affairs (EDTEA) has been determined as the Competent Authority for all projects that trigger GN R327 and GN R324 of the 2014 EIA Regulations (as amended).

1.4 Objectives of the Basic Assessment Process

Appendix 1 of the EIA Regulations, 2014 (as amended), contains the objectives to be achieved through the undertaking of a BA process. The following objectives have been considered, undertaken and achieved through a consultative process within this Final BA Report for the Wilmar Vegetable Oil Pipeline:

- » The identification and consideration of the policies and legislative context associated with the location of the pipeline, and the manner in which the proposed development complies with and responds to the relevant policies and legislative context.
- » The consideration of the need and the desirability of the Wilmar Vegetable Oil Pipeline, including the desirability for the development within the assessed corridor.
- » The identification and consideration of the nature, consequence, extent, duration and probability of the impacts associated with the vegetable oil pipeline, as well as the degree to which the impacts can be reversed, result in irreplaceable loss of resources and be avoided, managed or mitigated.
- » Motivation for the preferred corridor and the proposed activity.
- » Consideration and identification of the environmental sensitivities to provide input in terms of measures to avoid, manage and mitigate the impacts and the residual risks that need to be managed and monitored.

The release of the BA Report for a 30-day public review period was to provide stakeholders with an opportunity to review and provide input in terms of potential issues and concerns that may be associated with the establishment of the pipeline. This Final BA Report for submission to the KZN EDTEA considers and incorporate comments and responses raised during the review period of the BA Report. The KZN EDTEA will also consider these comments and responses in their decision-making of the application for Environmental Authorisation.

1.5 Details of the Environmental Assessment Practitioner and Expertise to conduct the BA process

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326) Wilmar Processing (Pty) Ltd has appointed Savannah Environmental (Pty) Ltd (Savannah Environmental) as the independent Environmental consultant to undertake the BA and prepare the Final BA Report for the vegetable oil pipeline project. Neither Savannah Environmental nor any of its specialists are subsidiaries of, or are affiliated to Wilmar Processing (Pty) Ltd. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed Wilmar Vegetable Oil Pipeline.

Savannah Environmental is a leading provider of integrated environmental and social consulting, advisory and management services with considerable experience in the fields of environmental assessment and management. The company is wholly woman-owned (51% black woman-owned) and is rated as a Level 2 Broad-based Black Economic Empowerment (B-BBEE) Contributor. The company was established in 2006 with a clear objective to provide services to the infrastructure development sector. Savannah Environmental

benefits from the pooled resources, diverse skills and experience in the environmental field held by its team that has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa and neighbouring countries. Strong competencies have been developed in project management of environmental processes, as well as strategic environmental assessment and compliance advice, and the assessment of environmental impacts, the identification of environmental management solutions and mitigation/risk minimising measures.

The Savannah Environmental team has considerable experience in environmental impact assessments and environmental management and has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa, including those associated with the development of linear infrastructure such as pipelines, powerlines and roads.

The Savannah Environmental team in this project includes:

- » **Reuben Maroga** - the principle author of this report. He holds a Bachelor degree in Environmental Management and an Honours degree in Geology and has two years of experience in the environmental management field. His key focus is on undertaking environmental impact assessments, public participation, environmental management plans and programmes.
- » **Gideon Raath** - the co-author of this report. He holds an MSc degree in Environmental Management and Geography from the University of Stellenbosch. He has 4.5 years of experience consulting in the environmental field. His competencies are in environmental impact assessments, mainly within the renewable energy (wind and solar) sector, as well as for infrastructure (roads, water pipelines and power line) related projects.
- » **Jo-Anne Thomas** is a Director at Savannah Environmental (Pty) Ltd and the registered EAP for the EIA for this project. Jo-Anne holds a Master of Science Degree in Botany (M.Sc. Botany) from the University of the Witwatersrand, and is registered as a Professional Natural Scientist (400024/2000) with the South African Council for Natural Scientific Professions (SACNASP). She has over 20 years of experience in the field of environmental assessment and management, and the management of large environmental assessment and management projects. During this time she has managed and coordinated a multitude of large-scale infrastructure EIAs, and is also well versed in the management and leadership of teams of specialist consultants, and dynamic stakeholders. Jo-Anne has been responsible for providing technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, EIA studies, environmental permitting, public participation, EMPs and EMPs, environmental policy, strategy and guideline formulation, and integrated environmental management (IEM). Her responsibilities for environmental studies include project management, review and integration of specialist studies, identification and assessment of potential negative environmental impacts and benefits, and the identification of mitigation measures, and compilation of reports in accordance with applicable environmental legislation.
- » **Nicolene Venter** – Board Member of IAPSA (International Association for Public Participation South Africa). She holds a Higher Secretarial Diploma and has over 21 years of experience in public participation, stakeholder engagement, awareness creation processes and facilitation of various meetings (focus group, public meetings, workshops, etc.). She is responsible for project management of public participation processes for a wide range of environmental projects across South Africa and neighbouring countries.

Curricula Vitae (CVs) detailing Savannah Environmental team's expertise and relevant experience are provided in **Appendix A**.

1.6 Details of the Independent Specialist Team

In order to adequately identify and assess potential impacts associated with the project, a number of specialists have been appointed as part of the project team and have provided specialist input into this BA Report (refer to **Table 1.2**).

Table 1.2: Specialists which form part of the EIA project team

Company	Specialist Area of Expertise	Specialist Name
Rautenbach Biodiversity Consulting	Ecology Impact Assessment	Anita Rautenbach
Nhloso Environmental	Soil and Agricultural Potential Impact Assessment	Snethemba Mchunu
Savannah Environmental	Wetland Delineation Impact Assessment	Shaun Taylor and Gideon Raath with a peer review by Stephen Burton of SiVEST.
CTS Heritage	Heritage and Palaeontological Impact Assessment	Jenna Lavin
Neville Bews and Associates	Social Impact Assessment	Neville Bews

Curricula Vitae (CVs) detailing the specialist team's expertise and relevant experience are provided in **Appendix A**.

CHAPTER 2: PROJECT DESCRIPTION

This chapter provides an overview of the Wilmar Vegetable Oil Pipeline and details the project scope, which includes the planning/design, construction, operation and decommissioning activities required for the development. This chapter also fulfils one of the requirements of Appendix 1 of the EIA Regulations, 2014 (as amended) which prescribes for motivation of the need and desirability of a proposed development, including the need and desirability of the development in the context of the preferred location. Therefore, this Chapter in addition to the project description and approach undertaken in the BA Process, provides an overview of the anticipated suitability of the vegetable oil pipeline being development within the Richards Bay Port and the Richards Bay Industrial Development Zone.

2.1. Legal Requirements as per the EIA Regulations, 2014 (as amended)

This chapter of the Final BA Report includes the following information required in terms of the EIA Regulations, 2014 Appendix 1: Content of basic assessment reports:

Requirement	Relevant Section
3(b) the location of the activity including (i) the 21 digit Surveyor General code of each cadastral land parcel, (ii) where available the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	The location of the proposed Wilmar Vegetable Oil is detailed in Chapter 1, Table 1.1 , as well as section 2.2.1 below.
3(c)(i)(ii) a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or on land where the property has not been defined, the coordinates within which the activity is to be undertaken	A layout map illustrating the assessed corridor within which the Wilmar Vegetable Oil Pipeline is proposed is included in Figure 2.3 .
3(d)(ii) a description of the scope of the proposed activity, including a description of the activities to be undertaken including associated structures and infrastructure	A description of the activities to be undertaken with the development of the pipeline is included in Table 2.1 and Table 2.2 .
(g) a motivation for the preferred site, activity and technology alternative;	A motivation for the preferred site of the Wilmar Vegetable Oil Pipeline is included in section 2.4.
(h)(i) details of all the alternatives considered;	No alternatives have been considered for the proposed development of the Wilmar Vegetable Oil Pipeline. A motivation for this position is included in section 2.4 and 2.5.
(h)(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity	A concluding statement indicating the preferred pipeline route is included in section 2.4

2.2 Nature and extent of the Wilmar Vegetable Oil Pipeline

Wilmar Processing (Pty) Ltd proposes the construction and operation of a vegetable oil pipeline for the Wilmar Oil Processing Facility in the KwaZulu-Natal Province (**Figure 2.1**). The Wilmar Vegetable Oil Pipeline will include the development of four (4) carbon steel pipes (**Figure 2.2**) with a diameter of approximately 8 inches (216mm) each, which will extend from the Richards Bay Port to the proposed processing facility's

project site on Phase 1A of the RBIDZ. The proposed pipes will be stacked vertically in double rows or arranged horizontally on mounting structures above-ground within the identified corridor. The proposed pipes will pre-dominantly be constructed above-ground at an elevation of 500mm. Typical mounting structures will be approximately 1.5m x 1.5m (~ 2.25m²) and 1.2m into the ground of which, ~ 2.7m³ of soil will need to be excavated to construct the mounting structure. The proposed pipeline support width, as well as support height will be 1 100mm, respectively.

The Wilmar Vegetable Oil Pipeline will consist of the following infrastructure:

- » Four (4) x 216mm Steel Pipes; and
- » 12m high overhead Steel Bridges on Rail/Road Crossings.

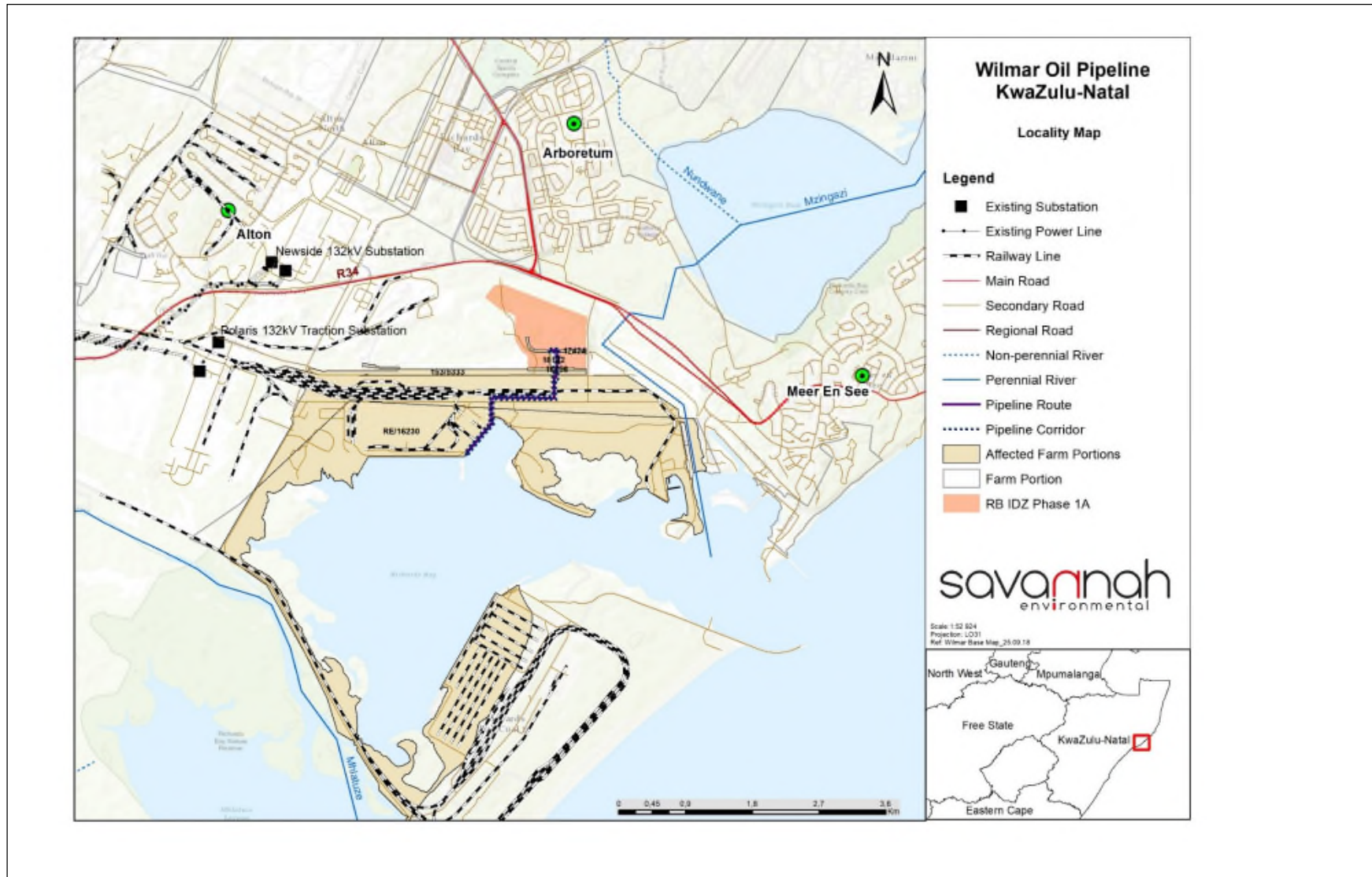


Figure 2.1: A locality map of the project development corridor for the Wilmar Vegetable Oil Pipeline.

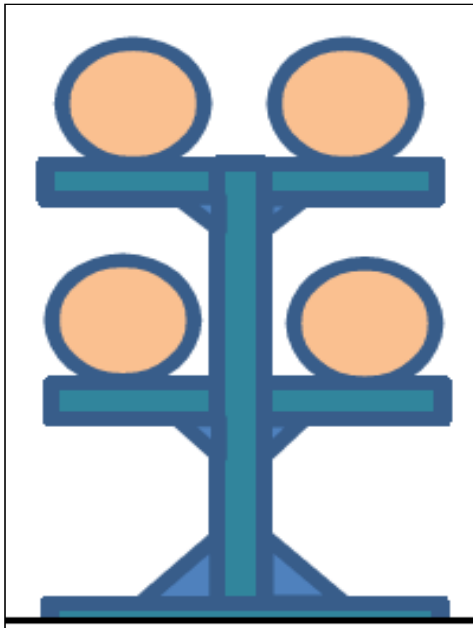


Figure 2.2: Conceptual illustration of the pipe configuration.

The proposed pipelines will route within a single servitude in a north easterly direction for approximately 500m from Berths 706, 707 and 708 Quayside at the Richards Bay Port (**Figure 2.3**), where a pipe manifold will be constructed into the concrete of the shipping dock for the flexible hose connection to the proposed pipelines. The pipes will run through an underground concrete tunnel before surfacing at the end of the tunnel, where they will then route in a northward's direction above-ground until reaching the Southern Access Road to Dry Bulk Slab. From here the pipes will be routed above road infrastructure past the Asphalt surfaced parking area towards the Northern Access Road to the Dry Bulk Slab area. The approximate length of this section of the proposed pipeline from the end of the tunnel void to the Northern Access Road Dry Bulk Slab is approximately 300m. From here, the pipeline then heads a short distance of approximately 50m in a north-easterly direction, spanning an open drain channel as well as the single-track railway line further along the route. The pipelines will then continue to route in an easterly direction for approximately 850m before making a 90° turn northwards through the Transnet North Railyard, firstly crossing above Newark Road and then spanning the single-track railway line and an open unlined drainage channel. The approximate length of this section of the proposed pipelines is 300m. The pipeline will then take another 90° turn eastwards for a short distance (approx. 15m), before making a 90° turn once more northwards, routing above Silver Ocean Road for a further 400m within the RB IDZ area. At this point, the pipeline will take another 90° turn to the west and run for approximately 100m before making a final 90° turn northwards into the proposed oil facility site on Lot 17422 within Phase 1A of the Richards Bay IDZ.

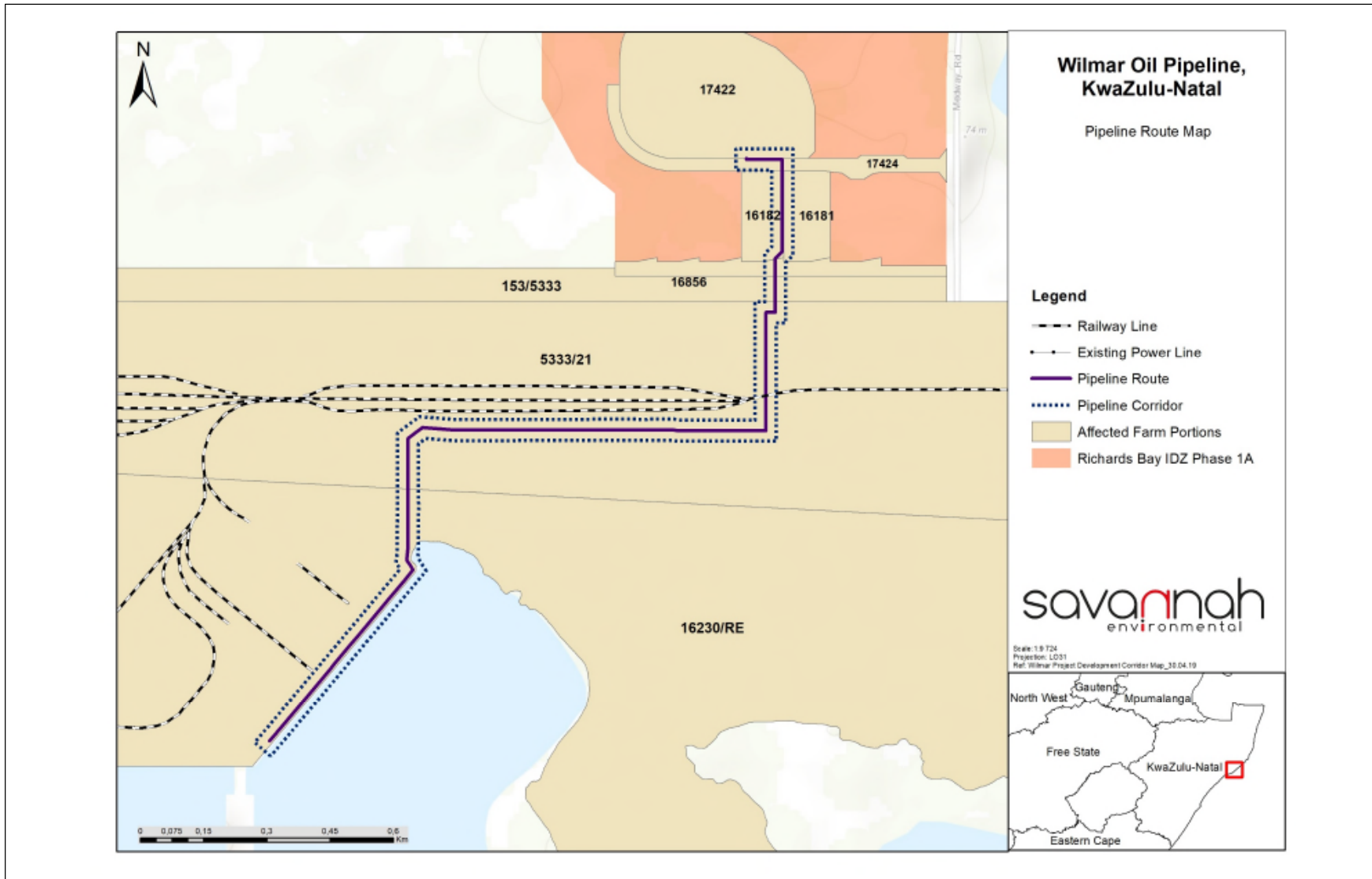


Figure 2.3: A layout map of the Wilmar Vegetable Oil Pipeline within the proposed project development corridor

Table 2.1: A detailed description of Wilmar Vegetable Oil Pipeline project development corridor.

Infrastructure	Footprint, dimensions and details
Corridor width (for assessment purposes)	One corridor of up to 50m in width is being assessed within this BA Report. The 4 proposed pipelines will be constructed and operated within this corridor.
Pipeline Capacity	up to 250cm ³ of vegetable oil per hour, or 220Mt per hour (only when the operational vessel is discharging)
Pipeline length	up to 2.8km
Road and Railway Crossings of the Wilmar Vegetable Oil Pipeline	» 6 crossings are envisaged within the existing railway and road infrastructure.
Support structure foundations	» Concrete pad foundations (approximately 1.5m x 1.5m and 1.2m below the ground)
Access roads/ tracks	Existing roads will be used to maintain and service the pipeline, as all parts of the proposed project development corridor are accessible by existing roads within the Port and RB IDZ.

Table 2.2 provides the details regarding the requirements and the activities to be undertaken during the pipeline development phases (i.e. construction phase, operation phase and decommissioning phase).

2.3 Project Development Phases associated with the Wilmar Vegetable Oil Pipeline

Table 2.2: Details of the pipeline development phases (i.e. construction, operation and decommissioning)

<u>Construction Phase</u>	
	<ul style="list-style-type: none"> » Duration of the construction phase is expected to be up to 6 months. » Create direct construction employment opportunities. Up to 50 employment opportunities will be created during the construction phase. » No on-site labour camps. Employees to be accommodated in Richards Bay and the nearby towns and transported to and from site on a daily basis. » Overnight on-site worker presence would be limited to security staff. » Construction waste will be stored on site and waste removal and sanitation will be undertaken by a sub-contractor or the municipality. » Negligible water will be required for the construction phase and potable needs. If required, water will be sourced from the municipality or private sources.
Construction sequence	<p>The pipelines are to be constructed in the following simplified sequence:</p> <ul style="list-style-type: none"> » Step 1: Surveying of the development area and negotiating with affected landowners; » Step 2: Final design and micro-siting of the infrastructure based on geo-technical, topographical conditions and potential environmental sensitivities; obtain required environmental permits (such as biodiversity permits, heritage permits & WUL/GA); » Step 3: Vegetation clearance; » Step 4: Construction of concrete pad foundations; » Step 5: Assembly and erection of infrastructure on site; » Step 6: Rehabilitation of disturbed areas » Step 7: Continued maintenance. <p>The final definition of the centre line for the pipeline and co-ordinates of each bend in the line (if applicable) will be determined on receipt of an environmental authorisation of the assessed corridor by the competent authority and after negotiations with landowners and final environmental and technical surveys¹.</p>
<u>Operation Phase</u>	
	<ul style="list-style-type: none"> » Duration will be ~20 years, or longer as needed for the operation of the processing facility.

¹ The start, middle and end coordinates of the nominated corridor is included in **Appendix L**.

- » Requirements for security and maintenance of the pipeline.
- » Employment opportunities relating mainly to operation activities and maintenance. Very limited employment opportunities will be available.

Activities to be undertaken

Operation and Maintenance	<ul style="list-style-type: none"> » Part-time security and maintenance staff, especially for the pipeline. » Disposal of waste products in accordance with relevant waste management legislation. » On-going rehabilitation of those areas which were disturbed during the construction phase. » The maintenance of the pipeline infrastructure will be the responsibility of the holder of the Environmental Authorisation.
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Decommissioning Phase

Requirements	<ul style="list-style-type: none"> » Decommissioning of the pipeline infrastructure at the end of its economic life. » Expected lifespan of approximately more than 20 years (with maintenance) before decommissioning is required. » Decommissioning activities to comply with the legislation relevant at the time.
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Activities to be undertaken

Site preparation	<ul style="list-style-type: none"> » Confirming the integrity of access to the pipeline to accommodate the required equipment. » Mobilisation of decommissioning equipment.
Disassemble components and rehabilitation	<ul style="list-style-type: none"> » The pipeline components will be disassembled and reused and recycled (where possible). » Where components cannot be reused or recycled these will be disposed of in accordance with the regulatory requirements at the time of decommissioning. » Disturbed areas, where infrastructure has been removed, will be rehabilitated, if required and depending on the future land-use of the affected areas and the relevant legislation applicable at the time of decommissioning.

2.4 Need and Desirability of the Wilmar Vegetable Oil Pipeline

The proposed vegetable oil pipeline is in line with local, provincial and national development frameworks. In terms of the National Development Plan (IDP), job creation has been listed as a priority by Government, and the proposed development in this instance has the potential to create employment and business opportunities for the residents of the KwaZulu-Natal Province in this region. In addition, the King Cetshwayo District Growth and Development Summit (King Cetshwayo District Municipality, 2018) outlined that the proposed expansion of the Richards Bay Port is amongst the leading projects in the Province that will promote economic growth and create employment opportunities. Although, the proposed development of the pipeline is not in line with the expansion of the Richards Bay Port, it does however, feature as part of the development envisaged for the area.

2.4.1 Location Desirability of the Wilmar Vegetable Oil Pipeline

Wilmar Processing (Pty) Ltd undertook the site selection process for the development of the proposed pipeline, which took into consideration the financial, technical, and environmental aspects of undertaking the development of a pipeline within the RB IDZ. These aspects included inter alia, geotechnical surveys of the proposed project development corridor. Based on the outcomes of the feasibility and geotechnical studies, it was determined that the routing of the project development corridor and the pipeline within the RB IDZ would be the most preferred and feasible option, as such no other alternative location has been considered due to:

- » The project development corridor is located within the Richards Bay Port which provides ease of access to the international export market for the Developer once the raw vegetable oil has been processed into multiple products;
- » The Wilmar Vegetable Oil Pipeline will be proximal to other manufacturing industries located in Richards Bay, specifically the RB IDZ;
- » There is existing road and electrical infrastructure in the RB IDZ;
- » From an environmental perspective, a greater portion of the RB IDZ has been extensively modified, therefore no significant irreversible environmental impacts anticipated;
- » The proposed development will be located within a Special Economic Zone (SEZ), the RB IDZ. SEZs are strategic areas selected strategically by Government for the infrastructure development projects within the manufacturing industry in order to promote and nurture economic growth in South Africa; and
- » The proposed development of the vegetable oil pipeline supports national, provincial and local economic development policies.

