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DRAFT SCOPING REPORT

EIA REF: DC28/0005/2023

The Proposed Expansion of Grindrod Navitrade 11.6ha Portion 95 by additional 25ha of Portion 94 ERF 5333 to Increase Coal Storage Capacity at Navitrade Facility, Richards Bay, KZN.

26 JUNE 2023

Prepared by:

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Prepared for:

Grindrod Terminals (PTY) Ltd.



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This report is exclusively compiled for EIA purpose for the applicant; with specific application to the proposed development/activity.

PROJECT TEAM	CLIENT CONTACT PERSON
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Overview: Assessment of impacts related to the Proposed Expansion of Grindrod Navitrade Coal Stockpiling Facility, in order to ensure the applicant's/proponent compliance with all relevant environmental legislation.

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2	26-06-2023	DSR	Y	Phumzile Lembede	Principal EAP Env. Scientist

EXECUTIVE SUMMARY

Emvelo Quality and Environmental Consultant (Pty) Ltd has been appointed by Grindrod Terminal (Pty) Ltd (the proponent/ Applicant), as the independent Environmental Assessment Practitioner (EAP), to facilitate the Scoping and Environmental Impact Assessment Process required in terms of the National Environmental Management Act ,1998 (Act. No. 107 of 1998) (NEMA) for this application.

Grindrod Terminals (Pty) Ltd intends to increase the capacity of its Navitrade coal terminal which links rail and road logistics to the Port of Richards Bay. As a result, a Pre-Feasibility Study (PFS) was conducted which identified an optimised and efficient solution for expanding the Grindrod Navitrade coal terminal's capacity to 4 million tons/per annum (4Mtpa). As a result, the Richards Bay Grindrod Terminal intends to expand the coal stockpiling facility of its Navitrade terminal by 25ha. This stems from a Memorandum of Agreement (MOA) with Transnet Freight Rail (TFR) and Transnet Port Terminals (TPT), as well as advanced negotiations with local mine for a medium to long-term take-off agreement. The proposed expansion will increase the capacity of coal export, as this coal export facility is one of the key strategic business development projects for the Richards Bay Port.

The Proposed Expansion of Grindrod Navitrade will entail the following: Construction of coal storage facility with a capacity design on the assumption that up to 4 grades of coal will be stored with 400,000t maximum stockholding; Stockyard stockpiles of 20m high x 450m long with automated stacking and reclamation with front-end loaders (FELs) into hoppers and onto reclaim conveyors; The construction of a 31,000m³ pollution control dam (PCD); Construction of a 2% crossfall (V-drain stormwater) across the stockyard to allow for settlement and stormwater runoff into the PCD; Installing fixed material handling equipment to increase efficiency and reduce yellow plant reliance, thereby achieving both lower operating cost and safer operations; Installing a fixed dust suppression system which recycles contaminated PCD water; Relocation of existing access road alignment within the facility, and construct 6m width access road around stockpile footprint; Removing an existing asbestos pipeline owned by South32 and replacing it with a relocated HDPE pipe. Also relocating/removing a second out-of-service underground pipeline; The facility will continue using the existing materials handling conveyors from the tippler to the ground stacks at the stockyard; Modification of railway within the facility to cater for handling of 4Mtpa coal throughput, which will result into 4 x 50-wagon trains to be tipped per day.

Atmospheric Emissions Licenses (AELs) are obligatory under the National Environmental Management: Air Quality Act 39 of 2004 (AQA) for activities that result in atmospheric emissions which have a significant negative environmental impact, as listed in GN 893 of November 22, 2013, and amended in 2015. The AQA as provided in Section 21 of the Act, governs the process of applying for AEL. Section 21 Category 5.1 and Section 46 (3) are applicable to this proposal. As a result, the expansion of the facility will require a Variation (Amendment) of existing AEL.

The NEMA: Environmental Impact Assessment (EIA) Regulations (2014) as amended on 7 April 2017, governs the process of applying for environmental authorization for certain developments. A provision in the EIA Regulations is made for two forms of assessment, namely: Basic Assessment and Scoping/EIA, depending on the scope of the activity. The EIA regulations specify that: Activities identified in Listing Notice 1 and 3 (GNR 327 and 324 of 2017) require a Basic Assessment, while the activities identified in Listing Notice 2 (GNR 325 of 2017) are subject to a Scoping and EIA. The listed activities associated with this proposal are: **Listing Notice 1, Activity 19 & 34; Listing Notice 3, Activity 12 & 14; Listing Notice 2, Activity 15.** As a result, this application will follow a Scoping/EIA (S&EIR) process, as activity in Listing Notice 2 has been triggered.

The Public Participation Process (PPP) for both the Scoping and Environmental Impact Assessment will be undertaken in accordance with chapter 6 of GNR 326 of 2017. The PPP has to date included: displaying onsite notices, placing of an advertisement in the Ilanga Newspaper, distribution of Background Information Documents (BIDs), and Circulation of this Draft Scoping Report (DSR) (**Refer to Appendix E**).

Three (3) discrete habitats were delineated within the assessment area, namely, wetland, Grassland habitat within CBA, and transformed habitat (access roads and existing Navitrade Facility). The wetland depression classified as NFEPA within the proposed expansion area. Other wetland features were identified during preliminary infield investigation. The wetland delineation will verify the existence these wetlands or geomorphological bodies within the project area. The site falls within CBA1 and overlain with fragment of Maputaland Coastal Belt, Maputaland Wooded Grassland, and Sub-Tropical Freshwater Wetland Vegetation. The CBA1 is driven by the previous Section 52 of NEMBA Threatened Ecosystems (Kwambonambi Grassland), which the site historically has been classified as. The vegetation type was subsequently subsumed into Maputaland coastal grassland, which is classified as '*Endangered*'.

The potential impact as a result Grindrod Navitrade expansion, will be mitigated by carefully employing the following preferred alternatives: *Alternative A: Location Alternative; Alternative B: Site Layout Alternatives; Alternative C: Design Alternative; and Alternative D: Technology Alternatives.*

Although there were no other site alternatives assessed for the '*Alternative A: Location Alternative*' the portion 94 Erf 533 Alton South Richards Bay was considered viable and preferred site, because of its geographical strategic location as it is adjacent to the port of Richards Bay, within area zoned as a Noxious and Harbour Bound (Harbour Arterial), thus offers the competitive advantage for coal storage and logistic solution to the port of Richards Bay within the city of uMhlathuze Municipality.

The '*Alternative B: Site Layout Alternative*' provides for '*Option 3: Mirror Stockyard Layout*' which is based upon an optimised Option 1. This stockyard layout provides sufficient separation between the eastern and northern terraces thus allows for stormwater drainage and future mechanisation in a central servitude, also provides for minimal stockpile height meeting AEL requirement of 20m maximum height. The positioning of the stockpiles is adjudged as being optimal in respect of allowing operations to continue unhindered during the construction phase.

The '*Alternative C: Design Alternative*', provides for the stockpile yard design to cater for four (4) grades of coal to be stored. Storage of four grades will require clearance between stockpiles for product separation allowance, which effectively reduces the storage capacity given a fixed footprint, while meeting the: Grindrod Terminal requirement of 400 000t total storage capacity; MOA requirement of 370,000t total storage demand; and AEL requirement of 20m maximum height. The design for stormwater management provides for balance integrated stormwater management managing both 'clean' and 'dirty' stormwater runoff on site. A provision of augmented PCD system with a combined capacity of approximately 31,000m³, keeps up with the stockyard expansion. All upstream flows including rainfall runoff, spillages and PCD overflow occurrences resulting from 24-hour storm event in 1:50 years are routed into an existing main surface drain channel to PCD. The structural layer works, and barrier design provides mitigation for the groundwater pollution as barrier/layer works requirements as it is the accepted liner beneath the stockyards. The perimeter drains to be compartmentalised into attenuation paddocks linked by means of 200mm uPVC pipework. Each attenuation paddock will be able to isolate the stormwater in contact with the coal face contained within the paddock until ready to be released. This design looks at the best design practice which conforms to the Type C requirements, in accordance with Waste Management Regulations for coal material. This includes the barrier design under the stockpiles; and the barrier design under the higher trafficked areas.

The '*Alternative D: Technology Alternatives*', focus on excavations within the fill, hydromorphic soils and Aeolian deposits classified as "SOFT" excavations. Therefore, for the purpose excavation for the preparation of construction of coal storage facility infrastructure, these materials can be efficiently ripped by a tractor loader backhoe (TLB) of flywheel power approximately 0.10kW per millimetre of tined bucket width or 65KW powered 4x4 tractor-loader-backhoe (TLB). In terms of the proposed

operation/coal stockpiling, the 'Alternative D: Technology Alternatives', provides that the facility will have minimal environmental impact as this alternative proposes that, a dust suppression through: 'Option 1' the pressurised fixed sprinklers will be sized to spray water over the entire surface of the pile at specific intervals and quantities to keep just the surface moist; 'Option 2' the use a mobile dust cannon system; 'Option 3' the use a mobile water tanker/bowser.

The Scoping Report proposes the following studies to be undertaken within the EIA phase: Air Quality Impact Assessment; Terrestrial Biodiversity Impact Assessment; Wetland Functionality and Delineation Impact Assessment; Geohydrological Impact Assessment; Traffic Impact Assessment; and Geotechnical Assessment. These studies will be integrated and discussed in the Environmental Impact Assessment Report (EIR), and mitigation measures will be outlined in the Environmental Management Programme (EMPr).

The information contained in this Scoping Report and the documentation attached hereto suffices for Interested and Affected Parties (I&APs) to apply their minds to the potential negative and/or positive impacts associated with the development, in respect of the environmental authorisation applied for.

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LIST OF ACRONYMS

CBA	Critical Biodiversity Area
CFP	Chance Finds Procedure
DFFE	Department of Forestry, Fisheries and Environment
DOT	Department of Transport
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
GA	General Authorisation
HGM	Hydrogeomorphic
I&AP	Interested and Affected Parties
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act 107 (Act 107 of 1998)
NEMPAA	National Environmental Management: Protected Areas, 2003 (Act 57 of 2003)
NFEPA	National Freshwater Ecosystem Priority Areas
OCSD	Off-Channel Storage Dam
SCADA	Supervisory Control and Data Acquisition
SCC	Species of Conservation Concern
WSS	Water Supply Schemes
WTW	Water Treatment Works

GLOSSARY

DEVELOPMENT: the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

BIODIVERSITY: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

BASIC ASSESSMENT: The process of collecting, organizing, analyzing, interpreting and communicating information that is relevant to the consideration of the application, in terms of Listing Notice 1 (GNR 327 and 324 of 2017) of NEMA (as amended).

DEVELOPMENT FOOTPRINT: any evidence of physical alteration because of the undertaking of an activity.

CONTRACTOR: companies and or individual persons appointed on behalf of the client to undertake activities, as well as their sub-contractors and suppliers.

ENVIRONMENTAL CONTROL OFFICER (ECO): an individual nominated through the client to be present on-site to act on behalf of the client in matters concerning the implementation and day to day monitoring of the EMPr and conditions stipulated by the authorities as prescribed in NEMA.

ENVIRONMENT: in terms of the NEMA (as amended), the “environment” means the surroundings within which humans exist and that are made up of:

- the land, water, and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) of (ii) and the interrelationships among and between them;
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

ENVIRONMENTAL IMPACT: the change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization’s activities, products or services.

HYDROLOGICAL SYSTEM: water bodies and their connectivity to the welfare of an ecosystem.

MITIGATION: the measures designed to avoid reduce or remedy adverse impacts.

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr): a detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive environmental impacts and limiting or preventing negative environmental impacts are implemented during the lifecycle of the project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

POLLUTION: NEMA defines pollution to mean any change in the environment caused by the substances; radioactive or other waves; or noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people or will have such an effect in the future.

WATER POLLUTION: the National Water Act, 1998 (Act 36 of 1998) defines water pollution to be the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it less fit for any beneficial purpose for which it may reasonably be expected to be used; or harmful or potentially harmful (a) to the welfare, health or safety of human beings; (b) to any aquatic or non-aquatic organisms; (c) to the resource quality, or (d) to property.

REHABILITATION: rehabilitation is defined as the return of a disturbed area to a state which approximates the state (wherever possible) which it was before the disruption.

WATERCOURSE: can be a) a river or spring; b) a natural channel or depression in which water flows regularly or intermittently; c) a wetland, lake or dam into which, or from which, water flows; and/or d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

WETLAND: the land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and

which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

INDIGENOUS VEGETATION: refers to vegetation consisting of native plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

GENERAL WASTE: waste that does not pose an immediate hazard or threat to health or the environment and includes domestic waste; building and demolition waste; business waste; and inert waste.

HAZARDOUS WASTE: means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

GENERAL WASTE LANDFILL SITE: a waste disposal site that is designed, managed, permitted and registered to allow for the disposal of general waste.

INTERESTED AND AFFECTED PARTY (I&AP): for the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, an interested and affected party contemplated in Section 24(4) (a) (v), and which includes (a) any person, group of persons or organization interested in or affected by such operation or activity; and (b) any organ of state that may have jurisdiction over any aspect of the operation or activity.

PURPOSE OF THIS DOCUMENT

Assessment of impacts related to the proposed expansion of Grindrod Navitrade Coal Storage Facility, in order to ensure the Client's compliance with all relevant environmental legislation. These activities are carried out in terms of Section 24(5) and Section 44 of the National Environmental Management Act, 1998 (Act No.107 of 1998) read in conjunction with the Environmental Impact Assessment (EIA) Regulations of 04 December 2014, amended on 7 April 2017.

The purpose of the Scoping Process, as the first phase of the Environmental Impact Assessment (EIA) process includes but not limited to the following:

- ✚ Identification of the relevant policies and legislation relevant to the activity.
- ✚ Motivation for the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location.
- ✚ Identification and confirmation of the preferred activity and technology alternative through an impact and risk assessment and ranking process.
- ✚ Identification and confirmation of the preferred site, through a detailed site selection process, which includes all the identified alternatives focusing on the geographical, physical, biological, social, economic and cultural aspects of the environment.
- ✚ Identification of the key issues to be addressed in the assessment phase.
- ✚ Agreement on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration, and probability of the impact to inform the location of the development footprint within the preferred site; and
- ✚ Identification of 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.

LIMITATIONS AND ASSUMPTIONS

The following assumptions and limitations accompany the scoping exercise:

- ✦ In accordance with the purpose of Scoping, the report does not include specialist investigations on the receiving environment, which will only form part of the EIR. The environment in the project area was primarily assessed in the Scoping phase through site visits and appraisals, desktop screening, incorporating existing information from previous studies, and input received from authorities and I&APs.
- ✦ This report is based on project information provided by the applicant;
- ✦ The description of the baseline environment has been obtained from environmental desktop study;
- ✦ The results are based on the outcomes of a single assessment. The risk assessment only included the proposed development and the anticipated activities, no ancillary activities were considered.

1 INTRODUCTION AND BACKGROUND

Emvelo Quality and Environmental Consultant (PTY) Ltd has been appointed by Grindrod Terminal (PTY) Ltd (the proponent/ Applicant), as the independent Environmental Assessment Practitioner (EAP), to facilitate the Scoping and Environmental Impact Assessment Process required in terms of the National Environmental Management Act ,1998 (Act. No. 107 of 1998) (NEMA) for this application.

Grindrod Terminals (Pty) Ltd intends to increase the capacity of its Navitrade coal terminal which links rail and road logistics to the Port of Richards Bay. As a result, a Pre-Feasibility Study (PFS) was conducted which identified an optimised and efficient solution for expanding the Grindrod Navitrade coal terminal's capacity to 4 million tons/per annum (4Mtpa). As a result, the Richards Bay Grindrod Terminal intends to expand the coal stockpiling facility of its Navitrade terminal by 25ha. This stems from a Memorandum of Agreement (MOA) with Transnet Freight Rail (TFR) and Transnet Port Terminals (TPT), as well as advanced negotiations with local mine for a medium to long-term take-off agreement. The proposed expansion will increase the capacity of coal export, as this coal export facility is one of the key strategic business development projects for the Richards Bay Port.

Atmospheric Emissions licenses (AELs) are obligatory under the National Environmental Management: Air Quality Act 39 of 2004 (AQA) for activities that result in atmospheric emissions which have a significant negative environmental impact, as listed in GN 893 of November 22, 2013, and amended in 2015. The coal storage is listed under AQA Section 21 Category 5: Mineral Processing, Storage and Handling; Subcategory 5.1: Storage and Handling of Ore and Coal. *"Storage and handling of ore and coal not situated on the premises of a mine or works as defined in the Mines Health and Safety Act 29 of 1996. Application: Locations Designed to hold more than 100 000 tons"*. The AQA as provided in Section 21 of the Act, governs the process of applying for AEL. Section 21 Category 5.1 and Section 46 (3) are applicable to this proposal. Therefore, in terms of the environmental legal requirement, Grindrod Navitrade expansion will require a Variation (Amendment) of existing AEL.

The proposed undertaking triggers the need for Authorization in terms of the following legislative framework: EIA Regulation 2014 as amended on 07 April 2017. *Listing Notice 1, Activity 19 & 34; Listing Notice 3, Activity 12 & 14; Listing Notice 2, Listed Activity 15; The*

Environmental Management Air Quality Act 39 of 2004 (AQA), Government Notice 893 of 2013 (Government Gazette 37054) published in line with section 21 of the AQA as amended. The following NEM: AQA Section 21 listed activities are triggered: *Section 21 Category 5.1, subsequently overruled by Section 46 (3)*; And Section 21 of National Water Act (ACT 36 OF 1998) Water Use Authorization, *Section 21 (c) and Section 21 (i)* for activities within the regulated area.

As a result, this application will follow a Scoping and EIA (S&EIR) process, as activity in Listing Notice 2 has been triggered. Consequently, the Environmental Impact Assessment (Scoping and EIR) process has commenced, in support of the proposed development.

1.1 Report Structure

The Scoping and EIA process has been undertaken in accordance with the requirements of sections 24 and 24D of the National Environmental Management Act, 1998 (Act 108 of 1998) [“NEMA”] and the Environmental Impact Assessment (“EIA”) Regulations contained in Government Notice (GN) No. R982 of 2014 as promulgated in terms of the NEMA [“EIA Regulations”] as amended up to and including GN R 326 in GN 40772 of 07 April 2017.

This Scoping Report (SR) is compiled with accordance to Appendix 2 of GNR 326 (EIA Regulation (2014) as amended on 07 April 2017). A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in (**Table 2**) below.

Table 1: Scoping Report Structure (Appendix 2 GNR 326)

EIA Regulation	Description – EIA Regulation (2014) as amended on 07 April 2017	Content in Basic Scoping Report Section
Appendix 2. 2(a):	Details of – i. The Environmental Assessment Practitioner (EAP) who prepared the report; and ii. The expertise of the EAP, including a curriculum vitae;	<ul style="list-style-type: none"> Section 7
Appendix 2. 2(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;	<ul style="list-style-type: none"> Section 3
Appendix 2. 2(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; or ii. On a land where the property has not been defined, the coordinates within which the activity is to be undertaken;	<ul style="list-style-type: none"> Section 3
Appendix 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;	<ul style="list-style-type: none"> Section 4 Section 5
Appendix 2. 2(e):	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	<ul style="list-style-type: none"> Section 9
Appendix 2. 2(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;	<ul style="list-style-type: none"> Section 10
Appendix 2. 2(g):	A motivation for the preferred development footprint within the approved site as contemplated in the accepted scoping report;	<ul style="list-style-type: none"> Section 10

		<ul style="list-style-type: none"> • Section 11
Appendix 2. 3[(h)] (g):	<p>A full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including: –</p> <p>(i) details of all the alternatives considered;</p> <p>(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;</p> <p>(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;</p> <p>(iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</p> <p>(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-</p> <p>(aa) can be reversed;</p> <p>(bb) may cause irreplaceable loss of resources; and</p> <p>(cc) can be avoided, managed or mitigated;</p> <p>(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;</p> <p>(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;</p> <p>(viii) the possible mitigation measures that could be applied and level of residual risk;</p> <p>(ix) the outcome of the site selection matrix;</p> <p>(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</p> <p>(xi) a concluding statement indicating the location of the preferred alternative development footprint within the approved site as contemplated in the accepted scoping report;</p>	<ul style="list-style-type: none"> • Section 4 • Section 11 • Section 12-Section 17 • Section 18 • Section 19 • Appendix E
Appendix 2. 2[(i)] (h)	<p>A plan of study for undertaking the environmental impact assessment process to be undertaken, including-</p>	<ul style="list-style-type: none"> • Section 20

	<p>(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;</p> <p>(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;</p> <p>(iii) aspects to be assessed by specialists;</p> <p>(iv) a description of the proposed method of assessing the environmental aspects [Including a description of a proposed method of assessing the environmental aspects] including aspects to be assessed by specialists;</p> <p>(v) a description of the proposed method of assessing duration and significance;</p> <p>(vi) an indication of the stages at which the competent authority will be consulted;</p> <p>(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and</p> <p>(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;</p> <p>(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.</p>	<ul style="list-style-type: none"> Section 20
Appendix 2. 2 [(j)] (i)	<p>An undertaking under oath or affirmation by the EAP in relation to-</p> <p>(i) the correctness of the information provided in the report;</p> <p>(ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and</p> <p>(iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;</p>	<ul style="list-style-type: none"> Appendix A
Appendix 2. 2 [(k)] (i):	<p>An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;</p>	<ul style="list-style-type: none"> Appendix A
Appendix 2. 2[(l)] (k):	<p>Where applicable, any specific information required by the competent authority; and</p>	<ul style="list-style-type: none"> N/A
Appendix 2. 2[(m)] (l)	<p>Any other matter required in terms of section 24(4)(a) and (b) of the Act.</p>	<ul style="list-style-type: none"> N/A

2 PROJECT TITLE

The Proposed Expansion of Grindrod Navitrade 11.6ha Portion 95 by additional 25ha of Portion 94 ERF 5333 to Increase Coal Storage Capacity at Navitrade Facility, Richards Bay, KZN.

3 PROJECT LOCALITY

The project locality is described in terms of geographic locational context and site context.

3.1 Geographic locational context

The study area falls within Ward 2 of uMhlathuze Local Municipality, King Cetshwayo District Municipality, KwaZulu Natal, situated at approximately (28°46'27.47"S, 32° 1'17.59"E) which is approximately 3km southeast of Richards Bay CBD (**Figure 1**).

The project area is within Quaternary Catchment W12F of Pongola-Mtamvuma Catchment Management Area.

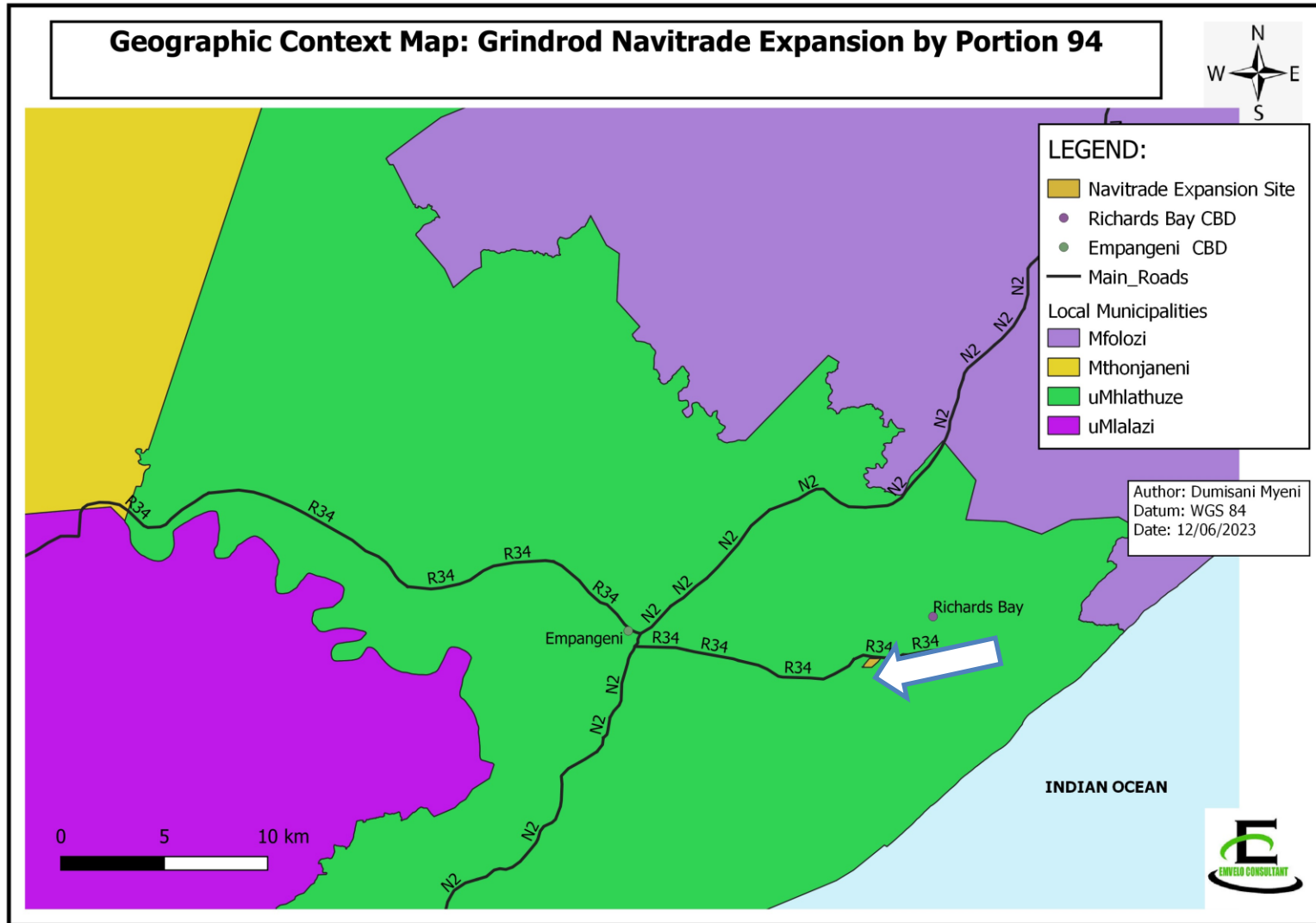


Figure 1: Geographic locational context by Grindrod Navitrade Site

3.2 Site Context

The proposed Grindrod Navitrade Expansion site is located within portion 94 Erf 5333, Alton South, Richards Bay at approximately (28°46'27.47"S, 32° 1'17.59"E). The site is located within the area zoned as a Noxious and Harbour Bound (Harbour Arterial) adjacent the port of Richards Bay, thus provide an operational and logistic solution within the city of uMhlatuze Municipality (**Figure 2**).

The (**Table 2**) below, provides the Global Positioning System (GPS) co-ordinates for the proposed site.

Table 2: Site Perimeter Co-ordinates

Expansion Perimeter Co-ordinates	
Corner 1	28°46'34.60"S, 32° 1'1.32"E
Corner 2	28°46'35.51"S, 32° 1'1.30"E
Corner 3	28°46'35.55"S, 32° 1'18.75"E
Corner 4	28°46'20.62"S, 32° 1'33.68"E
Corner 5	28°46'19.71"S, 32° 1'14.61"E
Corner 6	28°46'32.02"S, 32° 1'4.30"E
Corner 7	28°46'34.33"S, 32° 1'4.33"E

The (**Table 3**) of SG 21-digit codes

Table 3: The SG 21-digit codes for Grindrod Navitrade Expansion

Farm name/s, Portions, and number/s	SG 21-digit code
Richards Bay, Erf 5333 Portion 94	N0GV04210000533300094

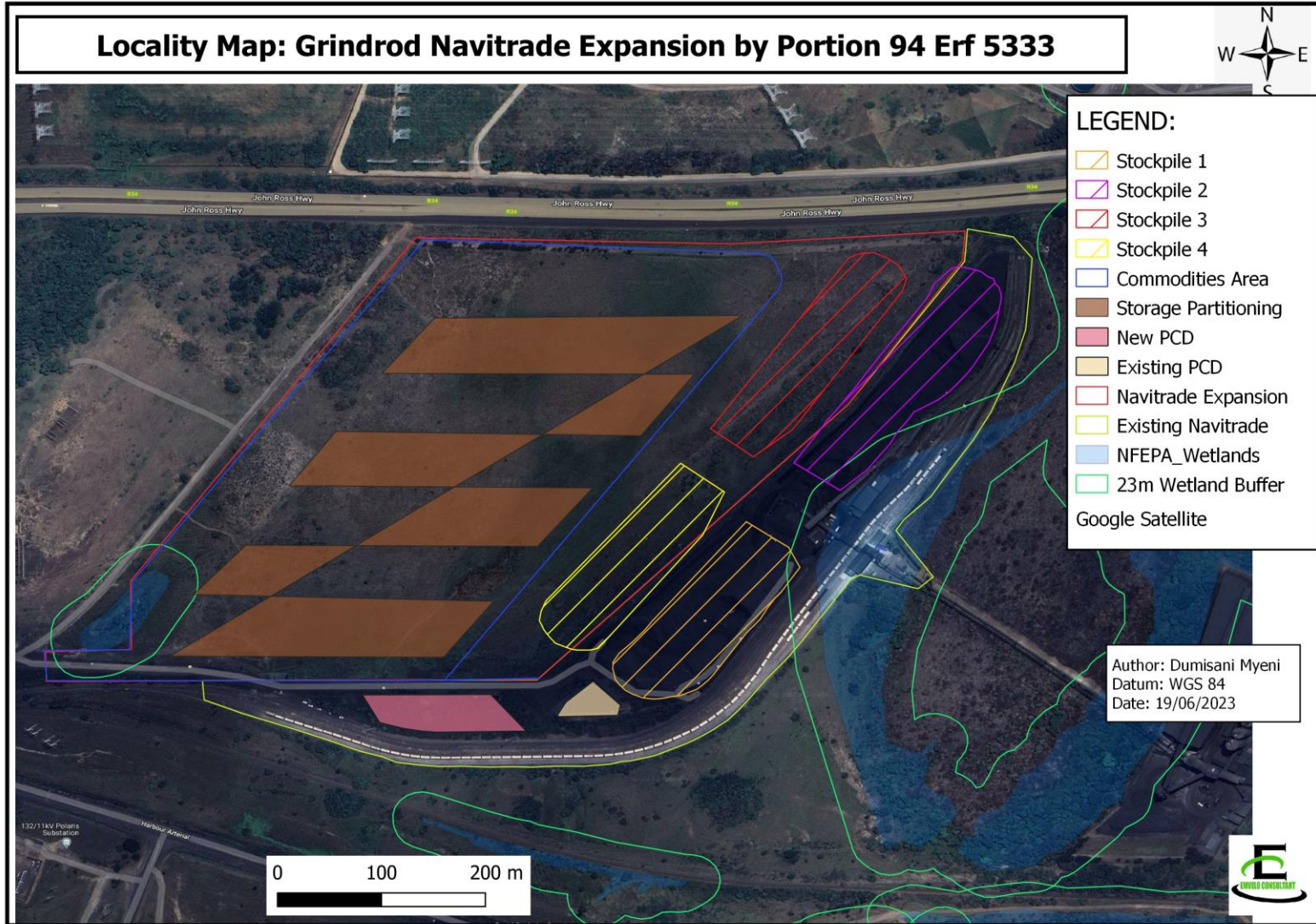


Figure 2: Locality Map for Grindrod Navitrade Expansion

3.3 Site Access

The site can be accessed via the exit from N2 to Richards Bay and joining R34 (John Ross Highway). Take right at traffic lights towards Ferris and Harbour Arterial Road towards the Port of Richards Bay, turn left on the dirt road at approximately 500m from the traffic lights, the Grindrod Navitrade site is straight at approximately 200m.