The RB IDZ in its entirety has been earmarked for the development of various industries through the Special Economic Zones Act (Act No. 16 of 2014). Therefore, the development of the vegetable oil pipeline within the Richards Bay Port and the RB IDZ supports the land use the area has been earmarked for. The proposed development provides the Applicant, and other stakeholders, including Government with a symbiotic relationship within the manufacturing and trade and industry sectors of the economy.

2.5 Alternatives Considered during the BA Process

In accordance with the requirements of Appendix 1 of the 2014 EIA Regulations (GNR 326), a BA Report must contain a consideration of alternatives including site (i.e. development footprint), activity, technology and

site access alternatives, as well as the “do-nothing” alternative. Alternatives are required to be assessed in terms of social, biophysical, economic and technical factors.

2.5.1 Project Location Alternatives

In accordance with the requirements outlined in Appendix 1 of the 2014 EIA Regulations (as amended), the consideration of alternatives including site, activity, construction methodology, as well as the 'do nothing' alternative should be undertaken. Therefore, the identification of alternatives is a key aspect of the success of the BA process. In relation to a proposed activity, “Alternatives” means different ways of meeting the general purposes and requirements of the proposed activity, therefore, the following sections address this requirement in terms of the project in question.

The Applicant in conjunction with Transnet over an 18-month period of engineering-related discussions identified the proposed corridor within the RBT, taking into consideration future expansion projects of the Port and any avoidance to current operations and environmental sensitivities. The identified corridor within RBT and RB IDZ is the most feasible and environmentally inexpensive location for the development of the pipeline. This follows that the project development corridor is within an area that is extensively modified, the RBT, where there will be ease of access to vessels transporting raw materials to the Port required for the industrial process at the proposed Oil processing facility within Phase 1A of the RB IDZ.

Taking the above aspects into consideration, the proposed project development corridor/route for the development of the pipeline is regarded as being the most preferred option by the Developer from a technical and environmental perspective. Therefore, no further alternatives are assessed within this Final BA Report.

2.5.2 Technology Alternatives

The proposed infrastructure or components of the vegetable oil pipeline will include the installation of four (4) x carbon steel DN200 pipes with a 216mm, which will have a contracting capacity of up to 250cm³ per hour. In selecting the preferred technology (i.e. transportation of oil via a pipeline with the proposed material), the Applicant took into consideration the following:

- » Carbon steel pipes are resistant to erosion and chemical deterioration, therefore this attribute increases the longevity of the pipeline;
- » The material is environmentally friendly in that, it is recyclable; and
- » The pipes have high tensile strength, which means they can withstand the same amount of pressure as other pipes while being thinner in construction. Therefore, this provides carbon steel with a greater carrying capacity and makes it more cost effective.

The Developer considers the use of carbon steel pipes for oil transport as the preferred option, taking into consideration the financial, technical and environmental implications of using the carbon steel material in the transportation of vegetable oil. No other technology options are assessed within this Final BA Report.

2.5.3 The 'Do Nothing' Alternative

The EIA Regulations prescribe that within any BA process, the 'Do Nothing' alternative option be considered. Therefore, this alternative is the option of not constructing the proposed vegetable pipeline within the RB IDZ. Should this alternative be selected, it means the status quo of the area remains intact. Therefore, this means any benefits associated with the development of the pipeline will **not be realised**, and a subsequent loss of income and opportunities for the residents of Richards Bay and the Kwa-Zulu-Natal Province. Above all, this option will deprive Wilmar Processing (Pty) Ltd of the opportunity to develop state of the art infrastructure that will position South Africa as a key exporter and consumer of agri-processed products within the South African Development Community's (SADC) region. Furthermore, infrastructure development projects within the RB IDZ and other IDZs (i.e. Coega) are of utmost importance to local and national tiers of the South African Government. Therefore, the development of the pipeline will enable these structures to realise their strategic objectives pertaining to infrastructure development, economic growth, reduction of object poverty, and job creation as highlighted in their respective IDPs, PGDPs and SDPFs. It is on this basis, that the 'Do Nothing' alternative is the least preferred by the Developer.

CHAPTER 3: APPROACH TO UNDERTAKING THE BASIC ASSESSMENT PROCESS

In terms of the EIA Regulations of December 2014 published in terms of NEMA (Act No. 107 as amended), the construction and operation of the Wilmar Vegetable Oil Pipeline is a listed activity requiring environmental authorisation. Due to the triggering of activities within Listing Notice 1, of the EIA Regulations, 2014 (as amended), a BA process must be undertaken in support of the application for environmental authorisation.

The BA process aims at identifying and describing potential environmental issues associated with the development of vegetable oil pipeline and associated infrastructure. In order to ensure that a comprehensive assessment is provided to the competent authority and I&APs regarding the impacts of the proposed infrastructure, detailed independent specialist studies were undertaken as part of the BA process. In addition, a comprehensive consultation process has been commenced, and includes I&APs, the competent authority, directly impacted landowners/occupiers, adjacent landowners/occupiers, relevant Organs of State departments, ward councillors and other key stakeholders. This chapter serves to outline the process that was followed during the BA process.

This Chapter of the Final BA Report includes the following information required in terms of Appendix 1:

Requirement	Relevant Section
3(d)(i) a description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for.	All listed activities triggered as a result of the development of the vegetable oil pipeline have been included in section 3.3, Table 3.1 . The specific project activity relating to the relevant triggered listed activity has also been included in Table 3.1 .
3(h)(ii) details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs.	The details of the public participation process undertaken for the vegetable oil pipeline has been included and described in section 3.4.2.
3(h)(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.	The methodology used to assess the significance of the impacts of the vegetable oil pipeline has been included in section 3.4.3.

3.1 Relevant legislative permitting requirements

The legislative permitting requirements applicable to the vegetable oil pipeline as identified at this stage in the process are described in more detail under the respective sub-headings.

3.1.1 National Environmental Management Act (No. 107 of 1998) (NEMA)

NEMA is South Africa's key piece of national environmental legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant EA.

The need to comply with the requirements of the EIA Regulations published under NEMA ensures that developers are provided the opportunity to consider the potential environmental impacts of their activities early in the project development process, and also allows for an assessment to be made as to whether environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the competent authority with sufficient information in order for an informed decision to be taken regarding the project.

The BA process being conducted for the pipeline is being undertaken in accordance with Section 24 (5) of NEMA. Section 24 (5) of NEMA pertains to Environmental Authorisations (EAs), and requires that the potential consequences for, or impacts of, listed or specified activities on the environment be considered, investigated, assessed, and reported on to the competent authority. Listed Activities are activities identified in terms of Section 24 of NEMA which are likely to have a detrimental effect on the environment, and which may not commence without an EA from the competent authority subject to the completion of an environmental assessment process (either a Basic Assessment (BA) or full Scoping and EIA).

Table 3.1 details the listed activities in terms of the EIA Regulations of December 2014 (as amended) that apply to the Wilmar Vegetable Oil Pipeline, and for which an Application for Environmental Authorisation has been submitted. The table also includes a description of the specific project activities which relate to the applicable listed activities.

Table 3.1: Listed activities as per the EIA regulations that are triggered by the proposed development of the Wilmar Vegetable Oil Pipeline.

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per project description
GN 327, 08 December 2014 (as amended on 07 April 2017)	12 (ii)	<p>The development of-</p> <p>(ii) Infrastructure or structures with a physical footprint of 100 square metres or more- where such development occurs-</p> <p>i. within a watercourse within 32 metres of a watercourse.</p> <p><i>The construction and operation of the proposed pipeline will occur within 32m of a depression wetland.</i></p>
GN 324, 08 December 2014 (as amended on 07 April 2017)	12(d)v)	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p><i>The project development corridor for the Wilmar Vegetable Oil Pipeline falls within the designated 'Biodiversity area' under the KwaZulu-Natal Systematic Conservation Plan. Furthermore, the project development corridor of the pipeline falls partially within a CBA under the King Cetshwayo (formerly uThungulu) Biodiversity Sector Plan. In addition, the development of the pipeline will</i></p>

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per project description
		require the clearance of indigenous vegetation of an area exceeding 300 square metres for the development of the pipeline.
GN 324, 08 December 2014 (as amended on 07 April 2017)	14(ii)(d)(vii)	<p>The development of (ii) infrastructure or structures with a physical footprint of 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 a watercourse, in (d) KwaZulu-Natal, (vii) critical biodiversity areas or ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</p> <p>The project development corridor for the Wilmar Vegetable Oil Pipeline falls within the designated 'Biodiversity area' under the KwaZulu-Natal Systematic Conservation Plan. Furthermore, the project development corridor of the pipeline falls partially within a CBA under the King Cetshwayo (formerly uThungulu) Biodiversity Sector Plan. Furthermore, the development of the pipeline will require the construction of infrastructure within 32m of the depression wetland identified adjacent to the project development corridor.</p>

3.1.2 National Water Act (No. 36 of 1998) (NWA)

In accordance with the provisions of the National Water Act (No. 36 of 1998) (NWA), all water uses must be licensed with the Competent Authority (i.e. the Regional DWS). Water use is defined broadly, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. Construction within the regulated area of a wetland (i.e. within 500m) is also listed as a water use which must be licensed.

Table 3.2 lists Water Uses associated with the proposed project and identified in terms of the NWA which require licensing either in the form of a General Authorisation (GA) or in form of a Water Use Licence (WUL). The table also includes a description of project activities that relate to the applicable Water Uses.

Table 3.2: List of Water Uses published under Section 21 of NWA, as amended.

Notice No.	Activity No.	Description of Water Use
NWA (No. 36 of 1998)	Section 21 (c)	<p>Impeding or diverting the flow of water in a watercourse.</p> <p>A depression wetland and an artificial drainage channel are located adjacent to the project development corridor for the pipeline.</p>
	Section 21 (i)	<p>Altering the bed, banks, course or characteristics of a watercourse.</p> <p>A depression wetland and an artificial drainage channel are located adjacent to the project development corridor for the pipeline.</p>

In the event that the flow of water in the wetland and artificial drainage channel is affected and the bed, banks or course characteristics are altered, an application would need to be made for a WUL in accordance with the requirements of the Regulations Regarding the Procedural Requirements for Water Use License Applications and Appeals (GNR 267 of 2017), or a GA registered in accordance with the requirements of Revision of General Authorisation (Government Notice 509 of 2016). The process of applying for a WUL or GA registration will only be completed once a positive EA has been received and before the Wilmar Vegetable Oil Pipeline project commences with the construction phase of the development. This is in line with requirements of the DWS.

3.1.3 National Heritage Resources Act (No. 25 of 1999) (NHRA)

The National Heritage Resources Act (No. 25 of 1999) (NHRA) provides an integrated system which allows for the management of national heritage resources and to empower civil society to conserve heritage resources for future generations. Section 38 of NHRA provides a list of activities which potentially require the undertaking of a Heritage Impact Assessment.

Section 38: Heritage Resources Management

- 1). *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as –*
- a. *the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
 - b. *the construction of a bridge or similar structure exceeding 50m in length;*
 - c. *any development or other activity which will change the character of a site –*
 - i). *exceeding 5 000m² in extent; or*
 - ii). *involving three or more existing erven or subdivisions thereof; or*
 - iii). *involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - iv). *the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*

Must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of a development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed vegetable oil pipeline development, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GNR 668).

3.2 Overview of the Basic Assessment Process for the Wilmar Vegetable Oil Pipeline

Key tasks undertaken for the BA included:

- » Pre-application consultation with the relevant decision-making authorities (i.e. KZN EDTEA).
- » Submission of the completed Application for Environmental Authorisation to the competent authority (i.e. KZN EDTEA) in terms of Regulations 5 and 6 of the EIA Regulations, 2014 (GNR 326), as amended.
- » Undertaking a public participation process in accordance with Chapter 6 of GN R326, and the Department of Environmental Affairs (2017), Public Participation guidelines in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa (hereinafter referred to as "the Guidelines") in order to identify issues and concerns associated with the proposed project.
- » Undertaking of independent specialist studies in accordance with Appendix 6 of the EIA Regulations, 2014 (GNR326), as amended.
- » Preparation of a BA report and EMPr in accordance with the requirements of Appendix 1 and Appendix 4 of GNR326.
- » 30-day public and authority review period of the BA report.
- » Compilation of a Comment and Responses (C&R) report detailing the comments raised by I&APs, addressing these comments in detail and finalisation of the BA report.
- » Submission of a Final BA report to the DEA for review and decision-making.

The tasks are discussed in detail in the sub-sections below.

3.2.1 Authority Consultation and Application for Authorisation in terms of the 2014 EIA Regulations (as amended)

In terms of Section 24 of NEMA, the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA) has been determined as the Competent Authority for projects which trigger Listing Activity 1 (GN R327) and are proposed within the jurisdiction of the Province. Therefore, the competent authority for the Wilmar Vegetable Oil Pipeline is the KZN EDTEA.

Consultation with the regulating authorities (i.e. KZN EDTEA) as well as with all other relevant Organs of State will continue throughout the BA process. To date, this consultation has included the following:

- » Pre-application consultation meeting with KZN EDTEA.
- » Submission of a completed application for EA to KZN EDTEA.
- » Submission of the project notification letters and application form for Environmental Authorisation to the KZN EDTEA.
- » Submission of the BA report for review and comment by:
 - * The competent and commenting authorities.
 - * Organs of State that have jurisdiction in respect of the activity to which the application relates.

A record of all authority correspondence undertaken during the BA process is included in **Appendix B** and **Appendix C**.

3.2.2 Public Participation Process

Public Participation is an essential and regulatory requirement for an environmental authorisation process and is defined by the requirements of Regulations 41 to 44 of the EIA Regulations 2014 (GNR 326) (as amended). The sharing of information forms the basis of the public participation process and offers the opportunity for I&APs (Interested and Affected Parties) to become actively involved in the BA process from

the outset. The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner. The public participation process affords I&APs opportunities to provide input into and receive information regarding the BA process in the following ways:

During the BA process:

- » provide an opportunity to submit comments regarding the project;
- » assist in identifying reasonable and feasible alternatives;
- » contribute relevant local information and knowledge to the environmental assessment;
- » allow registered I&APs to verify that their comments have been recorded, considered and addressed, where applicable, in the environmental investigations;
- » foster trust and co-operation;
- » generate a sense of joint responsibility and ownership of the environment; and
- » comment on the findings of the environmental assessments.

During the decision-making phase:

- » to advise I&APs of the outcome of the competent authority's decision, and how and by when the decision can be appealed.

The public participation process therefore aims to ensure that:

- » Information containing all relevant facts in respect of the application is made available to potential stakeholders and I&APs for their review.
- » The information presented during the public participation process is presented in such a manner, i.e. local language and technical issues, that it avoids the possible alienation of the public and prevents them from participating.
- » Public participation is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the project.
- » Various ways are provided to I&APs to correspond and submit their comments i.e. fax, post, email.
- » An adequate review period is provided for I&APs to comment on the findings of the BA Report.

In terms of the requirement of Chapter 6 of the EIA Regulations of December 2014, as amended, the following key public participation tasks are relevant for the current BA process:

- » Placement of a site notice at the boundary or on the fence of the site where the activity to which the application relates is or is to be undertaken
- » Give written notice to:
 - (i) the owner or person in control of the land affected by the project (as this is not owned by the applicant);
 - (ii) the occupiers of the site where the activity is proposed to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is proposed to be undertaken;
 - (iv) the municipal councillor of the ward in which the site is situated;
 - (v) the municipality which has jurisdiction in the area; and
 - (vi) organ of state having jurisdiction in respect of any aspect of the activity;
- » Placement of an advertisement in one local newspaper (i.e. Zululand Observer.
- » Open and maintain a register of I&APs and Organs of State.
- » Release a BA Report for a 30-day review period.

- » Prepare a Comments and Responses (C&R) report which documents the comments received on the BA process and the responses provided by the project team.

In compliance with the requirements of Chapter 6: Public Participation of the EIA Regulations, 2014 (as amended), the following summarises the key public participation activities conducted to date.

i. Stakeholder identification and Register of Interested and Affected Parties

42. A proponent or applicant must ensure the opening and maintenance of a register of I&APs and submit such a register to the competent authority, which register must contain the names, contact details and addresses of –
- (a) All persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;
 - (b) All persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and
 - (c) All organs of state which have jurisdiction in respect of the activity to which the application relates.

I&APs have been identified through a process of networking and referral, obtaining information from Savannah Environmental's existing stakeholder database, liaison with potentially affected parties in the greater study area and a registration process involving the completion of a reply form. Key stakeholders and affected and surrounding landowners have been identified and registered on the project database. Other stakeholders are required to formally register their interest in the project. An initial list of key stakeholders identified and registered is listed in **Table 3.3**.

Table 3.3: List of Stakeholders identified for the inclusion in the project database during the public participation process for the Wilmar Vegetable Oil Pipeline.

Organs of State
National Government Departments
Department of Rural Development and Land Reform (DRDLR)
Department of Water and Sanitation (DWS)
Department of Economic Development (DED)
Department of Trade and Industry (DTI)
Government Bodies and State-Owned Companies
South African Heritage Resource Agency (SAHRA)
South African Biodiversity Institute (SANBI)
Transnet State Owned Company Limited
Richards Bay Industrial Development Zone (RB IDZ)
Provincial Government Departments
KwaZulu-Natal, Department of Agriculture, Land Reform and Rural Development (DALRRD)
KwaZulu-Natal, Department of Water and Sanitation (DWS)
Kwa-Zulu Natal, Department of Public Works, Roads and Transport (DPWRT)
Kwa-Zulu Natal, Department of Economic Development, Tourism and Environmental Affairs (EDTEA)
KZN Provincial Heritage Authority, Amafa
Ezemvelo Wildlife Authority (eKZN Wildlife)
Local Government Departments
King Cetshwayo District Municipality
uMhlathuze Local Municipality
Landowners

Affected landowners, tenants and occupiers

Neighbouring landowners, tenants and occupiers

As per Regulation 42 of the EIA Regulations, 2014 (as amended), all relevant stakeholder and I&AP information has been recorded within a register of I&APs (refer to **Appendix C1** for a listing of the recorded parties). In addition to the above-mentioned EIA Regulations, point 4.1 of the Public Participation Guidelines has also been followed. The register of I&APs contains the names, contact details and addresses of:

- » all persons who requested to be registered on the database in writing and disclosed their interest in the project;
- » all Organs of State which hold jurisdiction in respect of the activity to which the application relates;
- » all persons identified and approached through networking or a chain referral system to identify any other stakeholder (i.e. ratepayers associations); and
- » all persons who submitted written comments or attended meetings during the public participation process.

I&APs have been encouraged to register their interest in the BA process from the onset of the project, and the identification and registration of I&APs will be on-going for the duration of the BA process. The database of I&APs will be updated throughout the BA process and will act as a record of the I&APs involved in the public participation process.

ii. Advertisements and Notifications

- 40.(2)(a) Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of –
- » (i) The site where the activity to which the application or proposed application relates is or is to be undertaken; and
 - (ii) Any alternative site.
- 40.(2)(b) Giving written notice, in any of the manners provided for in section 47D² of the Act, to –
- » (i) The occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;

² Section 47D of NEMA pertains to the delivery of documents, and states that:

- (1) A notice or other document in terms of this Act or a specific environmental management Act may be issued to a person –
- (a) By delivering it by hand;
 - (b) By sending it by registered mail –
 - (i) To that person's business or residential address; or
 - (ii) In the case of a juristic person, to its registered address or principal place of business;
 - (bA) By faxing a copy of the notice or other document to the person, if the person has a fax number;
 - (bB) By e-mailing a copy of the notice or other document to the person, if the person has an e-mail address; or
 - (bC) By posting a copy of the notice or other document to the person by ordinary mail, if the person has a postal address;
 - (c) Where an address is unknown despite reasonable enquiry, by publishing it once in the Gazette and once in a local newspaper circulating in the area of that person's last known residential or business address.
- (2) A notice or other document issued in terms of subsection (1)(b), (bA), (bB), (bC) or (c) must be regarded as having come to the notice of the person, unless the contrary is proved."

- » (ii) Owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;
 - » (iii) The municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - » (iv) The municipality which has jurisdiction in the area;
 - » (v) Any organ of state having jurisdiction in respect of any aspect of the activity; and
 - » (vi) Any other party as required by the competent authority.
- 40.(2)(c) Placing an advertisement in –
- » (i) One local newspaper; or
 - » (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;
- 40.(2)(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 district 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 paragraph (c)(ii); and
- 40.(2)(e) Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to –
- » (i) Illiteracy;
 - » (ii) Disability; or
 - » (iii) Any other disadvantage.

The BA process was announced with an invitation to the Organs of State, potentially affected and neighbouring landowners and general public to register as I&APs and to actively participate in the process. This was achieved via the following:

- » Placement of site notices announcing the BA process at visible points along the boundary of the project site, in accordance with the requirements of the EIA Regulations. Photographs and the GPS co-ordinates of the site notices are contained in **Appendix C2**.
- » BA process notification letters announcing the BA process, notifying Organs of State, potentially affected and neighbouring landowners, as well as registered stakeholders/I&APs of the vegetable oil pipeline, providing background information of the project and inviting I&APs to register on the project's database, were distributed via email on 08 April 2019. The evidence of the distribution of the process notification letters are contained in **Appendix C** of the Final BA Report.
- » Placement of advertisement announcing the BA process and the availability of and inviting comment on the BA Report in the Eyethu Baywatch newspaper on **15 May 2019**. The details of the newspaper advert placement are contained in **Appendix C2** of this Final BA Report.
- » The BA Report for review was made available for review by I&APs for a 30-day review period from **17 May 2019 to 18 June 2019**. CD and hard copy versions of the BA Report were circulated to Organs of State via courier at the commencement of the review period. The BA Report was also made available on Savannah Environmental's website (<https://www.savannahsa.com/public-documents/other/>). The evidence of distribution of the BA Report is included in this Final BA Report as Appendix C4.

iii. Public Involvement and Consultation

In order to accommodate the varying needs of stakeholders and I&APs within the greater study area, as well as capture their views, comments, issues and concerns regarding the project, various opportunities have been and will continue to be provided to I&APs to note their comments and issues. I&APs are being consulted through the following means:

Table 3.4: Public involvement for the Wilmar Vegetable Oil Pipeline

Activity	Date
Distribution of the process notification and stakeholder reply form announcing the BA process and inviting I&APs to register on the project database.	2 May 2019
Placement of site notices on-site and in public places.	6 March 2019
Distribution of notification letters announcing the availability of the BA Report for review for a 30-day public review and comment period. These letters were distributed to Organs of State, Government Departments, Ward Councillors, landowners within the greater study area (including neighbouring landowners) and key stakeholder groups.	16 May 2019
Advertising of the availability of the BA Report for a 30-day review period in Baywatch/Zululand newspaper.	15 May 2019
30-day review period for the BA Report for comment.	17 May 2019 – 18 June 2019
Focus Group Meetings: <ul style="list-style-type: none"> » Affected Landowners; » Adjacent Landowners; » Authorities and Key Stakeholders (including organs of state, local municipality and community-based organisations) 	<u>13 June 2019</u>
On-going consultation (i.e. telephone liaison; e-mail communication) with all I&APs	Throughout BA Report 30-day review period

The purpose of the abovementioned consultation is to engage with key stakeholders to ensure that key requirements/comments are noted and addressed as part of the BA process. Records of all consultation undertaken are included in **Appendix C**.

iv. Registered I&APs entitled to Comment on the BA Report and Plans

- 43.(1) A registered I&AP is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process contemplated in these Regulations and to bring to the attention of the proponent or applicant any issues which that party believes may be of significance to the consideration of the application, provided that the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.
- (2) In order to give effect to section 24O of the Act, any State department that administers a law relating to a matter affecting the environment must be requested, subject to regulation 7(2), to comment within 30 days.
- 44.(1) The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans and that such written comments, including responses to such comments and records of meetings, are attached to the reports and plans that are submitted to the competent authority in terms of these Regulations.
- (2) Where a person desires but is unable to access written comments as contemplated in sub regulation (1) due to –
- (a) A lack of skills to read or write;
 - (b) Disability; or
 - (c) Any other disadvantage;
- Reasonable alternative methods of recording comments must be provided for.

I&APs registered on the database were been notified by means of a notification letter (e-mail and registered mail) of the release of the BA Report for a 30-day public review period, invited to provide comment on the BA Report, and informed of the manner in which, and timeframe within which such comment must be made. The notification was distributed prior to the commencement of the 30-day review period, on 06 May 2019.

v. **Identification and Recording of Comments**

Comments raised by I&APs over the duration of the BA process will be synthesised into a Comments and Responses (C&R) report are included in this Final BA Report as **Appendix C7**. The C&R report includes all written comments received and responses from members of the EIA project team and/or the project proponent to the issues and comments raised during the public participation process.

Meeting notes of all the meetings conducted during the 30-day review period of the BA Report are included in **Appendix C6** of this Final Basic Assessment Report.

Summary of Main Issues Raised by I&APs	Summary of Response from EAP
<p><u>The KwaZulu-Natal Provincial Department of Agriculture, Forestry and Fisheries requested to register as an interested and affected party, and indicated that if the proposed development of the vegetable oil pipeline would be undertaken on land under the provisions of the Subdivision of Agricultural Land Act (Act No. 70 of 1970) of 1970, a formal application would need to be lodged with the Department for formal comments.</u></p>	<p><u>The findings of the Soil and Agricultural Potential Report (included in this final BA Report as Appendix F) acknowledges that part of the proposed development corridor falls within an area associated with a high agricultural sensitivity, however, the undertaking of agricultural activities within this area is unfeasible as the land has been zoned by the City of uMhlathuze Local Municipality for industrial-related activities.</u></p>
<p><u>The Office of the Regional Land Claims Commissioner: KwaZulu-Natal indicated that no claims for restitution were lodged against the properties: Portion 153 of Erf 5333 Richards Bay, Erf 16856 Richards Bay; Erf 16182; Erf 1724 and Erf 17422. However, the records of the office of the Land Claims Commissioner further indicated that land restitution claims were lodged for the property: Remainder of the Farm Lot 233 Umhlathuze No. 16230 and Remainder of Portion 21 of Erf 5333 which fall under the Mtiyane Tribe (Mandlazini) land claim.</u></p>	<p><u>The EAP acknowledged the comment and further indicated that all relevant consultation was undertaken with the registered landowners of the properties to be affected by the proposed corridor for the development of the vegetable oil pipeline in accordance with Regulations 41 (2)(b)(i) and (ii) of the EIA Regulations, 2014 as amended.</u></p>
<p><u>The KwaZulu-Natal Provincial Department of Economic Development, Tourism and Environmental Affairs indicated that the final BA Report should also include comments from the landowner. Furthermore, the Department requested that a register of the focus group meetings and the proof of advert placement be included in the final BA Report.</u></p>	<p><u>Appendix C2 of the final BA Report includes the advert tear sheet, whereas Appendix C4 and C5 include all correspondence between the project team and interested and affected parties on the project. In addition, Appendix C6 includes a meeting register and meeting minutes of the Focus Group Meeting held at the Richards Bay Industrial Development Zone.</u></p>
<p><u>KwaZulu-Natal Ezemvelo Wildlife acknowledged receipt of the BA Report and emphasized that all mitigation measures proposed in the Report and the EMPr be implemented during the construction and operational phase of the vegetable oil pipeline. In addition, KZN Ezemvelo Wildlife indicated that that no further documentation was required from the project team, however, should any biodiversity issues arise, the office should be notified.</u></p>	<p><u>The EAP acknowledged the comment and indicated that the implementation of the recommended mitigation measures in the BA Report and the EMPr will form part of the conditions included in the EA</u></p>

The Department highlighted that the applicant was required to apply for a water use authorisation in accordance with Section 21 of the National Water Act (Act No. 36 of 1998) of 1998, and that the Department should be furnished with detail pertaining to the source of water, quantities required and the identified landfill and capabilities thereof.

The Department of Environmental Affairs Biodiversity Directorate acknowledged that although part of the proposed pipeline development corridor falls within a Critical Biodiversity Irreplaceable Area, the Ecological Impact Assessment (**Appendix D**) indicated that the vegetation within the corridor has been transformed and disturbed with no prospect of successful rehabilitation. In addition, the Directorate emphasized that all species listed in terms of TOPs and the Red Data List must not be removed or disturbed without the required permits from the relevant authorities (i.e. KZN Ezemvelo Wildlife and KZN DAFF). The Directorate further highlight that a qualified botanist must be appointed to undertake a final walk through of the corridor to identify any sensitive plant species.

The City of uMhlathuze Local Municipality acknowledged receipt of the BA Report and confirmed that an application for a lease of servitude has been lodged by the applicant to the municipality. In addition, the municipality indicated that the EMPr should include a dedicated section that would mitigate against potential pipe ruptures, spillages and include emergency response actions.

The Richards Bay Clean Air Association (RBCAA) indicated that all mitigation measures proposed within the must be implemented during the construction and operational phase of the proposed development. Furthermore, the association highlighted that the Report was silent on operation of the pipeline and the potential of spillages and how these would be managed and mitigated.

The EAP acknowledged the comment and indicated that the project team has commenced with the water use authorization process. A pre-application meeting was held with the Department in Durban on Monday, 8 August 2019. Further to this, the applicant has indicated that no abstraction of water from any natural water resource will occur and a service level agreement will be entered to with a service provider or Transnet for the supply of water during the construction phase of the vegetable oil pipeline. Lastly, the applicant acknowledged the Department's request pertaining to the identified landfill and indicated that this detail will become available once Transnet has issued the required approvals on the project.

The mitigation measures included in *Objective 2: Minimise impacts related to inappropriate site establishment* of the Construction Phase EMPr includes detailed and pragmatic mitigation measures which pertain to the demarcation of protected plant species/habitats identified within and along the project development corridor. Furthermore, *Objective 2: Ensure that the relevant permits and plans are in place to manage impacts on the environment* of the Design and Planning EMPr provides for the undertaking of a final walk-through survey of the corridor by a qualified specialist to locate any species of conservation concern

The EAP acknowledged the comment from the municipality and highlighted that the operation phase EMPr in *Objective 8: To ensure vegetable oil spills, leaks and rupture of the pipeline are effectively contained* provides for the implementation of a spill contingency plan in the event of a spill, leakage or rupture of the vegetable oil pipeline.

The EAP conceded that the BA Report did not adequately address the risk posed by a rupture, leakage or spill of the pipeline and the vegetable oil to the surrounding environment. However, the final BA Report contains a detailed assessment of the above-mentioned aspects in section 5.3.3, and the Operation Phase EMPr in *Objective 8: To ensure vegetable oil spills, leaks and rupture of the pipeline are effectively contained* includes a provision for the implementation of a spill contingency plan in the event of a leakage of vegetable oil and the rupture of the pipeline.

3.2.3 Assessment of Issues Identified through the BA Process

Issues identified as requiring investigation, as well as the specialist consultants involved in the assessment of these impacts are indicated in **Table 3.5** below.

Table 3.5: Specialist consultants appointed to evaluate the potential impacts associated with the Wilmar Vegetable Oil Pipeline

Specialist Name	Specialist Company	Specialist Area of Expertise	Appendices
Anita Rautenbach	Rautenbach Biodiversity Consulting	Ecology Impact Assessment.	Appendix D
Shaun Taylor Gideon Raath with a peer review by Stephen Burton of SiVEST	Savannah Environment	Wetland Delineation Assessment	Appendix E
Snethemba Mchunu	Nhloso Environmental	Soil and Agricultural Potential Impact Assessment	Appendix F
Jenna Lavin	CTS Heritage	Heritage Impact Assessment	Appendix G
Neville Bews	Neville Bews and Associates	Social Impact Assessment	Appendix H

Specialist studies considered direct and indirect environmental impacts associated with the development of all components of the vegetable oil pipeline. Issues were assessed in terms of the following criteria:

- » The **nature**, a description of what causes the effect, what will be affected, and how it will be affected;
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional, national or international. A score of between 1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high);
- » The **duration**, wherein it is indicated whether:
 - * The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
 - * The lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
 - * Medium-term (5–15 years) – assigned a score of 3;
 - * Long term (> 15 years) - assigned a score of 4;
 - * Permanent - assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0-10, where a score is assigned:
 - * 0 is small and will have no effect on the environment;
 - * 2 is minor and will not result in an impact on processes;
 - * 4 is low and will cause a slight impact on processes;
 - * 6 is moderate and will result in processes continuing but in a modified way;
 - * 8 is high (processes are altered to the extent that they temporarily cease);
 - * 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:
 - * Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
 - * Assigned a score of 2 is improbable (some possibility, but low likelihood);
 - * Assigned a score of 3 is probable (distinct possibility);
 - * Assigned a score of 4 is highly probable (most likely);
 - * Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- » The **status**, which is described as either positive, negative or neutral;

- » The degree to which the impact can be reversed;
- » The degree to which the impact may cause irreplaceable loss of resources;
- » The degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

$S = (E+D+M) P$; where

S = Significance weighting.

E = Extent.

D = Duration.

M = Magnitude.

P = Probability.

The **significance weightings** for each potential impact are as follows:

- » **< 30 points:** Low (i.e. where this impact would not have a direct influence on the decision to develop in the area);
- » **30-60 points:** Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated);
- » **> 60 points:** High (i.e. where the impact must have an influence on the decision process to develop in the area).

As the Applicant has the responsibility to avoid or minimise impacts and plan for their management (in terms of the EIA Regulations, 2014 (as amended)), the mitigation of significant impacts is discussed. Assessment of impacts with mitigation is made in order to demonstrate the effectiveness of the proposed mitigation measures. An Environmental Management Programme (EMPr) is included as **Appendix I**.

3.3 Assumptions and Limitations of the BA Process

The following assumptions and limitations are applicable to the studies undertaken within this BA process:

- » All information provided by the developer and I&APs to the environmental team was correct and valid at the time it was provided.
- » It is assumed that the corridor identified by the Developer represents a technically suitable site for the establishment of the vegetable oil pipeline, which is based on the design undertaken by technical consultants for the project.
- » This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other alternatives.

Refer to the specialist studies in **Appendices D – H** for specialist study specific limitations.

3.4 Legislation and Guidelines that have informed the preparation of this Final Basic Assessment Report

The following legislation and guidelines have informed the scope and content of this Final BA Report:

- » National Environmental Management Act (Act No. 107 of 1998);

- » EIA Regulations of December 2014, published under Chapter 5 of NEMA (as amended in GNR R326 in Government Gazette No 40772 of April 2017); and
- » Department of Environmental Affairs (2017), Public Participation guidelines in terms of NEMA EIA Regulations.

Table 3.6 provides an outline of the legislative permitting requirements applicable to the vegetable oil pipeline as identified at this stage in the project process.



Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
<i>National Legislation</i>			
NEMA (Act No. 107 of 1998)	<p>The Environmental Assessment Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GN R324, R325, and R327 of 4 December 2014, as amended, an Environmental Impact Assessment Process is required to be undertaken for the proposed project.</p>	KZN Department of Economic Development, Tourism and Environmental Affairs (ED TEA)	<p>The Listed Activities triggered by the proposed Wilmar Vegetable Oil Pipeline have been identified and assessed within this BA process.</p> <p>This <u>Final</u> BA Report will be submitted to the Competent Authority, KZN EDTEA, in support of an application for environmental authorisation.</p>
NEMA (Act No. 107 of 1998)	<p>In terms of the Duty of Care Provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised.</p> <p>In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>	KZN Economic Development, Tourism and Environmental Affairs (EDTEA)	No <u>further</u> licensing or permitting requirements are relevant. However, the principle of Duty of Care within the Act will be applicable throughout the project life cycle.

Table 3.6:
 Relevant policies, legislation, guidelines, and standards applicable to the Wilmar Vegetable Oil Pipeline

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
<i>National Legislation</i>			
National Environmental Management: Air Quality Act (Act No 39 of 2004)	Measures in respect of dust control (S32) and National Dust Control Regulations of November 2013.	KZN Economic Development, Tourism and Environmental Affairs (EDTEA) City of uMhlatuze Local Municipality	No permitting or licensing requirements are applicable for the project. Dust control mitigation measures will be included in the EMPr.
Conservation of Agricultural Resources Act (Act No 43 of 1983)	Prohibition of the spreading of weeds (S5) Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) & restrictions in terms of where these species may occur. Requirement & methods to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048).	Department of Agriculture, Forestry and Fisheries (DAFF)	This Act is applicable throughout the life cycle of the project. Soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented.
Hazardous Substances Act (Act No 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc., nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance Group IV: any electronic product; and Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.	Department of Environmental Affairs (DEA) KZN Economic Development, Tourism and Environmental Affairs (EDTEA)	The project scope of the proposed Wilmar Vegetable Pipeline does not cover the establishment of a waste disposal facility, and therefore a permit will not be required. Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr.

Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
<i>National Legislation</i>			
Waste Management Act (Act No. 59 of 2008)	<p>The Minister may by notice in the <i>Gazette</i> publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</p> <p>The Minister may amend the list by –</p> <ul style="list-style-type: none"> * Adding other waste management activities to the list. * Removing waste management activities from the list. * Making other changes to the particulars on the list. <p>In terms of the Regulations published in terms of this Act (GN 718), An Environmental Impact Assessment is required to be undertaken for identified listed activities.</p> <p>Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that:</p> <ul style="list-style-type: none"> * The containers in which any waste is stored, are intact and not corroded or in * Any other way rendered unfit for the safe storage of waste. * Adequate measures are taken to prevent accidental spillage or leaking. * The waste cannot be blown away. * Nuisances such as odour, visual impacts and breeding of vectors do not arise; and <p>Pollution of the environment and harm to health are prevented</p>	<p>Department of Environmental Affairs (DEA)</p> <p>KZN Economic Development, Tourism and Environmental Affairs (EDTEA)</p>	<p>The project scope of the proposed Wilmar Vegetable Pipeline does not cover the establishment of a waste disposal facility, and therefore a permit will not be required.</p> <p>Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMPr.</p>
National Water Act (Act No. 36 of 1998)	<p><u>In terms of section 21 of the NWA, a water use must be licensed with the Regional Office of the DWS, unless it is listed in Schedule 1 of the NWA (i.e. is an existing lawful use), is permissible under a GA, or if a responsible authority waives the need for a licence.</u></p>	<p><u>KwaZulu-Natal Department of Water and Sanitation</u></p>	<p><u>The pipeline corridor is located <500m from a wetland as identified in the Wetland Delineation Report (Appendix E).</u></p>

Water use is defined broadly, and includes consumptive and non-consumptive water uses, taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation.

Consumptive water uses may include taking water from a water resource (Section 21(a)) and storing water (Section 21(b)).

Non-consumptive water uses may include impeding or diverting of flow in a water course (Section 21(c)), and altering of bed, banks or characteristics of a watercourse (Section 21(i)).

The construction of the pipeline will not occur within the wetlands identified in the area, however, due to the proximity of the pipeline corridor to the wetland, this development triggers a section 21(c) and (i) of the Act, and the applicant would need to apply for a WUL or register a GA with the DWS.

CHAPTER 4: DESCRIPTION OF THE RECEIVING ENVIRONMENT

This Chapter provides a description of the environment that may be affected by the Wilmar Vegetable Oil Pipeline development corridor. The information is provided in order to assist the reader in understanding the receiving environment within which the proposed project is located, and features of the biophysical, social, and economic environment that could be directly or indirectly affected by, or alternatively could impact on, the proposed development. This information has been sourced from existing available information and the on-site specialist investigations conducted as part of the BA process and aims to provide the context within which this BA is being conducted. Detailed descriptions provided by the independent specialists are included within the specialist reports contained in **Appendices D to H** of this BA Report.

4.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report

This chapter of the Final BA Report includes the following information required in terms of the EIA Regulations, 2014 - Appendix 1: Content of Basic Assessment Reports:

Requirement	Relevant Section
3(h)(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	<p>The environmental attributes associated with the project development corridor and the broader environment are described and considered within this chapter and include the following:</p> <ul style="list-style-type: none"> » The regional setting within which the project development corridor is located is described in section 4.2. » The climatic conditions of the area within which the project development corridors are located is discussed in section 4.3. » The biophysical characteristics of the project development corridor and the surrounding areas are described in section 4.4. This includes the topography and terrain, geology, soils and agricultural potential and the ecological profile of the project development corridor (i.e. vegetation, fine-scale habitats, critical biodiversity areas and broad-scale processes, freshwater features, terrestrial fauna and avifauna). » The heritage of the affected environment (including the archaeology, palaeontology and cultural landscape) is discussed in section 4.5. » The visual quality of the affected environment is discussed in section 4.6. » The social context within which the project development corridors is located is described in section 4.7.

A more detailed description of each aspect of the affected environment is included in the specialist reports contained within the **Appendices D – H**.

4.2. Regional Setting

The KwaZulu-Natal Province is one of the country's most popular tourist destinations and was founded in 1994 when Zulu Bantustan of KwaZulu merged with the Natal Province. It is South Africa's third smallest province with an area of over 94 000km². The province houses the second largest population with over 10 million inhabitants, which was nearly 20% of the country's total population in 2012 (Brand South Africa, 2012). The Province is surrounded by Mozambique in the far north-east, Swaziland in the north-east and Lesotho along the south-west boundary. Domestically, it shares borders with Mpumalanga to the north, Free State to the west, and the Eastern Cape along the south-west. KwaZulu-Natal comprises of eleven District Municipalities (DM), one of which is the King Cetshwayo DM within which the proposed project is located. The remaining ten district municipalities are the Amajuba DM, the Zululand DM, the uMkhanyakude DM, the eThekweni Metropolitan Municipality, the uMzinyathi DM, the uThukela DM, the uMgungundlovu DM, the iLembe DM, Ugu DM, and the Harry Gwala DM.

The King Cetshwayo DM is a Category C municipality. A category C municipality refers to district municipalities which are the main divisions of the national provinces. Category C municipalities are further divided into Category B, or local municipalities. This denotes that the King Cetshwayo DM municipality has a municipal executive and legislative authority in an area that includes more than one local municipality (Africa S. o., 1996). The district is sub-divided into five local municipalities (LM) namely, the City of uMhlathuze Municipality, the uMlalazi LM, the Mthonjaneni LM, the Nkandla LM, and the uMfolozi LM (Local Government Handbook, undated) (refer to **Figure 4.1**). The proposed development is located within the City of uMhlathuze Local Municipality.



Figure 4.1: King Cetshwayo District Municipality's Local Municipalities, and key Towns (source: www.municipalities.co.za)

The City of uMhlathuze Municipality was formed through the consolidation of the towns of Empangeni and Richards Bay. The other towns in the municipality are Ngwelezana and Felixton, located about 20km to the west and south-west of the proposed development corridor for the vegetable oil pipeline. The proposed development is located in Richards Bay. Richards Bay is considered as the industrial and tourism hub of the municipality. In addition, it is the centre of operations for South Africa's aluminium industry.

The project development corridor for the Wilmar Vegetable Pipeline is located approximately 150km north of Durban and can be accessed via the N2 national road. The corridor is proposed within the Richards Bay Port, the Transnet Railyard North Area, and Phase 1A of the Richards Bay Industrial Development Zone (RBIDZ). Phase 1A of the RBIDZ comprises of Erf 15411, Portion 21 and 106 of Erf 5333, and the Remaining Extent of Erf 16230. Phase 1A of the RBIDZ, which is an area set aside by the KZN Provincial Government for the development of agro-processing facilities within the RB IDZ.

Maps illustrating the regional and local setting of the proposed pipeline corridor within the context of the Port and the RBIDZ are provided in **Figure 4.2** and **Figure 4.3**.



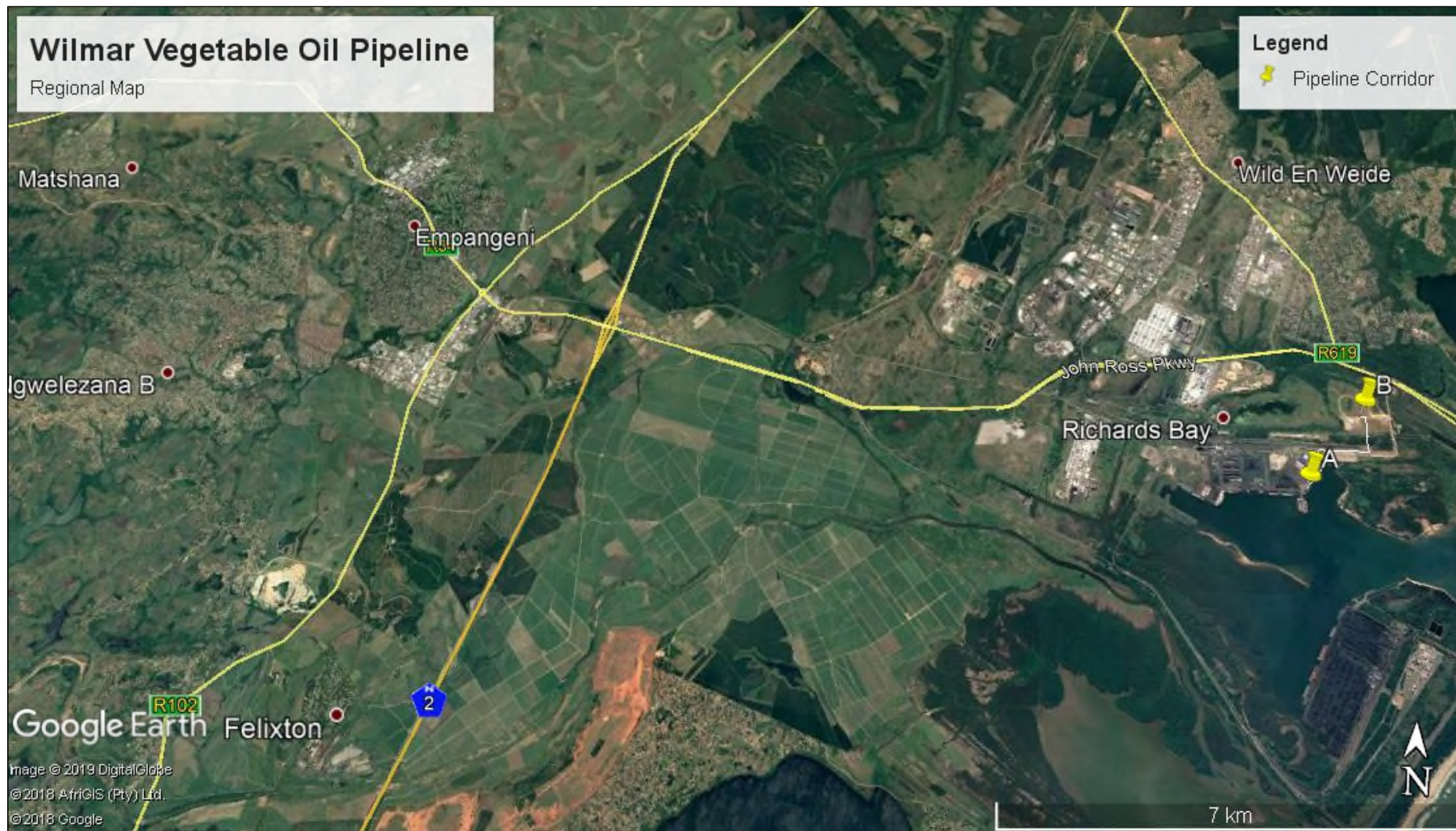


Figure 4.2: Regional Setting of the project development corridor (Pipeline corridor route – A and B placemarks).

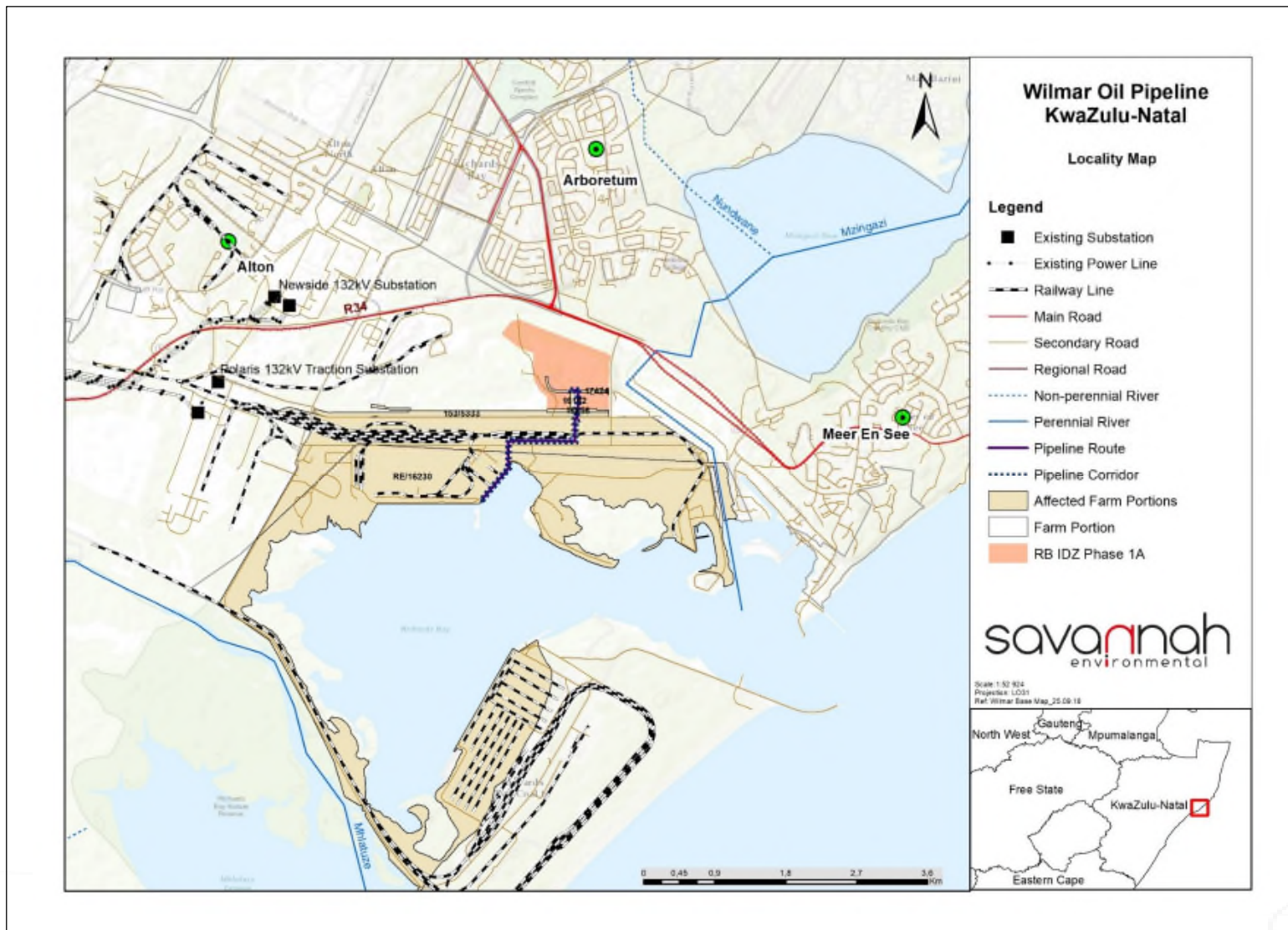


Figure 4.3: Locality Map showing the project development corridor for the Wilmar Vegetable Pipeline.