4 DESCRIPTION OF ACTIVITIES

The existing Grindrod Navitrade coal storage facility lies on portion 95 Erf 5333 and has an extent area of 11.6ha. The proposed expansion will be 25ha and lies on portion 94 of Erf 5333. The purpose of expansion is to increase the terminal's coal export capacity to 4 million tons per annum (4Mtpa), with an option of future diversification into other products such as magnetite, manganese, chrome, or ferrochrome, within the remaining area as partitioned illustrated in (**Figure 2**) above.

The Proposed expansion of Grindrod Navitrade coal storage facility will entail the following:

- ✚ Construction of coal storage facility with a capacity design on the assumption that up to 4 grades of coal will be stored with 400,000t maximum stockholding. Coal will be dispatched on a first-in-first-out (FIFO) basis. The operational optimal of 300 000t per month has been estimated. For the Inbound (Receipts) of 10 000t per day, and Outbound (Vessel loading) of 15 000 tons per day. For coal inbound 4 x Trains per day each 2 500 tons will be involved using existing Navitrade railway, with an augmentation of coal deliveries from 34t coal tipper trucks of approximately 40-80 trucks per day;
- ✚ Stockyard stockpile of 20m high x 450m long with automated stacking and reclamation with front-end loaders (FELs) into hoppers and onto reclaim conveyors;
- ✚ The construction of a 31,000m³ pollution control dam (PCD);
- ✚ Construction of a 2% crossfall (V-Drain stormwater drainage) across the stockyard to allow for settlement and stormwater runoff into the PCD. Dirty runoff from the existing stockyard is directed into an existing PCD on the southern portion of the Navitrade site, with a 1,350m³ storage capacity. This facility will contribute to the total storage requirement of the system. In order to allow this PCD to overflow into the future PCD-

South, the perimeter needs to be raised and a concrete spillway constructed to route overflows into the larger downstream PCD.

- ✚ Installing fixed material handling equipment to increase efficiency and reduce yellow plant reliance, thereby achieving both lower operating cost and safer operations;
- ✚ Installing a fixed dust suppression system which recycles contaminated PCD water. A fixed sprinkler system using a pressurised reticulation system to spray points.
- ✚ Relocation of existing access road alignment within the facility, and construct 6m width access road around stockpile footprint.
- ✚ Removing an existing asbestos pipeline owned by South32 and replacing it with a relocated HDPE pipe. Also relocating/removing a second out-of-service underground pipeline. Both pipes intercept with the squared-off future stockyard.
- ✚ The facility will continue using the existing materials handling conveyors from the tippler to the ground stacks at the stockyard.
- ✚ Modification of railway within the facility to cater for handling of 4Mtpa coal throughput, which will result into 4 x 50-wagon trains to be tipped per day.

The expansion of Grindrod Navitrade facility will meet the following objectives:

- ✚ Modify the rail yard to handle a higher frequency of trains and decrease dependence on Transnet's train schedule.
- ✚ Squaring off the stockyard and increasing its footprint to store up to 400,000t of coal at the time (based on an assumption of four future grades) calculated as 10% of the intended yearly throughput.
- ✚ Providing adequate water handling and run-off drains linked to an increased PCD.
- ✚ The operation for expansion will be linked to existing terminal systems, loading area and tipper areas.

Existing Infrastructure and Services for Navitrade Portion 95

The existing Grindrod Navitrade site of 11.6ha within Portion 95 ERF 5333 entails the following supporting infrastructure and services:

- ✚ The combined total storage capacity of the stockyards ranges from 200,000t to 270,000t depending on number of product grades and customers.
- ✚ A PCD with a storage capacity of 1,350m³.
- ✚ Two tipplers; one is dedicated for coal and one for rock phosphate. However, rock phosphate is not stored but in transit enroute to Foskor.
- ✚ Bulk loading areas.
- ✚ Shunting operations (terminal shunt locomotive).
- ✚ Water clarification plant & storage tanks (operating areas).
- ✚ The terminal is linked to TFR's railway exchange yard at Bhizolo with a ±1km private siding line.

The implementation of expanded Grindrod Navitrade facility will also provide capacity to handle the large volume of coal. As a result, the coal from Grindrod Seamunye facility will be moved to Navitrade facility.

4.1 Design Criteria

The design criteria discussed in this report reflect entail the following:

- ✚ Stockyard design;
- ✚ Design for stormwater management;
- ✚ Structural layer works and barrier design;
- ✚ Design for dust fallout control; and
- ✚ Rail modification design

4.1.1 Stockyard Design

The stockyard is designed to handle the following possible product types and assumed properties.

Table 4: Stockyard product classification

Commodity	Property	Property Value
Coal	Density (Transit)	800 kg/m ³
	Density (Pile)	900 kg/m ³
	Angle of Repose	36°
	Surcharge Angle	25°
Magnetite	Density (Transit)	2,200 kg/m ³
	Density (Pile)	2,200 kg/m ³
	Angle of Repose	40°
	Surcharge Angle	25°
Chrome	Density (Transit)	2,600 kg/m ³
	Density (Pile)	2,600kg/m ³
	Angle of Repose	31°
	Surcharge Angle	25°

Table 5: Storage requirement

Item	Total Value
4 Grades of Coal	400,000t total storage (2 x 90,000t additional to existing ±220,000t)
AEL requirement	20m maximum height
Stormwater Collection	756000l (756kl)
PCD dimension	2mx20mx20m

4.1.2 Design for Stormwater Management

The present approved Integrated Water and Waste Management Plan (IWWMP) for the Grindrod Navitrade coal storage facility, which formed part of the WULA submission in 2015, listed the following barrier/layer works requirements as the accepted liner beneath the stockyards:

- ✚ An alignment layer consisting of *in-situ* material constructed such that the surface is constant across the layer by means of a slope along the length of the stockpile (from north or south);
- ✚ A 600mm high berm with side slopes of 1:3 to be constructed around the stockpile;
- ✚ A geosynthetic clay liner to be installed on top of the alignment layer and anchored in an anchor trench formed in the perimeter berm.

- ✚ The perimeter drains to be compartmentalised into attenuation paddocks linked by means of 200mm uPVC pipework. Each attenuation paddock will be able to isolate the stormwater in contact with the coal face contained within the paddock until ready to be released.
- ✚ Type C barrier design is highly recommended for the new stockpile yard in terms of the Waste Management Regulations for coal material. However, no change to the barrier design is proposed for the existing stockpile areas.

To maintain clean and dirty stormwater separation, cut-off drains are provided on the perimeter of the stockyard. All upstream flows including rainfall runoff, spillages and PCD overflow occurrences resulting from 24-hour storm event in 50 years, are routed into an existing main surface drain channel.

Table 6: Stormwater Design Criteria

Item	Total Value
Earthworks and drainage design	2% crossfall
Design slope of 3.5% gradient	30m ³ /s
Storm Retention	1:50 year
Area Surface	250 803m ²
Stormwater Collection	31,000m ³

4.1.3 Platform Barrier Design

The platform barrier design conforms with both the loading functional requirements and the environmental requirements. There are two different barriers/layer works:

- ✚ A basic layer works proposed under the stockpile footprints;
 - 150mm Stabilized G5 Gravel (2% cement);
 - 150mm Selected Silty Sand;
 - 1.5mm HDPE Liner;
 - 150mm Sandy Clay;
 - GCL (X2000);
 - A 150mm Recompacted *In-situ* material;

- A 500mm deep underdrain and monitoring system at 15m centres;
- ✚ A slightly strengthened design for areas deemed to be subjected to higher vehicle usage.
 - 6m access road around stockpile footprint;
 - 150mm Stabilized G5 gravel (2% cement);
 - 150mm G5 gravel;
 - 150mm selected silty sand;
 - 1,5mm HDPE liner;
 - 150mm sandy clay;
 - GCL (X2000);
 - 150mm recompacted *In-situ* material;
 - 500mm deep underdrain and monitoring system at 15m centres.

4.1.4 Design for Dust Fallout Control

The design for dust fallout control will use the following alternative technologies, as elaborated in (**Section 11.1**):

- a) *Dust Suppression through surfactant*
- b) *Dust suppression through sprinklers*
- c) *Wind breaks through the use of Dust Tamer fence and windbreaks of permeable trees along the perimeter of the facility*

4.1.5 Rail Modification Design

The Grindrod Navitrade terminal 4Mtpa of coal exports will be met through operating of 4 x 50-wagon trains to be tipped per day, assuming 340 working days per annum and an average payload of 60 tonnes/wagon. The rail modification design requires the installation of a scissor crossing between Tracks 1 and 2, immediately south of the coal tippler. The coal offloading will be optimised by an additional track-side excavator to augment the limitation of handling 80 tonnes gross by a tippler, thus improve efficiency of coal offloading.

The yard entrance gathers be remodelled to allow additional staging length (30m) for the Rock Phosphate train staging area. A limit of 1 x 75-wagon train shall be allowed in the siding, with the exception of the short period during a place and clear manoeuvre.

5 LISTED AND SPECIFIED ACTIVITIES TRIGGERED

NEMA, and the Environmental Impact Assessment (EIA) Regulations (2014) as amended in 2017, govern the process of applying for environmental authorization for certain developments. The EIA regulations specify that: Activities identified in Listing Notice 1 and 3 (GNR 327 and 324 of 2017) requires a Basic Assessment while activities identified in Listing Notice 2 (GNR 325 of 2017) are subject to a Scoping and EIA. The listed activities associated with this proposal are: ***Listing Notice 1, Activity 19 & 34; Listing Notice 3, Activity 12 & 14; Listing Notice 2, Activity 15.*** Therefore, this application will follow a Scoping/EIA process, as a Listing Notice 2 has been triggered (***Table 7***) below.

Table 7: Listed and specified activities triggered

GNR & Listing Notice No.	Listed Activity	Description of the applicable listed activity	Describe the portion of the proposed project to which the applicable listed activity relates; And Applicability
GNR No. 327 (7 April 2017) Listing Notice 1.	Listed Activity 19	<p>The infilling or depositing of any material of more than <u>10 cubic metres</u> into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than <u>10 cubic metres</u> from-</p> <p>(i) A watercourse —but excluding where such infilling, depositing, dredging, excavation, removal or moving—</p> <p>(a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or]</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	<p>Portion 94 of Erf 5333, Alton South, Richards Bay.</p> <p>Applicability:</p> <p><i>There is wetland depression classified as NFEPA within the proposed expansion area. Therefore, the construction will result in excavation within the wetland area. Other wetland features were identified during preliminary infield investigation. The wetland delineation will verify the existence of other wetland or geomorphological bodies within the project area. The site clearance and levelling will result in excavation and infilling of more 10m³ soil within the wetland at approximately (28°46'33.37"S, 32° 1'4.73"E).</i></p>
GNR No. 327 (7 April 2017) Listing Notice 1.	Listed Activity 34	<p>The expansion or changes to existing facilities for any process or activity where such expansion or changes will result in the need for a permit or licence or an amended permit or licence</p>	<p>Portion 94 of Erf 5333, Alton South, Richards Bay.</p> <p>Applicability:</p> <p><i>National Environmental Management: Air Quality Act 39 of 2004 (AQA) as provided in Section 21 of the Act, governs the</i></p>

GNR & Listing Notice No.	Listed Activity	Description of the applicable listed activity	Describe the portion of the proposed project to which the applicable listed activity relates; And Applicability
		<p>in terms of national or provincial legislation governing the release of emissions or pollution, excluding-</p> <p>(i) where the facility, infrastructure, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; [or]</p> <p>(ii) the expansion of [or changes to] existing facilities or infrastructure for the treatment of effluent, wastewater, polluted water or sewage where the capacity will be increased by less than 15 000 cubic metres per day; or</p> <p>(iii) <u>the expansion is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will be increased by 50 cubic meters or less per day</u></p>	<p><i>process of applying for Atmospheric Emissions licenses (AELs). Section 21 Category 5.1 and Section 46 (3) are applicable to this proposal. As a result, the expansion of the facility will require a Variation (Amendment) of existing AEL.</i></p>
<p>GNR No. 325 (7 April 2017) Listing Notice 2</p>	<p>Listed Activity 15</p>	<p>The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-</p> <p>(i) the undertaking of a linear activity; or</p> <p>(ii) maintenance purposes undertaken in accordance with a maintenance management plan'</p>	<p>Portion 94 of Erf 5333, Alton South, Richards Bay</p> <p>Applicability:</p> <p><i>The construction will result in the clearance of approximately 25ha of indigenous vegetation for expansion of Navitrade facility.</i></p>

GNR & Listing Notice No.	Listed Activity	Description of the applicable listed activity	Describe the portion of the proposed project to which the applicable listed activity relates; And Applicability
GNR No. 324 (7 April 2017) Listing Notice 3	Listed Activity 12	<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>d. <u>KwaZulu-Natal</u></p> <p>v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>	<p>Portion 94 of Erf 5333, Alton South, Richards Bay.</p> <p>Applicability:</p> <p><i>Construction will result in the clearance of approximately 25ha of indigenous vegetation for expansion of Navitrade facility, within a CBA1.</i></p> <p><i>The CBA1 is driven by the previous Section 52 of NEMBA Threatened Ecosystems (Kwambonambi Grassland), which the site has historically been classified as. The vegetation type was subsequently subsumed into Maputaland coastal grassland, which is classified as Endangered.</i></p>
GNR No. 324 (7 April 2017) Listing Notice 3	Listed Activity 14	<p>The development of—</p> <p>[(xii) infrastructure or structures with a physical footprint of 10 square metres or more]</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres where such development occurs—</p> <p>(a) within a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p>	<p>Portion 94 of Erf 5333, Alton South, Richards Bay.</p> <p>Applicability:</p> <p><i>There is wetland depression classified as NFEPa within the proposed expansion area. Therefore, the proposed expansion will result in construction infrastructure, such as coal handling and storage facility of more than 10m2. The wetland delineation will verify the existence of other wetland or geomorphological bodies within the project area. This will overlap the wetland at approximately (28°46'33.37"S, 32°1'4.73"E); within CBA 1.</i></p>

GNR & Listing Notice No.	Listed Activity	Description of the applicable listed activity	Describe the portion of the proposed project to which the applicable listed activity relates; And Applicability
		<p>d. <u>KwaZulu-Natal</u></p> <p>vii. Critical biodiversity areas or ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>	

6 BACKGROUND AND PURPOSE OF THE SCOPING REPORT

This report fulfils the requirement of the EIA Regulations for the documentation in the scoping phase. The structure of this report is based on appendix 2 of GNR.326, of the EIA Regulations as amended, which clearly specifies the required content of a scoping report.

The purpose of these Regulations is to set procedures and specify criteria, as contemplated in Chapter 5 of the Act, to enable the submission, processing, consideration, and decision-making regarding applications for environmental authorization of listed activities and matters pertaining thereto.

7 PROJECT TEAM

7.1 Environmental Assessment Practitioner

In accordance with Appendix 2, Section 2(1)(a) of GN No. 326 (7 April 2017), this section provides an overview of Emvelo Consultant and the company's EIA experience, as well as the details and experience of the EAPs that form part of the Emvelo Consultant project team, as well of the team of specialists, as detailed by (**Table 8 & 9**) below:

Table 8: Environmental Assessment Practitioners

Name	Qualification	Experience (Years)	Duties
Phumzile Lembede	B.Sc. Honours in Environmental Management. EAP (EAPASA) & Pr. Sci. Nat. (SACNASP) in the Environmental Science Field of Practice	11	Principal EAP and Environmental Scientist
Dumisani Myeni	B.Sc. Honours in Environmental Management. EAP (EAPASA) &	9	Study Lead and Environmental Scientist

	Cand. Sci. Nat. (SACNASP) in the Environmental Science Field of Practice		
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7.2 Environmental Specialists

The following team of environment specialists will provide the relevant specialist assessments and reports:

Table 9: Team of Environmental Specialists

Name	Qualification	Experience (Years)	Duties
Gertrude Mafusire	MSc. in Energy Studies. (SACNASP Chemical Science)	6 years	Air Quality Impact Assessment
Avhafarei Phamphe	MSc. Botany. (SACNASP) (Ecological Science)	19 Years	Terrestrial Biodiversity Impact Assessment
Nhlakanipho Zondi	BSc. Hydrology and Water Recourses. (SACNASP in Hydrology Science)	11 Years	Wetland Functioning and Delineation Impact Assessment
Nishen Govender	MSc. Hydrogeology (SACNASP in Hydrology Science)	9 Years	Geohydrological Impact Assessment
Andile Gqaji	BSc (Honours): Transportation Planning) Master of Commerce: Leadership Studies	9 Years	Traffic Impact Assessment

8 EIA PROCESS AND METHODOLOGY

This EIA process, comprise two main phases, namely, the Scoping phase and the Environmental Impact Assessment phase.

The Scoping Phase of an EIA serves to define the scope of the detailed assessment of the potential impacts of a proposed project. The Environmental Scoping phase has been undertaken in accordance with the requirements of sections 24 and 24D of the National Environmental Management Act (NEMA) (Act 107 of 1998), read with Government Notices R 543 (Regulations 26-30), 544, 545 and 546 of the NEMA. The objectives of the Scoping Phase are to:

- ✚ Ensure that the process is open and transparent and involves the authorities, proponent, and stakeholders (**Section 8.2, 8.3 & 8.4**);
- ✚ Ensure compliance with the relevant legislation (**Section 8**);
- ✚ Ensure that feasible and reasonable alternatives are identified and selected for further assessment (**Section 11**);
- ✚ Identify the important characteristics of the baseline environment (**Section 12**);
- ✚ Assess and determine possible impacts of the proposed project on the biophysical and socio-economic environment and associated mitigation measures (**Section 16**).

8.1 Scoping Process

The process for seeking Environmental Authorization under NEMA is being undertaken in terms of the current EIA Regulations of 2014 as amended in 2017. An outline of the process flow for Scoping and EIA process for the project is illustrated in (**Figure 3**) below.

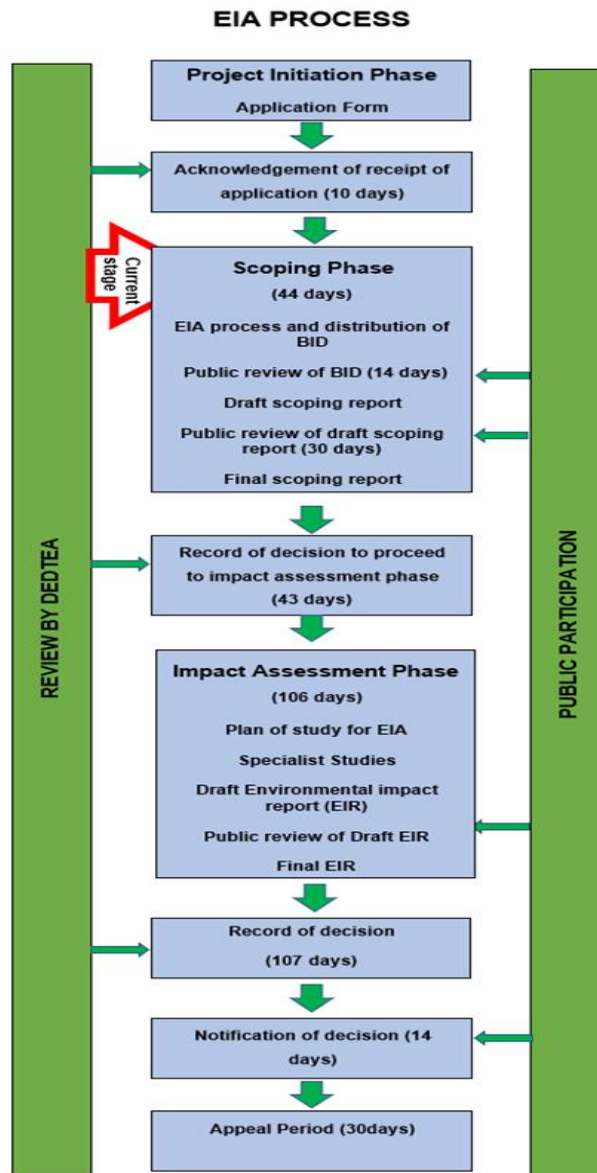


Figure 3: Scoping and EIA Process Flow Diagram

8.2 Landowner

According to Regulation 39(1) of GNR 326 (7 April 2017), if the applicant is not the owner or person in control of the land on which the activity is to be undertaken, the applicant must, before applying for an Environmental Authorization in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.

The Grindrod Navitrade portion 94 of Erf 533 will be owned by the Grindrod Terminal (Pty) Ltd which is the proponent for this EIA.

8.3 Consultation with Authorities

The relevant authorities required to review the environmental proposal, comment and provide decision on an Environmental Authorisation were consulted from the outset of this study and have been engaged throughout the project process. In terms of NEMA Section 24 (C), the lead decision-making authority for this application for Environmental Authorisation is the Department of Economic Development, Tourism and Environmental Affairs (EDTEA).

However, other authorities with jurisdiction over elements of the receiving environment or project activities were consulted and listed as I&APs.

Authority consultation included the following activities:

- ✚ Submission of EA Enquiry to EDTEA;
- ✚ The EA Pre-Application Meeting was convened with EDTEA on 20th of April 2023 (**Refer to Appendix E** for a copy of the minutes).
- ✚ An application for authorisation in terms of NEMA (Act 107 of 1998), is submitted to EDTEA as a competent authority.

8.4 Consultation with other Relevant Authorities

Background information (BID) regarding the proposed project was provided to relevant authorities and agencies, requesting their input into the EIA process. The authorities include *inter alia* as:

- ✚ Department of Water and Sanitation (DWS);
- ✚ KwaZulu Natal Department of Transport
- ✚ Ezemvelo KZN Wildlife;
- ✚ Department of Agriculture and Rural Development;
- ✚ Zululand Chamber of Commerce and Industry;
- ✚ Transnet Freight Rail (Richards Bay);
- ✚ Transnet National Port Authority;
- ✚ Richards Bay Clean Air Association;
- ✚ South African Heritage Resource Agency;

- ✚ King Cetshwayo District Municipality
- ✚ uMhlathuze Local Municipality

8.5 Overview of the Public Participation Process

The purpose of the Public Participation Process (PPP) which is implemented as part of the Scoping Phase of the EIA, is to:

- ✚ Ensure all relevant stakeholders and I&APs have been identified and are engaged in the Scoping process;
- ✚ Raise awareness, educate, and increase the understanding of stakeholders and I&APs about the proposed project, the affected environment and the environmental process being undertaken;
- ✚ Create open channels of communication between stakeholders and the project team;
- ✚ Provide opportunities for stakeholders to identify issues or concerns and suggestions for enhancing potential benefits and to prevent or mitigate negative impacts;
- ✚ Accurately document all opinions, concerns and queries raised regarding the project;
- ✚ Ensure the identification of significant alternatives and issues related to the project.
- ✚ To protect the environmental rights of the local community.
- ✚ To optimise the local and indigenous knowledge of the area.

8.6 Scoping Phase Public Participation

Section 24 (4) (a) (v) of NEMA, provides that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment, must ensure, with respect to every application for an Environmental Authorisation, the public information and participation procedures which provide all I&APs, with a reasonable opportunity to participate in those information and participation procedures, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity.

8.6.1 Notification of the Interested and Affected Parties (I&APs)

Section 41 of Chapter 6 of the EIA regulations have listed the different options, to be used when notifying the I&APs. The Public Participation process for this project was conducted, as detailed in **Table 10** and indicated by the green blocks. The Scoping Phase Public Participation is outlined by **Table 11**.

Table 10: Notification of I&APs

All the Interested and Affected parties were notified of the application by-		
Fixing a notice board at the place conspicuous to and accessible by the public at the boundary, on the fence, or along the corridor of any alternative sites. <i>Appendix E: Onsite notices positions.</i>	YES	NO/NA
Any alternative site also mentioned in the application	YES	NO/NA
<i>Has a written notice been given to-</i>		
Landowner or person in control if the applicant is not in control of the land. <i>The Grindrod Navitrade portion 94 of Erf 533 will be owned by the Grindrod Terminal (Pty) Ltd which is the proponent for this EIA.</i> <i>The notification in form of BID was also given to</i>	YES	NO/NA
The municipal councillor of the Ward in which the site and alternative site of the proposed activity. <i>The BID was sent to the Ward 2 Councillor of uMhlathuze Local Municipality.</i>	YES	NO
The municipality which has jurisdiction in the area and other organs of state: <i>The BID was sent to uMhlathuze Local Municipality.</i>	YES	NO
Placing an advertisement in-		
<i>Regional newspaper (Zululand Observer Newspaper: 26/05/2023 Edition).</i>	YES	NO
Onsite Notices: <i>Onsite notices have been placed at boundaries and intersections as well as strategic points.</i>	YES	NO
Any official Gazette that is published specifically for providing public notice of applications	YES	NO
One provincial newspaper, any official Gazette that is published with the purpose of providing public notice of applications.	YES	NO

Table 11: Scoping Phase Public Participation

Scoping Phase
<p>Identification of I&APS:</p> <p>Interested and Affected Parties (I&APs) have been identified throughout the process. Initial identification of I&APs includes state departments/organs, state agencies, adjacent properties servitudes owners/operators, municipality, and ward councillors.</p>
<p>Notification BIDs have been circulated to all identified I&APs informing them of the proposed development and the opportunity to comment (Proof of Circulation attached in Appendix E).</p>
<p>Notification by Onsite Notices:</p> <p>The Onsite notices have been placed at boundaries and intersections as well as strategic points (Refer to Appendix E: Onsite Notices)</p>
<p>Notification by Newspaper Notices/Advert:</p> <p>An advertisement was placed on (<i>Zululand Observer Newspaper: 26/05/2023 Edition</i>), attached on (Appendix E).</p>
<p>Registration of I&APS:</p> <p>Registration of I&APs was conducted from the period of 14 days from 26 May 2026, register attached on (Appendix E)</p>
<p>Public Participation Meeting:</p> <p>Public meeting was not held since the site is not within settlement, but rather business area as the adjacent inhabitants constitutes the business properties. The BID was given to the adjacent occupants adjacent occupants and properties and servitudes owners/operators, municipality, and ward councillors.</p>
<p>Circulation of a Draft Scoping Report:</p> <p>The EDTEA has received the hardcopy of the draft Scoping Report (DSR). The DSR is circulated via email to all identified and registered I&APs. The Hard copy is placed at Richards Bay Library for 30 days public review and comments.</p> <p>The DSR is delivered and sent via email to relevant State Departments and Organs of State and their inputs and comments were requested. (Proof of circulation will be attached on the Final Scoping Report in Appendix E).</p> <p>The Proof of circulation will be attached on the Final Scoping Report in (Appendix E).</p>
<p>Final Scoping Report:</p> <p>All comments received from DSR during the commenting period will be included in the Final Scoping Report (FSR) & Final Environmental Impact Assessment Report (EIR) and attached in (Appendix E) comments and response report (CRR). The FSR will be submitted to EDTEA King Cetshwayo District for approval of Scoping Report.</p>

8.6.2 Review of Draft Scoping Report

The DSR is circulated for 30 days, for public review using the public participation methods mentioned in (**Table 11**) above.

8.6.3 Comments from I&APs

Section 43 of Chapter 6 of NEMA (EIA Regulations 2017) indicates that all I&APs are entitled to comment in writing on all reports produced by the applicant during the EIA process. This will bring the concerns raised to the attention of the applicant.

The proof of documents circulated to I&APs is attached in (**Appendix E**). The current comments of DSR in (**Appendix E**) involve the inputs from stakeholders.

8.7 Screening of Alternatives

Consideration of alternatives is one of the most critical elements of the environmental assessment process. The key criteria for consideration when identifying alternatives are that they should be “practicable”, “feasible”, “relevant”, “reasonable” and “viable” (DEAT,2004). As a result, after assessing the following alternatives: ‘*Alternative A: Location Alternative; Alternative B: Site Layout Alternatives; Alternative C: Design Alternative; and Alternative D: Technology Alternatives*’ will be feasible to offset the No-Go Alternative (**Refer to Section 11**).

8.8 Prediction of Impacts

The Scoping exercise is aimed at identifying and qualitatively predicting significant environmental issues for further consideration and prioritisation during the EIA stage. It is important to note that the impact “significance” relates to whether the effect (i.e., change to the environmental feature/attribute) is of sufficient importance that it ought to be considered and have an influence on decision-making.

The potential environmental impacts associated with the proposed project are identified during the Scoping phase (**Section 18**) through consideration of the following:

- ✚ Proposed locations and the extent of the proposed development, which included site investigations (field works) as well as a desktop studies, evaluation with a Geographical Information System (GIS), and inputs from various data sources.
- ✚ Activities associated with the project life cycle (i.e. construction, operation, and decommissioning).

- ✚ Profile of the baseline environment (receiving environment) and the potential sensitive environmental features and attributes;
- ✚ Input received during public participation from authorities and I&APs; and
- ✚ Legislation framework, and policy context.

The EIA phase will then provide a qualitative and quantified impact assessment methodology, which will be conducted through the contributions of the project team and requisite specialist studies. Subsequently, the suitable mitigation measures will be identified to manage (i.e., prevent, reduce, rehabilitate and/or compensate) the environmental impacts, and will be included in the Environmental Management Programme (EMPr).