4.3. Climatic Conditions

The area is characterised by a warm to hot and humid subtropical climate, with warm moist winters. Average daily maximum temperatures range from 29° C in January to 23° C in August, and extremes can reach more than 40° C in summer. The average annual rainfall is 1 228 mm with most (~80 %) of the rainfall in summer (October to March).

Extreme rainfall and thundershowers have occurred on several occasions in the Zululand Region, resulting in extensive flooding with loss of life, property and infrastructure. An increasing trend in the frequency of cyclonic activity has been observed, which needs to be considered in future planning of the region. Annual climatic data has been summarised in the graph presented in **Figure 7.4**.

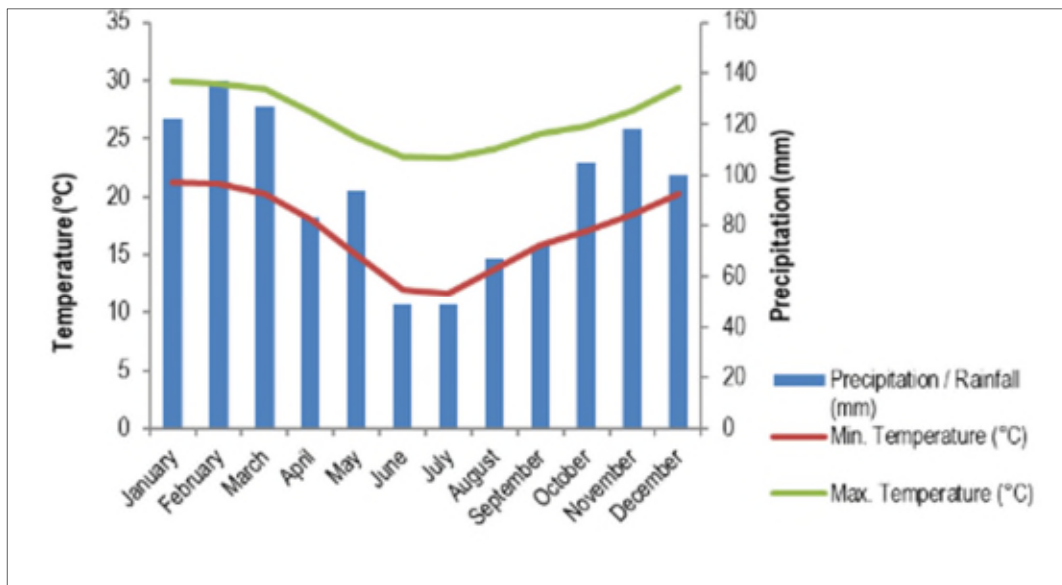


Figure 4.4: Average minimum and maximum temperatures and monthly rainfall for Richards Bay (adapted from <http://en/climate-data.org>).

4.4. Biophysical Characteristics of the Study Area

4.4.1. Topography, Terrain and Geology

According to Mucina and Rutherford (2006), the region can be described to have a relatively flat landscape. However, the relief for the project site (see **Figure 4.5** below) varies from 25m to 35m mean above sea level (masl) with some depression areas where wetlands are present. The project site is however considered relatively flat with slopes of no more than 4%. The project site slopes mainly to the south in some areas.

4.4.2. Soils Types and Agricultural Potential

The majority of the project development corridor comprised of concreted surfaces such that the underlying soil is not accessible and is classified by default as the Witbank soil form (**Figure 4.6**). The Witbank soil form is characteristic of soils that have undergone extensive modification or have been buried by historic anthropogenic activities. This soil type occupies approximately 53% of the project development corridor.

The remainder of the project development corridor comprises of Fernwood/Longlands and Mispah/Glenrosa soil types, constituting approximately 30% and 4.3% of the project development corridor respectively. The Fernwood/Longlands soil type is associated with undisturbed areas within and along the proposed project development corridor route. The areas associated with the Mispah/Glenrosa soil type were significantly modified due to historic/current industrial activities in the area. This soil type has undergone severe compaction and limited material is available within the project development corridor. The remaining portion of the project development corridor was covered by water along the Transnet National Port Authority (TPNA) berths and constitute approximately 11.7% of the project development corridor.

Although some of the identified soil types are suitable for arable agriculture, agricultural production is not considered practically viable within the project development corridor and in the surrounding area due to current ongoing industrial activities that are envisaged to persist for the foreseeable future, since the RB IDZ has been designated for industrial land use.

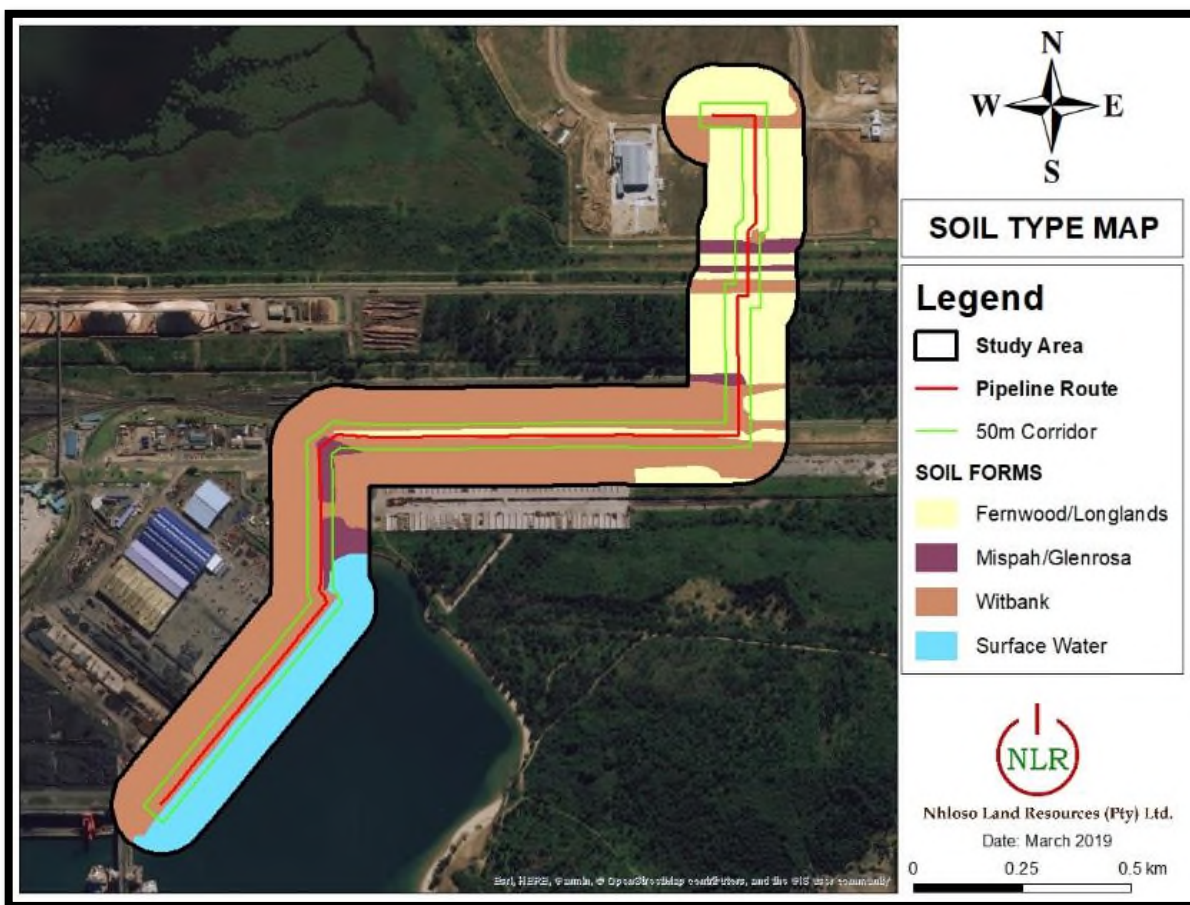


Figure 4.5: Land types present within the project development corridor of the Wilmar Vegetable Oil Pipeline.

4.4.3. Ecological Profile of the Broader Study Area and the Project Development Corridor

i. Kwambonambi Hygrophilous Grassland Ecosystem

The entire project development corridor falls within the 'Critically Endangered' Kwambonambi Hygrophilous Grassland ecosystem (**Figure 4.6**). This ecosystem lies inland, but adjacent to the Kwambonambi Dune Forest

ecosystem. It incorporates the hygrophilous grasslands behind the primary dune system, as well as swamp forests, including the Richards Bay surrounds up to the lower Umfolozi Flats.

The Kwambonambi Hygrophilous Grassland ecosystem is associated with six (6) vegetation types, namely the KwaZulu-Natal Coastal Forest, KwaZulu-Natal Dune Forest, Mangrove Forest, Mangrove Wooded Grassland, Maputoland Coastal Belt and Swamp Forest. Approximately 8% of the original area of the Kwambonambi Grassland ecosystem is protected in the Enseleni Nature Reserve, the Richards Bay Nature Reserve, the Nhlabane Nature Reserve and the Isimangaliso Wetland Park.

The ecosystem is also listed under **Criterion F** of the National List of Ecosystems which is categorised as a priority area for meeting explicit biodiversity conservation targets as defined by the systematic biodiversity plan, including the Department of Forestry and Fisheries (DAFF's) plans for the forest biome.

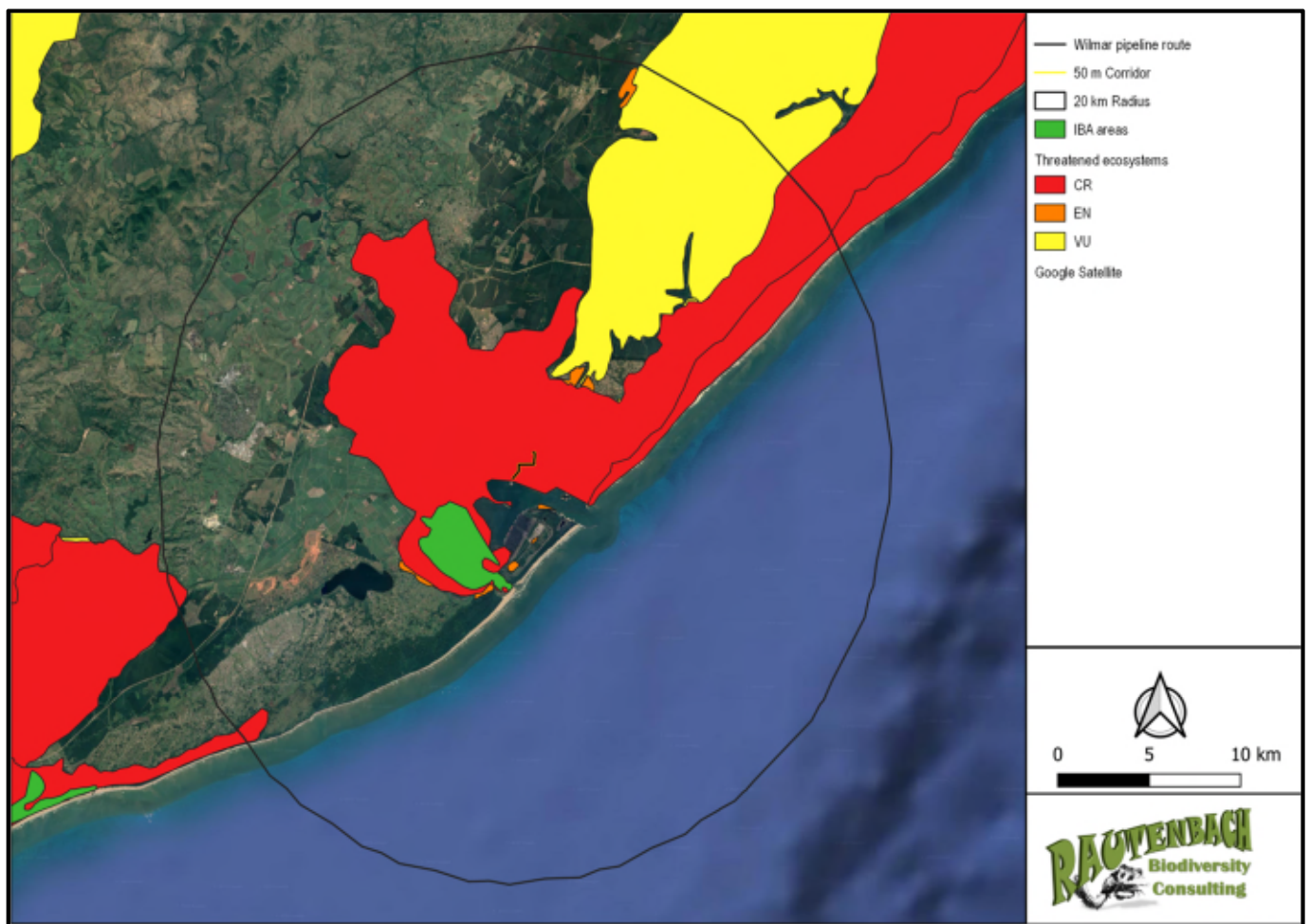


Figure 4.6: Areas of national conservation importance in relation to the project development corridor for the Wilmar Vegetable Oil Pipeline.

ii. Subtropical Freshwater Wetland Vegetation Type

The project development corridor falls within the Subtropical Freshwater Wetland (**Figure 4.7**) vegetation type of the Azonal Wetland biome in KwaZulu-Natal. This vegetation type is associated with a flat topography supporting low beds dominated by reeds, sedges and rushes, and waterlogged meadows

dominated by grasses. It is typically found along edges of seasonal pools in aeolian depressions as well as fringing alluvial backwater pans or artificial dams.

From a conservation perspective, the Subtropical Freshwater Wetland vegetation type is listed as 'Least Threatened' with a conservation target of 24%. Nearly 50% of it is statutorily conserved within the Greater St La Lucia Wetland Park, the Kosi Bay System and the Kruger National Park. An additional 10% of this vegetation type is protected within numerous private game farms and nature reserves in the Limpopo, Mpumalanga and KwaZulu-Natal Provinces. At present, only 4% has been transformed (as a result of cultivation), however, the pressure of local grazing and urban sprawl will result in the demise of many subtropical freshwater habitats.

Eighty seven (87) plant species were found within the project development corridor, with majority of the plant species being represented by the *Asteraceae* and *Poaceae*.

iii. Habitat and Plant Communities

The majority of the areas alongside the project development corridor is extensively transformed. As such, no taxa of ecological or bioregional significance were found within the proposed project development corridor. Therefore, only areas where natural vegetation remained were identified and assessed within the BA process.

According to Mucina & Rutherford (2006), local variations in factors such as soil structure, depth, past land use and the level of disturbance may result in many different vegetation communities embedded within major vegetation types. Based on floristic composition, vegetation structure, areas alongside the project development corridor contained three (3) discrete vegetation communities which are described below:

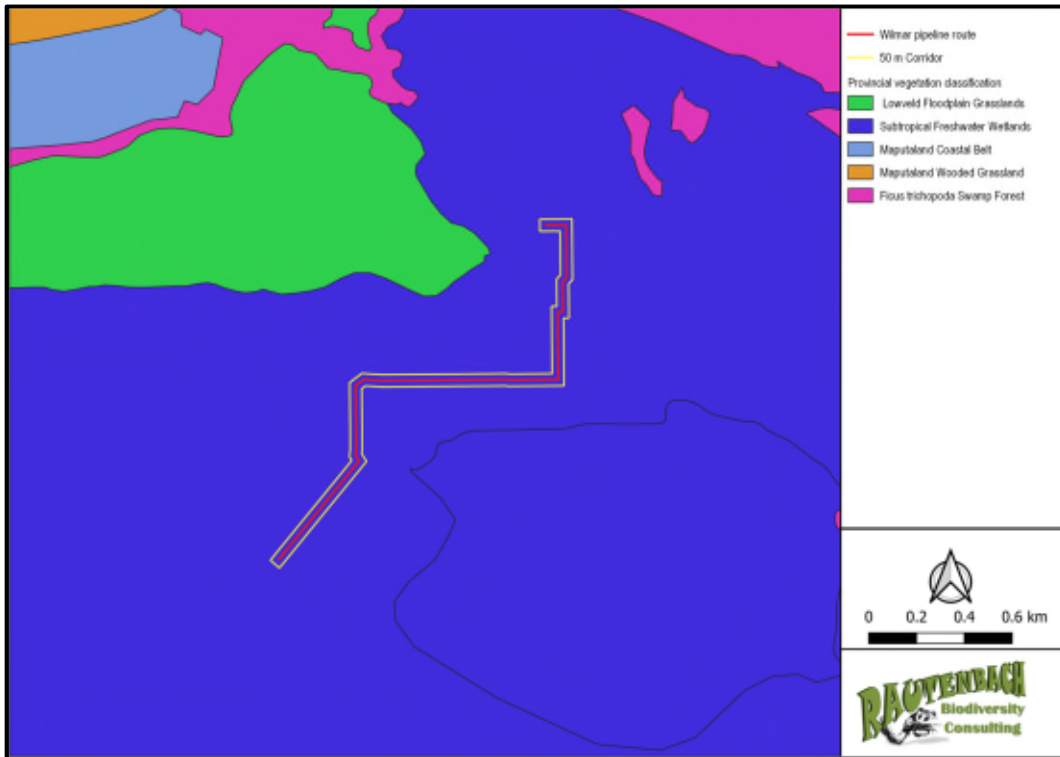


Figure 4.7: Broad-scale overview of the vegetation in and around the project development corridor.

Secondary grassland

This vegetation community falls within Phase 1A of the Richards Bay Industrial Development Zone and occupies the majority of the project development corridor. Growth form diversity is low and the area is dominated by grass species such as *Melinis repens*, *Chloris gayana*, *Eragrostis curvula* and *Sporobolus pyramidalis*, resulting in a thick luxuriant basal cover. The occurrence of trees within this community is low, with only a few scattered trees such as *Vachellia karoo* and the invasive *Casuarina equisetifolia* (**Figure 7.8**).



Figure 4.8: A view of plant species within the Grassland Vegetation community within Phase 1A of the RB IDZ.

Osteospermum moniliferum

This small vegetation community is located between Phase 1A of the RB IDZ and the Richards Bay Port within the project development corridor. Notable in this area was the impenetrable stands of *Osteospermum moniliferum* and *Searsia rehmanniana* thickets, with climbers such as *Rhoicisus digiata*, *Tacazzea apiculata* and *Secomone filiformis* well established. Tree plant species identified within this vegetation community include the invasive *Casuarina equisetifolia*, *Pysdium guajava* and *Schinus terebinthfolius*, with a few scattered indigenous species such as *Brachylaena discolor* and *Searsia nebulosa*.

Pinus elliottii plantation

This vegetation is present within the Transnet National Port Authority (TPNA) area, next to the Railyard North area within the project development corridor. Within this area, exotic *P.elliottii* tree species (**Figure 4.9**) were limited and scattered throughout the matrix whilst species such as *Brachylaena discolor*, *Searsia nebulosa* and *Trema orientalis* are dominant. The underlying vegetation layer is dominated by invasive alien plant species such as *Chromolaena odorata*, *Lantana camara* and *Psidium guajava*. The fern, *Microsorium scolopendria* dominates the forest floor in the area and forms several large colonies.

Figure 4.10 provides a map of the vegetation communities identified along the project development corridor for the Wilmar Vegetable Oil Pipeline.



Figure 4.9: A view of plant species within the *Pinus elliottii* vegetation community on Phase 1A of the RB IDZ.

iii. Listed Plant Species

No Listed plant species were found along the project development corridor due to the transformed and degraded nature of the vegetation; it is unlikely for most of these species to be present. However, possible exception include South African Red Listed Species and Provincially Protected Plant Species.

South African Red List Species

Exceptions of Red Listed species that could potentially occur within the project development corridor include the *Sisyranthus franksiae* which typically occurs within wetland, marsh and swamp habitats. Due to the project development corridor falling within the Subtropical Freshwater vegetation type, the presence of the *Sisyranthus* species cannot be excluded.

Provincially Protected Species

Provincial protected species that are likely to be present within or along the project development corridor within a 20km radius are listed in **Appendix D** (Ecological Impact Assessment) to this BA Report. These include, *Scadoxus multiflorus*, *Sisyranthus franksiae*, *Asparagus falcatus* var. *ternifolius*, *Albuca virens* subsp. *Arida*, *Crocasmia aurea*, and *Eulophia horsfallii*.

iv. Invasive Alien Plants

Invasive Alien Plants (IAPs) were found within the identified corridor in all vegetation units/types and are included in **Appendix 2** of the Ecological Impact Assessment (included as **Appendix D** to this Final BA Report).

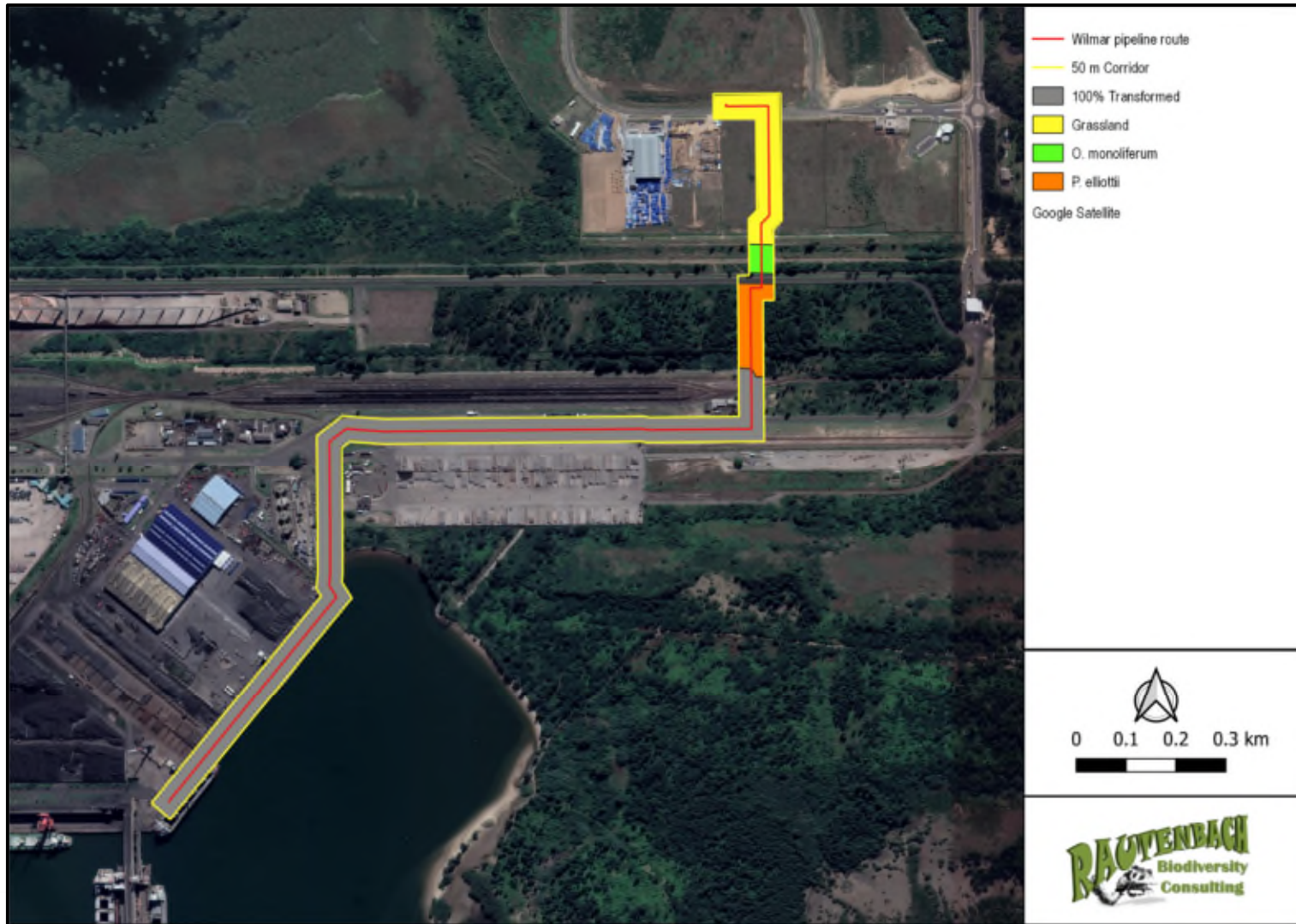


Figure 4.10: A map showing the vegetation communities identified within and along the project development corridor.

v. KwaZulu-Natal Systematic Conservation Plan

An extract of the KwaZulu-Natal Systematic Conservation Plan map for the project development corridor is illustrated in **Figure 4.11**. The project development corridor falls within a 'Biodiversity' area. 'Biodiversity areas are areas representing the natural and/or near natural environmental areas which still have biodiversity value, but it is preferred that development be focused within these areas (EKZNW, 2010)'.

Important biodiversity features contained within biodiversity areas include the Subtropical Alluvial vegetation type and the Maputoland Coastal Grassland vegetation type. In addition, these areas could potentially contain the species *Teriomina zuluana* and *Parepistaurus eburlineatus*.

In terms of the Uthungulu Biodiversity Sector Plan, the project development corridor falls within, or borders a Critically Biodiversity Area (CBA): Irreplaceable areas (**Figure 4.12**). Industrial development is generally not recommended within these areas. No CBA: Optimal, or ESA areas are adjacent to the project development corridor.

The Richards Bay Nature Reserve and the Enseleni Nature Reserve are located ~4km south-west and ~11km northwest respectively of the project development corridor.

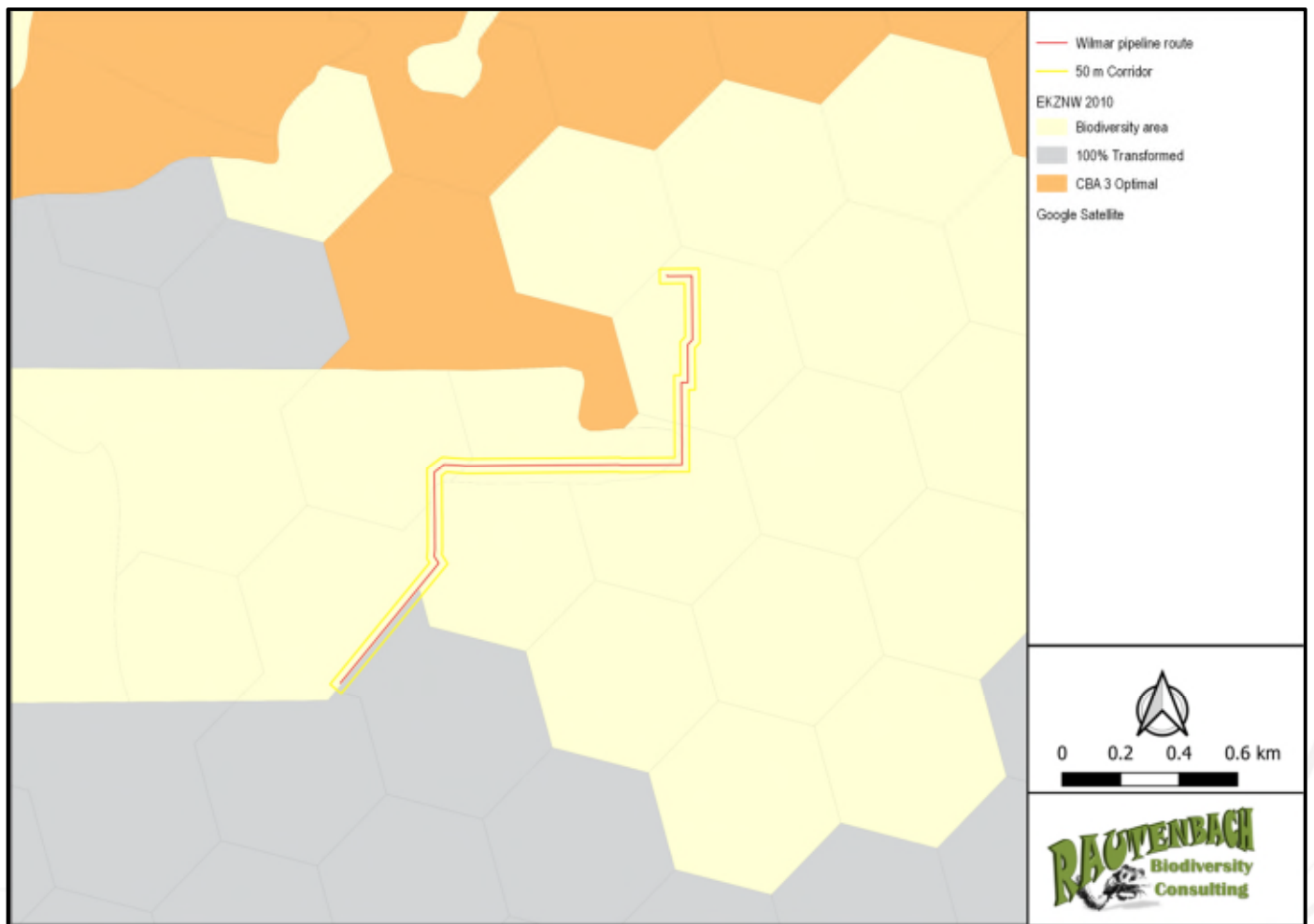


Figure 4.11: A map showing the Provincial CBAs in relation to the project development corridor.

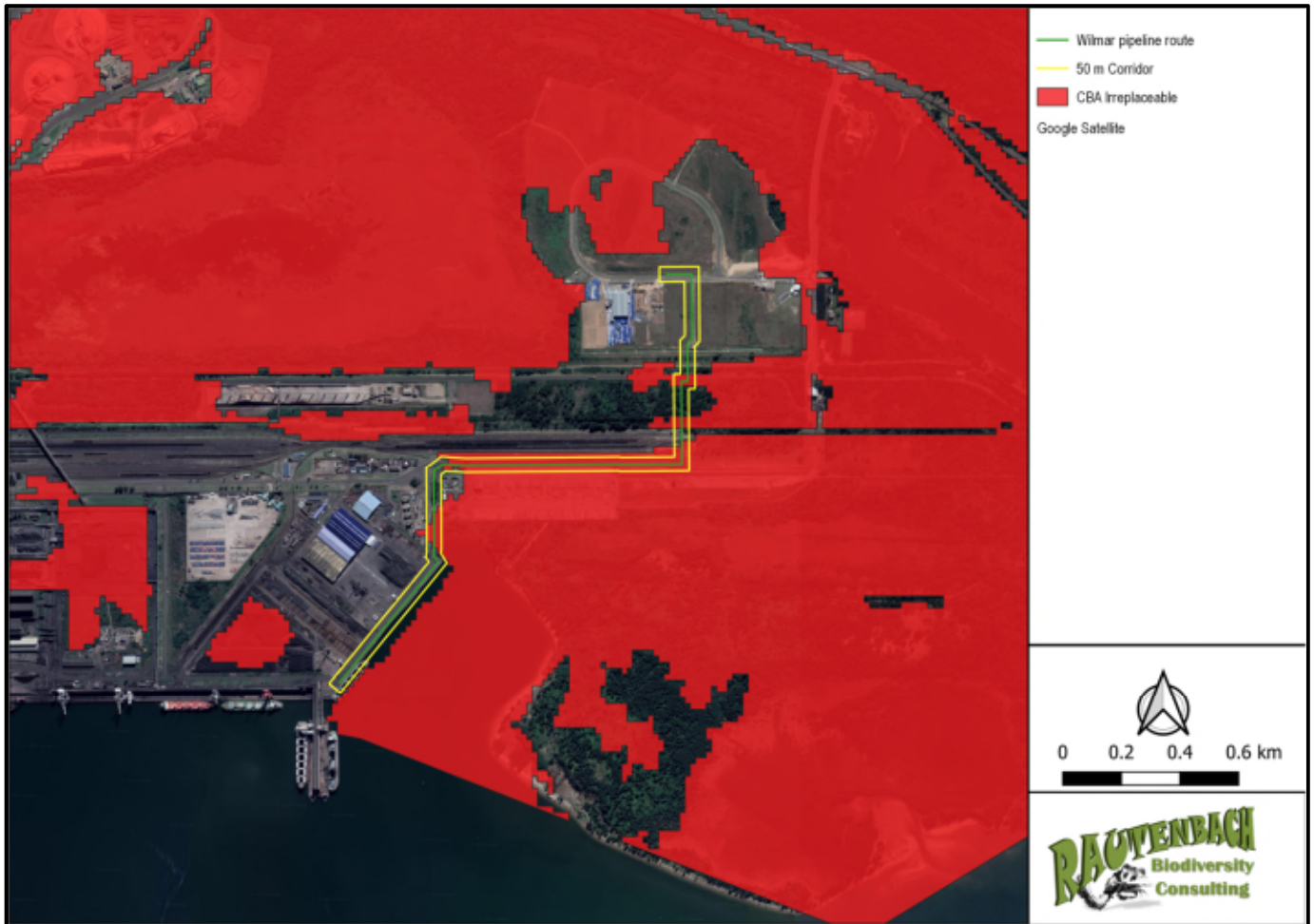


Figure 4.12: A map showing the District CBA priority areas in relation to the project development corridor.

vi. Terrestrial Fauna Habitat

The project development corridor offers only two (2) major fauna habitat, i.e. terrestrial and arboreal, and to a very limited extent, aquatic (**Figure 4.13**). The fauna habitats identified within the project development corridor are described below.

Secondary Grassland Vegetation Community

The basal cover found within Phase 1A of the RB IDZ is thick and luxuriant. Such an environment supplies both food and cover to a number of smaller mammal species such as rodents and shrews. There is a likelihood that smaller and more reticent and adaptable carnivore species such as mongooses and genets are present. These species persist in degraded and disturbed environments. No large trees or caves are present that could provide roosting opportunities for bats.

Reptile habitats are limited within the project development corridor. No rock outcrops or other rupicolous habitat are present. Frog habitats are limited to the grassland vegetation and may provide habitat to frog species such as toads and puddle frogs.



Figure 4.13: The Secondary Grassland Vegetation type provides habitat to numerous small mammal species such as rodents and shrews.

Osteospermum moniliferum Community

The basal cover on the *Osteospermum moniliferum* community has a varying basal cover from sparse to relatively abundant, providing sufficient cover to rodent and shrew species. The limited trees available within this vegetation type are unlikely to provide habitat to any arboreal rodent species; however, the area is occasionally utilised by Vervet monkeys and a few bat species. However, no caves are present within the project development corridor to provide roosting opportunities for cave-dwelling bats.

Pinus elliotii

Pinus elliotii vegetation is completely transformed. It is associated with mammal and herpetofauna habitats limited to a few fallen logs, decorticating bark, litter, grass and an unlined drainage line. Fauna abundance within this habitat is low. Litter and grassed areas provide habitats to small mammals such as the Natal multimammate mouse (*Mastomys natalensis*). No threatened shrew species are expected to occur within this area as it does not offer a suitable habitat.

Trees and decorticating barks within this habitat provide habitat to abundant bat species such as the Little free-tailed bats (*Chaerephon pumilus*) and the Egyptian free-tailed bats (*Tadarida aegyptiaca*). Few reptile and frog species are expected to be present since they require specialised habitats and in general are sensitive to habitat modifications. However, Gutteral toads (*Amietophrynus gutturaliss*) and a few skink, gecko and threadsnake species might be found in this area.

vi. Avifauna

Avian Microhabitats

The Secondary Grassland vegetation type provides habitat to bird species such as pipits, larks, longclaws and cisticlolas. The *C. monilifera* thickets and trees provide habitat to a number of bird species such as, drongos, doves and cuckoos. The *P. elliotii* vegetation type provides a nesting and roosting opportunity to

some forest adapted bird species. Birds of prey such as the African Wood Owl, African Crowned Eagle, Forest Buzzards, Rufous – chested Sparrowhawks, Ovambo Sparrowhawks, Little Sparrowhawks, Black Sparrowhawks and African Goshawks benefit from the forestry industry and have expanded their natural geographic ranges to previously treeless areas. Albeit no active or abandoned raptor nests were identified within the project development corridor, this is not an indication that raptor species are completely absent from the *P.elliottii* vegetation type.

vi. Listed Fauna Species

No habitat is present within the project development corridor that supports any of the threatened migratory and nomadic waterbirds known from the Richards Bay Important Bird Area (IBA). Nonetheless, the *O. moniliferum* and *P.elliottii* vegetation types provide habitat to some species of conservation significance such as, the African Striped Weasel, Eastern Long – Tailed Seps, Olive House Snake, Bush Squeaker, Spotted Shovel Nosed – Frog, Snake – Eagle Southern Banded, African Crowned Eagle, Brown Scrub – Robin, and the Fiscal Flycatcher.

vii. Freshwater Features

One depression wetland as well as an unlined artificial drainage channel were identified, ground –truthed and delineated within the study area. In the regulated area (< 500m) of the depression wetland, the surrounding wetlands identified included an estuarine wetland to the south and north of the project development corridor, as well as an unchanneled valley bottom wetland to the south (**Figure 4.14**). The depression wetland is assessed to be a Class D (largely modified) seasonal depression wetland system. The wetland is affected by most of the change in surface roughness and excavation in the western area of the wetland. The unchanneled valley bottom wetland is assessed to be a Class B (largely natural) seasonal unchanneled valley bottom system. The wetland will be minimally affected by numerous influences which include, a reduction of flows due to the presence of alien vegetation within the wetland, an increase in flood peaks, increased run-off due to the increase of hardened surfaces in the catchment, deposition of materials (dumping) in the wetland and alien colonisation.

Table 4.1 provides the details of the topography, soils and materials and riparian vegetation associated with the wetlands identified within the study area.

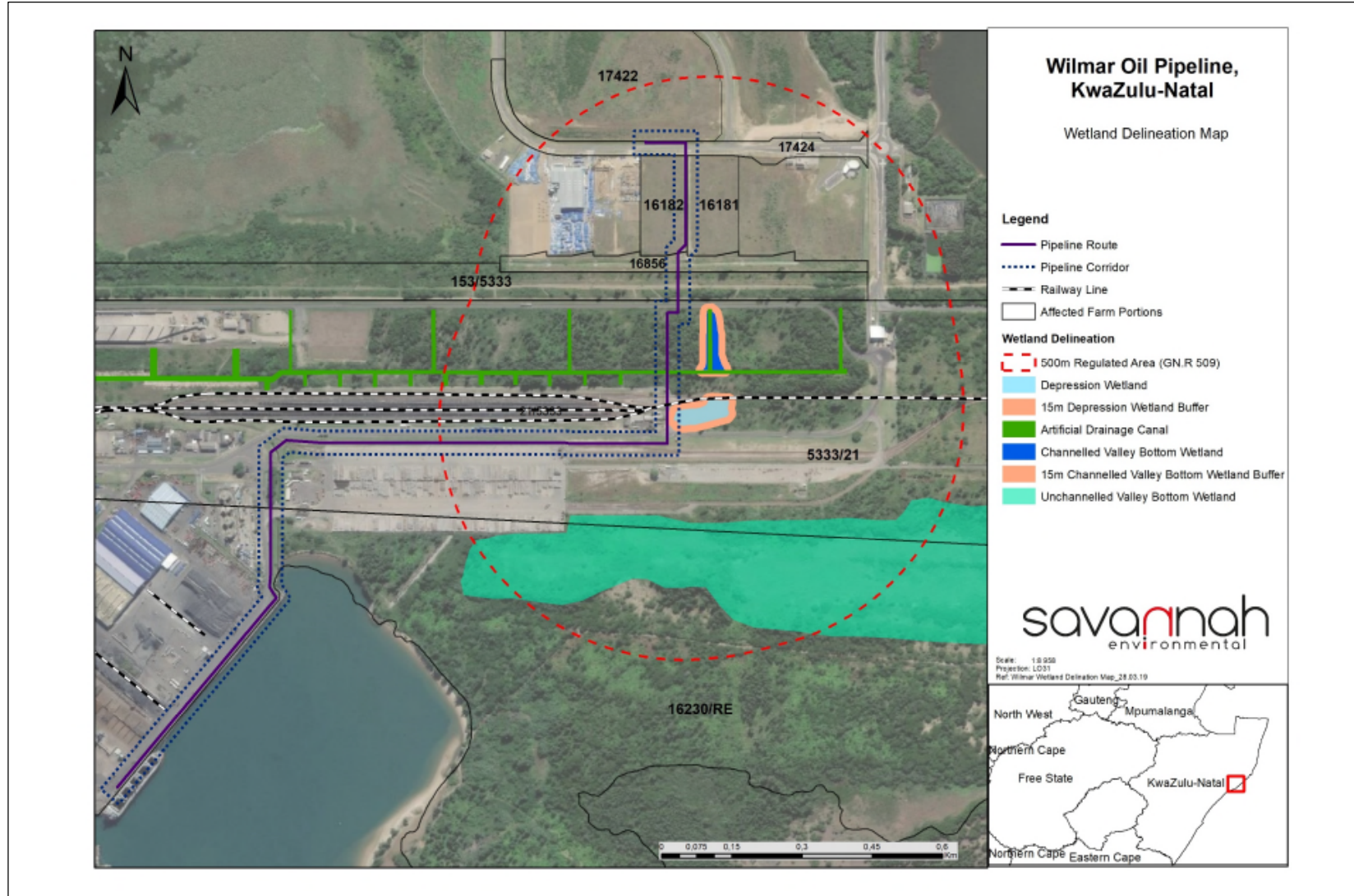







Figure 4.14: Freshwater delineation map of the wetlands overlain with the proposed pipeline corridor

Table 4.1: Details of the wetlands within the study area

	Description of the detail	Photograph
<p>Topography associated with the wetlands</p>	<p>The topography of the landscape earmarked for the development of the Wilmar Vegetable Oil Pipeline is generally flat. The historical excavation activities evident along the project development corridor have influenced the formation of the wetland area, however, the wetland soils are also located beyond the project development corridor. Soil samples taken from the wetland system reveal an Orthic A horizon followed by a reduced E horizon overlying a soft plinthic B horizon. This combination is indicative of a Longlands soil type.</p> <p>The topography of the artificial drainage channel is relatively flat but drains in a south and westerly direction suggesting a slight slope towards the south west. The geomorphological structure of the artificial drainage channel has been constructed to create a distinct V-channel, which comprises cement blocks along the walls of the channel. The drainage channel is not lined and porous allowing water to permeate through the soils unhindered. The artificial drainage channel is part of an extensive network for the greater Transnet Port Authority and related properties. There are two parts that are relevant to the proposed pipeline, i.e. the section in the Transnet Railyard North area, and the artificial drainage channel which exits into the Richards Bay harbour area near the berths to the south of the proposed pipeline route.</p>	

	Description of the detail	Photograph
Alluvial soils and deposited materials	<p>The historical excavation activities evident along the project development corridor have influenced the formation of the wetland area. However, the wetland soils are also located beyond the project development corridor. Soil samples taken from the wetland system reveal an Orthic A horizon followed by a reduced E horizon overlying a soft plinthic B horizon. This combination is indicative of a Longlands soil type. This soil type is associated with seasonally inundated wetlands. The depression wetland is expected to be seasonally inundated.</p> <p>Soil samples taken from the beds of the artificial drainage channel reveal a reduced E horizon indicating the Kroonstad soil type. This soil type is associated with seasonally inundated wetlands. The artificial drainage channel is expected to be seasonally saturated. .</p>	 

	Description of the detail	Photograph
Riparian vegetation	<p>The vegetation associated with the depression wetland includes impenetrable stands of <i>Osteospermum moniliferum</i> thickets, with climbers such as <i>Rhoicissus digitata</i>, <i>Tacazzea apiculata</i> and <i>Secomone filliformis</i> well established. The tree layer within the depression wetland includes invasive alien plant species such as, <i>Casuarina equisetifolia</i>, <i>Psidium guajava</i> and <i>Schinus terebinthifolius</i>, with a few scatted indigenous species such as <i>Brachylaena discolor</i> and <i>Searsia nebulosa</i>. Apart from these graminoid and sedge species associated with wetlands were also noted. The graminoid species include, <i>Phragmites australis</i> (ow), <i>Chloris gayana</i> (fw), <i>Imperata cylindrica</i> (fw), <i>Sporobolus africanus</i> (fw) and <i>Sporobolus pyramidalis</i> (fw).</p> <p>The artificial drainage channel is characterised by obligate wetland vegetation within the artificial V-shaped drainage channel. The obligate vegetation species include, <i>Cypreus prolifer</i>, <i>Typha capensis</i>, and <i>P. australis</i>.</p>	 

4.5. Integrated Heritage including Archaeology, Palaeontology and the Cultural Landscape

4.5.1 Heritage and Archaeology

No archaeological or built environment heritage resources were identified within the project development corridor. Previous heritage impact assessments conducted in the Richards Bay Harbour precinct attest to a low sensitivity of heritage resources.

4.5.2 Palaeontology

The project development corridor overlies the youngest rocks in the KwaZulu-Natal Province. These include Quaternary aeolianites, sand, clay, and limestones of the Bluff and Berea Formations of the Maputoland Group. These rocks extend for many kilometres along the coast from Scottburgh to southern Mozambique.

Taking into consideration the nature of the proposed development, surface activities may have an impact upon the fossil heritage if it is preserved within the project development corridor. The geological structures within the area suggest that rocks could possibly contain invertebrate trace fossils, but these are likely to have been disturbed by the vegetation and construction of the Richards Bay Harbour in the 1970s. This is applicable to all other fossil forms. There is a low likelihood of fossils occurring within the Maputoland Group.

4.6 Social Context

The project development corridor is located within the Alton area of Richards Bay. The project development corridor is located 3km south-west of Arboretum, 4km south-east of the Richard's Bay Central Business District (CBD), 16km east of Empangeni and is located within the Richards Bay Port (RBT) and the Richards Bay Industrial Development Zone (RB IDZ) in the KwaZulu Natal Province. The demographic data pertaining to the KwaZulu-Natal Province is included in **Table 4.2**.

Table 4.2: Demographic data pertaining to the KwaZulu Natal Province

Geographic area	94 361.32 km ²	
Population	10 267 300	
Population density	108.81/km ²	
Households	2 539 429	
Household density	26.91/km ²	
Gender	People	Percentage
Male	4 879 020.96	47.52%
Female	5 388 279.04	52.48%
Population Group	People	Percentage
Black African	8 913 043.13	86.81%
Indian/Asian	756 700.01	7.37%
White	429 173.14	4.18%
Coloured	141 688.74	1.38%
Other	26 694.98	0.26%

The dependency ratio, which indicates the burden placed on the working population who support children under 15 years and people over 65 years, is highest across the District at 64.7 and lowest within the local municipal area at 48.2. Between 2001 and 2011 the King Cetshwayo DM had the highest population growth rate compared to both the District and Province with a population growth rate of 1.45%.

The unemployment rate in the area is highest across the province at 33% and lowest within the uMhlathuze LM at 23.7%. In 2011, the level of unemployment in the King Cetshwayo DM was 34.7%. The DM has the highest percentage of education of the population aged 20 and above with no formal schooling, while at 7.5% the uMhlathuze LM has the lowest percentage. The uMhlathuze LM has the lowest percentage of the population having a matric level education at 29.2% compared to the Province at 31.1% and the District at 30.4 %.

The average household size is smallest within the uMhlathuze LM at 3.9 compared to 4.0 and 4.5 across the Province and District. There is a lower percentage of female headed households, at 40.7%, within the LM than there is across the Province and District. In terms of dwelling types, formal types of dwelling dominate the area with the LM having the highest percentage at 88.3 followed by the Province at 71.6% and the District at 70%.

CHAPTER 5: ASSESSMENT OF IMPACTS

This chapter serves to assess the significance of the positive and negative environmental impacts (direct, indirect and cumulative) expected to be associated with the Wilmar Vegetable Oil Pipeline.

The assessment has considered the construction of the pipeline and associated infrastructure within a 50m wide corridor, approximately 2km in length. The pipeline infrastructure will comprise of the following key infrastructure and components:

- » Carbon steel, DN 200 pipes; and
- » Overhead steel bridges over railway and road infrastructure

No alternative corridor for the development of the vegetable oil pipeline has been assessed within this Final BA Report.

The development of the Wilmar Vegetable Oil Pipeline will comprise the following phases:

Pre-Construction and Construction

Prior to the commencement of the pipeline and associated infrastructure, a comprehensive geotechnical study will be undertaken. Site preparation activities will include the clearance of vegetation on areas along the project development corridor. Civil works including concrete works for the foundations for the overhead steel bridges, duct access shafts and slabs will be undertaken. The construction phase for the Wilmar Vegetable Oil Pipeline is estimated to be 6 months.

Operation

The operation phase of the pipeline will include the pumping of vegetable oil from the RBT berths to the proposed Wilmar Processing Facility within Phase 1A of the RB IDZ. The operation phase of the vegetable oil pipeline is expected to be more than 20 years (with maintenance).