9 ENVIRONMENTAL STATUTORY FRAMEWORK

The NEMA is the primary South African legislation governing the requirements for Environmental Impact Assessments. In the context of the proposed development/activity the provisions of NEMA, and the associated EIA Regulations (regarding Scoping and EIA process) are of fundamental relevance. In terms of the Environmental Regulations promulgated under the NEMA, an EIA must be conducted for any development or activity that requires an Environmental Authorisation.

Apart from the EIA triggers, this proposal also triggers Environmental Management Air Quality Act 39 of 2004, Government Notice 893 of 2013 (Government Gazette 37054) published in line with section 21 of the National Environmental Management Air Quality Act 39 of 2004 as amended. The following NEM: AQA Section 21 listed activity is triggered: Section 21 Category 5.1 and overruled by Section 46 (3); And Section 21 of National Water Act (ACT 36 OF 1998) Water Use Authorization; Section 21 (c) and Section 21 (i) for activities within the regulated area.

The applicable legislations, regulations and policies relevant to the proposed development/operations are outlined in (**Table 12**) below:

Table 12: Environmental Statutory Framework

Legislation	Relevance
Constitution of the Republic of South Africa, (No. 108 of 1996)	<ul style="list-style-type: none"> ➤ Chapter 2 – Bill of Rights. ➤ Section 24 – Environmental Rights/ Health or Well-Being / Depletion Of Natural Resources ➤ Section 32: Access to Information ➤ Section 33: Administrative Decisions ➤ Section 38: Locus Standi ➤ Section 68: Authority for Provincial Legislation
National Environmental Management Act (NEMA) (No. 107 of 1998)	<ul style="list-style-type: none"> ➤ Section 2: Principles in Environmental Management ➤ Section 24: Environmental Authorisations and/or Norms and Standards (EA) (➤ Section 24G: Rectification Application ➤ Section 24J: Implementation Guidelines ➤ Section 24L: Alignment of Environmental Authorisations, including Integrated Environmental Authorisations) ➤ Section 24N: Environmental Management Programmes, Rehabilitation of Disturbed Areas and Closure Plan ➤ Section 24P: Financial Provision for Remediation of environmental damage ➤ Section 24Q: Monitoring and Performance Assessment (Environmental Audit) on EMPr's ➤ Section 24S: Management of Residue Stockpiles and Residue Deposits ➤ Section 24M: Exemption from Application of Certain Provisions of The Act ➤ Section 28: Duty of Care and Remediation of Environmental Damage ➤ Section 28: Soil Pollution ➤ Section 29: Protection of Workers on Refusal to Undertake Work ➤ Section 30: Emergency Incident Causing Danger to Public or Environment ➤ Section 30A: Emergency Situation - Request for Directive to undertake listed activity without EA ➤ Section 31: Access to Environmental Information and Protection of Workers ➤ Section 32: Enforcement of Environmental Laws ➤ Section 34: Liabilities in Criminal Offences Under Environmental Laws ➤ Section 39: Control over products which could harm the environment ➤ Section 43: Appeals (Ch 9, Sec 43) ➤ Section 44 and 47: Regulations ➤ Section 47A: Regulations, Legal Documents and Steps Not In Compliance With Procedural Requirements ➤ Section 47B: Consultation with other Departments ➤ Section 47C: Extension of Time Periods ➤ Section 47D: Delivery of Documents ➤ Section 49A and 49B: Offences and Penalties

Legislation	Relevance
GN No. 326 (7 April 2017)	<ul style="list-style-type: none"> ➤ Purpose - regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing, and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to and EIA, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.
	<ul style="list-style-type: none"> ➤ Purpose – to identify activities that would require environmental authorizations prior to commencement of that activity and to identify competent authorities in terms of sections 24(2) and 24C of NEMA. ➤ The investigation, assessment, and communication of the potential impact of activities must follow the procedure as prescribed in regulations 19 and 20 of the EIA Regulations published in terms of section 24(5) of the Act. However, according to Regulation 15(3) of GN No. 327, Scoping and an Environmental Impact Report (S&EIR) must be applied to an application, if the application is for two or more activities as part of the same development for which S&EIR must already be applied in respect of any of the activities. ➤ Activities that are relevant to this application are: Listing Notice 1, Activity 19 & 34; Listing Notice 3, Activity 12 & 14; Listing Notice 2, Listed Activity 15.
National Water Act (Act No. 36 of 1998)	<ul style="list-style-type: none"> ➤ Chapter 3 – Protection of water resources. ➤ Section 19 – Prevention and remedying effects of pollution. ➤ Section 20 – Control of emergency incidents. ➤ Section 21- WUL activities (Section 21C & Section 21i) ➤ Chapter 4 – Water use. ➤ Authority – Department of Water and Sanitation (DWS).
NEMA 1998 - GN R326 of 07 April 2017- Environmental Impact Assessment Regulations, 2014	<ul style="list-style-type: none"> ➤ Regulation 1 and 2: Interpretation, Purpose and Commencement of Regulations) ➤ Regulation 3: Timeframes) ➤ Regulation 4: Decision on Applicant and Notification to I&AP's ➤ Regulation 5 and 6: General Requirements for Applications ➤ Regulation 7, 8 and 9: Consultations between Competent Authority and other relevant State Departments ➤ Regulation 10 and 11: Competent Authority - Right of access to information ➤ Regulation 12, 13 and 14: EAP's and Specialists' Appointments and Conditions ➤ Regulation 15: Assessment Process to be followed ➤ Regulation 16, 17 and 18: Requirements applicable to the EA Application ➤ Regulation 19 and 20: Basic Assessment Report submitted to Competent Authority ➤ Regulation 21, 22, 23 and 24: S&EIR submission to Competent Authority ➤ Regulation 25 and 26: Issue and Content of an Environmental Authorisation ➤ Regulation 31, 32 and 33: Amendment of Environmental Authorisation ➤ Regulation 34: Audits on EA's, EMPr's and Closure Plans ➤ Regulation 36 and 37: Amendments to an EMPr and Closure Plan ➤ Regulation 38: Suspension and Withdrawal of Environmental Authorisation

Legislation	Relevance
	<ul style="list-style-type: none"> ➤ Regulation 39, 40, 41, 42, 43 and 44: Public Participation ➤ Regulation 45, 46 and 47: General Matters ➤ Regulation 48: Offences
National Environmental Management Air Quality Act (Act No. 39 of 2004)	<ul style="list-style-type: none"> ➤ NEM: AQA (Act No.39 of 2004). ➤ Air quality management ➤ Section 21- Listed Activities (Category 5.1) ➤ Section 32 – Dust control. ➤ Section 34 – Noise control. ➤ Section 46 (3)- Amendment of AEL License (Variation) ➤ Authority – King Cetshwayo District Municipality
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	<ul style="list-style-type: none"> ➤ Section 43-48: Biodiversity Management Plans (Ecosystems, Indigenous Species or Migratory Species) ➤ Section 51-55: Threatened or Protected Ecosystems and Threatening Processes ➤ Section 56-58: Threatened or Protected Species ➤ Section 64-67 and 69: Alien Species Posing a potential threat to Biodiversity ➤ Section 70 and 77: Invasive Species posing a potential threat to Biodiversity (➤ Section 101 and 102: Offences and Penalties Authority – DFFE.
Occupational Health & Safety Act (Act No. 85 of 1993)	<ul style="list-style-type: none"> ➤ Provisions for Occupational Health & Safety Regulation 9A and 14: Hazardous Chemicals Substances ➤ Regulation 10 and 15: Disposal of HCS Waste ➤ Authority – Department of Labour.
National Heritage Resources Act (Act No. 25 of 1999)	<ul style="list-style-type: none"> ➤ Section 34 – protection of structures older than 60 years. ➤ Section 35 – protection of heritage resources. ➤ Section 36 – protection of graves and burial grounds. Section 51: Offences and Penalties ➤ Authority – Provincial Heritage Agency: Amafa Institute Heritage Agency
National Road Traffic Act 1996 (Act No. 96 of 1996)	<ul style="list-style-type: none"> ➤ Section 51: Waste on Or Near National Road ➤ Authority – KZN Department of Transport and community safety
Environment Conservation Act (Act 73 Of 1989)	<p>Section 29: Offences and Penalties Section 31A: Damage to Environment</p>
Promotion of Access to Information Act,	<ul style="list-style-type: none"> ➤ Section 11 and 12: Access to Records of Public Bodies ➤ Section 50: Access to Record of Private Bodies ➤ Section 51: Publication and Availability of Certain Records ➤ Section 70: Mandatory Disclosure by Public/Private Bodies

Legislation	Relevance
2000 (Act No 2 of 2000)	
Water Services Act, 1997 (Act No. 108 of 1997)	<ul style="list-style-type: none"> ➤ Section 3: Right of Access to Basic Water Supply and Sanitation ➤ Section 9: National Standards on Provision of Water Services ➤ Section 11: Duty to Provide Access to Water Services ➤ Section 12-18: Water Services Development Plans ➤ Section 27: Monitoring of Water Services Provided ➤ Section 77: Transferability of Servitudes
Hazardous Substances Act, 1973 (Act No. 15 of 1973)	<ul style="list-style-type: none"> ➤ Section 2-3: Grouped Hazardous Substances ➤ Group I – Hazardous Substances (GN R 452 Of 25 March 1977 and GN 801 Of 31 July 2009) ➤ Group II Hazardous Substances (GN R1382 Of 12 August 1994) ➤ Group III Hazardous Substances (GN R1302 Of 14 June 1991) ➤ Group IV Hazardous Substances (GN R247 of 26 February 1993) ➤ Section 18 and 19: Offences and Penalties
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)	<ul style="list-style-type: none"> ➤ Section 3 and 7: Pest Control Operators, and use of fertilizers, farm feeds, agricultural, stock remedies and sterilising plants ➤ Section 7: Sale of fertilizers, farm feeds, agricultural remedies, and stock remedies ➤ Section 7BIS: Prohibition on acquisition, disposal, sale or use of certain fertilizers, farm feeds, agricultural remedies, and stock remedies ➤ GN R181 of 7 February 2003 - Regulation Relating to the Prohibition of the Sale, Acquisition, Disposal or Use of Agricultural Remedies ➤ Containers And Labels of Agricultural and Stock Remedies
	<ul style="list-style-type: none"> ➤ GN 98 of 11 February 2011 - Pest Control Operator Regulations
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	<ul style="list-style-type: none"> ➤ Section 7-9: National Norms and Standards, Provincial Norms and Standards and Waste Service Standards ➤ Section 14 and 15: Priority Waste ➤ Section 16: Duty on Waste Holder to Implement Reasonable Measures ➤ Section 17: Reduction, Re-Use, Recycling and Recovery of Waste ➤ Section 43-59: Waste Management Licences for Listed Waste Activities or Compliance to Norms and Standards ➤ Section 21 and 22: Storage of Waste ➤ Section 23 and 24: Waste Collection needs to be Authorised by the Municipality ➤ Section 25: Waste Transportation ➤ Section 26: Unauthorised Disposal of Waste and Protection of Environment ➤ Section 25: Protection of Environment at Private Land ➤ Section 35-41: Contaminated Land ➤ Section 67 and 68: Offences and Penalties ➤ Regulation 4: Waste Classification

Legislation	Relevance
	<ul style="list-style-type: none"> ➤ Regulation 5: Safety Data Sheets for Hazardous Waste ➤ Regulation 6: General Obligations on Waste Generators, Transporters and Managers ➤ Regulation 7: Waste Treatment ➤ Regulations 8: Waste Assessment - Waste Disposal to Landfill - Obligations on Generators and Managers ➤ Regulation 9: Waste Management Activities that do not require a Waste Management Licence ➤ Regulation 10: Records on Waste Generation and Management
Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)	<ul style="list-style-type: none"> ➤ Section 8: Articles or Materials on or Near Public Roads
Health Act, 1977 (Act No. 63 of 1977)	<ul style="list-style-type: none"> ➤ Section 20: Waste Being a Threat to Human Health
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	<ul style="list-style-type: none"> ➤ Section 5: Prohibition on the Spreading of Weeds ➤ Section 8 and 9: Soil Conservation Schemes ➤ Regulation 8: Managing the Flow Pattern of Run-off Water ➤ Regulation 12: Burning of Veld, Prevention and Control of Veld Fires ➤ Regulation 15: Weeds and Invader Plants
National Forests Act, 1998 (Act No. 84 of 1998)	<ul style="list-style-type: none"> ➤ Section 7: Indigenous trees ➤ Section 12-15: Protected Trees (All Areas) ➤ Section 16: Registration in Title Deeds ➤ Section 61-64: Offences and Penalties
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	<ul style="list-style-type: none"> ➤ Section 9 and 10: Fire Danger Rating ➤ Section 17-19 and 34: Firebreaks ➤ Section 24 and 25: Offences and Penalties
National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003)	<ul style="list-style-type: none"> ➤ Section 18 and 19: Special Nature Reserves ➤ Section 23-26: Nature Reserves ➤ Section 28 and 29: Protected Environments ➤ Section 37: Management of Protected Areas ➤ Section 38-42: Management Plans in Protected Areas ➤ Section 43: Monitoring performance of Protected Areas ➤ Section 45-47: Access to Protected Areas

Legislation	Relevance
	<ul style="list-style-type: none"> ➤ Section 48: Restricted activities in Protected Areas ➤ Regulation 49: Regulation or Restriction of Activities in Protected Areas ➤ Section 89: Offences and Penalties

10 ACTIVITY MOTIVATION

The need for and the desirability of a proposed development forms a key component of any environmental authorisation proposal, as the concept of “need and desirability” relates to, amongst others, the nature, scale and location of development being proposed, as well as the wise use of land. The “need and desirability” are interrelated and the two components collectively can be considered in an integrated and holistic manner (DEA, 2017).

The Grindrod (Pty) Ltd intends to increase the capacity of its Navitrade terminal which links rail and road logistics to the Port of Richards Bay. As a result, a Pre-Feasibility Study (PFS) was conducted which identified an optimised and efficient solution for expanding the Navitrade terminal’s capacity to temporary coal of approximately 4Mtpa. Therefore, Richards Bay Grindrod Terminal intends to expand the coal stockpiling facility of its Navitrade terminal by 25ha. This stems from a Memorandum of Agreement (MOA) with Transnet Freight Rail (TFR) and Transnet Port Terminals (TPT), as well as advanced negotiations with local mine for a medium- to long-term take-off agreement.

10.1 The need

Considering the broader community’s needs and interests as reflected in a credible IDP, SDF and EMF for the area. The financial viability of adopted proposal is considered within the context of justifiable economic development, measured against the broader societal short-term and long-term needs. Therefore, what is needed and desired for a specific area should primarily be strategically and democratically determined beyond the spatial extent of individual EIAs (DEA, 2017).

In this regard the Grindrod Terminal (Pty) Ltd has identified the need to expand the Navitrade Coal Facility to meet the growing coal demand for export in South Africa. This will result in expansion of existing 11.6ha Grindrod Navitrade Facility by additional 25ha in order to expand the Navitrade terminal’s capacity to 4Mtpa.

10.2 Desirability

The assessment of desirability of the environmental proposal is fundamental for streamlining the proposal to the baseline environment. This is done in order to meet the objective of the National Development Plan (NDP) 2030 by ensuring that the threat to the “environment and the challenge decent living and livelihood as well as poverty alleviation are closely intertwined through a balance between resource use for economic benefit, improving livelihoods and that of ecosystems protection.

The Grindrod Navitrade Facility is currently operation as a coal storage facility and located within the Alton South area zoned as a Noxious and Harbour Bound (Harbour Arterial). Moreover, it located adjacent the port of Richards Bay, thus provide a coal storge and logistic solution to the port of Richards Bay within the city of uMhlathuze Municipality.

Furthermore, the implementation of the expanded Grindrod Navitrade Facility will cater for handling of a large volume of coal. As a result, the coal from Grindrod Seamunye Facility will be moved to this Grindrod Navitrade, thus providing a concentrated effort to streamline temporary coal storage within proximity of the port of Richards Bay and alleviate pressure of coal stockpiling within industrial complexes in Alton west, Richards Bay.

Apart from geographic locational competitiveness for the proposed facility expansion, one of the deliverables for logistic and storage hubs are jobs creation and stimulation of the local economy. Therefore, will create the much-needed employment opportunities and transfer of skills to local community, as well as support local businesses who will be providing goods and services in support of operations.

11 ALTERNATIVES

The DFFE provides guidelines on the assessment of alternatives, to which the impact assessment must be considered. Regulations indicate that any alternatives considered in an assessment process must be reasonable and feasible. Additionally, I&APs must be afforded an opportunity to provide inputs into the process of formulating alternatives. Once a full range of potential alternatives have been identified, the reasonable and feasible alternatives should be formulated as activity alternatives for further consideration during the basic assessment or scoping and EIA process (DEAT,2004a; DEAT, 2006). These alternatives are: location (site),

activity (project), site layout, design, scale, routing, scheduling, process, demand, input, technology, and no-go options.

It is, however, important to note that the regulation and guidelines specifically state that only 'feasible' and 'reasonable' alternatives should be explored. It also recognizes that the consideration of alternatives is an iterative process of feedback between the applicant and the appointed EAP, which in some instances culminates in a single preferred project proposal (DEAT, 2006).

After weighing all project alternatives for this project (Discrete Alternative Approach), the preferred "*Alternative A: Location Alternative; Alternative B: Site Layout Alternatives; Alternative C: Design Alternative; and Alternative D: Technology Alternatives*" were adopted as alternatives that will meet the stated need for and purpose of the project, by providing proper mitigation measures, as discussed below.

11.1 Alternative A (Location/Site Alternative)

The 'Location Alternative' could be considered part of site layout alternatives. The 'Location Alternative' provides for the entire proposal or for a component of a proposal, locations that are geographically quite separate, and alternative locations that are in close proximity (DEAT, 2004a).

There were no other sites which were assessed as alternative sites since Grindrod Terminal (Pty) Ltd does not own other properties within Richards Bay area zoned as noxious zone, except for portion 94 Erf 533 adjacent to existing Navitrade Facility on portion 95 Erf 5333, Alton South, Richards Bay.

It is important to note that the portion 94 Erf 533 Alton South Richards Bay was considered viable and preferred site, because of its geographical strategical location as it is adjacent to the port of Richards Bay, within area zoned as a Noxious and Harbour Bound (Harbour Arterial), thus offers the competitive advantage for coal storage and logistic solution to the port of Richards Bay within the city of uMhlathuze Municipality.

Moreover, the Grindrod Navitrade Facility is currently operational as a coal storage facility. Therefore, the expansion of the facility will only increase the footprint within the existing facility other than on a new location.

11.2 Alternative B (Site Layout Alternatives)

The 'Site Layout Alternatives' permit consideration of different spatial configurations of an activity on a particular site. This may include particular components of a proposed development or may include the entire activity (DEAT, 2004a). The 'Site Layout Alternatives' for the proposed Navitrade Facility expansion involve looking at the impact likelihood and configuration of the site positioning to mitigate the impacts.

All expansion layouts options proposed to achieve 4Mtpa throughput or $\pm 400,000t$ storage capacity were considering an expansion of the existing northern and southern terraces towards the west. The Navitrade site is constrained on its eastern boundary by the existing rail yard, on the northern end by the R34 (John Ross Highway), and it naturally slopes towards the south where the pollution control system terminates. Furthermore, two (2) installed pipelines owned by South32 would be impacted with this footprint. The first is an unused underground HDPE pipe installed on the boundary between portion 95 Erf 533 (existing facility) and portion 94 Erf 533 (proposed expansion site). The second is an in-service asbestos pipe installed diagonally across the Grindrod Navitrade property on portion 94 Erf 533.

For the purpose of this study the vacant land (portion 94 Erf 533) towards the west is referred to as the Grindrod Terminal property, will be integrated to existing Grindrod Navitrade Facility. It is onto this land that an expanded footprint is proposed. This will necessitate a degree of stockyard civil works modification during implementation of fixed automation equipment. Grindrod Terminal requirement of 400 000t total storage capacity; MOA requirement of 370,000t total storage demand; and AEL requirement of 20m maximum height, which is 450m long is assessed based on the options of stockpile layouts below.

a) Option 1- Stockpile yard Layout (Wedge stockpiles)

The wedge stockpiles 'Option 1' are constructed by front-end loaders with the inclined working surface at a maximum grade of 1:10. Although the layout creates a relatively unusable section

of land adjacent to the John Ross Highway at the northern end of the northern terrace (**Figure 4**) which is advantageous in terms of dust fallout, but the stockpile height will be very high above AEL requirement of 20m maximum height. The centroids of these stockpiles are relatively short, when measured from stockpile to centroid and back to buffalo feeder where this distance equates to increased or decreased operating costs.

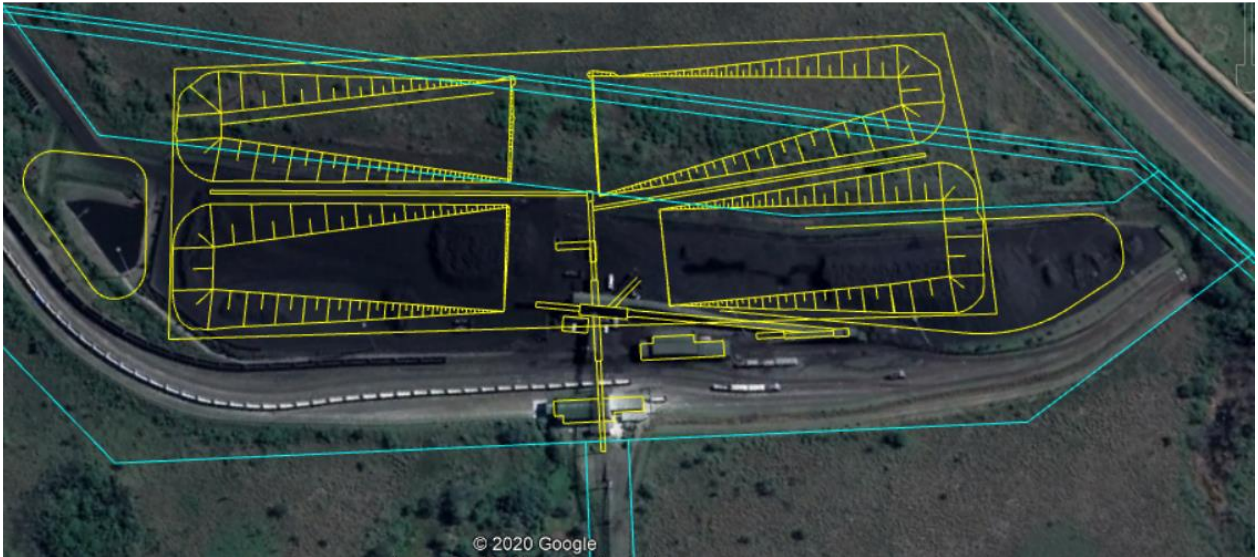


Figure 4: Option 1 Stockpile yard Layout– Wedge stockpiles

b) Option 2- Stockpile yard Layout (Spiral stockpiles)

The ‘Option 2’ spiral stockpiles are created by the front-end loaders in a similar fashion to the wedge stockpile option with the inclined working surface at a maximum grade of 1:10. Although the layout creates a relatively unusable section of land adjacent to the John Ross Highway at the northern end of the northern terrace which is advantageous in terms of dust fallout, but the stockpile height will be very high above AEL requirement of 20m maximum height. These Spiral stockpiles are however different in that at the extent of the footprint the stacking procedure is turned 180° and a “spiral” roadway is created (**Figure 5**). These configurations create the minimum stockyard footprint for any given tonnage.

Spiral stockpiles have limitations when attempting to create a narrow stockpile as the initial rising ramp needs a minimum bench (roadway) width of 3.5x machine-widths in order to maintain a two-way traffic allowance with adequate side clearance and berms for safe passage. In turn the relatively constrained roadways create large lengths where mobile

machinery can only travel in single file. This creates bunching and overall equipment inefficiencies.

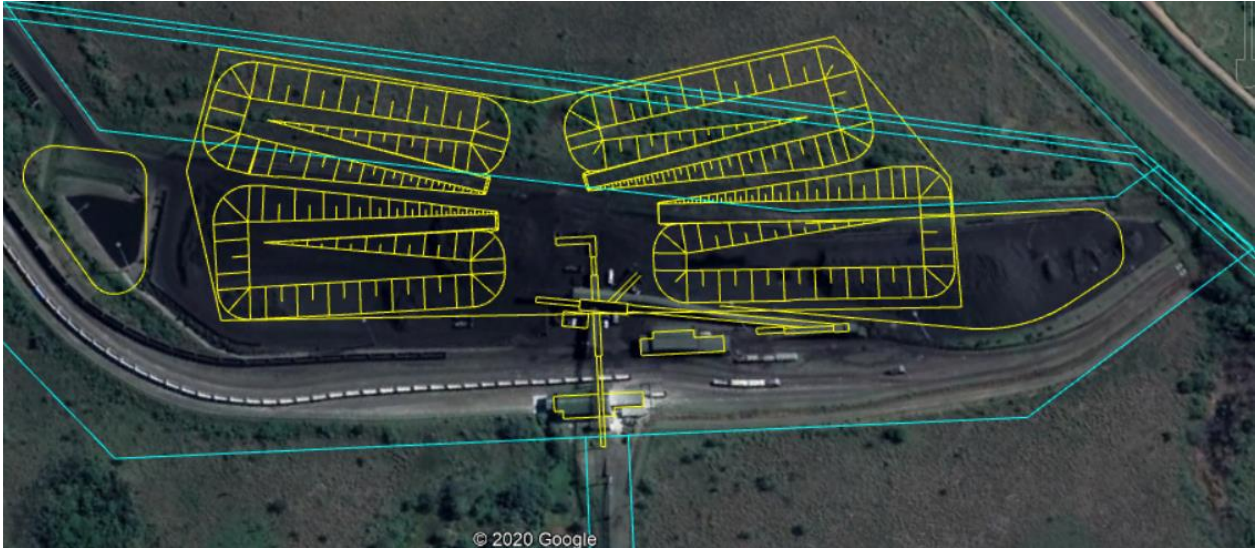


Figure 5: Option 2 Stockpile yard Layout– Spiral Stockpiles

c) Option 3-Preferred Stockpile yard Layout (Mirror Stockpiles)

The preferred stockpile layout ‘*Option 3*’ is based upon an optimised ‘*Option 1*’ forming a mirror stockpile and consists of four wedge stockpiles with sufficient separation between the eastern and northern terraces to allow for stormwater drainage and future mechanisation in a central servitude (**Figure 6**). This stockpiles layout provides for minimal stockpile height meeting AEL requirement of 20m maximum height. The positioning of the stockpiles is adjudged as being optimal in respect of allowing operations to continue unhindered during the construction phase.

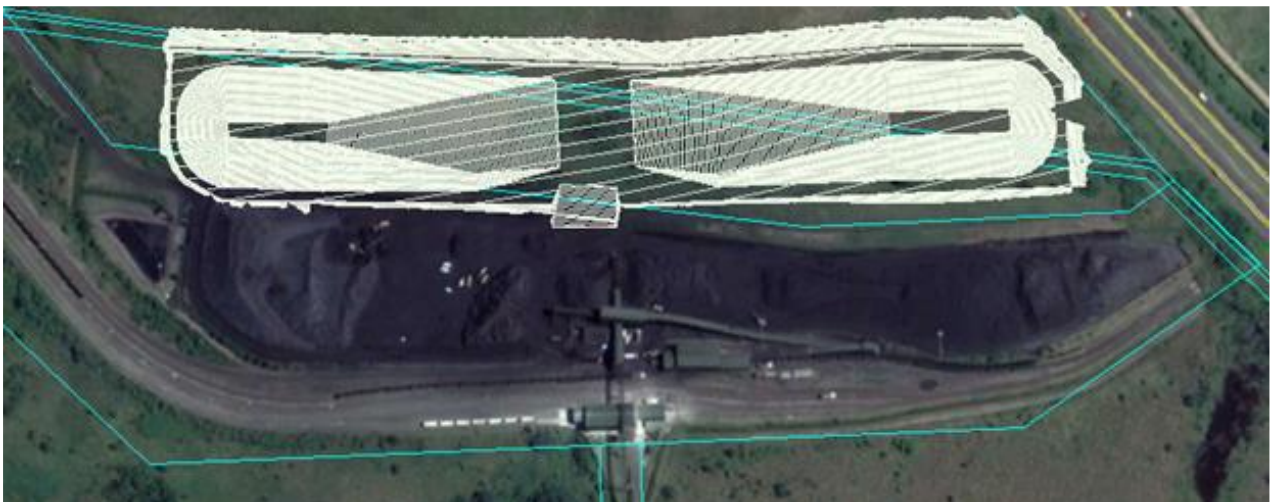


Figure 6: Preferred Stockpile Layout (Mirror Stockpiles)

The preferred mirror stockyard layout is designed for both fixed material handling equipment and yellow plant (front-end loader). However, the northern stockpiles moving further north, increasing the carry distance when measured from stockpile to centroid and back to buffalo feeder, thus increase distance equates to increased operating costs should front-end loader only operation be retained, and further fixed mechanisation not be considered.

Due to the level variance between the two stockyards, a retaining structure will be required from the access ramp moving southwards, adjacent to the realigned drainage channel.

11.3 Alternative C (Design Alternative)

The 'Design Alternatives' form an integral part of the project proposal and becomes a part of the project description and need not be evaluated as separate alternatives (DEAT, 2004a). The 'Design Alternative' is in line with project design criteria described in (**Section 4**).

The design criteria discussed in this report reflect to the following:

- ✚ Stockyard Design (**Section 4.1.1**)
- ✚ Design for Stormwater Management (**Section 4.1.2**);
- ✚ Structural layer works and barrier design (**Section 4.1.3**);
- ✚ Design for dust fallout control (**Section 4.1.4**);

a) *Stockyard Design*

The stockyard design provides for facility's capacity to cater for four (4) grades of coal to be stored. The four grades will require clearance between stockpiles for product separation allowance, which effectively reduces the storage capacity given a fixed footprint. The storage capacity must further meet a three-fold requirement: Grindrod Terminal requirement of 400 000t total storage capacity; MOA requirement of 370,000t total storage demand; and AEL requirement of 20m maximum height. These can be achieved by formulation of 400,000t central stockpile as explained in (**Section 11.2**) '*Site Layout Alternative*'.

b) Stormwater Management

The design for stormwater management provides for balance integrated stormwater management managing both 'clean' and 'dirty' stormwater runoff on site. To maintain clean and dirty stormwater separation, cut-off drains are provided on the perimeter of the stockyard, pollution control dams and road/rail infrastructure to direct clean runoff into the existing surface drainage system. All upstream flows including rainfall runoff, spillages and PCD overflow occurrences resulting from 24-hour storm event in 1:50 years, are routed into an existing main surface drain channel. The channel consists of a 1.800m x 1.500m box culvert underneath the access road and railway yard and discharges the flows onto the lower-lying veld areas. Due to the spillway construction the channel will be reshaped, and concrete lined to a minimum trapezoidal section of BW = 1.500m, D = 1.000m and Sides = 1:3 slope. With the design slope of 3.5% gradient within the channel a capacity of 30m³/s which by far exceeds the requirement for a 1:50 year design flow, excluding overtopping at any PCD.