Decommissioning

The expected lifespan of the pipeline is approximately 20 years. During the decommissioning phase, equipment or components associated with the pipeline will be decommissioned and removed.

5.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Basic Assessment Report

This chapter of the Final BA Report includes the following information required in terms of Appendix 1: Content of the BA Report:

Requirement	Relevant Section
3(h)(v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts (aa) can be reversed, (bb) may cause irreplaceable loss of resources, and (cc) can be avoided, managed or mitigated.	The impacts and risk associated with the development of the Wilmar Vegetable Oil Pipeline including the nature, significance, consequence, extent, duration and probability of the impacts and the degree to which the impact can be reversed and cause an irreplaceable loss of resources are included in sections 5.3, 5.4, 5.5, 5.6, and 5.7.
3(h)(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	The positive and negative impacts associated with the development of the Wilmar Vegetable Oil Pipeline are included in sections, 5.2.2, 5.4.2, 5.5.2, and 5.6.3.
3(h)(viii) the possible mitigation measures that could be applied and the level of residual risk.	The mitigation measures that can be applied to the impacts associated with the Wilmar Vegetable Oil Pipeline are included in sections, 5.2.3, 5.3.3, 5.4.2, and 5.6.3.
3(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures,.	A description of all environmental impacts identified for the Wilmar Vegetable Oil Pipeline during the BA process, and the extent to which the impact significance can be reduced through the implementation of the recommended mitigation measures provided by the specialists are included in sections 5.2.2, 5.3.2, 5.4.2, and 5.6.2.
3(j) an assessment of each identified potentially significant impact and risk, including (i) cumulative impacts, (ii) the nature, significance and consequences of the impact and risk, (iii) the extent and duration of the impact and risk, (iv) the probability of the impact and risk occurring, (v) the degree to which the impact and risk can be reversed, (vi) the degree to which the impact and risk may cause irreplaceable loss of resources and, (vii) the degree to which the impact and risk can be avoided, managed or mitigated.	An assessment of each impact associated with the development of the Wilmar Vegetable Oil Pipeline, including the nature and significance, the extent and duration, the probability, the reversibility, and the potential loss of irreplaceable resources, as well as the degree to which the significance of the impacts can be mitigated are included in sections 5.2.3, 5.3.3, 5.4.3, 5.5, and 5.6.3.
3(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr.	Mitigation measures recommended by the various specialists for the reduction of the impact significance are included in sections 5.2.3, 5.3.3, 5.4.3, 5.5, and 5.6.3.

5.2. Potential Impacts on Ecology (Ecology and Avifauna)

Potential ecological impacts resulting from the development of the pipeline will result from a number of activities and risk factors associated with the pre-construction, construction, operation and decommissioning phases and would include impacts on vegetation and species of conservation significance, potential injury and disturbance of local fauna populations and colonisation by invasive alien plant species.

Potential impacts and the relevant significance of the impacts are summarised below (refer to **Appendix D** for more details).

5.2.1 Results of the Ecological Impact Assessment

The development footprint of the Wilmar Vegetable Pipeline is restricted to the Secondary Grassland, *O. moniliferum*, and *P.elliottii* vegetation types, as described in Chapter 4 of this report. There are no highly sensitive features within the project development corridor that cannot be avoided. As such, there are no impacts associated with the development of the pipeline within the corridor that cannot be mitigated to a low level. As such, there are no fatal flows or high post-mitigation impacts that should prevent the development from proceeding.

Figure 5.1 illustrates the ecological sensitivity associated with the project development corridor for the Wilmar Vegetable Oil Pipeline. The overhead steel bridges planned over existing railway and road infrastructure are located within areas considered to be of a low ecological sensitivity.



Figure 5.1: Ecological sensitivity map of the Wilmar Vegetable Pipeline project development corridor.

5.2.2 Description of Ecological Impacts

The following potential impacts have been identified and are considered to be relevant to the development of the Wilmar Vegetable Oil Pipeline within the identified corridor.

Destruction and loss of flora and vegetation

Several protected species occur within the project development corridor and could be impacted by the proposed development. Vegetation clearing during construction will lead to the loss of currently intact habitat within the proposed development footprint and is an inevitable consequence of the proposed development. As this impact is certain to occur it will be assessed for the construction phase as this is when the impact will occur, although the consequences will persist for a long time after construction.

Potential disturbance and injury of local fauna populations

Increased levels of noise, pollution, disturbance and human presence during construction will be detrimental to faunal species of conservation significance. Sensitive and shy faunal species would move away from the area during the construction phase as a result of the noise and human activities present, while some slow-moving species would not be able to avoid the construction activities and might be killed.

The construction phase of an infrastructure development project can be highly disturbing to birds breeding in the vicinity of the construction activities. Many birds, especially shy and/or ground nesting species such as pipits and larks, are highly susceptible to disturbance and should this disturbance take place during a critical time in the breeding cycle.

Pollution and soils and aquatic habitat

Waste products and pollutants generated during the construction phase may include fuels and oils from construction vehicles, solid waste from building material and litter, and can enter areas directly through the disposal/management of waste products, or indirectly through surface water run-off during rainfall. However, with proper materials handling and waste management procedures being followed, such impacts can be mitigated.

5.2.3 Impact tables summarising the significance of impacts on ecology during construction and operation (with and without mitigation)

Planning and Construction Phase Impacts

Nature: <u>Destruction and loss of flora and vegetation</u>		
This impact relates to the complete removal and/or partial destruction/disturbance of vegetation by machinery and workers, impacting directly on the ecological condition and available habitat. This impact is typically associated with activities within the construction zone but may extend beyond this footprint should construction activities not be carefully managed.		
Although the site will be located within a 'Critically Endangered' ecosystem and 'Vulnerable' vegetation type, past anthropogenic disturbance has already significantly transformed and degraded the site. The general species assemblage was found to be composed of widespread and abundant flora species with a low risk of extinction, as well as naturalised weeds and invasive plants. No sensitive habitats were present, and the site was regarded as being of low ecological sensitivity.		
	Without mitigation	With mitigation
Extent	Local (2)	Local (2)
Duration	Short-term (1)	Short-term (1)
Magnitude	Low (4)	Low (4)
Probability	Highly Probable (4)	Improbable (2)
Significance	Low (28)	Low (12)
Status (positive or negative)	Negative	Negative
Reversibility	Irreversible	Irreversible
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Clearing of vegetation in preparation for construction should be carried out in such a way that the area cleared is minimised to prevent soil erosion. » Vegetation clearance must be restricted to the construction footprint. » The timing between clearing of an area and subsequent development must be minimised. » Where possible, cut natural vegetation to ground level rather than removing completely, leaving root systems intact to ensure rapid re-colonisation. » As far as possible, indigenous plants/trees should be removed intact and relocated or used in rehabilitation. Smaller trees (3-4 m) can be easily removed intact and replanted in suitable areas outside of the construction zone. » Collection of firewood must be prohibited. 		

- » No open fires to be allowed on the construction site.
- » Any post-development re-vegetation should use locally indigenous species.

Cumulative Impacts:

Surrounding areas are already significantly transformed and fragmented by anthropogenic disturbance, thus no significant cumulative impacts are expected.

Residual Impacts:

None expected should mitigation measures be correctly implemented.

Nature: Destruction and loss of flora and vegetation species of conservation significance (SCS)

Activities involving the clearing of vegetation could result in the destruction or loss of SCS fauna and flora species. SCS flora species such as *Ficus trichopoda* and *Zantedescia aethiopica* fall outside of the development footprint and impacts on these species can be easily mitigated.

The 'Declining' and provincially protected flora species, *Eulophia speciosa* recorded within the study area does not form a viable colony and can be relocated with ease. Other provincial protected species such as *Ekebergia capensis* and *Strelitzia nicolai* have a much wider distribution than that of the site. The rest of the SCS flora species potentially present can be relocated with ease. Should the proposed mitigation measures be correctly implemented, the impact on SCS flora species is expected to be low.

The 'Critically Endangered' Southern Banded snake-eagle and the 'Vulnerable' African Crowned eagle may potentially be present in the *P. elliottii* vegetation unit and the plantation edges. Both species are known to occur within the Richards Bay area (SABAP2), and consequently their presence on the site cannot be entirely excluded. By correctly implementing the proposed mitigation measures provided below, potential adverse impacts on these species can be adequately mitigated.

Mobile fauna species such as African Striped weasels, Brown Scrub-robins and Fiscal flycatchers are expected to simply move away following disturbance from construction activities. Less mobile species such as Spotted shovel-nosed frogs, Eastern Longtailed seps, Olive house snakes and Bush squeakers can be adequately protected should the proposed mitigation measures be correctly implemented.

	Without mitigation	With mitigation
Extent	Regional (5)	Local (2)
Duration	Long-term (5)	Short-term (1)
Magnitude	Moderate (6)	Low (4)
Probability	Improbable (2)	Improbable (2)
Significance	Medium (32)	Low (12)
Status (positive or negative)	Negative	
Reversibility	No	
Irreplaceable loss of resources?	Yes	
Can impacts be mitigated?	Yes	

Mitigation:

Flora:

- » Prior to vegetation clearance, the development footprint and 100 m of adjoining areas should be scanned for the presence of SCS flora species.
- » Where removal of SCS species is required, the necessary permits must be obtained (eKZN Wildlife and DAFF).
- » Removed plants must either be housed in a temporary nursery or transplanted into suitable natural habitats near to where they were rescued; or kept for replanting in rehabilitation areas. If planted in suitable habitat, the position must be marked to aid in future monitoring of those plants.
- » Relocation/rescue activities should be undertaken within the spring flowering period in order to avoid missing bulb species which will only appear during this time. Suggested plant relocation and monitoring protocols are presented in **Appendix D** of the BA Report.

- » Any protected plants close to the site that will remain in place must be clearly marked and may not be defaced, disturbed, destroyed or removed. They must be cordoned off with construction tape or similar barriers and marked as no-go areas.
- » The collection and/or destruction of plants by unauthorised persons must be prevented and signs stating so must be placed at the entrance of the main site camp and clearly communicated to all employees.

Fauna:

- » No more than two weeks in advance of vegetation clearance that will commence during the breeding season of SCS bird species potentially occupying the area, a suitably qualified Zoologist must conduct a pre-construction survey of all potential SCS bird nesting habitat in the vicinity of the construction footprint. If this survey indicates that no nests or SCS birds are present or that nests are inactive or potential habitat is unoccupied, no further mitigation is required.
- » If active nests are found, avoidance procedures must be implemented on a case-by-case basis. Avoidance procedures may include the implementation of buffer zones, relocation of birds, or seasonal avoidance (i.e. vegetation clearance and construction activities starting after the breeding season). If buffers are created, a no disturbance zone must be created around active nests during the breeding season by a suitably qualified Zoologist.
- » During vegetation clearance, methods should be employed to minimise potential harm to fauna species. Clearing has to take place in a phased and slow manner, commencing from the interior of the site, progressing outwards towards the boundary to maximise potential for mobile species to move to adjacent areas.
- » Fauna species such as frogs and reptiles that have not moved away should be carefully and safely removed to a suitable location beyond the extent of the development footprint by a suitably qualified person trained in the handling and relocation of animals.

Cumulative Impacts

Surrounding areas are already significantly transformed and fragmented by anthropogenic disturbance; thus no significant cumulative impacts are expected.

Residual Impacts

Expected to be low if mitigation measures are correctly implemented.

Nature: Potential disturbance and injury of local fauna populations

The construction phase of a project can be highly disturbing to birds breeding in the vicinity of the construction activities. Many birds, especially shy and/or ground nesting species such as pipits and larks, are highly susceptible to disturbance and should this disturbance take place during a critical time in the breeding cycle, for example, when the eggs have not hatched or just prior to the chick fledging, it could lead to temporary or permanent abandonment of the nest or premature fledging. In both instances, the consequences are almost invariably fatal for the eggs or the fledglings. Such a sequence of events can have far reaching implications for species that only breed once a year or once every two years.

Slower moving faunal species such as reptiles and frogs would either seek shelter or not be able to move away from construction machinery and would be killed by vehicles and earth-moving machinery. These slower moving species would also be vulnerable to poaching for food, trade or killed out of fear and superstition. Mammal species such as rodents are tolerant to disturbance and would simply move away to more suitable habitats during the construction phase. Consequently the construction phase impacts on these species are expected to be low.

Adverse environmental impacts on fauna populations can however be minimised through a number of mitigation measures, including timing restrictions on clearing of vegetation.

	Without mitigation	With mitigation
Extent	Local (2)	Local (2)
Duration	Long-term (4)	Long-term (4)
Magnitude	Low (4)	Minor (1)
Probability	Highly Probable (4)	Probable (3)
Significance	Medium (40)	Low (12)

Status (positive or negative)	Negative	Negative
Reversibility	Yes, impact reversible	Yes, impact reversible
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Vegetation clearance should ideally start during the non-breeding season of fauna species (i.e. winter). » Where possible, work should be restricted to one area at a time. This will give the smaller birds, mammals and reptiles time to weather the disturbance in an undisturbed zone close to their original territories. » Vegetation clearance methods should be employed to minimise potential harm to fauna species. Clearing has to take place in a phased and slow manner, commencing from the interior of the site to maximise potential for mobile species to move to adjacent areas. » Slow moving species such as frogs and reptiles that have not moved away should be carefully and safely removed by a suitably qualified person trained in the handling and relocation of animals, to a location beyond the extent of the development footprint. » Areas beyond the development footprint should be expressly off limits to construction personnel and construction machinery and this should be communicated to them. » It is recommended that, while trenches are open, a sloping section of the side-wall is made available for the escape of any trapped animals. » All stormwater structures should be designed so as to block amphibian and reptile access to the road surface. » No animals must be intentionally killed or destroyed and poaching and hunting should not be permitted on the site and surrounding areas. 		
Cumulative Impacts:		
None expected if mitigation measures are correctly implemented.		
Residual Impacts:		
Disturbance from maintenance activities will occur at a low level with the result that disturbance would be largely restricted to the site.		

Nature: <i>Pollution of soils and aquatic habitat</i>		
<p>Waste products and pollutants generated during the construction phase may include fuels and oils from construction vehicles, solid waste from building material and litter, and can enter surrounding areas directly through the disposal/mismanagement of waste products, or indirectly through surface water runoff during rainfall. However, with proper waste management procedures being followed such impacts could be controlled and/or minimised.</p> <p>The potential impacts to surface water will largely be confined to the area within the harbour and north of the Railyard on the undeveloped area (unlined drainage channel). Potential impacts on the surface water could be in the form of increased pollution load by way of airborne particulates generated out of the construction/vehicle movement activities. Trenching activities may generate trench water, high suspended solids concentration due to turbidity.</p>		
	Without mitigation	With mitigation
Extent	Regional (3)	Local (1)
Duration	Long-term (5)	Short-term (1)
Magnitude	High (8)	Minor (0)
Probability	Probable (3)	Improbable (2)
Significance	Medium (48)	Low (4)
Status (positive or negative)	Negative	Negative
Reversibility	No, impacts are irreversible.	No, impacts are irreversible.
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> » Waste generated by the construction crew must be collected in rubbish bins and disposed of weekly at registered waste disposal facilities. 		

- » All builders' rubble and liquid waste must be disposed of as necessary at a registered waste disposal facility. No wastes must be burnt.
- » Adequate provision such as chemical toilets must be made available for construction workers. These toilets must be emptied on a weekly basis. Should fuels and chemicals be stored on the construction site, install appropriate bunds around storage areas.
- » Minimise the amount of fuel and chemicals stored on site.
- » Implement a contingency plan to handle spills so that environmental damage is avoided.
- » No refuelling, servicing of plant/equipment or chemical substances must be allowed outside of the designated chemical storage facility.
- » Drip trays should be used during all fuel/chemical dispensing.
- » Drip trays must be placed beneath stationary machinery/plant.
- » In case of spillages of hazardous substances, the spill should be collected immediately, and the contaminated soil stored in a designated area until it can be safely disposed of at a registered hazardous chemical substance disposal facility as described in the Hazardous Chemical Substance Regulations, 1995 (Regulation 15).
- » Measures must be taken to divert runoff from the site away from open water bodies and drainage lines.
- » Where possible, leave a continuous buffer of vegetation around the site perimeter to intercept any sediment that might be transferred off site via surface water flow.
- » Install silt fencing along open water and drainage lines as a sediment control method. Fences should be inspected weekly to check for breaks in the system and for sediment accumulation.
- » No untreated construction site runoff may be discharged directly into any open surface water body or drainage channel.

Cumulative Impacts:

None expected if mitigation measures are correctly implemented.

Residual Impacts:

Expected to be low if mitigation measures are correctly implemented.

Operation Phase Impacts

Nature: Colonisation by Invasive Alien Plant species (IAPs) and weeds

The colonisation of areas by weeds and IAPs poses a risk to remaining indigenous flora species and would be facilitated by the disturbance of natural vegetation and surface soil layers during construction. IAPs and indigenous weeds have the ability to out-compete and replace indigenous flora, which will in turn impact on natural biodiversity.

Clearing and disturbance is also likely to result in an increase in edge habitat immediately adjacent to disturbed areas. Edge habitat is characterized by a predominance of generalist and alien species that are usually highly competitive species which can invade areas of established vegetation.

Although the impact is initiated during the construction phase, it is really an operational issue as recovery of vegetation is a long-term process. Potential impacts of increased levels of IAPs on the composition and function of the remaining natural vegetation and flora would probably be quite localised and may extend over a long term since recovery of vegetation is generally a lengthy process.

	Without mitigation	With mitigation
Extent	Regional (3)	Local (1)
Duration	Long-term (5)	Short-term (1)
Magnitude	Low (4)	Minor (2)
Probability	Highly Probable (3)	Improbable (2)
Significance	Medium (48)	Low (8)
Status (positive or negative)	Negative	Negative
Reversibility	Yes, impacts are reversible.	Yes, impacts are reversible.
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	

Mitigation: » Development and implementation of an IAP control and eradication program.
Cumulative Impacts: None expected if mitigation measures are correctly implemented.
Residual Impacts: Expected to be low if mitigation measures are correctly implemented.

5.3.4 Implications for Project Implementation

With the implementation of mitigation measures by the developer, contractors, and operational staff, the significance of ecological impacts of the Wilmar Vegetable Oil Pipeline can be reduced to low. From outcomes of the ecological assessment, it is concluded that the development of the vegetable oil pipeline is acceptable. On-site mitigation is viewed as the most practical and appropriate action, and viable options for reducing the overall impact is detailed below:

- » Pre-construction walk-through of the pipeline's final route in order to locate species of conservation concern that can be translocated as well as comply with the KwaZulu-Natal Nature Conservation Act No. 9 of 1997, EDTEA and DAFF permit conditions.
- » Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.
- » Any fauna threatened by the construction activities should be removed to safety by an appropriately qualified person.
- » Develop and implement an IAP control and eradication program.

5.3. Potential Impacts on Wetlands

The majority of the impacts on wetlands associated with the development would occur during the construction phase as a result of the disturbance associated with construction activities and the impacts thereof on the wetlands present within the study area. Potential impacts and the relative significance of the impacts are summarised below (refer to **Appendix E** for more details).

5.3.1 Results of the Wetland Delineation Assessment

One depression wetland as well as an unlined artificial drainage channel were identified, ground-truthed and delineated within the study area. In the regulated area (< 500m) of the depression wetland, the surrounding wetlands identified included an estuarine wetland to the south and north of the project development corridor, as well as the unchanneled valley bottom wetland to the south. No watercourses were identified within the vicinity of the project development corridor.

As the proposed development includes the construction of a linear feature that can avoid the wetland and span the artificial drainage channel. Impacts are therefore expected to be limited to indirect impacts.

5.3.2 Description of Wetland and Artificial Drainage Channel Impacts

Potential impacts on the wetland and artificial drainage channel features would result from a variety of activities and risk factors associated with the construction and operation phases of the project. Direct potential impacts to the depression wetland and artificial drainage channel are not expected as the proposed pipeline will span the channel and avoid the wetland, as advised with the mitigation measures below, and no mounting or piling structures are to be placed directly within the depression wetland and

artificial drainage channel. Furthermore, no direct or indirect potential impacts are expected for the nearby un-channelled valley bottom wetland since there are a number of physical barriers (road infrastructure) which already fragment the proposed pipeline from the catchment of the un-channelled valley bottom wetland, and thus create a hydraulic barrier.

During the construction phase the following impacts are expected to occur:

- » *Impacts on hydrology and geomorphology of the depression wetland and artificial drainage channel*
 Minimal potential impacts to the hydrology and geomorphology of the depression wetland and artificial drainage channel however, may occur due to the construction works adjacent the depression wetland. Minor excavation during construction for the mounting and piling structures of the proposed pipeline sections in the vicinity of the depression wetland and artificial drainage channel, may increase sediment availability and potential drainage via run-off into the natural and artificial wetland systems where rains occur.
- » *Impacts on the water quality of the depression wetland and the artificial drainage channel*
 The potential for indirect impacts relate to impacts on the water quality of the wetlands, including the possible contamination of water quality as a result of leaks and spillages of oils and fuels directly from construction vehicles working nearby, or where hazardous substances and liquids are stored within or near the wetland and artificial drainage channel. There is also the possibility of chemical contamination from any temporary chemical toilets that are placed within or close to the wetland and artificial drainage channel during construction.

During the operation phase of the vegetable oil pipeline the following impacts are expected to occur:

No impacts are expected during operation. During the decommissioning phase, the same potential impacts identified in the construction phase are expected.

5.3.3 Impact tables summarising the significance of impacts on the wetland and artificial drainage channel during construction

Construction Phase Impacts

Nature: <i>Potential impacts associated with hydrological and geomorphological impacts in the depression wetland and artificial drainage channel.</i>		
There is a small potential for additional sediment loads to enter the depression wetland and artificial drainage channel from the excavated soils taken from the areas where the mounting structures are proposed. The sediment can enter the wetlands via surface run-off after rain events.		
	Without mitigation	With mitigation
Extent	Local area (2)	Immediate site (1)
Duration	Very short-term (1)	Very short-term (1)
Magnitude	Low (4)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	Low (21)	Low (8)
Status (positive or negative)	Negative	Negative
Reversibility	Moderate	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		

- » No soil stockpiles are to be placed directly within, or within 15m of the depression wetland or the artificial drainage channel.
- » All soil stockpiles within 15m of the depression wetland and the artificial drainage channel are to be adequately bunded to ensure that no sediment enters the wetlands via surface run-off. Bunding can take the form of stacked bricks or wooden planks fixed with pegs surrounding the stockpiles.
- » Soil stockpiles are to be removed as soon as possible after construction in an area is completed to limit disturbance. Removed soils can be re-used (where appropriate) for levelling during the construction phase or rehabilitation post-construction or can be disposed of at a suitable and registered landfill site that has sufficient capacity to assimilate the waste.
- » No mounting or piling structures are to be placed directly in the wetland or drainage channels.
- » The proposed pipeline must avoid the depression wetland completely (as per the current updated layout).
- » Vegetation clearance in general must also be limited as far as possible. No clearance is to be undertaken in adjacent areas, particularly the wetland and drainage line channels.
- » No laydown of material, machinery, stockpiles or any other construction equipment may be allowed within the demarcated depression wetland footprint.
- » The existing access road and associated bare turning area is to be utilised as far as possible during construction of any support structures near the depression wetland.
- » The depression wetland must be demarcated with tape or other similar markers and no worker movement is allowed in the wetland for construction of the proposed pipeline. Worker movement in the drainage channel must be limited as far as possible to minimise disturbance.
- » In general, movement of workers must be limited to the servitude / right of way of the proposed pipeline. Workers are not allowed to wonder freely into the surrounding areas, particularly the wetland and drainage channel.
- » No vehicles or machinery are allowed in the depression wetland or artificial drainage channel.
- » Construction of the proposed pipeline must take place as far as possible in the winter months (April/May to August/September) as these are the drier months in which rainfall is likely to be limited.
- » An alien invasive eradication and control management programme must be compiled to manage encroachment of alien species within the wetland and along the entire proposed pipeline. However, it may be required that an alien invasive and control management programme is to be compiled to manage the greater Transnet Railyard North area, as encroachment is likely from the adjacent areas around the proposed pipeline route. It is likely that there is an existing management plan / programme being implemented by Transnet for the Railyard North Section that can be used and updated to include management of the alien invasive management in the wetland and drainage channel. Importantly, the alien invasive monitoring and control management programme is also to be implemented post-construction for approximately two to five years to ensure alien invasives do not encroach following construction. Should there be an existing management plan, this component should be added to this specifically. Post-construction alien invasive eradication and control management is to be advised by the relevant monitoring agent on a yearly basis, who will monitor the success of the programme and will either identify further management measures or advise whether the control programme has been successful.

Cumulative impacts:

No cumulative impacts are anticipated.

Residual Impacts:

No residual Impacts after implementation of mitigation measures.

Nature: Potential impacts to the water quality of the wetland and artificial drainage channel

Water contamination from temporary chemical toilets and due to vehicle oil and fuel leakages, spillages, storage of hazardous materials and liquids near the wetland and artificial drainage channel.