The PCD's combined capacity of approximately 31,000m³ is optimal to maintain coal contaminated run-off water. For the expansion project the existing PCD of 1,350m³ capacity will be used as an initial silt trap or sediment interception chamber, with design allowance to modify it somewhat for vehicle access for sediment removal. Spillover from the existing PCD will be deposited into a newly created PCD via a spillway across the clean water surface channel. Therefore, in order to allow this PCD to overflow into the future PCD-South, the perimeter needs to be raised and a concrete spillway constructed to route overflows into the larger downstream PCD.



Figure 7: Concept for enlarged PCD system

c) Structural layer works and barrier design

The structural layer works, and barrier design provides for barrier/layer works requirements as the accepted liner beneath the stockyards: An alignment layer consisting of *in-situ* material; A 600mm high berm with side slopes of 1:3 to be constructed around the stockpile; A geosynthetic clay liner to be installed on top of the alignment layer and anchored in an anchor trench formed in the perimeter berm; The perimeter drains to be compartmentalised into attenuation paddocks linked by means of 200mm uPVC pipework. Each attenuation paddock will be isolated to divert stormwater in contact with the coal face contained within the paddock until ready to be released.

The design looks at the best design practice which conforms to the Type C requirements, in accordance with Waste Management Regulations for coal material. The platform is designed to support the static stockpile loading and satisfy mobile plant movement requirements for the storage of coal and other specified bulk material. No change to the barrier design is proposed for the existing stockpile yard. The infrastructure and drainage systems for existing stockpile yard and proposed stockpile yard will be separated to allow for independent monitoring. The design also provides two barrier design for: The barrier design under the stockpiles; The barrier design under the higher trafficked areas.

d) *Design for dust fallout control*

The existing set of reservoirs installed next to the access road is suitable for filling bowser trucks for dust suppression. Lifting pumps will be used to fill the reservoirs from PCD-South situated between future PCD-North and PCD-South. Dust suppression lifting pump abstracting water from the concrete reservoir which will be fitted with a fixed sprinkler system. The pressurised sprinklers will be sized to spray water over the entire surface of the pile at specific intervals and quantities to keep just the surface moist.

The facility perimeter design as the wind break will not only to reduce dust in the coal yard but also to lessen wind speeds around unloaders and stockpile area.

11.4 Alternative D (Technology Alternatives)

The technology to be used in the activity, refers to a consideration of the method of operation, such that an alternative includes the option of achieving the same goal by using a different method or process (DEA&DP, 2007).

The '*Technology Alternatives*' employed are on the basis of: The earthworks and construction of a facility barrier platform and stormwater management systems; Dust fallout control and mitigation of ambient air pollution.

11.4.1 Earthworks for facility barrier platform and stormwater management

The '*Technology alternatives*' for earthworks, facility barrier platform and stormwater management cannot be isolated to the '*Design Alternative*' discussed above.

The technology to be adopted for excavation will be based on *in-situ* material as classified in (**Table 13**) below:

Table 13: SANS1200D Excavability Classes (Geology and excavation technologies)

<i>In-situ</i> Geological Conditions at different depth	Description of material properties/ Excavability and Rippability
Soft	Material that can be efficiently removed or loaded without prior ripping, by means of bulldozer, tractor-scraper, track type front end loader, back acting excavator, without the use of pneumatic tools such as paving breaker.
Intermediate	Material that can efficiently be ripped by a tractor loader backhoe (TLB) of flywheel power approximately 0.10kW per millimetre of tined bucket width and adequately ripped by a bulldozer of mass approximately 35t, fitted with a single-tine ripper suitable for heavy ripping, and of flywheel power approximately 220kW. Or use of pneumatic tools before removal by equipment to one specified above.
Hard rock	Excavation in material that cannot before removal, be efficiently ripped by a bulldozer. This type of bedrock that cannot be removed without blasting or without wedging and splitting
Boulder (Class A)	Excavation in material containing more than 40% volume boulders of size in the range of 0.03-20m ³ , in matrix of soft material or smaller boulder.
Boulder (Class B)	Excavation in material containing more than 40% volume boulders of size in the range of 0.03-20m ³ , in matrix of soft material or smaller boulder, and which require individual drilling and blasting in order to loaded by a tractor type front-end loader or by a by a tractor loader backhoe (TLB)/back acting excavator

The study area is underlain by Quaternary Age *Aeolian* deposits, with stratified layers of: loose, fine- grained and cohesionless sand as a top layer (0-3m depth); soft clayey and silt sand alluvial (3-6m).

Excavations within the fill, hydromorphic soils and *Aeolian* deposits is classified as “SOFT” excavations in terms of SANS 1200 (current version) to depths exceeding 16m. Therefore, for the purpose clearance and excavation for the preparation of construction of coal storage facility infrastructure, these materials can be efficiently ripped by a tractor loader backhoe (TLB) of flywheel power approximately 0.10kW per millimetre of tined bucket width or 65KW powered 4x4 tractor-loader-backhoe (TLB).

11.4.2 Dust fallout control and mitigation of ambient air pollution

The Grindrod Navitrade Facility as expanded by portion 94 Erf 5333 is designed to store 4 grades of coal at the storage capacity of 400,000t maximum stockholding. The type of coal to be stored at the are RB1 and RB3 Bituminous coal. These coals have the following specifications: Calorific Value Basis 5,500 Kcal/kg Ncv; Calorific Value Min 5,300 Kcal/kg Ncv; Total Moisture (arb) 14,0% Max; Volatile Matter (arb) 22,0% Max; Ash (arb) 23.0% Max; Sulphur (arb) 1,0% Max Hgi 45-70; Nominal Topsize 50mm Idt (reducing Atmosphere) Min 1,250° C; Calcium Oxide in Ash (db) 12.0% Max.

The '*Technology Alternatives*' adopted aid in eradicating or reducing the impact of ambient air pollution through effective dust control measures. It is important to note that technology alternatives are linked to the project design as they are also referred to the method of operation. The technologies used are discussed below:

a) Dust suppression through sprinklers

Option 1: The facility will have a pump station facility for dust suppression which will be fitted with fixed dust suppression system. The pressurised fixed sprinklers will be sized to spray water over the entire surface of the pile at specific intervals and quantities to keep just the surface moist. Chemical dust suppression agents will also be added to the sprinkler water supply to enhance wetting and provide some residual effectiveness to reduce total water consumption.

Option 2: The facility will use a mobile dust cannon system. The system uses a trailer-mounted fan-based misting cannon that is fed a water and surfactant mixture from an onboard 1500 litre tank by a 5,5kW pump at approximately 20 litre per minute and is mixed with surfactant by a 10 litre per hour dosing pump. The mixture is then injected through 25 peripheral nozzles into a 7,5kW fan for a fine dispersion over its 40 to 45m range. The unit is fully independent and powered by an onboard 25kVA generator. The unit is designed to rotate 350° to increase its static coverage area.

In this instance however the cannons fan would need to be set perpendicular to the roadways and towed at a slow speed around the stockpiles to cover them with the surfactant mixture.

Calculations indicate that if towed at around 2.2km/hr the rate of application will be identical to the slowest static application rate and the approximately 2.4km can be covered in just over an hour and within the capacity of the on-board 1,500 litre tank.

Option 3: The facility will use a mobile water tanker/bowser. The tanker provides a mobile solution where water is fed to a tanker/bowser that drives around the site.

b) Wind break

The windbreak has been proven as most effective method for mitigation of fugitive dust in certain situations. Therefore, the facility will erect a wind fence perimeter as a control measure to reduce the wind runoff from the site. The wind break will not only to reduce dust in the coal yard but also lessen the wind speeds around unloaders and stockpile area.

There are two options of wind break to be adopted:

Option 1: The Dust Tamer fence which is engineered to cut wind speeds at least in half. The Dust Tamer fence will be erected and pitched above at least 12m height and serve as perimeter fence. The prevailing southerly and northerly winds will be considered as the Dust Tamer fence is ultimately designed to slow air movement over the area of concern to prevent dust from being picked up and carried away.

Option 2: Windbreaks of permeable trees along the perimeter of the facility. However, this will require time to grow as a result the permeable trees can be supported by the Dust Tamer fence as an interim while the trees are still growing, and later be effective when the Dust Tamer is worn out as the time progresses. The most advantages of windbreak of permeable trees such as pine tree is that it creates aesthetical value on the facility, as reduces the visual impact of coal yards.

c) Dust Suppression through surfactant

The select surface-active agents (surfactants) will be used to effectively wet the coal surface during heavy wind conditions. The surfactants form a microscopic liquid film as a means of increasing the adhesion of the coal dust particles to the body of the larger coal pieces.

Apart from the dust suppression the coals can benefit from surfactants as a new class of chemical dust control agent that offers the added benefit of controlling spontaneous combustion.

11.5 Alternative E (No-Go Alternative)

In the absence of the proposed development, the Grindrod Terminal (Pty) Ltd will be unable to optimise the storage capacity at Grindrod Navitrade Facility, thus will not meet the MOA requirement of 370,000t total storage demand, and loss on South African export.

In addition, the applicant will not meet the regional environmental requirement, as the implementation of the expanded Grindrod Navitrade Facility will also cater for handling of a large volume of coal. As a result, the coal from Grindrod Seamunye Facility will not be moved to this Grindrod Navitrade Facility, thus enable the implementation of a concentrated effort to streamline temporary coal storage within proximity of the port of Richards Bay and alleviate pressure of coal stockpiling within industrial complexes in Alton west, Richards Bay (Refer to **Section 10.1& 10 .2**).

The EAP is therefore of the view that the NO-GO option is undesirable in the face of social and economic needs and South Africa's National Development Plan 2030 objectives.

11.6 Preferred Alternatives

The role of alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, or through reducing or avoiding potentially significant negative impacts (DEAT, 2004a).

Although there were no other site alternatives assessed for the '*Alternative A: Location Alternative*' the portion 94 Erf 533 Alton South Richards Bay was considered viable and preferred site, because of its geographical strategical location as it is adjacent to the port of Richards Bay, within area zoned as a Noxious and Harbour Bound (Harbour Arterial), thus offers the competitive advantage for coal storage and logistic solution to the port of Richards Bay within the city of uMhlathuze Municipality.

The '*Alternative B: Site Layout Alternative*' provides for '*Option 3: Mirror Stockyard Layout*' which is based upon an optimised Option 1. This stockyard layout provides sufficient separation between the eastern and northern terraces thus allows for stormwater drainage and future mechanisation in a central servitude, also provides for minimal stockpile height meeting AEL requirement of 20m maximum height. The positioning of the stockpiles is adjudged as being optimal in respect of allowing operations to continue unhindered during the construction phase.

The '*Alternative C: Design Alternative*', provides for the stockpile yard design to cater for four (4) grades of coal to be stored. Storage of four grades will require clearance between stockpiles for product separation allowance, which effectively reduces the storage capacity given a fixed footprint, while meeting the: Grindrod Terminal requirement of 400 000t total storage capacity; MOA requirement of 370,000t total storage demand; and AEL requirement of 20m maximum height. The design for stormwater management provides for balance integrated stormwater management managing both 'clean' and 'dirty' stormwater runoff on site. A provision of augmented PCD system with a combined capacity of approximately 31,000m³, keeps up with the stockyard expansion. All upstream flows including rainfall runoff, spillages and PCD overflow occurrences resulting from 24-hour storm event in 1:50 years are routed into an existing main surface drain channel to PCD. The structural layer works, and barrier design provides mitigation for the groundwater pollution as barrier/layer works requirements as it is the accepted liner beneath the stockyards. The perimeter drains to be compartmentalised into attenuation paddocks linked by means of 200mm uPVC pipework. Each attenuation paddock will be able isolate the stormwater in contact with the coal face contained within the paddock until ready to be released. This design looks at the best design practice which conforms to the Type C requirements, in accordance with Waste Management Regulations for coal material. This includes the barrier design under the stockpiles; and the barrier design under the higher trafficked areas.

The '*Alternative D: Technology Alternatives*', focus on excavations within the fill, hydromorphic soils and Aeolian deposits classified as "SOFT" excavations. Therefore, for the purpose excavation for the preparation of construction of coal storage facility infrastructure, these materials can be efficiently ripped by a tractor loader backhoe (TLB) of flywheel power approximately 0.10kW per millimetre of tined bucket width or 65KW powered 4x4 tractor-loader-backhoe (TLB). In terms of the proposed operation/coal stockpiling, the '*Alternative D:*

Technology Alternatives, provides that the facility will have minimal environmental impact as this alternative proposes that, a dust suppression through: 'Option 1' the pressurised fixed sprinklers will be sized to spray water over the entire surface of the pile at specific intervals and quantities to keep just the surface moist; 'Option 2' the use a mobile dust cannon system; 'Option 3' the use a mobile water tanker/bowser.

The above preferred alternatives cannot be evaluated in isolation as these are interlinked to one another.

12 DESCRIPTION OF BASELINE ENVIRONMENT

This section provides a general description of the status quo of the receiving environment in the project area. This serves to provide the context of the environmental aspects within the project region and site. It is most important to note that the description of a receiving environment forms an integral part of the environmental assessment tool that guides the identification of sensitive environmental features and possible receptors of the effects of the project.

12.1 Climate

The Southern African region is divided into three climatic regions: Wet, dry, and moderate regions. In this regard the KwaZulu Natal encompasses the categories such as humid subtropical (Cfa), oceanic climate (Cfb), hot semi-arid climates (BSh) tropical savanna climate (Aw), subtropical highland oceanic climate (Cwb), but the most prevalent ones are Cfa, Cfb, BSh and Aw (Climate-Data.org). (Climate-Data.org).

In the regional context, the King Cetshwayo District has a temperate climate with winters being very mild and summers that can be hot and humid, with mostly precipitation received during the summer season, and the period between October to March. The mean annual temperature for King Cetshwayo District varies between 21°C along the coast to 16°C inland. The study area in terms of climate data is reference to Richards Bay. The study area lies on 20-40m above mean-sea level (mAMSL), its climate falls under the Aw as is considered a tropical climate and is classified as warm and temperate, with the mean annual temperature of 21.9 °C, and mean annual precipitation of 944mm, mostly experienced during summer and early winter

season (**Figure 8**), but the precipitation is also experienced even in dry season (Ezemvelo KZN Wildlife, 2014; Climate-Data.Org).

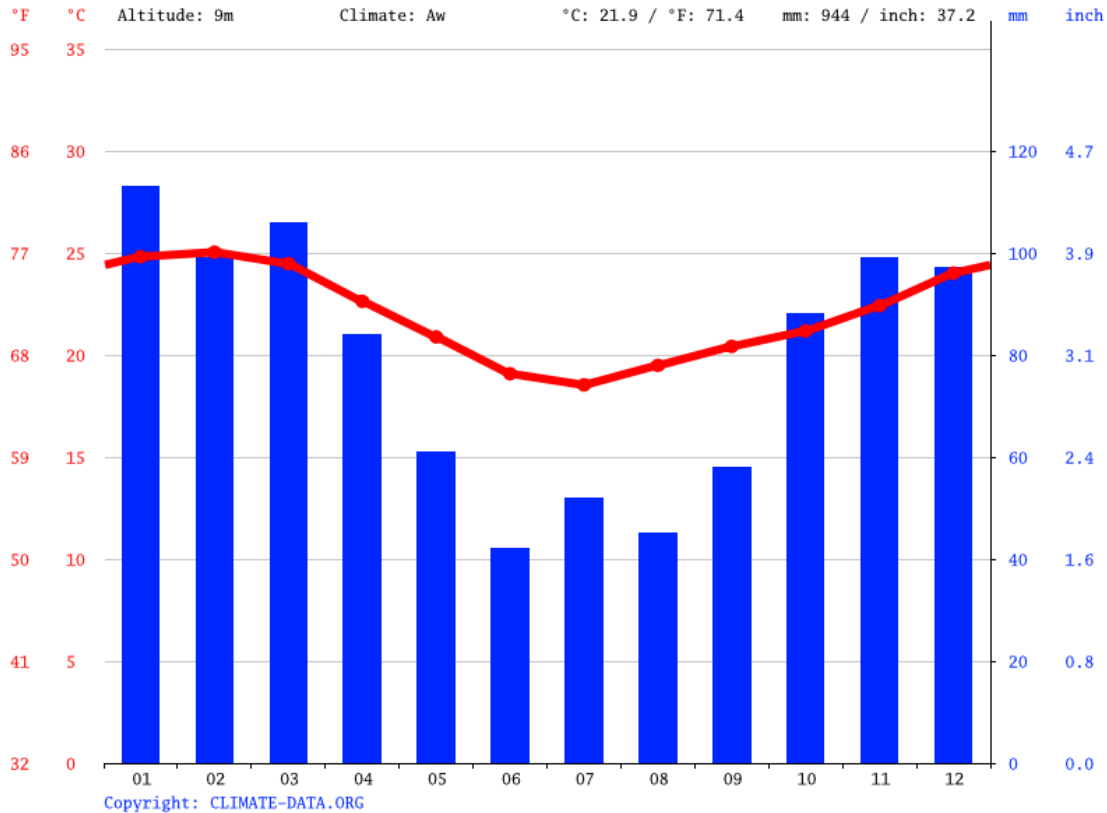


Figure 8: Richards Bay climate graph over a 12-month period [Source: Climate-Data.Org]

Given the above-mentioned climatic trajectory (**Figure 8**), it is inferred that the environmental factors to be taken into consideration with regard to the region’s climatic trends is the runoff from coal stockpile. Coal stockpile management and moisture control are particularly important in regions with heavy precipitation. When the rain falls on a stockpile, it either runs off the surface or infiltrates. The coal stockpile runoff and infiltration depend on factors such as particle size distribution, rainfall intensity, weather conditions, clay mineral content, initial moisture content, and the degree of compaction of the stockpile bed. The infiltrated water can evaporate, drain, or stay within the stockpile (**Figure 9**). The rate of infiltration of water into the coal stockpile and the moisture content of coal stockpile tends to increase during high precipitation, and when the stockpile is not properly managed can even reach saturation levels. Therefore, the coal stockpile design slope, stormwater management and stockpile yard

layer work and barrier must be determined with the intention to minimise the runoff from stockpiling and coal lumping. (Campbell, Roux & Nakhaei, 2021).

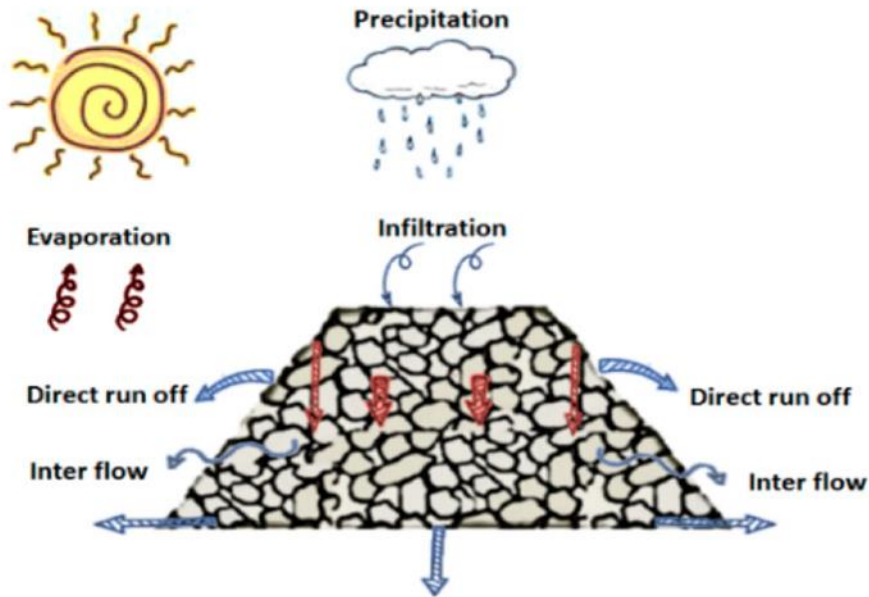


Figure 9: Hydrological cycle of a coal stockpile

[Source: <https://doi.org/10.3390/min11121365>]

It is inferred that the stormwater will be channelled to the PCD and monitoring of the stormwater system *in-situ* must be done constantly to minimise the impact of contaminated water leaving the stockpiling area to adjacent natural sensitive environment, the retention times on stockpiles will also be shortened to minimise accumulation of wastewater from the stockpile.

12.1.1 Potential impact

When the rain falls on a stockpile, it either runs off the surface or infiltrates. The infiltrated water can evaporate, drain, or stay within the stockpile, and the stockpile water can later leave the stockpile through runoff to sensitive environment. Therefore, the operation will have indirect impact be influenced by the regional climatic conditions, as discussed above.

The measures to minimise the impact of the proposed activity as influenced by the climatic conditions, will be assessed further in the EIA phase, through the Geohydrological Impact

Assessment, Geotechnical Assessment, Wetland Impact Assessment, consideration of the stormwater management plan, and the Environmental Management Programme (EMPr).

12.2 Surface Hydrology

The hydrological system comprises an interlinked system of ecosystems such as the headwaters of a river catchment, rivers and wetlands downstream, lakes, groundwater, estuaries, and the marine environment. The hydrological system of King Cetshwayo District form part of primary catchment of Usutu-Mhlathuze Catchment which is drained through several major rivers at the South-Western part of this region. This region is coupled with seasonal small fast flowing streams due to undulating topography. These seasonal streams join and pour to Thukela River which form the Southwestern border of King Cetshwayo District. Furthermore, the region is also in other components of hydrological system, such as wetlands mostly in coastal plains (Ezemvelo KZN Wildlife, 2014).

The study area is located in the Quaternary Catchments W12F, within the Pongola to Mtamvuna Water Management Area (WMA) 4.

The freshwater ecosystem within the King Cetshwayo District comprises diverse rivers, dams and wetlands, as discussed below.

12.2.1 Rivers, Lakes and Dams

In terms of the regional context, the King Cetshwayo District is bordered by Thukela River at the South-West border and Mfolozi River at the North-Eastern border, the river systems in the district are conglomerated within the central and coastal areas, with major rivers within the region, include; Enseleni, Amatikulu, Mhlathuze, Mlalazi, Mfule, Nyalazi, Mzingwenya, Msunduzi and Mfolozi River. Five of these major watercourses, the Thukela, Amatikulu, Enseleni, Msunduzi and Mfolozi are classified as being free flowing rivers. The Goedertrouw dam, is the only major dam within the district, this is an instream dam situated within Mhlathuze River north of Eshowe and is supplemented through Thukela-Mhlathuze Water Transfer Scheme (Ezemvelo KZN Wildlife, 2014).

The freshwater lakes within the district are situated mainly at eastern coastal plains, namely: Cubhu, Nsezi and Mzingazi Lakes. The lake Nsezi drain from Enseleni River and interconnection within Mhlathuze wetland system, the Mhlathuze wetland system host lake Cubhu and riverine wetlands within riparian of Mzingwenya River and tributaries, lake Mzingazi drain from subterranean water from the immediate drainage catchment of Richards Bay and from the Mhlathuze in the north-west and subterranean water from the immediate drainage catchment of Richards Bay and from the Mhlathuze in the north-west. The region has small water bodies classified as lakes and characterised of swamp forests within the Mfolozi area, namely: Lake Nhlabane, Lake Eteza, Lake Mavuya Lake Ozwanini and Lake Igwenyeni within the Kwambonambi (Ezemvelo KZN Wildlife, 2014).

The desktop assessment of the study area provides that the Nseleni River meanders with Mhlathuze River (NFEPA Rivers) at approximately 4km south-west of the study area (**Figure 10**) forming a wetland pan draining to Mhlathuze wetland system and Mhlathuze River later drains to Richards Bay estuarine (port of Richards Bay).

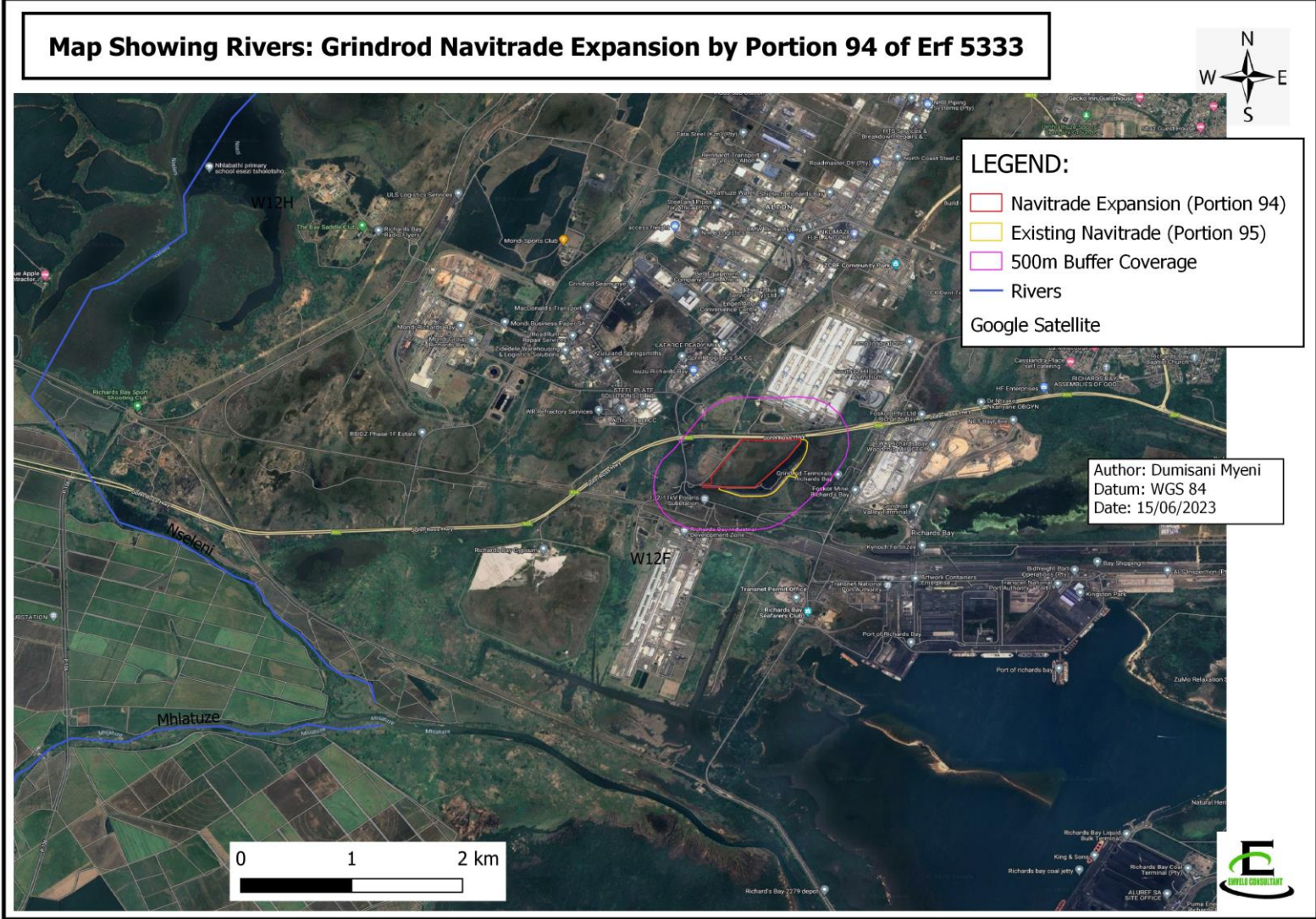


Figure 10: Hydrological context showing rivers

12.2.2 Wetlands

In terms of the regional context the major wetlands systems within the King Cetshwayo District are mainly formed at the coastal plain situated within the at the south-eastern and south-western parts. These wetlands have been drained to make land available for commercial agriculture. The Mhlathuze Wetland System is situated along the coastal plain of Richards Bay at uMhlathuze Municipality. While the Mbongolwane wetland system exist within the uMlalazi Municipality. The coastal plans wetland systems characterised as swamp forest are situated on the north-eastern region at the uMfolozi Municipality (Ezemvelo KZN Wildlife, 2014).

The desktop assessment of this study provides that there is a wetland depression classified as NFEPA within the proposed expansion area, there are also other wetlands systems within 500m coverage of the project area (**Figure 11**). The preliminary infield assessment also identified other wetland features within the study area. The wetland impact assessment will verify the existence of other wetland or geomorphological bodies within the project area.

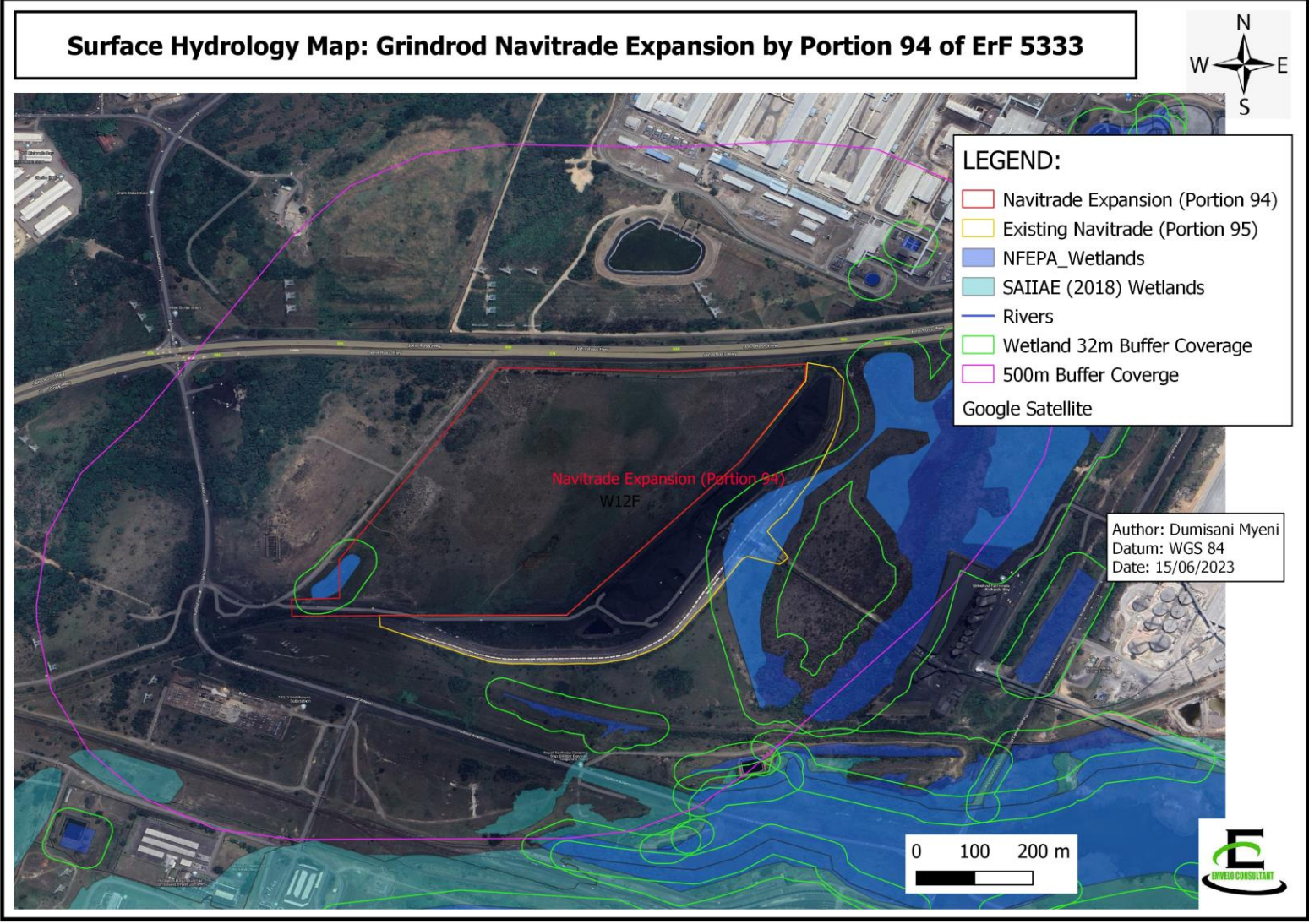


Figure 11: Map showing wetlands with 500m coverage of the study area

12.2.3 Potential impacts of the project surface hydrological features

The potential impact could result when the contaminated water and runoff from the coal facility enter the natural waterbodies such as wetlands, stream and municipal stormwater system. The impact could result in the change in water physicochemical properties, and wetland siltation as a result of coal runoff entering the water bodies. This could be resulted by failure in stormwater management at the coal stockpiling facility. This will be critical for further assessment of all impacts and determine mitigation measures. All mitigation measures will be discussed in the EMPr. Therefore, in order to address the potential impacts as a result of the proposed coal stockpiling facility, it is critical that the Wetland Assessment be conducted, and the wetland delineation be determined as well as provision of risk matrix and mitigation measures which will be incorporated in the Environmental Assessment Impact Report during EIA phase. The stormwater management plan must be developed and implemented.

12.3 Groundwater

The study area is situated within the coastal plains with shallow soils, with localized pockets of soils of variable thickness, with the potential for groundwater seepage. Having located at Mhlathuze coastal plain it is anticipated that the perch water will be encountered in some parts of the study area, and the Existing Groundwater Level (EGL) to be shallow. These hydrological including the aquifer types and characteristics underlying the study area will be assess later during EIA phase through the Geohydrological Impact Assessment. Geohydrological Impact Assessment will be identifying and assessing the potential impacts that the proposed coal stockpiling facility will have on the receiving groundwater environment as well as cumulative impacts. This will involve rating of impact risks and providing mitigation measures where applicable. The mitigation measures will be further discussed in the EIA phase and included in the EMPr.

12.3.1 Potential impacts to groundwater

As discussed in (**Section 12.1**), the potential impacts on groundwater may arise when the runoff from coal stockpile is not managed, as well as if hazardous substances within the coal stockpiling facility are allowed infiltrate and leach into the ground. However, it is inferred that the stormwater will be channelled to the PCD and monitoring of the stormwater system *in-situ* must be done constantly to minimise the impact of contaminated water leaving the stockpiling area to adjacent natural sensitive environment, infiltrating and leaching the to groundwater.

The retention times on stockpiles will also be shortened to minimise accumulation of wastewater from the stockpile.

The measures to minimise the impact of the proposed activity as influenced by the climatic conditions, will be assessed further in the EIA phase, through the Geohydrological Impact Assessment, Geotechnical Assessment, Wetland Impact Assessment, consideration of the stormwater management plan, and the EMP.

12.4 Biomes

At the region context, eight (8) biomes exist within the King Cetshwayo District along strategic locations, namely; Azonal Forest, Forest, Savanna, Fynbos, Grassland, Indian Ocean Coastal Belt, Wetlands and Open Water and contains 47 vegetation types. The Indian Ocean Coastal Belt, Savanna and Forest of endemic Eshowe Mtunzini Hilly Grasslands has a conservation status classified as 'Critically Endangered' (Ezemvelo KZN Wildlife, 2014). The study area within Grindrod Navitrade expansion of portion 95 Erf 533 is overlaid by the Savanna Biome (**Figure 12**).

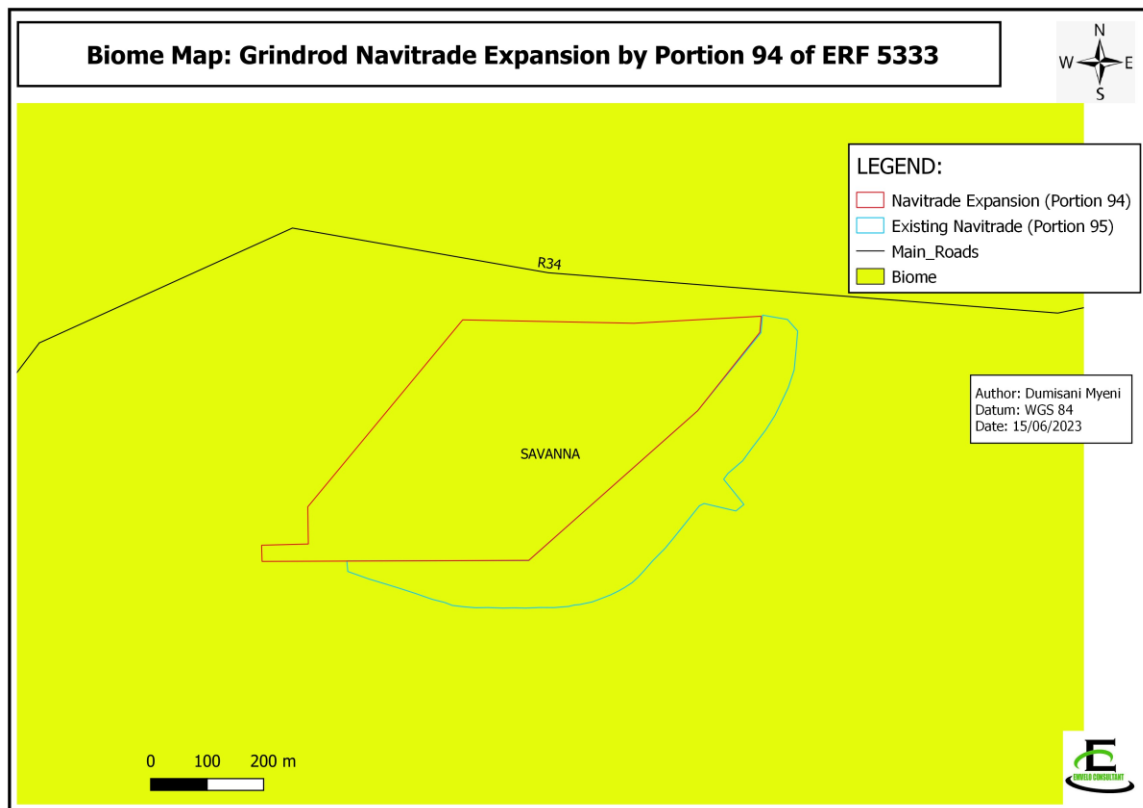


Figure 12: Map Showing the Savanna Biome within project area

12.5 Flora

The regional context herewith discussed as King Cetshwayo District has a very rich vegetation endemic from stratified biomes. The region has the complex forests biomes, favouring the vegetation endemic to geographical and climatic conditions. Namely: The mangrove forest and the Swamp Forest Group Formation endemic to azonal forest biome, and with conservation status classified as “*Critically Endangered*”; The Ngome-Nkandla Scarp, Dukuduku, Moist Coastal Lowlands Forest, Southern Mesic Coastal Lowlands Forest and East Coast Dune Forest, with conservation status classified as “*Critically Endangered*”; The Eastern Mistbelt Forest, Maputaland Mesic Coastal Lowlands Forest, Maputaland Moist Coastal Lowlands Forest, and Maputaland Dune Forest, endemic to forest biome with conservation status classified as “*Endangered*”; The Northern Coastal Scarp Forest classified as “*Least Threatened*”; And the coastal belt endemic to Subtropical Dune Thicket and Subtropical Seashore Vegetation are well protected, and their conservation status classified as “Least Threatened” (Ezemvelo KZN Wildlife, 2014).

The vegetation type with the study area main as depicted by (**Figure 13**) is predominantly: Maputaland Wooded Grassland (*CB2*), ‘*Endangered*’ with (25%) conservation target; Maputaland Coastal Belt (*CB1*), ‘*Vulnerable*’ with (25%) conservation target; Subtropical Freshwater Wetland (Mucina & Rutherford, 2006). However, it is important to note that some parts of the study area are transformed due to infrastructure for existing Navitrade facility.

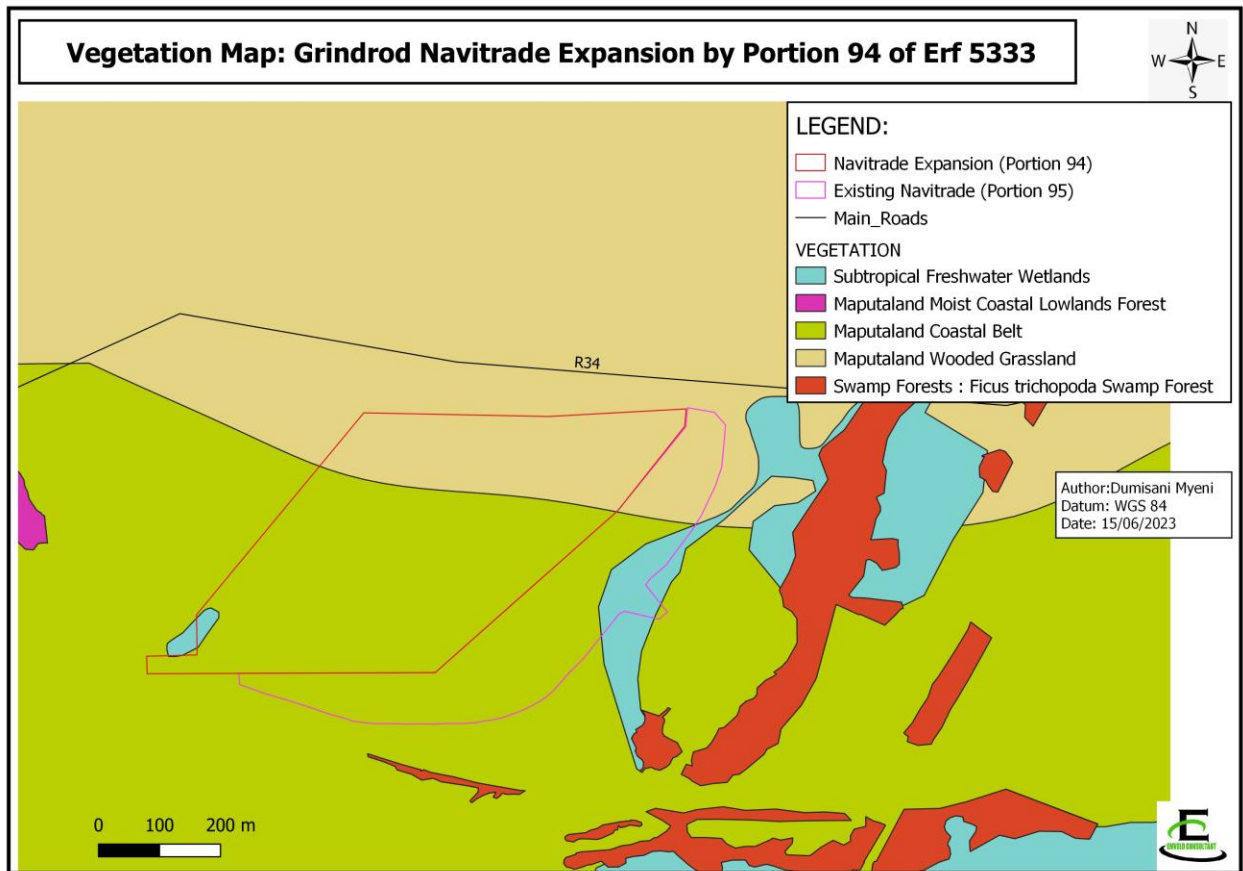


Figure 13: Map showing the vegetation type within the study area

Three (3) discrete habitat types were delineated within the assessment area, namely, wetland, Grassland habitat within CBAs, and transformed habitat (access roads and existing Navitrade Facility). The wetland depression classified as NFEPA within the proposed expansion area. Other wetland features were identified during preliminary infield investigation. The wetland delineation will verify the existence of other wetland or geomorphological bodies within the project area. The site falls within CBA1 and overlain with fragment of Maputaland Coastal Belt, Maputaland Wooded Grassland, and Sub-Tropical Freshwater Wetland Vegetation. The CBA1 is driven by the previous Section 52 of NEMBA Threatened Ecosystems (Kwambonambi Grassland), which the site would historically have been classified as. The vegetation type was subsequently subsumed into Maputaland coastal grassland, which is classified as *'Endangered'*.

The field investigation within the proposed activity corridor did not observe plant Species of Conservation Concern (SCC) within and within the Project Area of Influence (PAOI). However,

further assessment will be undertaken through Terrestrial Biodiversity Impact Assessment during EIA phase.

12.5.1 Potential Impacts to Flora

The potential impacts to vegetation could result from the uncontrolled clearance of vegetation for establishment of the expansion of Grindrod Navitrade.

Moreover, during the operation (storage and transfer of coal) the adjacent receptor experience the dust fallout. This results in a slowing of the rate of biomass growth, which is caused by fading of vegetation. Simultaneously, carbon stored in vegetation is constantly released, weakening vegetation ability to act as a carbon sink.

The assessment of clearance of vegetated areas that support species habitat, and activity operation (storage and transfer of coal) will be conducted through the Terrestrial Biodiversity Impact Assessment and discussed in EIR. Therefore, proper mitigation can be achieved through carefully implementation of recommendations given by the EMPr, and by Terrestrial Ecological Impact Assessment.

12.6 Protected Areas and Biodiversity Sector Plan

The aim of the National Environmental Management: Protected Areas Act (Act No. 57 of 2003) (NEM: PAA) is to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and natural seascapes. The purpose of a Protected Environment is amongst others to protect a specific ecosystem outside a special nature reserve world heritage site or nature reserve and also to ensure the use of the natural resources in the area is sustainable. Protected areas in South Africa are defined as parts of the landscape that are formally protected by law in terms of the NEM: PAA and managed primarily for the purpose of biodiversity conservation.

Within the regional context, the King Cetshwayo District contains a number of formally protected areas (mostly being forest reserves), community conservation areas and game ranches. The Ngoye Forest Reserve contains species which are common in the area but rare in South Africa, Nkandla Forest Reserve consists of a number of forest reserves and has been, throughout the Zulu history a place of mystery, while Dlinza Forest is one of South Africa's prime birding spots. Enseleni Nature Reserve has coastal forest and grasslands with a wide

variety of flora and provides habitat for freshwater species such as hippos and crocodiles. Lake Eteza is home to a number of aquatic birds as is Richards Bay Nature Reserve which has about 300 bird species, including rare migrant species. The Umlalazi Nature Reserve is dominated by forested coastal dunes, mangroves, small lakes and the Mlalazi river lagoon. The estuary also provides a breeding place for several fish species and aquatic creatures. Siyaya Coastal Park is made up of three reserves, two of which fall within the district: Amatikulu and Red Hill Nature Reserves (Ezemvelo KZN Wildlife,2014).

According to SANBI (2011) Threatened Ecosystems, the project development site does not fall within any of the terrestrial threatened ecosystem.

The study area does not fall within any of the formal Protected Areas (PA) and the nearest PAs are situated approximately 4km north of the study are, namely Richards Bay Nature Reserve (**Figure 14**).

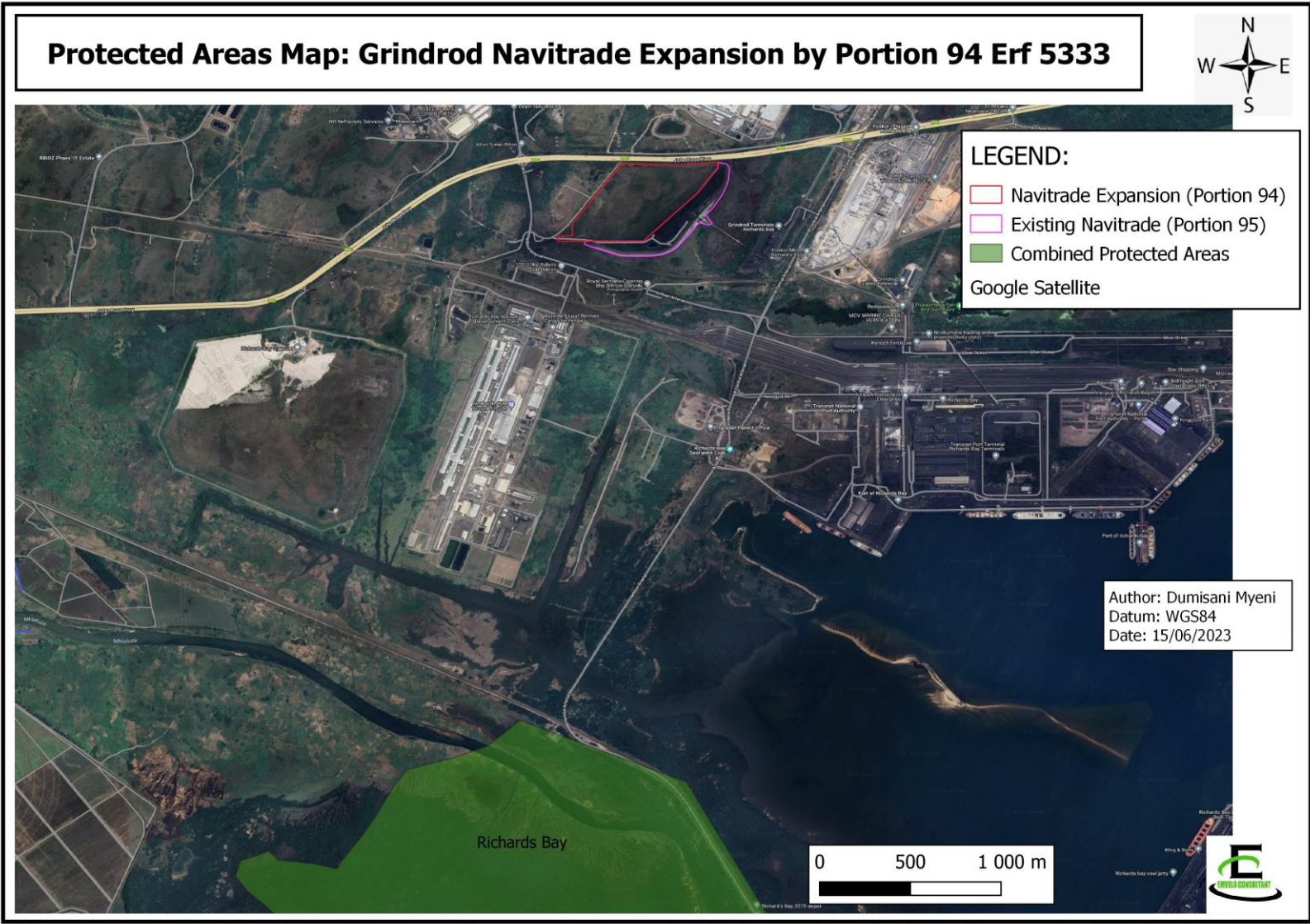


Figure 14: Map Showing Protected Areas

There are two main categories of areas that are required to meet conservation targets. These two main categories include Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). The CBAs are crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets including corridors. The ESAs represent the functionality and not necessarily the entire natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within a Critical Biodiversity Areas (**Refer to table 14**).

It is estimated that threatened ecosystems make up 9.5% of South Africa, with critically endangered and endangered ecosystems accounting for 2.7%, and vulnerable ecosystems 6.8% of the land area. It is therefore vital that Threatened Terrestrial Ecosystems inform proactive and reactive conservation and planning tools, such as Biodiversity Sector Plans, municipal Strategic Environmental Assessments (SEAs) and Environmental Management Frameworks (EMFs), Environmental Impact Assessments (EIAs) and other environmental applications (Mucina *et al.* 2006).

Table 14: Subcategories of CBA and ESAs [Source: Ezemvelo KZN Wildlife,2014]

Critical Biodiversity Areas (CBAs) – Crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets	
Critical Biodiversity Areas: Irreplaceable (CBA1)	Areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems.
Critical Biodiversity Areas: Optimal (CBA2)	Areas that represent an optimised solution to meet the required biodiversity conservation targets while avoiding high-cost areas as much as possible (Category driven primarily by process but is informed by expert input).
Ecological Support Areas (ESAs) – Functional but not necessarily entirely natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within Critical Biodiversity Areas.	
Ecological Support Areas	Functional but not necessarily entirely natural terrestrial or aquatic areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the Critical

	Biodiversity Areas. The area also contributes significantly to the maintenance of Ecosystem Services.
Ecological Support Areas: Species Specific	Terrestrial modified areas that provide a critical support function to a threatened or protected species, for example agricultural land or dams associated with nesting/roosting sites.
Ecological Support Areas: Buffers	Terrestrial areas identified as requiring land-use management guidance not necessarily due to biodiversity prioritisation, but in order to address other legislation/ agreements which the biodiversity sector is mandated to address, e.g., WHS Convention, Triggers Listing Notice criteria, etc.

According to the Ezemvelo KZN Wildlife (2016), the proposed development site fall within the KZN CBA: Irreplaceable Area (CBA1) (**Figure 15**), with no ESA. The CBA1 is driven by the previous Section 52 of NEMBA Threatened Ecosystems (Kwambonambi Grassland), which the site would historically have been classified as. The vegetation type was subsequently subsumed into Maputaland coastal grassland, which is classified as ‘*Endangered*’.

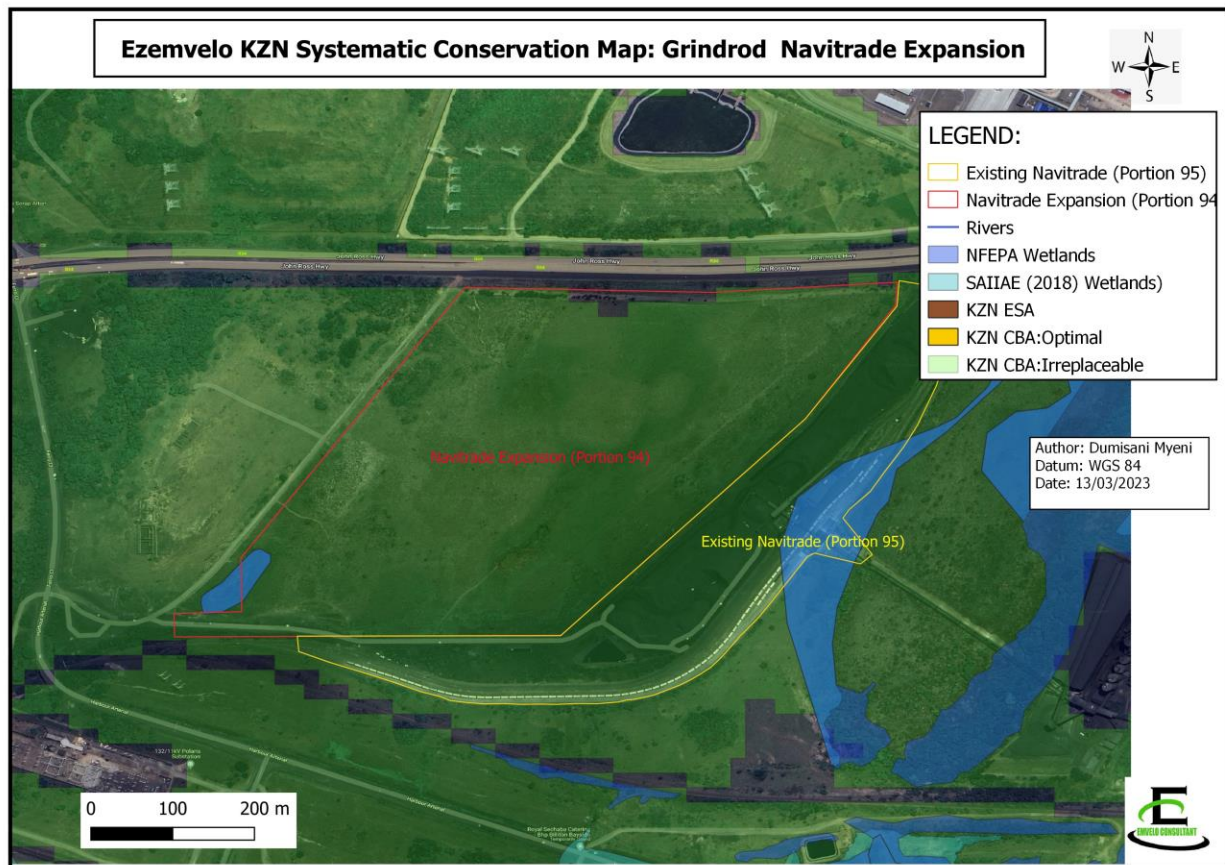


Figure 15: Map Showing CBAs and ESA within the study area

12.6.1 Potential Impacts to Protected Areas and CBAs

Uncontrolled vegetation clearance at project site can lead to fragmentation, reduction, and loss of habitat as well as loss of plant species such as plant SCC. Such habitat fragmentation is likely to loss of plant SCC and red data species.

Moreover, during the operation (storage and transfer of coal) the adjacent receptor experience the dust fallout. This results in a slowing of the rate of biomass growth, which is caused by fading of vegetation. Simultaneously, carbon stored in vegetation is constantly released, weakening vegetation ability to act as a carbon sink.

However, proper mitigation can be achieved through careful implementation of the recommendations given by the EMP, and by Terrestrial Ecological Impact Assessment.

A Terrestrial Ecological Impact Assessment will be conducted and further discussed in the EIA phase. The identification of plant SCC and red data species will be covered in the EIR through the Terrestrial Biodiversity Impact Assessment.

12.7 Fauna

In terms of the regional context, the King Cetshwayo District is amongst the regions with species endemism as a result of Ngoye and, Dlinza and Nkandla Forests. The endemic fauna examples within the region are Dlinza Forest Pinwheel (*Trachycystis clifdeni*) and Discus Pinwheel (*Trachycystis placenta*) snails 'Critical Endangered' which are endemic to Dlinza Forest Nkandla Forest, respectively and both falls under protected areas. In addition, the Dlinza forest houses the significant conservation bird species (Ezemvelo KZN Wildlife, 2014).

The desktop survey interrogated the potential faunal species that could be found on the study area are those which have been recorded in the Quarter Degree Square 2832CC (**Figure 16**) obtained from Fitzpatrick Institute of African Ornithology Virtual Museum (ADU, 2022). The desktop observed the following: The probability of occurrence of 249 bird species, amongst them there were red data species, one (1) classified as '*Critical Endangered*', four (4) '*Endangered*', 10 '*Vulnerable*', with the remaining '*Least Concern*' or not on the red data list; The probability for occurrence of 32 frog species. All classified under red data list as '*Least Concern*'; The probability for occurrence of 309 lepi species, classified as '*Least Concern*' or some not on the red data list; The probability of occurrence of 90 Odonata species. Amongst them there were five (5) red data species classified as '*Vulnerable*', with the remaining '*Least*

Concern' or not on the red data list; The probability of occurrence of 37 reptile species. Amongst them there were two (2) red data species one classified as '*Vulnerable*' and other '*Near Threatened*', with the remaining 'Least Concern' or not on the red data list; The probability of occurrence of 37 reptile species. Amongst them there were two (2) red data species one classified as '*Vulnerable*' and other '*Near Threatened*', with the remaining 'Least Concern' or not on the red data list; The probability of occurrence of 23 mammal species which includes the marine species such as dolphin and whale. For the purpose of his study, we will focus on the terrestrial mammal. Therefore, this region recorded three (3) red data species, two (2) '*Near Threatened*' and one (1) '*Vulnerable*' with the remaining 'Least Concern' or not on the red data list.

The habitats about 4km south of the proposed development site (Richards Bay Nature Reserve) represent a significant breeding, feeding and foraging areas for bird species, and other species.

It is important to note that the above probability of occurrence specify the occurrence within the stratified regions at a larger scale, does not significantly depict the site or study area, at a local scale. Therefore, this does not mean that the above discussion specifically applies to the site but looks at the probability of occurrence per stratified quarter degree region.