	Without mitigation	With mitigation
Extent	Local area (2)	Immediate site (1)
Duration	Short-term (2)	Very short-term (1)
Magnitude	Moderate (6)	Low (2)
Probability	Probable (3)	Improbable (2)

Significance	Medium (30)	Low (8)
Status (positive or negative)	Negative	Negative
Reversibility	Low	Moderate
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » No fuels, oils or any other hazardous materials are to be brought into the wetland and artificial drainage channel or stored within 100m from the edge of the wetland and artificial drainage channel. » No vehicles are allowed within the wetland or drainage channel or are allowed to enter or cross through the wetland and drainage channel at any point. » Temporary chemical sanitation facilities must not be placed in the wetland and artificial drainage channel. Rather these will need to be placed at least 100m away. Temporary chemical sanitation facilities must also be checked regularly for maintenance purposes and cleaned often to prevent spills. » Spill kits must be available on site and should be appropriately serviced to ensure they are useable in the event of a spill. » In case of spillages of hazardous substances, the spill should be collected immediately, and the contaminated soil stored in a designated area until it can be safely disposed of at a registered hazardous chemical substance disposal facility. 		
Cumulative impacts:		
No cumulative impacts are anticipated.		
Residual Impacts:		
No residual Impacts after implementation of mitigation measures.		

Operation Phase Impacts

Nature: <u>Potential risk of impacts due to spillages as a result of rupture of the pipeline and leakages of vegetable oil</u>		
<u>Leaks of vegetable oil from the pipeline could be caused by construction defects of the pipeline, cracking or corrosion of carbon steel (the material making up the pipeline). In addition, leaks of vegetable oil could also potentially occur if the valves or joints of the pipeline are not properly maintained.</u>		
	<u>Without mitigation</u>	<u>With mitigation</u>
<u>Extent</u>	<u>Local area (2)</u>	<u>Immediate site (1)</u>
<u>Duration</u>	<u>Short-term (2)</u>	<u>Very short-term (1)</u>
<u>Magnitude</u>	<u>Low (4)</u>	<u>Low (2)</u>
<u>Probability</u>	<u>Probable (3)</u>	<u>Improbable (2)</u>
<u>Significance</u>	<u>Low (24)</u>	<u>Low (8)</u>
<u>Status (positive or negative)</u>	<u>Negative</u>	<u>Positive</u>
<u>Reversibility</u>	<u>Low</u>	<u>Moderate</u>
<u>Irreplaceable loss of resources?</u>	<u>No</u>	<u>No</u>
<u>Can impacts be mitigated?</u>	<u>Yes</u>	<u>Yes</u>
<u>Mitigation:</u>		
<ul style="list-style-type: none"> » <u>Implement an inspection programme to maintain the mechanical integrity and operability of the pipeline, valves, and any other associated process equipment.</u> » <u>Prepare and implement Standard Operating Procedures (SOPs) for the pumping of vegetable oil from the vessels, as well as for activities associated with undertaking maintenance work and routine checks on the pipeline.</u> » <u>Monitor the pipeline, valves and joints for potential ruptures, failures and overfilling. These should be reported to the Technical or Operations Manager immediately and in the event of a significant spill, the following procedure should be followed:</u> <ul style="list-style-type: none"> * <u>Stop the spill or leak at the source.</u> * <u>Contain the spill.</u> * <u>Remove the spillage for authorised disposal.</u> * <u>Assess and determine if there was any impact to the natural environment following the spill.</u> 		

<ul style="list-style-type: none">* <u>Where necessary, undertake remedial actions in consultation with KZN DWS.</u>* <u>Record the incident and keep all records.</u>» <u>Should any significant spillages of the vegetable oil or any other hazardous substances occur, these should be reported to KZN DWS.</u>» <u>Ensure an Emergency Response Plan is compiled and implemented in the event of an accidental leakage or spill of vegetable oil.</u>» <u>Undertake non-destructive tests on the pipeline continuously to ensure its competency to handle the envisaged volume of raw material being transported from the Richards Bay Port to the proposed oil processing facility at Phase 1A of the RB IDZ.</u>
<p><u>Cumulative impacts:</u> <u>No cumulative impacts are anticipated.</u></p>
<p><u>Residual Impacts:</u> <u>No residual Impacts after implementation of mitigation measures.</u></p>

5.3.4 Implications for Project Implementation

With the implementation of mitigation measures by the Developer, contractors, and operational staff, the significance of impacts on the depression wetland and the artificial drainage channel for the Wilmar Vegetable Oil Pipeline can be reduced to low. From the outcomes of the wetland delineation study undertaken, it is concluded that the development of the vegetable oil pipeline is acceptable subject to the recommendations made by the specialist. On-site mitigation is viewed as the most practical and appropriate action, and viable options for reducing the overall impact of the development on these areas is detailed below:

- » Construction phase monitoring must include inspection of the depression wetland and the artificial drainage channel to monitor the general condition and to ensure that no direct impact occurs.
- » No soil stockpiles are to be placed directly within, or within 15m, of the depression wetland or the artificial drainage channel.
- » No fuels, oils or any other hazardous materials are to be brought into the wetland and artificial drainage channel or stored within 100m from the edge of the wetland and artificial drainage channel.
- » No vehicles are allowed within the wetland or drainage channel or are allowed to enter or cross through the wetland and drainage channel at any point.
- » As the proposed pipeline is within 500m of a wetland, a risk assessment is to be undertaken in accordance with Government Notice Regulation 509 of 2016 for the proposed pipeline to obtain the necessary authorisation from the Department of Water and Sanitation (DWS), prior to construction. This is to be undertaken to determine the need for appropriate water use authorisation in consultation with the DWS.

5.4. Assessment of Impacts on Soil and Agricultural Potential

The impact of Wilmar Vegetable Oil Pipeline on the soils and agricultural potential has been assessed as low with the implementation of the recommended mitigation measures. Potential impacts and the relative significance are summarised below (refer to [Appendix F](#)).

5.4.1 Results of the Soil Impact Assessment

The extent of the project development corridor is located within the Fernwood/Longlands, Mispah/Glenrosa and the Witbank soil type. All the identified impacts, including soil erosion, soil compaction, and contamination are anticipated to be reduced to low following the implementation of the mitigation measures recommended by the specialist.

5.4.2 Description of Soil and Agricultural Potential Impacts

Four (4) impacts have been identified to be associated with the development of the vegetable oil pipeline from a soil perspective:

- » *Inaccessibility of potentially arable and grazing land*
 - * Although some of the soils within the project development corridor are suitable for agriculture, agricultural production is not considered viable due to current ongoing industrial activities in the vicinity of the RBT or RB IDZ, which are envisaged to persist for the foreseeable future since the surrounding RBT area and RB IDZ has been designated for industrial land use.
 - * The agricultural and land capability for the Fernwood/Longlands soil type is anticipated to be low in the context of the pre-existing land use impacts in the surrounding area. The impact of the proposed development is also regarded as being low on the Mispah/Glenrosa, and negligible for the Witbank soil type, due to their inherent poor land capability under present conditions.
- » *Soil erosion*
 - * Although identified soils within the project development corridor display a moderate susceptibility to erosion under present conditions, their susceptibility to erosion will be increased once the vegetation has been cleared and the soils become exposed to wind and stormwater. As such, the impact of erosion on the Fernwood/Longlands soil type is assessed as being medium. The significance of erosion on the Mispah/Glenrosa soil type is also assessed as being medium, whereas the Witbank soil type is considered to be resistant to erosion impacts as a result of the artificial surface hardening material used on existing infrastructure.
- » *Soil compaction*
 - * The impact of soil compaction on the identified soil types is assessed as medium for the Fernwood/Longlands and Mispah/Glenrosa soil type. For the Witbank soil type, the impacts are anticipated to be low.
- » *Soil contamination*
 - * All the three (3) soil types identified within the project development corridor are susceptible to soil contamination, as contamination sources are generally unpredictable and typically occur as incidental spills or leaks during the construction phase. The Fernwood/Longlands soil type is

anticipated to have a high significance, due to their well-drained upper column through which contaminants can percolate into the groundwater.

The Mispah/Glenrosa and Witbank soil types are anticipated to have a medium to low significance, due to their relatively compacted condition and impermeable surface that can effectively hinder contaminant percolation into the underlying soil and groundwater.

5.4.3 Impact tables summarising the significance of impacts on Soil and Agricultural Potential during construction and operation (with and without mitigation)

Nature: <i>Loss of agricultural land capability impact assessment for the identified soils</i>						
	Fernwood/Longlands		Mispah/Glenrosa		Witbank	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
Probability	Unlikely (1)	Unlikely (1)	Unlikely (1)	Unlikely (1)	Unlikely (1)	Unlikely (1)
Sensitivity	Moderate (3)	Moderate (3)	Low (2)	Low (2)	Negligible (1)	Negligible (1)
Extent	Local/Site (1)	Local/Site (1)	Local/Site (1)	Local/Site (1)	Local/Site (1)	Local/Site (1)
Intensity	Moderate (2)	Low (1)	Moderate (2)	Low (1)	Low (1)	Low (1)
Duration	Life of operation (3)	Life of operation (3)	Life of operation (3)	Life of operation (3)	Life of operation (3)	Life of operation (3)
Significance	Low (24)	Low (16)	Low (18)	Low (15)	Low (10)	Low (10)
Mitigation:						
» Strictly limit vegetation clearance and earthworks to the pre-determined areas where intrusive subsurface excavation will be required for the installation of the pipeline supporting structures.						
Cumulative Impacts						
None expected						
Residual Impacts						
None expected						

Nature: <i>Soil erosion impact for the identified soil types</i>						
	Fernwood/Longlands		Mispah/Glenrosa		Witbank	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
Probability	Highly Likely (4)	Likely (3)	Likely (3)	Possible (2)	Unlikely (1)	Unlikely (1)
Sensitivity	Very High (5)	Very High (5)	Moderately High (4)	Moderately High (4)	Negligible (1)	Negligible (1)
Extent	Local (1)	Local (1)	Local (1)	Local (1)	Local (1)	Local (1)
Intensity	Moderate (2)	Low (1)	Moderate (2)	Low (1)	Low (1)	Low (1)
Duration	Life of operation (3)	Temporary (1)	Life of operation (3)	Temporary (1)	Life of operation (3)	Temporary (1)
Significance	Medium (54)	Low (24)	Medium (42)	Low (18)	Low (10)	Low (06)
Mitigation:						
» Schedule construction works such that there are no unprecedented delays, such that the soil exposure duration is reduced to absolute minimum.						
» Vegetation clearance and earthworks should be preferably scheduled during the dry (low rainfall) season when chances of runoff and water erosion are minimal, and soil moisture content is also minimal, in order to avoid excessive soil erosion through stormwater runoff.						

<ul style="list-style-type: none"> » Avoid clearing the vegetation cover all at once; the study area can be divided into subsections that will be progressively cleared only when required according to the construction schedule. » Re-vegetate or mulch the cleared areas after the construction works to limit soil erosion and dust emission. » Avoid stockpiling where possible, and all excavated soil can be re-used on adjacent areas to minimise soil exposure to erosion and dust emission, following the excavation works. » Vegetation clearance and construction activities should preferably commence on the up-gradient section and gradually progress down-gradient, such that the undeveloped portion can continuously serve as a natural erosion control, sediment retention, and stormwater attenuation mechanism.
<p>Cumulative Impacts None expected</p>
<p>Residual Impacts None expected with the implementation of the recommended mitigation measures</p>

<p>Nature: <u>Soil compaction impacts for the identified soil types.</u> Heavy equipment and vehicular traffic during construction activities is anticipated to cause significant soil compaction on the identified soils.</p>						
	Fernwood/Longlands		Mispah/Glenrosa		Witbank	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
Probability	Inevitable (5)	Highly Likely (4)	Inevitable (5)	Highly Likely (4)	Unlikely (1)	Unlikely (1)
Sensitivity	Moderate (3)	Moderate (3)	Low (2)	Low (2)	Negligible (1)	Negligible (1)
Extent	Local (1)	Local (1)	Local (1)	Local (1)	Local (1)	Local (1)
Intensity	Moderate (2)	Low (1)	Moderate (2)	Low (1)	Low (1)	Low (1)
Duration	Life of operation (3)	Temporary (1)	Life of operation (3)	Temporary (1)	Life of operation (3)	Temporary (1)
Significance	Medium (48)	Low (21)	Medium (42)	Low (18)	Low (12)	Low (6)
<p>Mitigation: » Vehicular movement should be strictly restricted within the existing roads in order to minimise the compaction footprint.</p>						
<p>Cumulative Impacts None expected</p>						
<p>Residual Impacts None expected with the implementation of the recommended mitigation measures</p>						

<p>Nature: <u>Soil contamination impacts for the identified soil types.</u> All the three (3) soil types identified within the project development corridor are susceptible to soil contamination, as contamination sources are generally unpredictable and typically occur as incidental spills or leaks during the construction phase</p>						
	Fernwood/Longlands		Mispah/Glenrosa		Witbank	
	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation	Pre-mitigation	Post-mitigation
Probability	Likely (3)	Possible (2)	Likely (3)	Possible (2)	Possible (2)	Unlikely (1)
Sensitivity	Very High (5)	Moderate (3)	Moderately High (4)	Moderate (3)	Low (2)	Negligible (1)
Extent	Local (1)	Local (1)	Local (1)	Local (1)	Local (1)	Local (1)
Intensity	High (3)	Low (1)	High (3)	Low (1)	Moderate (2)	Low (1)
Duration	Permanent (4)	Temporary (1)	Permanent (4)	Temporary (1)	Permanent (4)	Temporary (1)

Significance	High (64)	Low (15)	Medium (56)	Low (15)	Low (28)	Low (6)
Mitigation:						
<ul style="list-style-type: none"> » A strict waste management plan should be developed to guide the construction crew and must be adhered to throughout the project. » Contamination prevention measures should be addressed in the EMPr for the proposed development, and this should be implemented and made available and accessible to all contractors and construction crew. » A spill prevention and emergency spill response plan, as well as dust suppression, and fire prevention plans should also be compiled and incorporated to the safety protocols to guide the construction works. » The spill prevention plan should adequately address clean-up measures, to mitigate ingress of contaminants into the soils and potential leaching of contaminants into groundwater in the event of a spill and/or a leak of potentially hazardous substances during the construction phase and throughout the lifespan of the proposed development. » Burying of waste, including rubble, domestic waste, or empty containers should be strictly prohibited. » Inert uncontaminated building rubble should be removed to an authorised disposal site, or alternatively reused within the study area e.g. on road surfaces where permitted by the landowner(s). 						
Cumulative Impacts						
None expected						
Residual Impacts						
None expected with the implementation of the recommended mitigation measures						

5.4.4 Implications for Project Implementation

With the implementation of mitigation measures by the Developer, contractors, and operational staff, the significance of impacts of the Wilmar Vegetable Oil Pipeline is expected to have a low impact on soils and agricultural potential. From the outcomes of the study undertaken, it is concluded that the vegetable oil pipeline can be developed following the implementation of the mitigation measures made by the specialist.

5.5. Assessment of Impacts on Heritage Resources

No significant palaeontological and heritage resources were identified within the project development corridor (refer to **Appendix G**). Thus, no significant palaeontological and heritage resources are anticipated to occur during the project life cycles of the proposed vegetable oil pipeline. Should they be found, the 'Chance Fossil Find' procedure included in **Appendix I** of the Final BA Report should be implemented.

5.6. Assessment of Social Impacts

Potential negative and positive social impacts and the relative significance of the impacts associated with the development of the vegetable oil pipeline are summarised below (refer to **Appendix H** for more details). Both positive and negative social impacts are expected to occur with the development of the Wilmar Vegetable Oil Pipeline.

5.6.1 Results of the Social Impact Assessment

It was identified that most social impacts associated with the development of the Wilmar Vegetable Oil Pipeline will have a short-term duration associated with the 6-month construction phase of the project. Of these impacts, all can be mitigated to acceptable levels and there are no fatal flaws associated with the construction of the vegetable oil pipeline.

5.6.2 Description of Social Impacts

During the construction and operation of the Wilmar Vegetable Oil Pipeline, both negative and positive social impacts are expected to occur.

Negative impacts associated with the construction phase include:

- » Annoyance, dust and noise
- » Increase in crime
- » Influx of construction workers
- » Hazard exposure
- » Disruption to daily living patterns
- » Disruptions to social and community infrastructure

Positive impacts associated with the construction phase include:

- » Job creation; and
- » Socio-economic benefits.

Positive impacts associated with the operation phase includes:

- » Socio-economic stimulation

5.6.3 Impact tables summarising the significance of social impacts during construction and operation (with and without mitigation measures)

Construction Phase Impacts

Nature: <i>Nuisance impacts as a result of an increase in dust and noise</i>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (1)	Short-term (1)
Magnitude	Minor (2)	Minor (2)
Probability	Highly probable (4)	Probable (3)
Significance	Low (16)	Low (12)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » Where necessary ensure that dust suppression measures, such as damping, are implemented to reduce dust along the construction route and in the vicinity of the laydown and stockpile areas. » Ensure all vehicles and plant are maintained and operated within the noise specification limits of the manufacturers. 		
Cumulative impacts:		
It is unlikely that there will be any cumulative impacts associated with annoyance dust and noise.		
Residual impacts:		
It is unlikely that this impact will lead to any residual impacts.		

Nature: <i>An increase in crime associated with construction activities.</i>		
	Without mitigation	With mitigation

Extent	Local (1)	Local (1)
Duration	Short-term (1)	Short-term (1)
Magnitude	Minor (1)	Minor (1)
Probability	Improbable (2)	Very improbable (1)
Significance	Low (6)	Low (3)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » Ensure that construction workers are clearly identifiable. All workers should carry identification cards and wear identifiable clothing. » Fence off the construction camp/laydown area and control access to this area. » Appoint an independent security company to monitor the site. » Discourage loitering within the vicinity of the construction camp/laydown area and construction sites. » Discourage work seekers loitering within the vicinity of recruitment points, the construction camp/laydown area and construction sites. 		
Cumulative impacts:		
It is unlikely that there will be any cumulative impacts associated with an increase in crime.		
Residual impacts:		
It is unlikely that this impact will lead to any residual impacts.		

Nature: <i>An influx of construction workers to work on the project.</i>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (1)	Short-term (1)
Magnitude	Low (4)	Minor (2)
Probability	Highly probable (4)	Highly probable (4)
Significance	Low (24)	Low (16)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » Wherever feasible, local residents should be recruited to fill semi and unskilled jobs. » Communicate the limitation of job opportunities created by the project through Community Leaders and Ward Councillors. 		
Cumulative impacts:		
It is unlikely that there will be any cumulative impacts associated with the influx of construction workers.		
Residual impacts:		
It is unlikely that this impact will lead to any residual impacts.		

Nature: <i>An increased hazard risk associated with the construction of the project</i>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (1)	Short-term (1)
Magnitude	Low (4)	Low (3)
Probability	Highly probable (4)	Probable (3)
Significance	Low (24)	Low (15)

Status (positive or negative)	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » Ensure that all construction equipment and vehicles are properly maintained at all times. » Ensure that operators and drivers are properly trained and make them aware, through regular toolbox talks, of any risk they may pose to the community. In this regard place specific emphasis on the vulnerable sector of the population such as children and the elderly. » Ensure that fires that may be ignited by construction staff are only lit in designated areas and that the appropriate safety precautions, such as not lighting fires in strong winds and completely extinguishing fires before leaving them unattended, are strictly adhered to. » Make staff aware of the dangers and consequences of fire during regular toolbox talks. 		
Cumulative impacts:		
It is unlikely that there will be any cumulative impacts associated with hazard exposure.		
Residual impacts:		
It is unlikely that this impact will lead to any residual impacts.		

Nature: <i>The disruption of the daily living patterns of people working and commuting in the area as associated with construction.</i>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (1)	Short-term (1)
Magnitude	Minor (2)	Minor (1)
Probability	Probable (3)	Improbable (2)
Significance	Low (16)	Low (12)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » Ensure that, at all times, people have access to their places of work and that the flow of traffic around construction sites and the laydown area is effectively managed in order to limit any disruptions to the general public. 		
Cumulative impacts:		
It is unlikely that there will be any cumulative impacts associated with the disruption of daily living patterns.		
Residual impacts:		
It is unlikely that this impact will lead to any residual impacts.		

Nature: <i>Disruption to social and community infrastructure due to construction activities.</i>		
	Without mitigation	With mitigation
Extent	Local (1)	Local (1)
Duration	Short-term (1)	Short-term (1)
Magnitude	Minor (2)	Minor (1)
Probability	Probable (3)	Improbable (2)
Significance	Low (16)	Low (12)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No

Can impacts be mitigated?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » Regularly monitor the effect that construction is having on infrastructure within the development area and immediately report any damage that may occur to infrastructure to the appropriate authority. » Ensure that where access is obstructed that this access is swiftly restored to an acceptable state. 		
Cumulative impacts:		
It is unlikely that there will be any cumulative impacts associated with the disruption to social and community infrastructure.		
Residual impacts:		
It is unlikely that this impact will lead to any residual impacts.		

Nature: <i>The creation of jobs and the development of skills associated with construction.</i>		
	Without mitigation	With mitigation
Extent	Regional (3)	Regional (3)
Duration	Short-term (1)	Short-term (1)
Magnitude	Moderate (5)	Moderate (6)
Probability	Highly probable (5)	Highly probable (4)
Significance	Medium (32)	Medium (36)
Status (positive or negative)	Positive	Positive
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be enhanced?	Yes	Yes
Mitigation:		
<ul style="list-style-type: none"> » Wherever feasible, local residents should be recruited to fill semi and unskilled jobs. » Women should be given equal employment opportunities and encouraged to apply for positions. » A skills transfer plan should be put in place at an early stage and workers should be given the opportunity to develop skills which they can use to secure jobs elsewhere post-construction. » A procurement policy promoting the use of local business should, where possible, be put in place to be applied throughout the construction phase. 		
Cumulative impacts:		
The creation of jobs and a skills development initiative is likely to have some impact in the region albeit a limited impact considering the size and duration of the project.		
Residual impacts:		
The development of skills could leave a positive impact if a skills development process is implemented.		

Nature: <i>Contribution towards the regional economy</i>		
	Without enhancement	With enhancement
Extent	Regional (3)	Regional (3)
Duration	Short-term (1)	Short-term (1)
Magnitude	Moderate (5)	Moderate (6)
Probability	Highly probable (4)	Highly probable (4)
Significance	Medium (36)	Medium (40)
Status (positive or negative)	Positive	Positive
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be optimised?	Yes	Yes
Enhancement:		
<ul style="list-style-type: none"> » A procurement policy promoting the use of local business should, where possible, be put in place to be applied throughout the construction phase. 		

<p>Cumulative impacts: Total capital expenditure during the construction and operational phases of the project is estimated at approximately R 60 million for the pipeline and R 1.2 billion in respect of the initial site estimate. With 50% of this expenditure being spent in South Africa there is likely to be a cumulative impact in respect of the regional, provincial and national economies.</p>
<p>Residual impacts: The project is likely to result in a residual impact in respect of industrial development in the region and will augment the Richards Bay Industrial Development Zone.</p>

Operation Phase Impacts

<p>Nature: <u>Contribution towards the regional economy in respect of the pipeline in association with the processing plant.</u></p>		
	Without enhancement	With enhancement
Extent	Regional (3)	Regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Moderate (6)	Moderate (7)
Probability	Highly probable (4)	Highly probable (7)
Significance	Medium (52)	Medium (56)
Status (positive or negative)	Positive	Positive
Reversibility	Yes	Yes
Irreplaceable loss of resources	No	No
Can impacts be mitigated?	Yes	Yes
<p>Enhancement: » A procurement policy promoting the use of local business should, where possible, be put in place to be applied throughout the operational phase.</p>		
<p>Cumulative impacts: Capital expenditure in respect of the initial site estimate is estimated at R 1.2 billion. With 50% of this expenditure being spent in South Africa there is likely to be a cumulative impact in respect of the regional, provincial and national economies.</p>		
<p>Residual impacts: The project is likely to result in a residual impact in respect of industrial development in the region and will augment the Richards Bay Industrial Development Zone.</p>		

5.6.4 Implications for Project Implementation

The significance of the positive impacts associated with the social aspects that will be affected by the development of the Wilmar Vegetable Oil Pipeline are of a medium significance following the implementation of the enhancement measures recommended by the specialist.

The significance of the negative impacts associated with the social aspects that will be affected by the Wilmar Vegetable Oil Pipeline are of a medium to low significance following the implementation of the mitigation measures recommended by the specialist.

5.7 Assessment of the 'Do Nothing' Alternative

The 'do-nothing' alternative (i.e. no-go alternative) is the option of not constructing the Wilmar Vegetable Oil Pipeline. Should this alternative be selected, there would be no social and environmental impacts on the proposed project development corridor since the proposed pipeline would not be constructed.

This would result in the situation where the raw materials required for the proposed vegetable oil processing facility located within Phase 1A of the RB IDZ would not be transported to the site from the harbour. As a result, the benefits associated with this plant, including job creation and the economic contribution to the region, not being realised. This is an undesirable option for the oil processing plant development, as well as for the RB IDZ as it would mean an opportunity lost for appropriate development within the area identified for agro-processing.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

Wilmar Processing (Pty) Ltd, proposes the construction and operation of a pipeline in the Transnet National Port Authority (TPNA) area and the Richards Bay Industrial Development Zone (RB IDZ). The pipeline infrastructure will comprise of the following key infrastructure:

- » Carbon steel, DN 200 pipes; and
- » Overhead steel bridges over railway lines and road infrastructure.