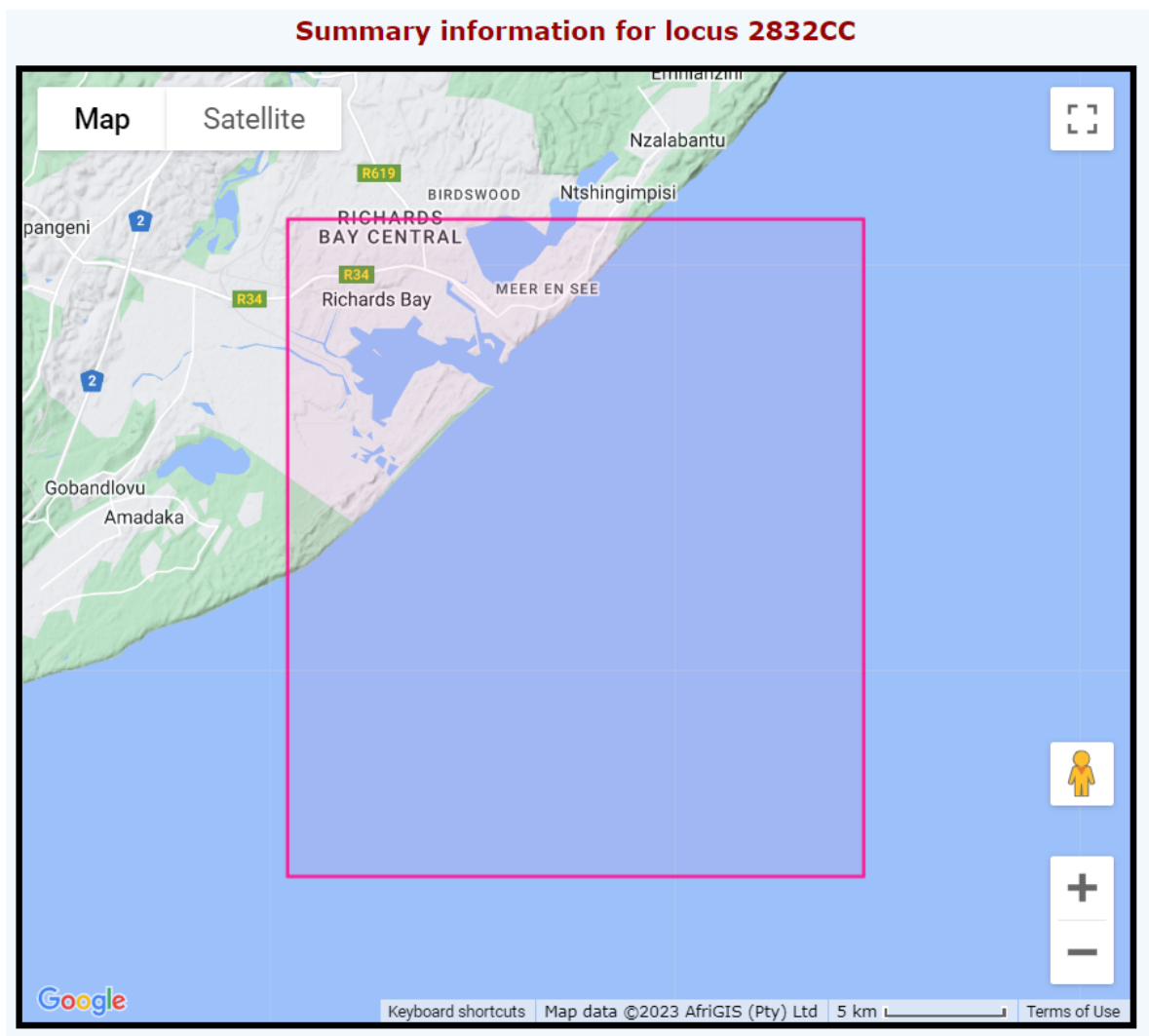


Figure 16: Locality 2832CC Quarter Degree Square [Source: ADU, 2022]

12.7.1 Potential Impacts to Fauna

Uncontrolled vegetation clearance could modify natural integrity of the species habitat, locality fauna disturbance might occur and could led to fragmentation, reduction, and loss of habitat as well as the ecological corridors and connectivity. Uncontrolled construction activities may result in the loss of habitat and permanent loss of unidentified animal SCC.

The dust created by the coal yard could cause a host of problems for wildlife. The potential impact could occur if the dust fallout dispersion reaches the area of species habitat, such as the habitats about 4km south of the proposed development site (Richards Bay Nature Reserve) which represent a significant breeding, feeding and foraging areas for bird species,

and other species. The dust fallout dispersion will be determined during the EIA phase through the Air Quality Impact Assessment. In addition to potentially severe heart and respiratory problems, coal dust can impair the ability of leaves to photosynthesize, and oxidizing coal particles can settle in waterways, reducing the oxygen available for aquatic wildlife. Measures to prevent and mitigate impacts to natural vegetation and wildlife will be explored and described by Air Quality Impact Assessment, Terrestrial Impact Assessment and EMPr during the EIA phase.

12.8 Topography

Within the regional context, the topography of King Cetshwayo District varies extensively, as it extends from the flat coastal plains to inland hilly areas and steep valleys, with each vegetation endemicity supplementary to its geographical location. The district is characterised by the flat coastal and inland hilly region. The topography of coastal regions comprises of the Natal Coastal Belt and Zululand Coastal Plain ranges from approximately 10-450m AMSL. The flat coastal belt forms a plain of a triangle as it broadens wide stretching from Msunduzi River, which is a north-eastern boundary of the district and narrows sharply as it ends at Umlalazi estuary. The Eshowe block and Enseleni block form a transitional between coastal belt and inland as the altitude increases to approximately 900 mAMSL within the terrain transitioning from flat coastal belt to undulating terrain as a result of undulating hills. The altitudes become increasingly high with extremely undulating terrain towards the inland north and west regions of the district such as Nkandla and Melmoth which places those areas within the altitude ranging between 900 and 1400mAMSL in the process render those part of region to be characterized by steeply incised valleys. (Ezemvelo KZN Wildlife, 2014).

The study area is within Richards Bay which lies on the Zululand coastal plain which stretches from the Mlalazi River on the southern end. The study area is characterised by the relatively flat terrain as it lies within coastal belt with flat plain and the altitude between 20 - 40 mAMSL (**Figure 17**). The stockpile footprint to the north and south of the central channel are sloped towards the channel to direct drainage to the channel (surface water as well as stockpile seepage), and the channel is sloped towards the existing and new proposed southern PCDs.



Figure 17: Map Showing Topography of a Study Area

12.8.1 Potential impacts as result of the topography

The Topography impacts could link to soil erosion, and facility functionality in terms of stormwater management. The terrain characteristic such as relatively flat and steep terrain, provides stormwater management challenges in different aspects.

The steep slopes such as hilly terrain renders challenges in terms of erosion and increased run-off propensity compared to gently sloping areas, and relatively flat areas. Whilst the relatively flat terrain such as flat plain offers challenges in terms of channelling the stormwater from the developed areas. Given that the study area is relatively flat, the topography will have impact to stormwater stagnation and perch water contamination, subsequently the leachate from the coal stockpile yard. The study area is relatively flat, therefore will have minimum run-off propensity.

Notwithstanding, the stormwater management plan, and the structural layer works, and barrier design will provide the design the central drainage corridors as a main conveyance for drainage of dirty storm water from the footprint to the PCD area. Therefore, the measures to minimise the impact of the proposed activity as influenced by the flat plain conditions, will be assessed further in the EIA phase, through the Geohydrological Impact Assessment, Geotechnical Assessment, consideration of the stormwater management plan, and the Environmental Management Programme (EMPr).

12.9 Geology

In terms of the regional context, the geological features of King Cetshwayo District are stratified across the regions. The coastal region of the district which is south-west and south-east is characterised of flat plains, which narrows towards south and widened towards north. This part of the district is underlain by *Cainozoic* and recent geomorphological series which include sand stones, shales and mudstones. The soils within the flat coastal belt are extremely permeable and a large portion of rainfall infiltrates into the subsurface. The existence of relatively flat terrain renders this part of the region to be less susceptible to surface erosion. Whereas the western region is characterised of complex undulating terrain underlain by Table Mountain series, gneiss and granite of the Natal *Monocline*. Unlike the coastal region, the granite derived soils in western region vary considerably but significantly susceptible to erosion at slope areas. Moreover, the geological features at central region rise from the formation of

Table Mountain series and also underlain by *Ecca* Group Formation, granite, sandstone, shales and limestones. The *Ecca* Group are susceptible to slight to moderate erosion whilst the Table Mountain series is moderate to severe erosion (Ezemvelo KZN Wildlife, 2014).

The study area lies within coastal plain with the dominance geological formation of Sand (**Figure 18**). The Richards Bay coastal plain is underlain by Quaternary Age Aeolian deposits, with stratified layers of: loose, fine- grained and cohesionless sand as a top layer (0-3m depth); soft clayey and silt sand alluvial (3-6m). Quaternary sands such as those found in the local area are described by Kruseman and De Ridder (2000) as having a hydraulic conductivity between 0.1 m/day for the clay to 5 m/day for fine sand.

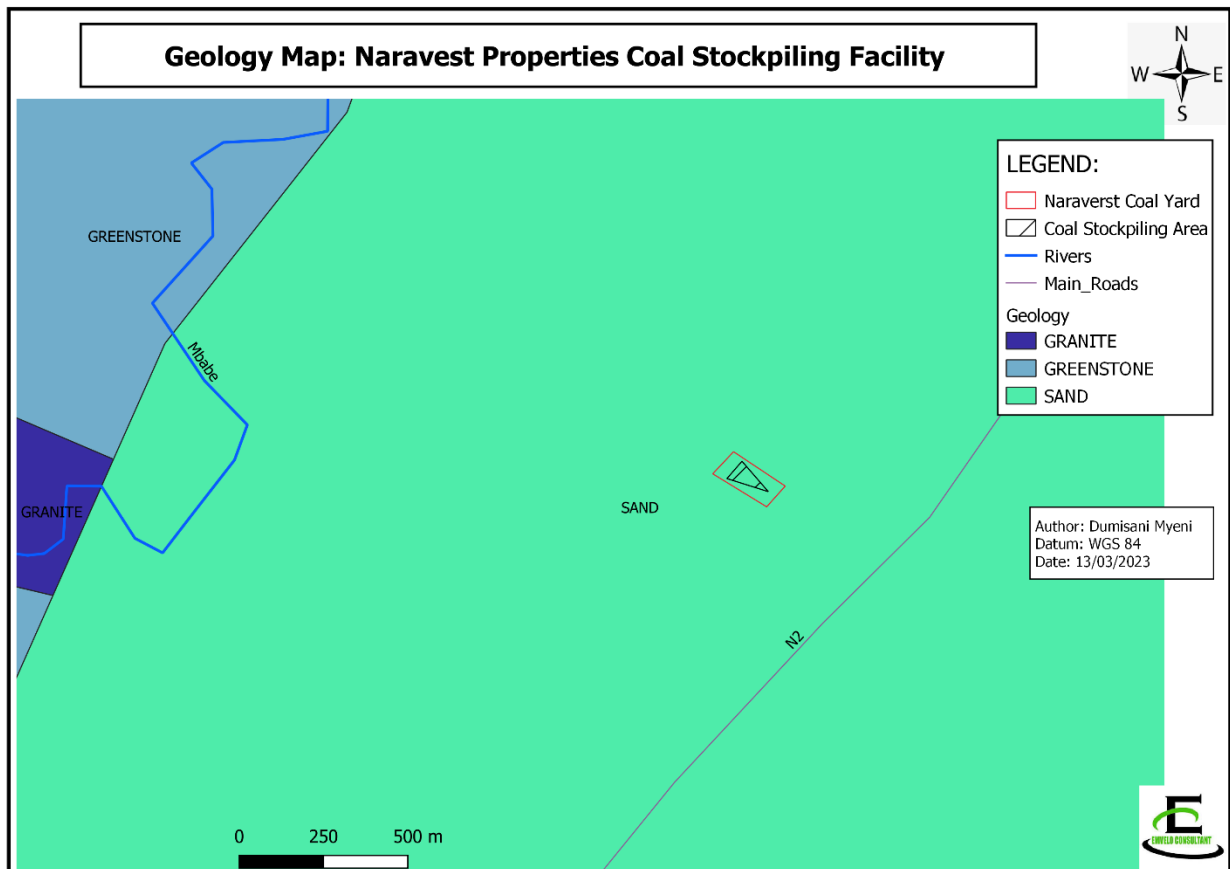


Figure 18: Map Showing Geology of a Study Area

12.9.1 Potential impacts

The existence of relatively flat terrain renders this part of the region to be less susceptible to surface erosion, thus provide less erosion and run-off propensity as a result of earthworks. Moreover, Excavations within the fill, hydromorphic soils and Aeolian deposits will classify as “SOFT” excavations. Thus, offer convenient earthworks for a site preparation.

The soils within the flat coastal belt are extremely permeable and a large portion of rainfall infiltrates into the subsurface, with ground water recharge of approximately 18%. The sandy soils (and particularly coarser grained horizons) underlying the study area would be expected to be highly permeable with the clay layers less so. Thus, provides the potential impacts on groundwater may arise when the runoff from coal stockpile is not managed, as well as if hazardous substances within the coal stockpiling facility are allowed infiltrate and leach into the ground. However, it is inferred that the stormwater will be channelled to the PCD and monitoring of the stormwater system in-situ must be done constantly to minimise the impact of contaminated water leaving the stockpiling area to adjacent natural sensitive environment, infiltrating and leaching to groundwater. The retention times on stockpiles will also be shortened to minimise accumulation of wastewater from the stockpile.

The measures to minimise the impact of the proposed activity as influenced by the climatic conditions, will be assessed further in the EIA phase, through the Geohydrological Impact Assessment, Geotechnical Assessment, Wetland Impact Assessment, consideration of the stormwater management plan, and the EMP.

12.10 Visual environment and land use character

Subject to the direct visual influence of the *Grindrod Navitrade expansion by portion 94 Erf 5333* and associated infrastructure, the zone of visual influence can be experienced at different scales by receptors located at various distances from the site. The viewshed area and zone of visual influence for new developments is classified as follows:

- High visibility - Visible from a large area (several square kilometres, >5km radius)
- Moderate visibility - Visible from an intermediate area (several hectares, 2.5 – 5 km radius).
- Low visibility - Visible from a small area around the project site (<1km radius).

Visual exposure is based on distance from the project to selected viewpoints. Visual exposure or visual impact tends to diminish exponentially with distance.

Standard criteria such as geographic view shed and viewing distance, as well as qualitative criteria such as importance to surrounding land users and compatibility with the existing landscape are critical component to determining the visual characteristics of the proposed development/activity, as depicted in (**Figure 2**) locality map.

Three (3) discrete habitat types were delineated within the assessment area, namely, wetland, Grassland habitat within CBAs, and transformed habitat (access roads and existing Navitrade Facility). The proposed infrastructure will be concentrated adjacent to existing developed area, for expansion of Grindrod Navitrade Facility. The proposed development/activities are within located within the Alton South area zoned as a Noxious and Harbour Bound (Harbour Arterial). The study area is primarily surrounded by industries. Therefore, will be considered to have 'Low visibility' as the proposed expansion will be concentrated adjacent to existing coal stockyard facility (**Figure 19**). Furthermore, the site is adjacent to other coal storage facilities.

However, it is important to note that the coal dust emissions can affect amenity, and predominantly comprises coarse dust particles (dust fall) of particle size generally between 50 and 200 microns in diameter. As coal dust is black in colour, it is generally visible within a fallout dispersion.



Figure 19: Visual Characteristics of the proposed site.

12.10.1 Potential Impacts

The proposed development/activities are within located within the Alton South area zoned as a Noxious and Harbour Bound (Harbour Arterial). The study area is primarily surrounded by industries. Therefore, will be considered to have '*Low visibility*' as the proposed expansion will be concentrated adjacent to existing coal stockyard facility. The dust and other visibility aspects will be managed through proper implementation of recommendations provided by EMP_r during the EIA phase.

12.11 Heritage, cultural and palaeontological aspects

Richards Bay began as a makeshift harbour that was set up by the Commodore of the Cape, Sir Frederick Richards during the Anglo-Zulu War of 1879. In 1935 the Richards Bay Game Sanctuary was created to protect the ecology around the lagoon and later by 1943 it expanded into the Richards Bay Park. The town was laid out on the shores of the lagoon in 1954 and proclaimed a town in 1969. By the early 1950s, in the wake of burgeoning South African industrial expansion the Chamber of Mines identified that there was a vast potential for South Africa's raw materials, provided adequate rail and port facilities capable of accommodating large vessels were available. Then South African Government decided in 1965 to build a deep-sea harbour at Richards Bay. Construction work began in 1972 and four years later, on 1 April 1976, the new harbour was opened. The residential area of Richards Bay developed

north of the harbour. Meerensee, started in 1970 and was the first suburb for the town. It was followed by Arboretum in 1975 and Veldenvlei in 1980. All three suburbs catered exclusively for whites in accordance with then existing laws of apartheid. A township for Blacks was developed at Esikhawini fifteen kilometres south of Richards Bay. Residential areas for Indians and people of mixed blood were opened after 1985 west of Veldenvlei (Ethembeni Cultural Heritage, 2013).

Archaeological and Cultural Heritage assessment is not considered viable the site has a low sensitivity theme, as depicted by Environmental Screening Tool (**Figure 20**).

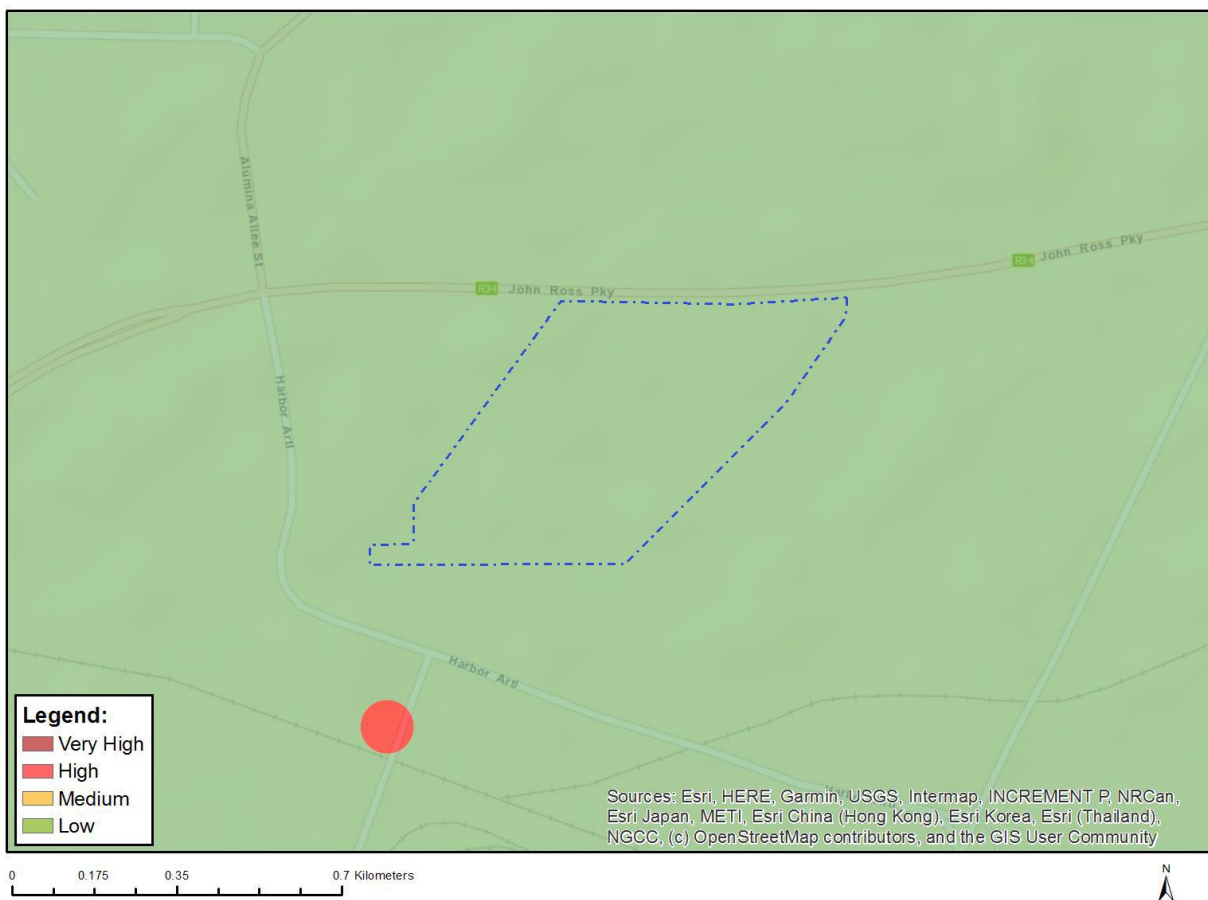


Figure 20: Archaeological and Cultural Heritage Sensitivity Theme

The SAHRIS palaeosensitivity provides that, the **Red**, 'Very High' - field assessment and protocol for finds is required; **Orange/yellow**, 'High'- desktop study is required and based on the outcome of the desktop study, a field assessment is likely; **Green**, 'Moderate' - desktop study is required; **Blue**, 'Low' - no palaeontological studies are required however a protocol

for finds is required; **Grey**, 'Insignificant/Zero' - no palaeontological studies are required; **White/Clear**, 'Unknown' - these areas will require a minimum of a desktop study. As more information comes to light.

A preliminary desktop study for palaeontological fossils sensitivity of the proposed site, reveals that the site falls within a 'Insignificant/Zero' paleontological sensitivity, as result a field assessment is not required for this study (**Figure 21**). Moreover, the environmental screening tool also describe that the section of the study area as having 'Low' paleontological sensitivity and a 'Low' archaeological and cultural heritage sensitivity.

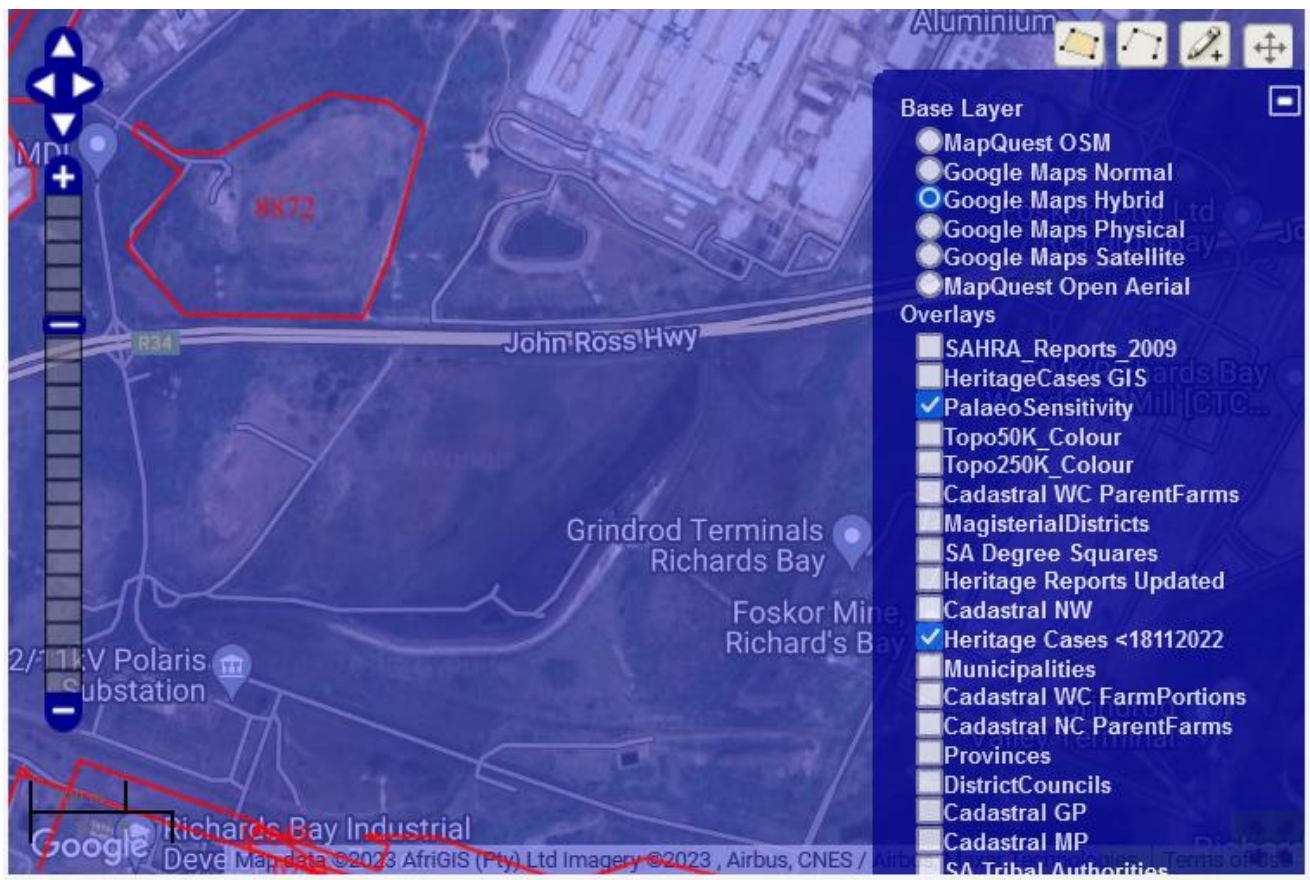


Figure 21: Palaeontological Sensitivity of the study area

[Source: <https://sahris.sahra.org.za/node/add/heritage-cases>]

12.11.1 Potential Impacts

During the clearing of vegetation, and excavation and construction activities, heritage resources/artefacts/places that might be buried underground may be affected. Moreover, Given the history and nature of the environment it is unlikely that traditional burial places occur. However, excavations (construction phase) could uncover the artefacts of heritage significant.

The impacts on heritage aspects will be managed through proper implementation of recommendations provided by EMPr during the EIA phase.

12.12 Socio-economic Aspects

According to the South African Coal Sector Report by Department of Energy, the coal plays an important role in the South African economy, and Richards Bay Port is considered the main coal export port. The coal transportation which includes transfer stockyards contributes to economy through employment creation and services offered by local suppliers.

According to Grindrod Terminal (Pty) Ltd, the Anticipated CAPEX value of the project on completion will be R300m. There are hundreds of employment opportunities for skilled and unskilled (combined) which will be created during the construction phase, 250 employment opportunities for skilled and skilled (combined) during operational phase after expansion of Navitrade Facility. It is therefore expected that the local community will benefit through jobs during the construction, operation, and maintenance phase, which will enable the transfer of skills and boost the local economy. Additionally, local businesses will benefit from the supply chain processes.

12.12.1 Potential Impacts

The proposed development/activities are within located within the Alton South area zoned as a Noxious and Harbour Bound (Harbour Arterial). The study area is primarily surrounded by industries. There, is no anticipated negative impact with regard to socio-economic aspects. Notwithstanding, the findings and recommendation will be discussed in the EIA Phase.

12.13 Environmental Health Aspects

Coal terminal operations are environmentally relevant activities and operate under environmental authorities conditioned by the AQA. Each environmental authority imposes conditions to manage and mitigate the coal dust emissions produced during operations at coal terminals. The environmental health effects are mainly associated with exposure to elevated levels of fine particles PM_{10} , particles of less than 10 microns in diameter (one micron equals one-millionth of a metre), as coal terminals (coal yards) emits fallout dust. The coal dust emissions can affect amenity, and predominantly comprises coarse dust particles (dust fall) of particle size generally between 50 and 200 microns in diameter. As coal dust is black in colour, it is generally highly visible. It is these dark visible dust particles that can cause nuisance due to soiling of property, surfaces and washing. The fine particle (PM_{10}) composition of coal dust is generally quite low.

Coal stockpiles emit fine particulate pollution in several ways. First, wind blowing over uncovered coal stockpiles results in fugitive coal dust emissions that are a source of PM^{10} or less particles. Second, coal stockpiles emit volatile gases that can also lead to formation of $PM_{2.5}$. Finally, when coal is delivered to the terminal or hauling from the terminal (stockyard), it goes through a lot of handling.

The potential impact could result when the contaminated water and runoff from the coal facility enter the natural waterbodies such as wetlands, stream and municipal stormwater system. The impact could result in the change in water physicochemical properties, and wetland siltation as a result of coal runoff entering the water bodies. It is inferred that the stormwater will be channelled to the PCD and monitoring of the stormwater system in-situ must be done constantly to minimise the impact of contaminated water leaving the stockpiling area to adjacent natural sensitive environment, the retention times on stockpiles will also be shortened to minimise accumulation of wastewater from the stockpile.

Having considered the above discussion, the facility design and EIA alternatives provides for the following: Design for dust fallout control; Structural layer works and barrier design (**Section 11.3**); Dust fallout control and mitigation of ambient air pollution (**Section 11.4.2**); and Design for Stormwater Management (**Section 4.1.2**).

12.13.1 Potential Impacts to Environmental Health

The coal's environmental impacts are a shared concern. The local environmental hazards of coal vary from place to place. While some communities are most affected by air pollution from coal yards (coal terminals), others endure toxic groundwater as a result of leachate from stockyard.

The coal stockpile facility has direct impact terms of pollutant exposure during source-pathway-receptor (exposure pathways) from pollutants dispersion, as the environmental receptors (individual and population at risk) will be exposed to air pollution. With the dust fallout fugitive dust emission contains particulate matter and contain other contaminants, based on the source of the dust.

As discussed in (**Section 12.1**), the potential impacts on groundwater may arise when the runoff from coal stockpile is not managed, as well as if hazardous substances within the coal stockpiling facility are allowed infiltrate and leach into the ground. However, it is inferred that the stormwater will be channelled to the PCD and monitoring of the stormwater system in-situ must be done constantly to minimise the impact of contaminated water leaving the stockpiling area to adjacent natural sensitive environment, infiltrating and leaching the to groundwater.

The Environment Health impacts will be managed through proper implementation of recommendations provided by Air Quality Impact Assessment, Geohydrological Impact Assessment, Geotechnical Assessment, and EMP_r during the EIA phase.

12.14 Traffic

The Grindrod Navitrade Facility receive coal by train and trucks. For optimal train movement the yard entrance gathers at Navitrade Facility will be redesigned to extend track 5 to allow for staging of complete 75-wagon empty rock phosphate train after tipping (745m clear length). This will free up the tracks currently often blocked by the split-up rock phosphate train and thereby allow more capacity for coal trains. The Transnet Freight Rail (TFR) is undertaking to extend Bhizolo yard in order to function as an exchange facility for Navitrade (and other customers). The extended yard will allow train consolidation/breakup to move away from the Nsezi Shunting facility. Therefore, for this operation Grindrod will shunt locomotives, of at least 115t, will be required to haul up to 50 loaded coal wagons from Bhizolo to Navitrade.

Once a complete train has been offloaded the empty wagons will be shunted to Bhizolo as a single consist.

The coal tipper trucks from Mpumalanga and KZN mines exit N2 to Richards Bay and join R34. The Navitrade Facility located on the southern side of R3 (John Ross Highway) and accessed by Ferrio and Harbour Arterial Road towards the Port of Richards Bay. The facility access road is a dirty road on the turn left at approximately 500m from the traffic lights, the Grindrod Navitrade site is straight at approximately 200m. The 200m access road will comprise of a 6m wide, 200mm thick, gravel wearing course compacted to 95%mod AASHTO.

There are two intersections to be directly affected, namely: R34/ Ferrio and Harbour Arterial Road; and the Ferrio and Harbour Arterial Road/ access road to Grindrod Navitrade Facility. The Grindrod Navitrade Facility with an inclusion of proposed expansion receive between 40-80 tipper trucks for coal deliveries per day (24hr) for augmentation or supplement of the coal deliveries by the trains to the coal yard facility. These trucks use the above-mentioned intersections.

12.14.1 Potential Impacts

The Local communities, road users, and vehicles will share the interception with 34-ton side tipper trucks, as these trucks will utilise the intersection of R34/ Ferrio and Harbour Arterial Road. Notwithstanding, a Traffic Impact Assessment will be conducted during EIA. The traffic impact will be managed through proper implementation of recommendations provided by Traffic Impact Assessment, and EMPr during the EIA phase.

13 AIR POLLUTION

The Grindrod Navitrade Facility as expanded by portion 94 Erf 5333 is designed to store 4 grades of coal at the storage capacity of 400,000t maximum stockholding. The type of coal to be stored at the are RB1 and RB3 Bituminous coal. These coals have the following specifications: Calorific Value Basis 5,500 Kcal/kg Ncv; Calorific Value Min 5,300 Kcal/kg Ncv; Total Moisture (arb) 14,0% Max; Volatile Matter (arb) 22,0% Max; Ash (arb) 23.0% Max; Sulphur (arb) 1,0% Max Hgi 45-70; Nominal Topsize 50mm Idt (reducing Atmosphere) Min 1,250° C; Carlum Oxide in Ash (db) 12.0% Max. The activity contributes to dust fallout

consisting of coal compounds (pollutants) emitted during operation. The local environment and atmosphere are the direct recipient of air pollution from the coal terminal's operation.

The DFFE has published a list of activities which result in atmospheric emissions that require authorisation. The coal handling and storage is listed as 'Category 5, Sub-category 5.1' of NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015. "*Storage and handling of ore and coal not situated on the premises of a mine or works as defined in the Mines Health and Safety Act 29 of 1996. Application: Locations Designed to hold more than 100 000 tons*".

The facility will use the following options for dust fallout management, adopted in eradicating or reducing the impact of ambient air pollution through effective dust control measures. Dust suppression through: sprinklers (pressurised fixed sprinklers system); mobile dust cannon system; mobile water tanker/bowser, and Dust Suppression through surfactant agents. Fugitive dust containment through wind break as perimeter fence such as: Dust Tamer fence is engineered to cut wind speeds at least in half; and windbreaks of permeable trees along the perimeter of the facility (**Section 11.4.2**).

The air pollution as a result of coal storage yard is generated from two primary sources, either windblown dust from stockpiling area, or dust generated by facility activities. Periods of high dust emissions usually relate to periods of high wind speeds, especially when the wind speed exceeds 40km/h. The primary wind directions in Richards Bay are generally from the south and north in summer and spring, that of cold front during winter and autumn from the south. The prevailing high speed southerly winds are experienced during July and August, this period could be classified as a Short-Term Episodic Events period on the coal yard facility.

The coal stockpile facility has direct impact in terms of pollutant exposure during source-pathway-receptor (exposure pathways) from pollutants dispersion, as the environmental receptors (individual and population at risk) will be exposed to air pollution, with the dust fallout fugitive emission containing particulate matter and other contaminants based on the source of the dust. These will be investigated further through Air Quality Impact Assessment in EIA phase.

13.1.1 Potential Impact

The Grindrod Navitrade has direct impact in terms of pollutant exposure during source-pathway-receptor (exposure pathways) from pollutants dispersion, as the environmental receptors (individual and population at risk) will be exposed to air pollution as a result of coal dust fallout.

Air pollution is known to negatively impact cardiovascular health. The mechanisms have not been definitively identified, but studies in both animals and humans suggest they are the same as those for respiratory disease: pulmonary inflammation and oxidative stress.

The Air Quality Impact Assessment will be undertaken during EIA, and the measures to regulate the Grindrod Navitrade Facility activities that result in atmospheric emissions and fugitive dust will be described in Air Quality Report and outlined in EMPr.

14 WASTE

The Grindrod Navitrade Facility general waste in the form of general waste, hazardous waste in small volume, and health care (medical) waste (HCW) which emanates from medical treatment, or first aid rendered on site after an injury on duty.

The waste is temporary stored on an impervious surface and under a sheltered area within the facility in separate waste skips. General, hazardous and HCW are separated and are collected by a nominated certified waste service provider. The volume of waste that is temporarily stored currently does not exceed 100m³ per month. The hazardous waste streams include; Metal paint containers, oil contaminated waste/ oily rags, rubber waste/ conveyor belts, batteries; fluorescent tubes, tyres, and used oil, these wastes are collected by a certified service provider and disposed of at certified sites. Domestic waste/ General includes spoiled foods and packaging, and other general refuse are disposed of at King Cetshwayo Landfill. Effluent waste includes contaminated water and is treated at Alton Macerator. The coal slurry and coal sweepings are added to the lower grade coal. Medical waste includes waste from first aid rendered on site after an injury on duty, and dust mask (PPE). These are collected by a certified service provider and dispose of at registered landfill.

14.1.1 Wastewater

When the rain falls on a stockpile, it either runs off the surface or infiltrates. The infiltrated water can evaporate, drain, or stay within the stockpile. Therefore, the coal stockpile design slope, stormwater management and stockpile yard layer work and barrier must be determined with the intention to minimise the runoff from stockpiling and coal lumping.

The design for stormwater management provides for balance integrated stormwater management managing both 'clean' and 'dirty' stormwater runoff on site. To maintain clean and dirty stormwater separation, cut-off drains are provided on the perimeter of the stockyard, pollution control dams and road/rail infrastructure to direct clean runoff into the existing surface drainage system.

Measures to mitigate the impact related to waste will be discussed during EIA and a Waste Management Plan will be developed as part of the EMPr.

14.1.2 Potential Impacts

The incorrect handling and disposal of hazardous waste (lubricants, fuel, chemicals, coal slurry, *inter alia*) could have detrimental impacts on nearby watercourses.

Potential impacts on groundwater may arise if hazardous substances are allowed to leak onto bare soil and potentially leach into the ground or disposed of incorrectly.

The potential impact could result when the contaminated water and runoff from the coal facility enter the natural waterbodies such as wetlands, stream and municipal stormwater system. This will be critical for further assessment of all impacts and determine mitigation measures, during EIA Phase. All mitigation measures will be discussed in the EMPr.

15 NOISE

The entire study area emits different levels of noise due to the various industrial activities. The noise from Grindrod Navitrade Facility is streamlined to the baseline environment, as a coal storage facility is located within the Alton South area zoned as a Noxious and Harbour Bound (Harbour Arterial). Moreover, it is located adjacent to the port of Richards Bay, thus streamlining with adjacent facilities, occupying the Harbour Arterial. In addition, sources of noise in the general surrounding area include noise generated by traffic utilising all the streets adjacent to site.

15.1.1 Potential Impacts

The project site will emit different levels of noise due to the various activities. The noise generated by the operations within Grindrod Navitrade are significantly muffled due to most other activities taking place within the Harbour Arterial zoned area. Additionally, it is not likely that the facility noise levels will exceed the ambient noise levels given all the other noisy activities in the area. Proper measures will be described in the EMP to contain any potential noise pollution impacts that may occur.

16 WATER USE AND SANITATION

Water supply:

The project is for an expansion of Grindrod Navitrade Facility. Therefore, water provision is made from the existing facility.

Sewer Facilities:

The project is for an expansion of Grindrod Navitrade Facility. Therefore, sewer provision is made from the existing facility.

17 EXISTING SERVICES

The Navitrade site is constrained on its eastern boundary by the existing rail yard, on the northern end by the John Ross Highway, and it naturally slopes towards the south where the pollution control system terminates. For the purpose of this study the vacant land towards the west is referred to as the Grindrod Navitrade property. It is onto this land that an expanded footprint is proposed.

Two installed pipelines owned by South32 would be impacted with this footprint. The first is an unused underground HDPE pipe installed on the boundary between the Navitrade Portion 95 and portion 94 properties. The second is an in-service asbestos pipe installed diagonally across the portion 94 Erf 5333, the proposed expansion site. Therefore, Grindrod Terminal (Pty) Ltd has engagement with South 32 for relocation of pipelines and allocate new pipeline servitude within the portion 94 Erf 5333.

18 IDENTIFICATION OF POTENTIAL IMPACTS

The Scoping is a critical step in the EIA process, as it identifies significant issues that require further investigation as well as identifying the preferred site/s and technologies that will go through for further investigation. These issues will be carried forward into the EIA phase and subsequently in the EMPr.

This section seeks to provide an overview of the environmental issues to be further investigated or prioritized during an EIA phase and the methodology to be used when assessing those impacts. This allows for a more efficient and focused impact assessment in the EIA phase, where the analysis is focused on significant issues and reasonable alternatives.

18.1 Environmental sensitivity for potential alternatives

The qualitative sensitivity exercise for the proposed alternatives involves the use of preliminary desktop studies, DFFE environmental screening tool, environmental GIS assessment, and site sensitivity verification through preliminary field assessment covering the following themes:

Table 15: Environmental sensitivity for potential alternatives

#	Attribute	Component
1	Biophysical Environment	<ul style="list-style-type: none"> • Biodiversity (flora& fauna) • Hydrological features (surface and ground); • Geological stability • Topography
2	Social	<ul style="list-style-type: none"> • Traffic

		<ul style="list-style-type: none"> • Environmental Health • Noise pollution • Visual Impact • Archaeological, cultural and heritage Aspects • Palaeontological Aspects
3	Other Aspects	<ul style="list-style-type: none"> • Air Pollution • Pollution and Waste • Damage to existing infrastructure.

18.2 Environmental Impact Significance

The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER). The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and Reversibility (R) applicable to the specific impact.

For the purpose of this methodology the consequence of the impact is represented by:

$$\text{Consequence (C)} = \frac{[\text{Extent (E)} + \text{Duration (D)} + \text{Reversibility (R)}] \times \text{Nature (N)}}{4}$$

$$\mathbf{C = \frac{(E + D + M + R) \times N}{4}}$$

Each individual aspect in the determination of the consequence is represented by a rating scale as defined in (**Table 16**) below.

Table 16: Criteria for Determining Impact Consequence

Aspect	Score	Definition
Nature	-1	Likely to result in a negative/ detrimental impact
	+1	Likely to result in a positive/ beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary)
	3	Local (i.e. the area within 5 km of the site)
	4	Regional (i.e. extends between 5 and 50 km from the site)
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years)
	3	Medium term (6-15 years)
	4	Long term (15-65 years), after the operational life span of the project)
	5	Permanent (>65 years), no mitigation measure of natural process will reduce the impact after construction)
Magnitude	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected)
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected)
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way, moderate improvement for positive impacts)
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease, high improvement for positive impacts)
	5	Very high / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease, substantial improvement for positive impacts)
Reversibility	1	Impact is reversible without any time and cost.
	2	Impact is reversible without incurring significant time and cost.
	3	Impact is reversible only by incurring significant time and cost.
	4	Impact is reversible only by incurring prohibitively high time and cost.
	5	Irreversible Impact.

Once the C has been determined, the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P. Probability is rated/ scored as per (**Table 17**) below.

Table 17: Probability Scoring.

Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%)
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%)
	3	Medium probability (the impact may occur; >50% and <75%),
	4	High probability (it is most likely that the impact will occur- > 75% probability)
	5	Definite (the impact will occur),

The result is a qualitative representation of relative ER associated with the impact. ER is therefore calculated as follows:

$$ER = C \times P$$

Table 18: Determination of Environmental Risk.

Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	2	4	5
		Probability				

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/mitigated.

Table 19: Final Environmental Significance Rating

Significance Rating	Description
<-17	High negative (i.e. where the impact must have an influence on the decision process to develop in the area).
≥-17, ≤-9	Medium negative (i.e. where the impact could influence the decision to develop in the area).

>-9, < 0	Low negative (i.e. where this impact would not have a direct influence on the decision to develop in the area).
0	No impact
>0, <9	Low positive (i.e. where this impact would not have a direct influence on the decision to develop in the area).
≥9, ≤17	Medium positive (i.e. where the impact could influence the decision to develop in the area).
>17	High positive (i.e. where the impact must have an influence on the decision process to develop in the area).

It is necessary to assess each potentially significant impact in terms of:

- ✚ Cumulative impacts; and
- ✚ The degree to which the impact may cause irreplaceable loss of resources.

Table 20: Criteria for Cumulative Impacts.

Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/ definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable Loss of Resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

18.3 Approach

The environmental issues associated with the pipeline were identified by referring to the following;

- ✚ Activities associated with the proposed development/activity life cycle.
- ✚ Activities relating to the operational phase.
- ✚ Nature and profile of the receiving environment and potential sensitive environmental features and attributes (**see Section 12, 13, 14, 15, 16 & 17**), which included a desktop evaluation (via literature review, specialist input, GIS, topographical maps, and aerial photography) and site investigations.
- ✚ Direct and indirect impacts related to the activities of the proposed pipeline
- ✚ Input from Public Participation
- ✚ Legal framework and policy context

This section does not only provide a detailed description of the receiving environment, but the section also outlines the possible impact associated with the proposed development/activity.

18.4 Description of the various sensitivity categories

The (**Table 21**) below provides a description of the various categories used in the environmental sensitivity exercise. This table should be read in conjunction with above sections (**Section 12, 13, 14, 15, 16 & 17**), and significance rating (**Section 18.2**).

The potential biophysical and social impacts were distilled from a range of sources and summarised in (**Table 21**) below. These will be further analysed and assessed during the EIA Phased by assigned studies or assessment as provided in the table below.

Table 21: Description of the various sensitivity categories

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
Biophysical Aspects			
Biodiversity (Flora)	Medium	<p>The environmental screening tool identified the Terrestrial Biodiversity Theme, as very high, and Plant Species as Medium.</p> <p>The construction for expansion of Grindrod Navitrade Facility will result in vegetation clearance of Maputaland Wooded Grassland (CB2), 'Endangered' with (25%) conservation target; Maputaland Coastal Belt (CB1), 'Vulnerable' with (25%) conservation target; Subtropical Freshwater Wetland.</p> <p>Moreover, the construction will result in the clearance of approximately 25ha of indigenous vegetation for expansion of Navitrade facility, within a CBA1. The CBA1 is driven by the previous Section 52 of NEMBA Threatened Ecosystems (Kwambonambi Grassland), which the site would historically have been classified as. The vegetation type was subsequently subsumed into Maputaland coastal grassland, which is classified as Endangered.</p> <ul style="list-style-type: none"> • Impact associated with large scale clearance are: 	<ul style="list-style-type: none"> • Terrestrial Biodiversity Impact Assessment

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		<ul style="list-style-type: none"> ○ Direct impacts on threatened flora species; ○ Direct impacts on protected flora species; ○ Direct impacts on threatened faunal species; ○ Direct impacts on common fauna species/faunal assemblages (including migration patterns, corridors, etc); ○ Loss/ degradation of surrounding habitat; ○ Increase in local and regional fragmentation/ isolation of habitat. <ul style="list-style-type: none"> ● Red Data species are particularly sensitive to changes in their environment, having adapted to a narrow range of specific habitat requirements. ● Increase in weeds and pest due to cleared vegetation ● In places where wetland and riparian habitats may be removed, opportunistic alien pioneers might encroach. 	

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
Biodiversity (Fauna)	Medium	<p>The environmental screening tool identified the Terrestrial Biodiversity Theme, as very high, and the Animal Species Theme as High.</p> <p>However, due to industrial activities within the study area, the EAP motivates for Medium Sensitivity. Vegetation clearance within the wetlands, riparian and instream, and scarp forest habitat for the purpose of construction of sewer conveyance infrastructure water pipeline could modify natural integrity of the species habitat, locality fauna disturbance might occur and could led to fragmentation, reduction, and loss of habitat as well as the ecological corridors and connectivity. Uncontrolled construction activities may result in the loss of habitat and permanent loss of unidentified animal SCC.</p> <p>The dust created by the coal yard could cause a host of problems for wildlife. The potential impact could occur if the dust fallout dispersion reaches the area of species habitat, such as the habitats about 3km south of the proposed development site (Richards Bay Nature Reserve) which represent a significant breeding, feeding and foraging areas for bird species, and other species.</p>	<ul style="list-style-type: none"> • Terrestrial Biodiversity Impact Assessment

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		<ul style="list-style-type: none"> Red Data species are particularly sensitive to changes in their environment, having adapted to a narrow range of specific habitat requirements. 	
Hydrological features (Watercourse)	High	<p>The environmental screening tool identified the Aquatic Theme, as Very High.</p> <p>There is wetland depression classified as NFEPA within the proposed expansion area. Therefore, will have High Sensitivity.</p> <p>Potential impacts on hydrological features caused by the construction and clearance within wetlands. Other wetland features were identified during preliminary infield investigation. The wetland delineation will verify the existence of other wetland or geomorphological bodies within the project area.</p> <p>The potential impact could result when the contaminated water and runoff from the coal facility enter the natural waterbodies such as wetlands, and municipal stormwater system. The impact could result in the change in water physicochemical properties, and wetland siltation as a result of coal runoff entering the water bodies. This could be resulted by failure in stormwater management at the coal stockpiling facility.</p>	<ul style="list-style-type: none"> Wetland Impact Assessment Geohydrological Impact Assessment Stormwater Management Plan

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		<ul style="list-style-type: none"> • Increase in weeds and pest due to cleared vegetation • In places where wetland and riparian habitats may be removed, opportunistic alienpioneers might encroach. 	
Hydrological features (Ground Water)	High	<p>The potential impacts on groundwater may arise when the runoff from coal stockpile is not managed, as well as if hazardous substances within the coal stockpiling facility are allowed infiltrate and leach into the ground. However, it is inferred that the stormwater will be channelled to the PCD and monitoring of the stormwater system in-situ must be done constantly to minimise the impact of contaminated water leaving the stockpiling area to adjacent natural sensitive environment, infiltrating and leaching the to groundwater. The retention times on stockpiles will also be shortened to minimise accumulation of wastewater from the stockpile.</p>	<ul style="list-style-type: none"> • Geohydrological Impact Assessment
Geology	Low	<p>The existence of relatively flat terrain renders this part of the region to be less susceptible to surface erosion, thus provide less erosion and run-off propensity as a result of earthworks. Moreover, Excavations within the fill, hydromorphic soils and Aeolian deposits will classify as "SOFT" excavations. Thus, offer convenient earthworks for a site preparation, with minimal impacts:</p>	<ul style="list-style-type: none"> • Geotechnical Assessment • Stormwater Management Plan

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		<ul style="list-style-type: none"> •The impacts related to the construction-related earthworks • run-off, Incision and cut slopes •The loss of available topsoil, due to site clearance 	
Topography	Low	<p>Topography impacts could link to soil erosion, and facility functionality in terms of stormwater management. The terrain characteristic such as relatively flat and steep terrain, provides stormwater management challenges in different aspects.</p> <p>The steep slopes such as hilly terrain renders challenges in terms of erosion and increased run-off propensity compared to gently sloping areas, and relatively flat areas. Whist the relatively flat terrain such as flat plain offers challenges in terms of channelling the stormwater from the developed areas. Given that the study area is relatively flat, the topography will have impact to stormwater stagnation and perch water contamination, subsequently the leachate from the coal stockpile yard. The study area is relatively flat, therefore will have minimum run-off propensity.</p>	<ul style="list-style-type: none"> • Stormwater Management Plan

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
Social Aspects			
Social (visual Impact)	Low	<p>The visual aspects include a combination of the following impacts:</p> <ul style="list-style-type: none"> ○ There is negligible visual impact, as the facility will be concentrated within the existing facility. ○ The area is zoned Harbour Arterial the facility will be streamlined within the adjacent properties. ○ Coal dust fallout could have impact visual impact. 	<ul style="list-style-type: none"> • Air Quality Impact Assessment • Dust Management Plan
Social (Traffic Impact)	High	<p>The Grindrod Navitrade Facility receive coal by train and trucks. Traffic Impact will result due to movement of coal tipper trucks.</p> <p>The coal tipper trucks from Mpumalanga and KZN mines exit N2 to Richards Bay and join R34. The Navitrade Facility located on the southern side of R3 (John Ross Highway) and accessed by Ferrio and Harbour Arterial Road towards the Port of Richards Bay. There are two intersections to be directly affected, namely: R34/ Ferrio and Harbour Arterial Road; and the Ferrio and Harbour Arterial Road/ access road to Grindrod Navitrade Facility</p> <ul style="list-style-type: none"> • Safety risk to local road users • Potential collision hazards • Road crossings and intersection turning 	<ul style="list-style-type: none"> • Traffic Impact Assessment

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
Social (Environmental Health)	High	<p>Although, the area is zoned Harbour Arterial the facility will be streamlined within the adjacent properties. There following impacts are of concern:</p> <p>The coal's environmental impacts are a shared concern. The local environmental hazards of coal vary from place to place. While some communities are most affected by air pollution from coal yards (coal terminals), others endure toxic groundwater as a result of leachate from stockyard.</p> <p>The coal stockpile facility has direct impact terms of pollutant exposure during source-pathway-receptor (exposure pathways) from pollutants dispersion, as the environmental receptors (individual and population at risk) will be exposed to air pollution. With the dust fallout fugitive dust emission contains particulate matter and contain other contaminants, based on the source of the dust.</p>	<ul style="list-style-type: none"> • Air Quality Impact Assessment • Geohydrological Impact Assessment • Dust Management Plan
Archaeological, cultural and heritage Aspects	Low	<p>The environmental screening tool identified the Archaeological, cultural and heritage Theme, as a Low Sensitivity.</p> <p>During the clearing of vegetation, and excavation and construction activities, heritage resources/artefacts/places that might be buried</p>	<ul style="list-style-type: none"> • Form part of Environmental Management Programme

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		underground may be affected. Moreover, Given the history and nature of the environment it is unlikely that traditional burial places occur. However, excavations (construction phase) could uncover the artefacts of heritage significant.	
Palaeontological Aspects	No Impact	The environmental screening tool identified the Palaeontological Theme, as a Low Sensitivity . Moreover, a preliminary desktop study for palaeontological fossils sensitivity of the proposed site, reveals that the site falls within a ' <i>Insignificant/Zero</i> ' paleontological sensitivity.	<ul style="list-style-type: none"> Form part of Environmental Management Programme
Other Aspects			
Air Pollution	High	<p>The DFFE has published a list of activities which result in atmospheric emissions that require authorisation. The coal handling and storage is listed as 'Category 5, Sub-category 5.1' of NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015. The following attributes to air pollution:</p> <p><u>During Construction</u></p> <p>Dust from site clearance, and emission from construction machinery during construction.</p> <p><u>Coal Storage Facility: Operations</u></p>	<ul style="list-style-type: none"> Air Quality Impact Assessment Dust Management Plan

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		<p>The Grindrod Navitrade Facility as expanded by portion 94 Erf 5333 is designed for 4 grades storage capacity of 400,000t maximum stockholding. The type of coal to be stored at the are RB1 and RB3 Bituminous coal.</p> <p>The coal stockpile facility has direct impact in terms of pollutant exposure during source-pathway-receptor (exposure pathways) from pollutants dispersion, as the environmental receptors (individual and population at risk) will be exposed to air pollution, with the dust fallout fugitive emission containing particulate matter and other contaminants based on the source of the dust</p>	
Pollution and Waste	Low	<p>The coal storage facilities do not perform and processing rather than turning of stockpile. Therefore, this minimal waste produced, as describe below:</p> <p>The volume of waste that is temporarily stored currently does not exceed 100m³ per month. The hazardous waste streams include; Metal paint containers, oil contaminated waste/ oily rags, rubber waste/ conveyor belts, batteries; fluorescent tubes, tyres, and used oil, these wastes are collected by a certified service provider and disposed of at certified sites. Domestic waste/ General includes spoiled foods and packaging, and other general refuse are disposed of at King Cetshwayo Landfill. Effluent waste includes contaminated water and</p>	<ul style="list-style-type: none"> Form part of Environmental Management Programme

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		<p>is treated at Alton Macerator. The coal slurry and coal sweepings are added to the lower grade coal. Medical waste includes waste from first aid rendered on site after an injury on duty, and dust mask (PPE). These are collected by a certified service provider and disposed of at registered landfill.</p>	
<p>Damage to existing infrastructure</p>	<p>Low</p>	<p>The project entail expansion of the facility, whereby all existing services are within the now servitude. It is unlikely that the existing services will be damage, rather be relocated with</p> <p>The Navitrade site is constrained on its eastern boundary by the existing rail yard, on the northern end by the John Ross Highway, and it naturally slopes towards the south where the pollution control system terminates. For the purpose of this study the vacant land towards the west is referred to as the Grindrod Navitrade property. It is onto this land that an expanded footprint is proposed.</p> <p>Impacts on existing services (properties or utility infrastructure):</p> <p>Two installed pipelines owned by South32 would be impacted with this footprint. The first is an unused underground HDPE pipe installed on the boundary between the Navitrade Portion 95 and portion 94 properties. The second is an in-service asbestos pipe</p>	<ul style="list-style-type: none"> • Design Layout

Study Component	Impact Category	Description	Further investigation/ EIA Provisions
		installed diagonally across the portion 94 Erf 5333, the proposed expansion site. Therefore, Grindrod Terminal (Pty) Ltd has engagement with South 32 for relocation of pipelines and allocate new pipeline servitude within the portion 94 Erf 5333.	

18.5 Detailed Preliminary Impacts

A detailed potential preliminary impact, their associated phase, as well as their impact calculations and significance are presented in (**Tables 24-28**) below. The No-Go alternative was also included in these tables.