A single corridor of up to 50m wide and up to 2.8km in length (known as the project development corridor) has been assessed to allow for the optimisation of the pipeline infrastructure to accommodate the environmental sensitivities identified within the corridor.

The pipeline will facilitate the transport of vegetable oil from vessels docking at the Richards Bay Port to the proposed Wilmar Processing Facility (not part of this assessment) located on Phase 1A of the RB IDZ. The assessed project development corridor falls within the TPNA area and the RB IDZ which is a Special Economic Zone (SEZ). SEZs are areas set aside by Government for infrastructure development projects with the goal of achieving growth.

A summary of the recommendations and conclusions for the proposed project as determined through the BA process is provided in this Chapter.

6.1. Legal Requirements as per the EIA Regulations, 2014 (as amended)

This chapter of the Final BA Report includes the following information required in terms of Appendix 1: Content of the BA Report:

Requirement	Relevant Section
3(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report	A summary of the findings of the specialist studies undertaken for the vegetable oil pipeline has been included in section 6.2.
3(l) an environmental impact statement which contains (i) a summary of the key findings of the environmental impact assessment, (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.	An environmental impact statement containing the key findings of the environmental impacts of the vegetable oil pipeline has been included as section 6.5. An Environmental Sensitivity and Layout map of the Wilmar Vegetable Oil Pipeline has been included as Figure 6.1 which overlays the development corridors with the environmentally sensitive features located within the development corridors. A summary of the positive and negative impacts associated with the vegetable oil pipeline infrastructure has been included in section 6.2.
3(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation.	All conditions required to be included in the Environmental Authorisation of the vegetable oil pipeline have been included in section 6.6.

Requirement	Relevant Section
3(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation.	A reasoned opinion as to whether the vegetable oil pipeline should be authorised has been included in section 6.5.

6.2. Evaluation of the Wilmar Vegetable Oil Pipeline

The preceding chapters of this report together with the specialist studies contained within **Appendices D-H** provide a detailed assessment of the potential impacts that may result from the development of the vegetable oil pipeline. This chapter concludes the environmental assessment of the Wilmar Vegetable Oil Pipeline by providing a summary of the results and conclusions of the assessment. In doing so, it draws on the information gathered as part of the BA process, the knowledge gained by the environmental specialists and the EAP and presents a combined and informed opinion of the environmental impacts associated with the project.

No environmental fatal flaws were identified in the detailed specialist studies conducted, and no impacts of unacceptable significance are expected to occur with the implementation of the recommended mitigation measures. These measures include, amongst others, the avoidance of sensitive features and the undertaking of monitoring, as specified by the specialists.

The potential environmental impacts associated with the Wilmar Vegetable Oil Pipeline identified and assessed through the BA process include:

- » Impacts on ecology and avifauna.
- » Impacts on wetlands.
- » Impacts to soils and agricultural potential.
- » Impacts on heritage resources, including archaeology and palaeontology.
- » Positive and negative socio- economic impacts.

6.2.1 Impacts on Ecology

The conclusions of the Ecological Impact Assessment (**Appendix D**) is based on the findings of two site visits undertaken in summer (27 November 2018) and again in late summer (11 March 2019) and assessed the impact of the vegetable oil pipeline on the sensitive ecological features present within the project development corridor for the life-cycle of the project. The assessment identified impacts within the construction and operation phases of the project.

During the construction phase (and the decommissioning phase) the impacts include destruction and loss of flora and vegetation, loss of species of conservation significance, disturbance and injury of local fauna populations, and pollution of soils and aquatic habitat. During the operation phase, the anticipated impact only includes colonisation by invasive alien plant species (IAPs) and weeds.

From the findings of the Ecological Impact Assessment, it can be concluded that no impacts of high ecological significance were identified that would hinder the development of the Wilmar Vegetable Oil Pipeline. The entire corridor is located within an area of low sensitivity. The proposed development is considered to be appropriate and acceptable from an ecological perspective and will not result in

detrimental impacts to ecosystems and habitat features present within the project development corridor and within the surrounding environment. The specialist has, therefore, indicated that the development of the vegetable oil pipeline may be authorised, constructed and operated, subject to the implementation of the recommended mitigation measures (refer to **Appendix D** for more details).

6.2.3 Impacts on Wetlands

The conclusions of the Wetland Delineation Impact Assessment (**Appendix E**) are based on the findings of two site visits undertaken in early spring (18 September 2018) and in early summer (30 November 2018) that both assessed the impact of the vegetable oil pipeline on the wetland features present within the study area for the life-cycle of the project. One depression wetland as well as an unlined artificial drainage channel were identified, ground-truthed and delineated within the study area. In the regulated area (< 500m) of the depression wetland, the surrounding wetlands identified included an estuarine wetland to the south and north of the project development corridor, as well as the unchannelled valley bottom wetland to the south. No watercourses were identified within the vicinity of the project development corridor.

Potential impacts on the wetland and artificial drainage channel features would result from a variety of activities and risk factors associated with the construction phase of the project. Direct potential impacts to the depression wetland and artificial drainage channel are not expected as the proposed pipeline will span the channel and avoid the wetland, as advised with the mitigation measures below, and no mounting or piling structures are to be placed directly within the depression wetland and artificial drainage channel. Furthermore, no direct or indirect potential impacts are expected for the nearby un-channelled valley bottom wetland since there are a number of physical barriers (road infrastructure) which already fragment the proposed pipeline from the catchment of the un-channelled valley bottom wetland, and thus create a hydraulic barrier.

For the construction phase, the anticipated impacts include, hydrological and geomorphological impacts on the depression wetland and artificial drainage channel and impacts on the water quality of the wetland and artificial drainage channel. No impacts were assessed for the operation phase of the pipeline.

The significance of the construction phase impacts will be low, following the implementation of the recommended mitigation measures by the specialist (refer to **Appendix E** for more details). The development of the Wilmar Vegetable Oil Pipeline is thus supported from a wetland perspective and considered acceptable, subject to obtaining the necessary water use licence (WUL) or general authorisation (GA) from the Department of Water and Sanitation.

6.2.4 Impacts on Soil and Agricultural Potential

The findings of the Soils and Agricultural Potential Impact Assessment (**Appendix F**) are based on a field-based soil survey (undertaken on 3 December 2018), where the impacts of the Wilmar Vegetable Oil Pipeline were assessed against the soil types within the proposed project development corridor. The assessment identified impacts within the construction and operation phase of the project.

Impacts expected include inaccessibility of potentially arable and grazing land due to the presence of the infrastructure, soil erosion during both construction and operation, soil compaction due to the movement of vehicles on site during construction, and soil contamination typically occurring as incidental spills or leaks

during the construction phase. The TPNA area and the RBIDZ are zoned for industrial development. Therefore, it is not feasible for agricultural activities to occur within both areas in the foreseeable future. The above-mentioned impacts are anticipated to occur during the construction and operation phase of the pipeline. The identified impacts will have a low significance following the implementation of the recommended mitigation measures by the specialist (refer to **Appendix F**). No fatal flaws have been identified from a soils and agricultural potential perspective and all impacts can be mitigated to be within low and acceptable levels, hence the development of the Wilmar Vegetable Oil Pipeline is considered acceptable from a soils and agricultural potential perspective.

6.2.5 Impacts on Heritage Resources, Archaeology and Palaeontology

The findings of the Heritage Impact Assessment (**Appendix G**) inclusive of a palaeontological study are based on a site visit undertaken in December 2018. No archaeological or heritage resources of significance were identified within the project development corridor. Therefore, no impacts are identified from a heritage and palaeontological perspective. This also means that the proposed development of the Wilmar Vegetable Oil Pipeline is supported from a heritage and archaeological perspective.

Taking into consideration the project development corridor for the proposed development, the area has undergone extensive modification since the construction of the Port in the 1970s. The geology of the area suggests the lithologies could contain invertebrate fossils, however, these are likely to have been disturbed by the construction of the Richards Bay Port and other infrastructure present within the area. Therefore, there is a small chance other fossil forms could occur within the Maputoland Group rocks within the area, and a 'Fossil Chance Find Procedure' has been included within the EMPr (**Appendix I**). Taking into consideration the fact that no fossil finds have been reported within the area to date, the proposed development of the Wilmar Vegetable Oil Pipeline is supported from a palaeontological perspective.

6.2.6 Social Impacts

The Social Impact Assessment (**Appendix H**) identified that most social impacts associated with the development of the Wilmar Vegetable Oil Pipeline will have a short-term duration associated with the construction phase, with some impacts expected during the operation phase of the pipeline. Positive and negative social impacts have been identified for the construction, whilst only positive impacts are identified for the operation phase of the pipeline.

During the construction phase, negative social impacts include, nuisance, dust and noise impacts, an increased risk of crime, an influx of construction workers in the area, disruption of daily living patterns, disruptions to social and community infrastructure. Positive social impacts identified for the construction phase include job creation and skills development opportunities and socio-economic benefits. These positive impacts are applicable to the operational phase of the pipeline.

The significance of the positive social impacts will be medium following the implementation of the recommended enhancement measures by the specialist. No fatal flaws are identified associated with the proposed development as the project will result in limited negative impacts on the social environment of the Richards Bay area and surrounding communities.

6.2.7 Assessment of Cumulative Impacts

Due to the limited footprint of the proposed pipeline, and the location within the Richards Bay Port and RB IDZ (i.e. areas already largely transformed and designated for future industrial development) potential cumulative impacts associated with the project are expected to be low.

6.3. Environmental Sensitivity of the Identified Corridor

From the specialist investigations undertaken for the vegetable oil pipeline, the following sensitive areas/environmental features have been identified and demarcated within the corridor (refer to **Figure 6.1**). These features would need to be considered by the Developer for the location of the pipeline within the corridor.

Sensitivity Rating	Sensitive areas / environmental features
High	<ul style="list-style-type: none"> » The Fernwood/Longlands soil type identified within the corridor is associated with a high sensitivity. This is due to its inherent arable properties, which make it susceptible to erosion. The arable attribute of this soil type is regarded as a key characteristic in soil types indicative of wetlands. From a land capability perspective, these soils are considered suitable for agricultural land use and grazing. Agriculture within those areas of the corridor which contain these soils is, however, not considered viable due to current ongoing industrial activities in the vicinity of the RB IDZ, which are envisaged to persist for the foreseeable future since the surrounding RB IDZ has been designated for industrial land use. While development within these areas is acceptable, erosion management will be critical to minimise impacts. » The unchanelled valley bottom wetland located to the south of the corridor is associated with a high sensitivity. This is because the wetland is associated with a high biodiversity and is very sensitive to flow and habitat modifications. Although the corridor falls outside the footprint of the wetland, the corridor falls within the regulated area (i.e. a 500m radius of the wetland), which is listed as a water use under the National Water Act (Act No. 36 of 1998). Direct impacts on this wetland must be avoided.
Medium	<ul style="list-style-type: none"> » The Mispah/Glenrosa soil type is associated with a medium sensitivity. The majority of the corridor falls within the soil type, especially where the pipeline makes a crossing with the single railway line. The medium sensitivity follows as this soil type is sensitive to erosion due to historic anthropogenic activities that have taken place in this area. While development within these areas is acceptable, erosion management will be critical to minimise impacts » The artificial drainage channel and depression wetland located to the north and east of the corridor have a moderate/medium sensitivity. Although the wetlands are not sensitive to flow and habitat modifications, and partially fall outside the area of the depression wetland, both features are regarded as being ecologically significant at a provincial and local level. The corridor falls within the regulated area (i.e. a 500m radius of the wetland and drainage channel), which is listed as a water use under the National Water Act (Act No. 36 of 1998). Direct impacts on this drainage channel and wetland must be avoided.
Low	<ul style="list-style-type: none"> » The Witbank soil type is resistant to erosion, and is considered as being of a low sensitivity due to the artificial surface hardening material used on the existing infrastructure (i.e. paved roads, buildings, concrete parking areas etc.). » Although a few plant species of conservation concern were located within the study area, these species were only restricted to the habitat outside of the corridor. Potential occurrences of plant species such as tconshose from the families

Sensitivity Rating	Sensitive areas / environmental features
	<p><i>Amaryllidaceae</i>, <i>Hyacinthaceae</i>, <i>Iridaceae</i> and <i>Orchidaceae</i> can be relocated with ease. In addition, impacts on fauna within the vegetation units' <i>P. elliotii</i> and <i>O. moniliferum</i> can be mitigated. The corridor in its entirety is of a low significance from an ecological perspective.</p>

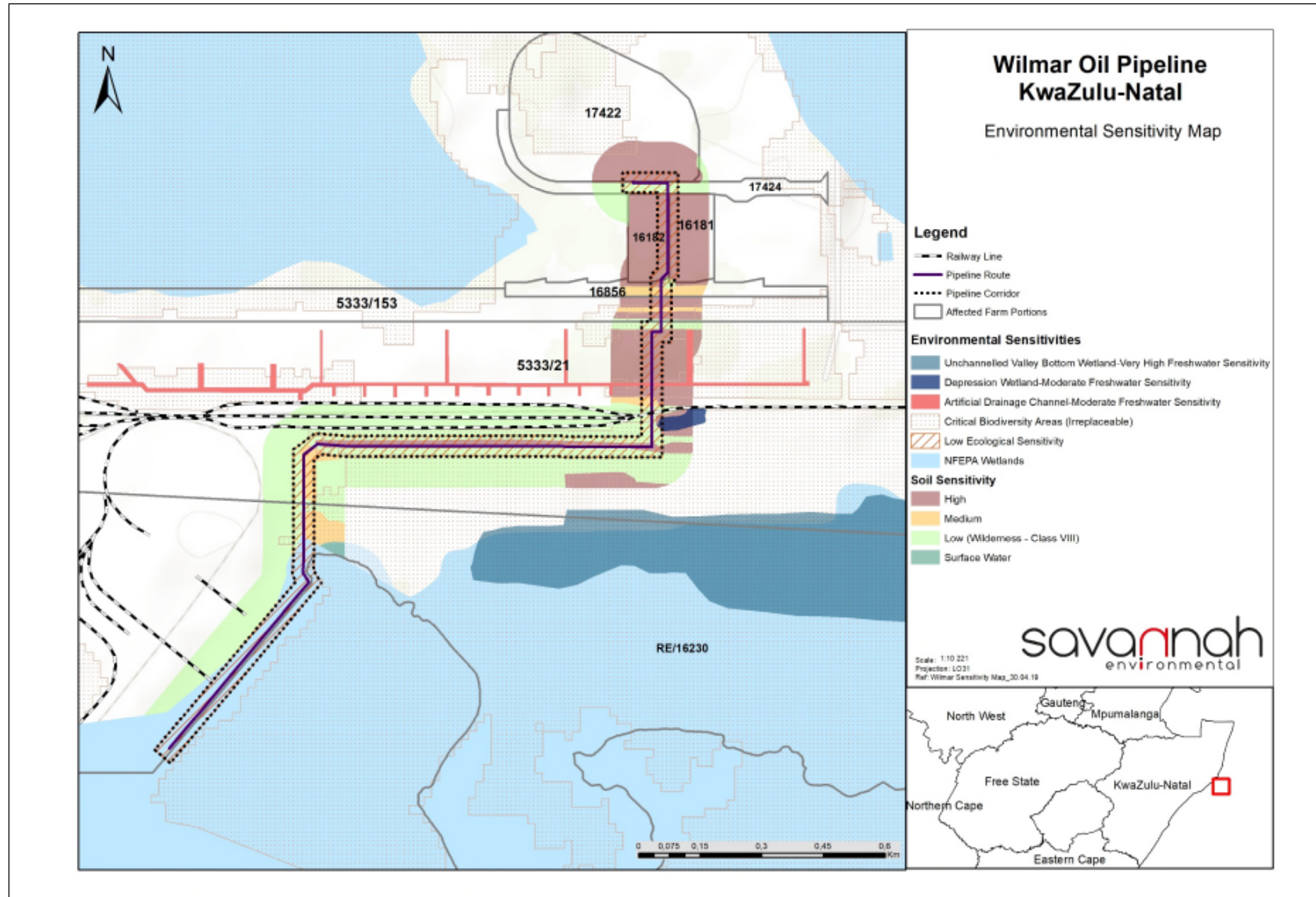


Figure 6.1: Environmental sensitivity map overlain with the identified corridor for the Wilmar Vegetable Oil Pipeline

6.4. Environmental costs and benefits the Wilmar Vegetable Oil Pipeline

Environmental costs (including those to the natural environment, economic and social environment) can be anticipated at a local and site-specific level and are considered acceptable provided the mitigation measures as outlined in the BA Report and the EMPr are implemented and adhered to. No fatal flaws have been identified. These environmental costs could include:

- » *A loss of biodiversity, flora and fauna due to the clearing of land for the construction and utilisation of land for the vegetable oil pipeline* - The cost of loss of biodiversity is considered to be limited due to the limited footprint of the development which will facilitate the placement of infrastructure within vegetation considered to be of a low sensitivity where possible.

Benefits of the pipeline include the following:

- » The project will facilitate transportation of raw material from the Richards Bay Port to the proposed Wilmar Processing facility to be located within Phase 1A of the RB IDZ. The development of the pipeline will contribute towards meeting the provincial government's goal for the development of Phase 1A of the RB IDZ as a node for agro-processing facilities. Without the pipeline, this will not be possible.
- » The project will result in important economic benefits at the local (specifically Richards Bay) and regional level through job creation, income and other associated downstream economic development. These will persist during the preconstruction, construction, and operation phases of the project.
- » The project indirectly contributes towards the Provincial and Local goals for the development of industries and job creation as outlined in the respective IDPs.

The benefits of the Wilmar Vegetable Oil Pipeline are expected to occur at a national, regional and local level. As the costs to the environment at a site-specific level have been largely limited through the appropriate placement of infrastructure within areas considered to be acceptable for the proposed development, the benefits of the project are expected to outweigh the environmental costs.

6.5. Overall Conclusion (Impact Statement)

The construction and operation of the vegetable oil pipeline has been proposed by Wilmar Processing (Pty) Ltd. A technically viable corridor within which the pipeline will be developed was proposed by the Developer and assessed as part of the BA process. The assessment of the corridor was undertaken by independent specialists and their findings have informed the results of this BA Report.

The specialist findings have indicated that there are no identified environmental fatal flaws associated with the construction of the pipeline. The Developer has proposed a technically viable and suitable corridor for the construction of the pipeline, which has been assessed as part of the independent specialist studies. Through this assessment, it has been concluded that the identified corridor assessed through this BA process is considered as the most appropriate for the pipeline and considered to be acceptable within all fields of specialist studies undertaken for the project. All impacts associated with the project establishment within the identified corridor can be mitigated to acceptable levels or enhanced through the implementation of the recommended mitigation or enhancement measures. The corridor overlain with environmental sensitivities is included above in **Figure 6.1**.

Through the assessment of the development of the pipeline within the study area it can be concluded that the proposed project is environmentally acceptable (subject to the implementation of the recommended mitigation measures).

6.6. Overall Recommendation

Considering the findings of the independent specialist studies, the impacts identified, the identified corridor proposed by the Developer, the avoidance of sensitive environmental features within the corridor, as well as the potential to further minimise the impacts to acceptable levels through mitigation, it is the reasoned opinion of the EAP that the development of the pipeline is acceptable within the landscape and can reasonably be authorised for the identified corridor (**Figure 6.2**).

The following key conditions would be required to be included within an authorisation issued for the pipeline and associated infrastructure:

- » The identified corridor is the only nominated and preferred option for the development of the pipeline. No alternatives were assessed or considered within this BA Report.
- » All mitigation measures detailed within this BA Report, as well as the specialist reports contained within **Appendices D to H**, are to be implemented.
- » The EMPr as contained within **Appendix I** of this BA Report should form part of the contract with the Contractors appointed to construct and maintain the pipeline in order to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the pipeline is considered key in achieving the appropriate environmental management standards as detailed for this project.
- » Following the final design of pipeline, a final route/layout must be submitted to the KZN EDTEA for review and approval prior to commencing with construction.
- » The identified wetlands must be avoided by the pipeline and associated construction activities.
- » A pre-construction walk-through of the pipeline alignment for species of conservation concern that would be affected and that can be translocated must be undertaken prior to the commencement of the construction phase.
- » Before construction commences individuals of listed species within the development footprint that would be affected, must be counted and marked and translocated, where deemed necessary by the ecologist conducting the pre-construction walk-through survey. Permits from the relevant provincial and national authorities, i.e. the KwaZulu-Natal Economic Development, Tourism and Environmental Affairs (KZN EDTEA) and the Department of Agriculture, Forest and Fisheries (DAFF), must be obtained before the individuals are disturbed.
- » An Invasive and Alien Plant Management Plan must be compiled and implemented.
- » The necessary water use license or general authorisation must be obtained from the Department of Water and Sanitation (DWS) for impacts to the wetland prior to construction.
- » A chance find procedure must be developed and implemented if archaeological or palaeontological resources are found. In the case where the proposed development activities bring these materials to the surface, work must cease and SAHRA must be contacted immediately.

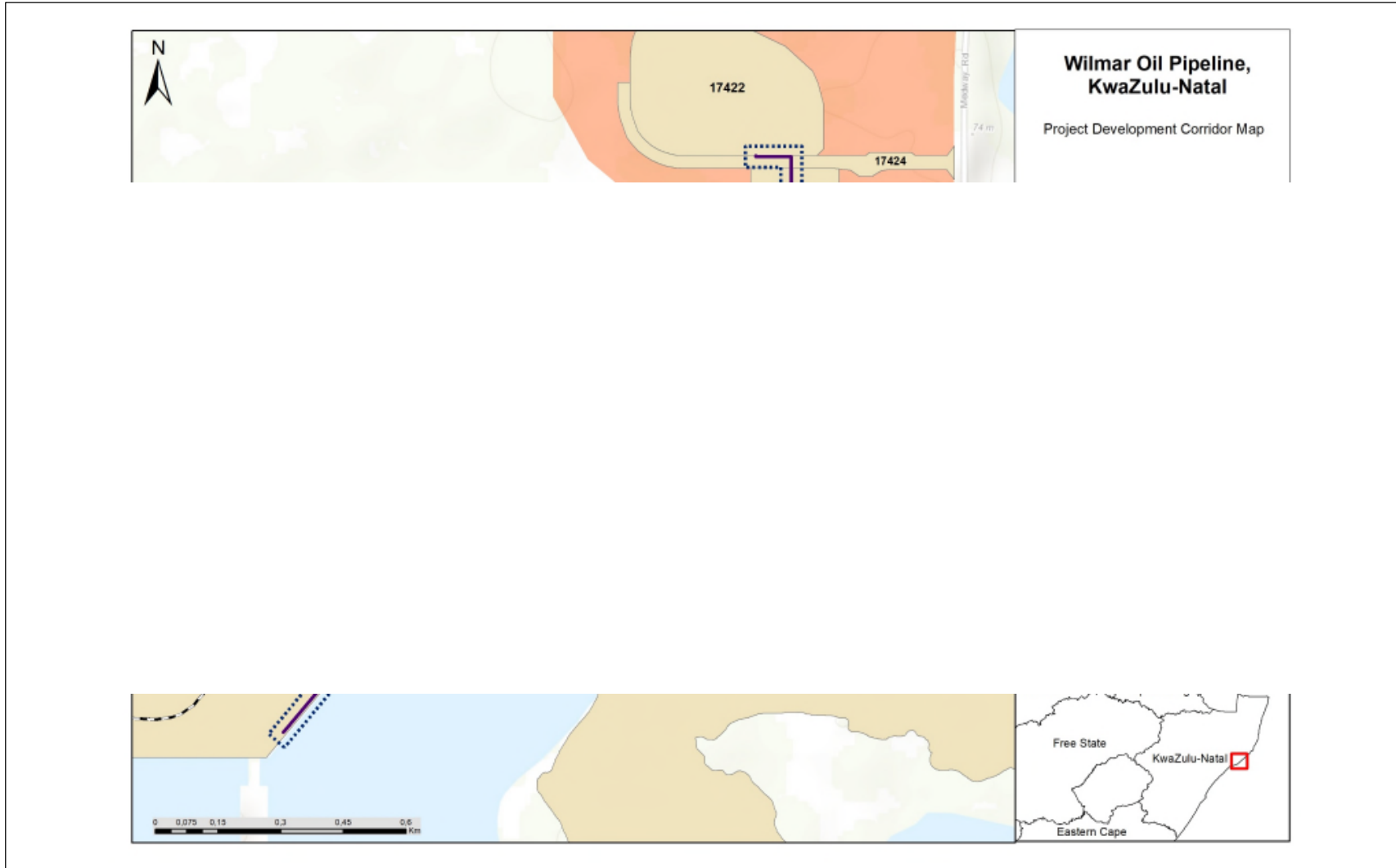


Figure 6.2: Final preferred layout map for the vegetable oil pipeline, as was assessed as part of the BA process (A3 map included in **Appendix J**)

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