Table 22: Significance rating PRE -Mitigation ER for Construction Phase

Impact Description	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	PRE-Mitigation ER	Confidence
Impact on Biodiversity (flora & fauna)										
Biodiversity (flora): Habitat fragmentation, loss of natural vegetation and introduction of invasive alien plant species (IAPS)	A,B ,C & D	Construction	-1	3	4	4	3	5	-18	High (-)
Biodiversity (flora): Loss of plant species of conservation concern (SCC)	A, B ,C & D	Construction	-1	3	4	4	3	5	-18	High (-)
Biodiversity (fauna): Loss of animal species of conservation concern (SCC), as a result of construction activities	A, B, C & D	Construction	-1	3	4	3	3	4	-13	Medium (-)
Impacts on Aquatic Ecosystem Functions and Services										
Impact on terrestrial surface water resource (wetlands)	A, B, C & D	Construction	-1	3	4	5	4	5	-20	High (-)
Impact on ground water resource (Ground water contamination)	A, B, C & D	Construction	-1	2	2	3	3	2	-5	Low (-)
Impact on Geology and soils										
Erosion, slits and compaction.	A, B, C & D	Construction	-1	2	2	3	2	2	-5	Low (-)
Pollution Impacts										
Impact on Air Pollution: Dust from construction areas and emissions from vehicles and equipment.	A, B, C & D	Construction	-1	3	2	3	2	2	-5	Low (-)
Waste (General, Hazardous Waste and HCW)	A, B, C & D	Construction	-1	2	2	3	2	2	-5	Low (-)
Social Impact										
Loss of Heritage Resources,	A, B, C & D	Construction	-1	2	2	3	2	1	-2	Low (-)
Loss of fossils and Paleontological resources	A, B, C & D	Construction	-1	2	2	3	2	1	-2	Low (-)
Visual Impact	A, B, C & D	Construction	-1	2	4	2	2	2	-6	Low (-)
Socio-economic Impact	A, B, C & D	Construction	+1	5	4	5	5	5	23.8	High (+)
Socio-economic Impact	No-Go	N/A	-1	5	5	5	5	5	-25	High (-)
Impact on Traffic	A, B, C & D	Construction	-1	3	1	3	3	3	-8	Low (-)
Noise Pollution	A, B, C & D	Construction	-1	2	1	2	1	5	-6	Low (-)
Impacts on existing services (properties or utility infrastructure)	A, B, C & D	Construction	-1	2	1	5	3	3	-8	Low (-)

Table 23: Significance rating Post -Mitigation ER for Construction Phase

Impact Description	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-Mitigation ER	Confidence
Impact on Biodiversity (flora & fauna)										
Biodiversity (flora): Habitat fragmentation, loss of natural vegetation and introduction of invasive alien plant species (IAPS)	A,B ,C & D	Construction	-1	2	4	3	3	2	-6	Low (-)
Biodiversity (flora): Loss of plant species of conservation concern (SCC)	A, B ,C & D	Construction	-1	2	4	3	3	2	-6	Low (-)
Biodiversity (fauna): Loss of animal species of conservation concern (SCC), as a result of construction activities	A, B, C & D	Construction	-1	2	4	3	3	2	-6	Low (-)
Impacts on Aquatic Ecosystem Functions and Services										
Impact on terrestrial surface water resource (wetlands)	A, B, C & D	Construction	-1	2	4	3	3	4	-12	Medium (-)
Impact on ground water resource (Ground water contamination)	A, B, C & D	Construction	-1	2	2	3	3	2	-5	Low (-)
Impact on Geology and soils										
Erosion, slits and compaction.	A, B, C & D	Construction	-1	2	2	3	2	2	-5	Low (-)
Pollution Impacts										
Impact on Air Pollution: Dust from construction areas and emissions from vehicles and equipment.	A, B, C & D	Construction	-1	3	2	3	2	2	-5	Low (-)
Waste (General, Hazardous Waste and HCW)	A, B, C & D	Construction	-1	2	2	3	2	2	-5	Low (-)
Social Impact										
Loss of Heritage Resources,	A, B, C & D	Construction	-1	2	2	3	2	1	-2	Low (-)
Loss of fossils and Paleontological resources	A, B, C & D	Construction	-1	2	2	3	2	1	-2	Low (-)
Visual Impact	A, B, C & D	Construction	-1	2	4	2	2	2	-6	Low (-)
Socio-economic Impact	A, B, C & D	Construction	+1	5	4	5	5	5	23.8	High (+)
Socio-economic Impact	No-Go	N/A	-1	5	5	5	5	5	-25	High (-)
Impact on Traffic	A, B, C & D	Construction	-1	3	1	3	3	3	-8	Low (-)
Noise Pollution	A, B, C & D	Construction	-1	2	1	2	1	5	-6	Low (-)
Impacts on existing services (properties or utility infrastructure)	A, B, C & D	Construction	-1	2	1	5	3	3	-8	Low (-)

Table 24: Significance rating PRE -Mitigation ER for Operational/Maintenance Phase

Impact Description	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	PRE-Mitigation ER	Confidence
Impact on Biodiversity (flora & fauna)										
Biodiversity (flora): Habitat fragmentation, loss of natural vegetation and introduction of invasive alien plant species (IAPS)	A, B, C & D	Operation	-1	3	1	2	2	1	-2	Low (-)
Biodiversity (flora): Loss of plant species of conservation concern (SCC)	A, B, C & D	Operation	-1	3	1	2	2	1	-2	Low (-)
Biodiversity (fauna): Loss of animal species of conservation concern (SCC), as a result of construction activities	A, B, C & D	Operation	-1	3	1	2	2	2	-4	Low (-)
Impacts on Aquatic Ecosystem Functions and Services										
Impact on terrestrial surface water resource (wetlands & streams), as a result of stormwater management failure	A, B, C & D	Operation	-1	3	4	3	3	4	-13	Medium (-)
Impact on ground water resource (water contamination)	A, B, C & D	Operation	-1	3	4	3	3	4	-13	Medium (-)
Impact on Geology and soils										
Erosion, slits and compaction.	A, B, C & D	Operation	-1	2	1	2	2	2	-4	Low (-)
Pollution Impacts										
Impact on Air Pollution: Dust from coal storage facility	A, B, C & D	Operation	-1	3	4	5	3	5	-19	High (-)
Waste (General, Hazardous Waste and HCW)	A, B, C & D	Operation	-1	2	1	2	2	2	-4	Low (-)
Social Impact										
Loss of Heritage Resources,	A, B, C & D	Operation	-1	2	1	2	2	1	-4	Low (-)
Loss of fossils and Paleontological resources	A, B, C & D	Operation	-1	2	1	2	2	1	-4	Low (-)
Visual Impact	A, B, C & D	Operation	-1	3	1	1	2	1	-2	Low (-)
Socio-economic Impact	A, B, C & D	Operation	+1	5	4	5	5	5	23.8	High (+)
Socio-economic Impact	No-Go	N/A	-1	5	5	5	5	5	-25	High
Impact on Traffic	A, B, C & D	Operation	-1	3	1	3	2	5	-11	Medium (-)
Noise Pollution	A, B, C & D	Operation	-1	2	1	1	1	2	-3	Low (-)
Impacts on existing services (properties or utility infrastructure)	A, B, C & D	Operation	-1	2	1	3	3	1	-3	Low (-)

Table 25: Significance rating Post -Mitigation ER for Operational/Maintenance Phase

Impact Description	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-Mitigation ER	Confidence
Impact on Biodiversity (flora & fauna)										
Biodiversity (flora): Habitat fragmentation, loss of natural vegetation and introduction of invasive alien plant species (IAPS)	A, B, C & D	Operation	-1	3	1	2	2	1	-2	Low (-)
Biodiversity (flora): Loss of plant species of conservation concern (SCC)	A, B, C & D	Operation	-1	3	1	2	2	1	-2	Low (-)
Biodiversity (fauna): Loss of animal species of conservation concern (SCC), as a result of construction activities	A, B, C & D	Operation	-1	3	1	2	2	2	-4	Low (-)
Impacts on Aquatic Ecosystem Functions and Services										
Impact on terrestrial surface water resource (wetlands & streams), as a result of stormwater management failure	A, B, C & D	Operation	-1	3	1	2	2	2	-4	Low (-)
Impact on ground water resource (water contamination)	A, B, C & D	Operation	-1	2	1	3	2	2	-4	Low (-)
Impact on Geology and soils										
Erosion, slits and compaction.	A, B, C & D	Operation	-1	2	1	2	2	2	-4	Low (-)
Pollution Impacts										
Impact on Air Pollution: Dust from coal storage facility	A, B, C & D	Operation	-1	3	1	2	2	3	-6	Low (-)
Waste (General, Hazardous Waste and HCW)	A, B, C & D	Operation	-1	2	1	2	2	2	-4	Low (-)
Social Impact										
Loss of Heritage Resources,	A, B, C & D	Operation	-1	2	1	2	2	1	-4	Low (-)
Loss of fossils and Paleontological resources	A, B, C & D	Operation	-1	2	1	2	2	1	-4	Low (-)
Visual Impact	A, B, C & D	Operation	-1	3	1	1	2	1	-2	Low (-)
Socio-economic Impact	A, B, C & D	Operation	+1	5	4	5	5	5	23.8	High (+)
Socio-economic Impact	No-Go	N/A	-1	5	5	5	5	5	-25	High
Impact on Traffic	A, B, C & D	Operation	-1	3	1	3	2	5	-11	Medium (-)
Noise Pollution	A, B, C & D	Operation	-1	2	1	1	1	2	-3	Low (-)
Impacts on existing services (properties or utility infrastructure)	A, B, C & D	Operation	-1	2	1	3	3	1	-3	Low (-)

Table 26: Prioritisation Factor (Cumulative Impacts)

Impact Description	Alternative	Phase	Cumulative Impact	Irreplaceable Loss
Biodiversity (flora): Habitat fragmentation, loss of natural vegetation and introduction of invasive alien plant species (IAPS)	A, B, C & D	Construction + Operation	3	1
Biodiversity (flora): Loss of plant species of conservation concern (SCC)	A, B, C & D	Construction + Operation	3	1
Biodiversity (fauna) Loss of animal species of conservation concern (SCC)	A, B, C & D	Construction + Operation	3	1
Impact on terrestrial surface water resource (wetlands, streams)	A, B, C & D	Construction + Operation	3	1
Impact on ground water resource (Ground water contamination)	A, B, C & D	Construction + Operation	1	1
Erosion, slits and compaction.	A, B, C & D	Construction + Operation	2	1
Impact on Air Pollution: Dust from coal stockpiles yards	A, B, C & D	Construction + Operation	1	1
Waste (General, Hazardous Waste and HCW)	A, B, C & D	Construction + Operation	1	1
Loss of Heritage Resources, fossils and Paleontological resources	A, B, C & D	Construction + Operation	1	2
Visual Impact	A, B, C & D	Construction + Operation	1	1
Socio-economic Impact	A, B, C & D	Construction + Operation	3+	1
Impact on Traffic	A, B, C & D	Construction + Operation	3	3
Noise Pollution	A, B, C & D	Construction + Operation	1	1
Impacts on existing services (properties or utility infrastructure)	A, B, C & D	Construction + Operation	1	1

18.6 Cumulative Impacts Pre-mitigation

In terms of the EIA Regulations, the cumulative impact is considered from the holistic point of view. It means that the impacts of an activity are considered from the past, present, and foreseeable future, together with the impact of activities associated with that activity. The activity itself may not be significant, but when combined with the existing and reasonably foreseeable impacts emanating from similar or diverse activities, may result in a significant impact. “Cumulative impacts can be: additive, synergistic, time crowding, neutralizing and space crowding” (DEA, 2017;14), as outlined on **Table 28** below.

Table 27: Cumulative Impacts

Impact	Impact Level	Description of Mitigation
Impacts of Flora and Fauna	High (3)	Comprehensive mitigation will include prevention of large scape clearance, and protection of flora and fauna, identified within the construction corridor. These will be provided by the Terrestrial Biodiversity Impact Assessment.
Impacts on Aquatic Ecosystem Functions and Services	High (3)	Comprehensive mitigation will include prevention of potential impacts on hydrological features caused by the construction and clearance within wetlands. This will be provided by the Wetland Delineation Impact Assessment.
Impact on Air Quality	High (3)	Comprehensive mitigation will involve prevention of air pollution as a result of coal dust fallout dispersion. This will be provided by the Air Quality Impact Assessment.
Impact on Traffic	High (3)	Comprehensive mitigation will involve prevention of traffic impact as a result of an operation, traffic caused by coal tipper trucks. This will be provided by the Traffic Impact Assessment.
Invasive Alien Plant Species	High (3)	Comprehensive mitigation will include rehabilitation plan and prevention of spreading of Alien Invasive Plant Species. These will be provided by Terrestrial Ecological Impact Assessment, and Aquatic Ecological Impact Assessment.

18.7 Mitigation Measures

The EIR will provide a detailed analysis of the impact and their significance to the receiving environment, using the above methodology as well as the input from the project team, specialists’ studies, and all the comments from the I&APs.

Suitable and practical mitigation measures will be developed to minimize the identified impacts of the proposed development/activity on the receiving environment. The mitigation measures will seek to achieve the following;

- ✚ Initial efforts will strive to prevent the occurrence of the impact
- ✚ If the above is not achievable, mitigation will include measures that reduce or minimize the significance of the impact to an acceptable level;
- ✚ Remediation and rehabilitation will take place if measures cannot suitably prevent or reduce the impacts, or to address the residual impacts; and
- ✚ As a last measure, compensation will be employed as a form of mitigating the impacts associated with the upgrading of the Olifantspoort and Ebenezer Water Supply Schemes.

The mitigation measures will be included in the EMPr, which will form part of the EIR. Together with the Environmental Authorization, the EMPr is binding on the Applicant, all contractors and sub-contractors and visitors to the site.

19 EIA PHASE IMPACT ASSESSMENT METHODOLOGY

Each impact identified is assessed in terms of probability (likelihood of occurring), scale (spatial scale), magnitude (severity) and duration (temporal scale). To effectively implement the adopted scientific approach in determining the significance of the environmental impact, a numerical value was linked to each rating scale.

The following criteria will be applied to the impact assessment for the project:

Occurrence:

Probability - the probability of the impact describes the likelihood of the impact actually occurring.

Impact duration - the duration of the impact describes the period of time during which an environmental system or component is changed by the impact.

Severity:

Magnitude – refers to the ‘degree of disturbance’ to biophysical systems and components which expresses the change in the health, functioning and/or role of the system or component as a result of an activity.

Scale/extent - the extent of the impact generally expresses the spatial influence of the effects produced by a disturbance to an environmental system or component.

The following scale will be used:

Table 28: Impact Assessment Criteria

<p><i>Probability = P</i></p> <p>5 – Definite (More than 80 % chance of occurrence)</p> <p>4 – Probable (Between 60-80% chance of occurrence)</p> <p>3 – Possible (Between 40-60% chance of occurrence)</p> <p>2 – Fairly Unlikely (Between 20-40% chance of occurrence)</p> <p>1 – Unlikely (Less than 20% chance of occurrence)</p>	<p><i>Duration = D</i></p> <p>5 – Permanent - The only class of impact that will be non-transitory (indefinite)</p> <p>4 - Long-term - The impact and its effects will continue or last for the entire operational life of the development (15 - 50years)</p> <p>3 - Medium-term - The impact and its effects will continue or last for some time after the construction phase (5 - 15 years)</p> <p>2 – Medium-short - The impact and its effects will continue or last for the period of a relatively long construction period and/or limited recovery time after this construction period (2 - 5 years)</p> <p>1 – Short Term - Likely to disappear with mitigation measures or through natural processes which span shorter than the construction phase (0-2 years)</p>
<p><i>Scale = S</i></p> <p>5 – International (beyond 200km)</p> <p>4 – Regional (50-200km radius)</p> <p>3 – Local (2-50km radius)</p> <p>2 – Surrounding area (within 2km)</p>	<p><i>Magnitude = M</i></p> <p>5 - High</p> <p>4– Medium High</p> <p>3 – Medium</p> <p>2 – Medium Low</p>

1 – Site (within100m)	1 – Low
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Status of Impact

+ Positive / -Negative or 0-Neutral

The overall impact significance score/points (SP) for each identified impact are calculated by multiplying magnitude, duration, and scale by the probability of all this happening.

Once the impact has been assessed using the above significance categories, a rating is calculated. The rating will indicate a specific significance of the impact as illustrated in (**Table 29**) below. By identifying whether the impact is positive or negative, the significance will be read from the relevant portion of the table.

By calculating the significance rating of the impact, one can evaluate whether a negative impact can be mitigated and managed efficiently, or whether the impact is a fatal flaw, and thereby disallowing the Grindrod Navitrade Expansion from being approved. A positive impact could be a motivation for the for the Grindrod Navitrade Expansion to proceed.; this provides comparative information to decision-makers for approval or denial of the application. The range of possible significance scores is classified into seven rating classes.

Note: $SP = (Magnitude + Duration + Scale) \times Probability$

Table 29: Impact Ratings and the Implicated Significance

Significance	Environmental Significance Points	Colour Code
Negligible	0-10	N
Very low	11-20	VL
Low	21-30	L
Medium	31-40	M
Medium-High	41-50	MH
High	51-60	H
Very high	61-75	VH

20 PLAN OF STUDY

This section provides a summary of the key findings of the Scoping Phase of the EIA and to describe the activities to be undertaken in the Impact Assessment Phase of the EIA. Legislatively, the document is required to provide the following:

- ✚ A description of the environmental issues identified during the scoping phase that may require further investigation and assessment;
- ✚ A description of the feasible alternatives identified during scoping that may be further investigated;
- ✚ An indication of additional information required to determine the potential impacts of the proposed activity on the environment;
- ✚ A description of the proposed method of identifying these impacts; and
- ✚ A description of the proposed criteria for assessing the significance of these impacts.

The requirements of Appendix 3 of GN R.326 promulgated in terms of section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998) have been reviewed in order to ensure compliance therewith. These requirements are as follows:

- ✚ A description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken;
- ✚ An indication of the stages at which the competent authority will be consulted;
- ✚ A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity;
- ✚ Particulars of the public participation process that will be conducted during the environmental impact assessment process; and
- ✚ Any specific information required by the competent authority.

20.1 Description of tasks to be undertaken for the EIR

The following section describes the identified tasks that are required to form part of the EIR Process, and report structure will comply with Appendix 3 of GN R. 326:

- ✚ Specific Project Detail

- ✚ Activity Motivation
- ✚ Project Alternatives
- ✚ Description of the Baseline Environment;
- ✚ Public Participation Process;
- ✚ Specialist Reports;
- ✚ Impact Assessment
- ✚ An Environmental Management Programme (EMPr)
- ✚ An environmental impact statements
- ✚ Proposed EIA Report Roadmap

20.2 Specific Project Detail

The environmental proposal (Environmental Impact Assessment) and associated impacts forming part of the environmental authorisation application will be described in detail. Process flow diagrams indicating inputs and outputs will be included.

20.3 Activity Motivation

Envelo Quality and Environmental Consultant (Pty) Ltd (the EAPs) has engaged with Grindrod Terminal (the Applicant) in order to solicit the activity motivation. This motivation includes the project need and desirability as discussed in (**Section 10**).

20.4 Project Alternatives

The role of alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, and or through reducing or avoiding potentially significant negative impacts (DEAT, 2004). Therefore, the '*Alternative A: Location Alternative; Alternative B: Site Layout Alternatives; Alternative C: Design Alternative; and Alternative D: Technology Alternatives*' will be assessed to offset the 'No-Go Alternative'.

20.5 Description of the Baseline Environment

A description of the Baseline Environment be provided, as described in (**Section 12-17**), which will include additional information, such as desktop and field assessment from the specialist studies.

20.6 Summary of Public Participation Process

Consultation with I&APs regarding the possible significance of impacts and suitable mitigation measures will take place during the Public Participation Process.

The following public participation process is proposed for the EIA Phase:

- i) Official notification of all registered I&APs from the Notification Period and Scoping Phase.
- ii) Registration of any new I&APs.
- iii) Public and/or focus group meetings
- iv) Circulation of Draft Environmental Impact Report (EIR) to I&APs for comment, with a 30-day response period.
- v) Submission of final EIR to the EDTEA.

20.7 Environmental Screening Tool Sensitivity Themes

The Environmental Sensitivity Themes from Environmental Screening Tool are outlined in (**Table 30**). The two Environmental Screening Report were run: For Clearance and Emissions.

Table 30: Environmental Screening Tool Sensitivity Theme

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

Plant Species			X	
Terrestrial Biodiversity	X			

20.7.1 Motivation for excluding compliance statements

Agriculture Theme: This is not considered viable as the site has zoned as a Harbour-Bound industrial.

Aquatic Biodiversity Theme: The site is within Strategic water source area, with High sensitivity for Wetlands and Estuaries. The wetland impact assessment will be undertaken.

Civil Aviation Theme: This is not considered viable as the site has zoned as a Harbour-Bound industrial. The Richards Bay Airport is situated at approximately 8km north-east of the project area. The activity being undertaken is streamlined with adjacent activities as this is an expansion of existing activity.

20.8 Specialist studies identified

The required specialist studies triggered by the findings of the Scoping process, aimed at addressing the key issues and compliance with legal obligations. The following Specialist Studies has been adopted/ to be undertaken as identified by a screening tool, and added followed by vigorous assessment through preliminary desktop studies and field works:

- ✚ Air Quality Impact Assessment;
- ✚ Terrestrial Biodiversity Impact Assessment;
- ✚ Wetland Delineation Impact Assessment;
- ✚ Geohydrological Impact Assessment;
- ✚ Traffic Impact Assessment;
- ✚ Geotechnical Assessment.

20.8.1 Motivation for Exclusion of other Specialist Studies

The motivation on how other studies identified by the Environmental Screening Tools, will not be considered is outlined in (**Table 31**) below:

Table 31: Motivation for exclusion of other specialist studies

Specialist Study	Motivation for Exclusion of Specialist Study
Landscape/Visual Impact Assessment	This is not considered viable as the site has zoned as a Harbour-Bound industrial. The operation supplements the activities within the zone, as this is an expansion
Archaeological and Cultural Heritage Impact Assessment	This study was not considered viable the site has a low Archaeological and Cultural Heritage sensitivity theme.
Palaeontology Impact Assessment	The Palaeontology Impact Assessment is not considered viable as the site has a medium sensitivity theme. The SAHRIS palaeosensitivity also provides that site falls within a moderate sensitivity, as result a field assessment is not required for this EIA.
Terrestrial Biodiversity Impact Assessment	The Terrestrial Biodiversity Impact Assessment was conducted for this EIA
Aquatic Biodiversity Impact Assessment	The site is within Strategic water source area, with High sensitivity for Wetlands and Estuaries. Therefore, in respect to this, the Wetland Habitat Impact Assessment will be conducted to assess impact on wetland habitat in respect to the proposed development.
Socio-Economic Assessment	This is not considered viable as the site has zoned as a Harbour-Bound industrial. The operation supplements the activities within the zone, as this is an expansion
Plant Species Assessment	This assessment is covered by Terrestrial Biodiversity Impact Assessment
Animal Species Assessment	This assessment is covered by Terrestrial Biodiversity Impact Assessment
Agricultural Impact Assessment	This is not considered viable as the site has zoned as a Harbour-Bound industrial.
Hydrology Assessment	The Geohydrological Impact Assessment will be undertaken to determine impact of the development on ground water resources.
Noise Impact Assessment	This is not considered viable as the site has zoned as a Harbour-Bound industrial.
Traffic Impact Assessment	Traffic Impact Assessment will be undertaken to determine the impact of traffic with respect to operation of the facility
Air Quality Impact Assessment	The Air Quality Impact Assessment will be undertaken to determine the with respect to operation of the facility
Ambient Air Quality Impact Assessment	This assessment is covered by Air Quality Impact Assessment

Specialist Study	Motivation for Exclusion of Specialist Study
Health Impact Assessment	This assessment will be determined based on the output of Air Quality Impact Assessment, as it forms part of Air Quality Assessment

20.9 Specialist Terms of Reference

Prior to any work, both general and specific, the Terms of Reference will be determined for each specialist study. In determining general Terms of Reference for specialist studies, the following guideline will be used:

- ✚ Appendix 6 of GNR 326 (EIA Regulations 2014 as amended on 7 April 2017).
- ✚ Integrated Environmental Management Information Series, Information Series 4: Specialist Studies (DEAT, 2002).
- ✚ Guideline for determining the scope of specialist involvement in the EIA processes (Münster, 2005).
- ✚ Guideline for involving biodiversity specialists in the EIA processes (Brownlie, 2005);

In addition to the above guidelines, the relevant specialists need to satisfy specific requirements stipulated by the following key environmental authorities/bodies:

- ✚ EDTEA;
- ✚ Department of Water and Sanitation;
- ✚ Ezemvelo KZN Wildlife;
- ✚ KZN Department of Transport;
- ✚ South African Heritage Agency;
- ✚ King Cetshwayo District Municipality: Air Quality Licensing Authority
- ✚ City of uMhlathuze By-Laws
- ✚ South African Council for Natural Scientific Professions (SACNASP)

For the incorporation of the findings of the specialist studies into the EIA report, the following guideline will be used:

- ✚ Guideline for the review of specialist input in the EIA processes (Keatimilwe & Ashton, 2005). Key considerations will include:
- ✚ Ensuring that the specialists have adequately addressed I&AP issues and specific requirements prescribed by environmental authorities.
- ✚ Ensuring that the specialists' input is relevant, appropriate, and unambiguous; and
- ✚ Verifying that information regarding the receiving ecological, social, and economic environment has been accurately reflected and considered.

20.9.1 General Terms of Reference

The following general Terms of Reference apply to all the EIA specialist studies to be undertaken for the proposed project:

- ✚ Address all triggers for the specialist studies contained in the subsequent specific Terms of Reference.
- ✚ Address issues raised by I&APs, as contained in the Comments and Response Report, and assess all potentially significant impacts. Additional issues that have not been identified during Scoping should also be highlighted to the EAP for further investigations.
- ✚ Ensure that the requirements of the environmental authorities that have specific jurisdiction over the various disciplines and environmental features are satisfied.
- ✚ Approach to include desktop study and site visits, as deemed necessary, to understand the affected environment and to adequately investigate and evaluate salient issues. Indigenous knowledge (i.e. targeted consultation) should also be regarded as a potential information resource.
- ✚ Assess the impacts (direct, indirect, and cumulative) in terms of their significance (using suitable evaluation criteria) and suggest suitable mitigation measures. In accordance with the mitigation hierarchy, negative impacts should be avoided, minimized, rehabilitated (or reinstated) or compensated for (i.e. offsets), whereas positive impacts should be enhanced. A risk-averse and cautious approach should be adopted under conditions of uncertainty.
- ✚ Consider time boundaries, including short to long-term implications of impacts for the project lifecycle (i.e. pre-construction, construction, operation, and decommissioning).

- ✚ Consider spatial boundaries, including:
 - The broad context of the project (i.e. beyond the boundaries of the specific site);
 - Off-site impacts; and
 - Local, regional, national, or global context.
- ✚ The provision of a statement of impact significance for each issue, which specifies whether or not a pre-determined threshold of significance (i.e. changes in effects to the environment which would change a significance rating) has been exceeded, and whether or not the impact presents a potential fatal flaw or not. This statement of significance should be provided for anticipated project impacts both before and after the application of impact management actions.
- ✚ Recommend a monitoring programme to implement mitigation measures and measure performance. List indicators to be used during monitoring.
- ✚ Appraisal of alternatives (including the No-Go option) by identifying the BPEO with suitable justification.
- ✚ Advise on the need for additional specialists to investigate specific components and the scope and extent of the information required from such studies.
- ✚ Engage with other specialists whose studies may have a bearing on this specific assessment.
- ✚ Present findings and participate in public meetings, as and when necessary.
- ✚ Information provided to the EAP needs to be signed off.
- ✚ Review and sign off on the EIA report prior to submission to DFFE to ensure that specialist information has been interpreted and integrated correctly into the report.
- ✚ Sign a declaration stating independence.
- ✚ The appointed specialists must consider the policy framework and legislation relevant to their particular studies.
- ✚ All specialist reports must adhere to Appendix 6 of NEMA 2014 Regulations [GN No. 326 (7 April 2017)].

20.10 Impact Assessment

The impact assessment will provide an evaluation of impacts prior to mitigation, as well as proposed mitigation measures, and then evaluate the impacts after mitigation. The potential environmental impacts identified in the study will be quantified as far as possible and the significance of the impacts will be assessed according to specific criteria as discussed in **(Section 19)**.

20.11 Environmental Management Programme Report (EMPr)

A draft Environmental Management Programme (EMPr) for the existing facility will be provided with the EIR Report. The EMPr will not include plans for the construction, maintenance and operational phases of the project.

The EMPr will identify environmental targets and objectives and will describe the methods and procedures that need to be followed (such as the mitigation and monitoring of potential impacts) to achieve these goals and objectives. The EMPr will be compiled in such a manner that it can be easily incorporated into the daily management of the site.

The EMPr aims to provide environmental responsibility and a management framework within which all existing and future activities will occur, as well as providing for the protection of any potentially sensitive areas.

20.12 Environmental Impact Statement

An environmental impact statement will be provided as part of the EIA. The opinion of the EAP as to whether or not the activity should be authorised will also be included with the recommendations.

20.13 Environmental Impact Report

The Environmental Impact Report (EIR) will provide enough evidence or information for DFFE to make a final decision. At a minimum, the report will contain the following critical components which is in accordance with Appendix 3 of GN No. 326 (7 April 2017):

-  A description of the policy and legislative context.

- ✚ A detailed description of the proposal for environmental authorisation (full scope of activities).
- ✚ A detailed description of the routes and sites for proposal for environmental authorisation, which will include a plan that locates the activity applied for as well as the associated structures and infrastructure.
- ✚ A description of the environment that may be affected by the activity and the way physical, biological, social, economic, and cultural aspects of the environment may be affected by the proposed development.
- ✚ The methodology of the stakeholder engagement process.
- ✚ The Comments and Responses Report and an I&APs Database will be provided as an appendix to the EIA Report.
- ✚ A description of the need and desirability of the proposed development and the identified potential alternatives to the proposed activity.
- ✚ A summary of the methodology used in determining the significance of potential impacts.
- ✚ A description and comparative assessment of the project alternatives.
- ✚ A summary of the findings of the specialist studies.
- ✚ A detailed assessment of all identified potential impacts.
- ✚ A list of the assumptions, uncertainties, and gaps in knowledge.
- ✚ An environmental impact statement.
- ✚ 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 authorization.
- ✚ A reasoned opinion as to whether the proposed activity should or should not be authorized, and if the opinion is that it should be authorized, any conditions that should be made in respect of that authorization.
- ✚ An opinion by the consultant as to whether the development is suitable for approval within the proposed site.
- ✚ An EMPr that complies with Appendix 4 of GN No. 326 (7 April 2017).
- ✚ Copies of all specialist reports appended to the EIA report; and
- ✚ Any further information that will assist in decision making by the authorities.

For the remainder of the Scoping process and EIA the interaction with EDTEA will be as follows:

- ✚ Submit Draft Scoping Report
- ✚ Address comments on Scoping Report.
- ✚ Submission of the Final Scoping Report.
- ✚ Submit the Draft EIR
- ✚ Address comments on Draft EIR
- ✚ Submit Final EIR; and
- ✚ Obtain a decision.

20.14 Updating of IAP Database for EIR

The IAP database/spreadsheet will be updated and reviewed as and when necessary, during the execution of the EIA.

20.15 Review of Draft EIR

The draft ER will be circulated for 30 days, and this document will be lodged for public review using the public participation methods mentioned on (**Table 11**).

Copies of the Draft EIR will be provided to the regulatory and commenting authorities.

20.16 Comments and Responses Report

A Comments and Responses Report will be compiled and included in the EIA Report, which will record the date when issues were raised, a summary of each issue, and the response of the team to address the issue.

In addition, any unattended comments from the Scoping Phase or where the status of the previous responses has changed will also be addressed in the Comments and Responses Report for the EIA phase.

20.17 Notification of Decision

All I&APs will be notified via email, within 14 days of receipt of the final decision, on the application.

21 EIR OUTLINE (PLAN OF STUDY)

The following report skeleton is proposed for the EIR comply with Appendix 3 of GN R.326:

Table 32: Proposed EIR outline

1. INTRODUCTION
2. PROJECT TITLE
3. PROJECT DESCRIPTION
4. PROJECT LOCALITY
4.1. Geographic Context
4.2. Site Locality
5. SITE ACCESS
6. ACTIVITY MOTIVATION
6.1 The Need
6.2 Desirability
7. DESCRIPTION OF ACTIVITIES
7.1 Construction Activities
7.2. Design Criteria
8. PROJECT ALTERNATIVES
8.1 Location Alternative
8.2 Site Layout Alternative
8.3 Design Alternative
8.4 Technology Alternative
8.5 No-Go Alternative
8.6 Discussion of Preferred Alternatives

9. APPLICABLE LEGISLATION, POLICIES AND GUIDELINES

10. DESCRIPTION OF BASELINE ENVIRONMENT

- 10.1 Climate
- 10.2 Hydrology
- 10.3 Topography
- 10.4 Biomes
- 10.5 Flora
- 10.6 Protected Areas
- 10.7 Fauna
- 10.8 Geology
- 10.9 Visual and Land use Character
- 10.10 Heritage and Cultural Aspects
- 10.11 Traffic
- 10.12 Socio-economic Aspects
- 10.13 Noise

11. WASTE, EFFLUENT AND AIR POLLUTION

- 11.1 Waste
- 11.2 Effluent
- 11.3 Air Pollution

12. EXISTING SERVICES

- 12.1 Water Use
- 12.2 Roads
- 12.3 Pipeline & Servitudes

13. PUBLIC PARTICIPATION

- 13.1 Background
- 13.2 Objectives of Public Participation
- 13.3 Notification of I&As
- 13.4 Comments from I&As

14. IMPACT ASSESSMENT AND MITIGATION MEASURES

- 14.1 Impact Analysis for preferred Alternatives

15. CUMMULATIVE IMPACT ASSESSMENT AND MITIGATION MEASURES

<p>16.RECOMMENDATIONS BY SPECIALISTS</p> <p>17.RECOMMENDATION BY EAP</p> <p>18.ENVIRONMENTAL STATEMENT</p> <p>19.APPENDICES</p> <ul style="list-style-type: none"> -EAP Declaration -EMPr -Maps and Layouts -Public Participation Records -Specialist Reports -Environmental Screening Report - And Other Appendices required
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22 TIME FRAMES

Table 35 presents the proposed timeframes for the EIA (Scoping and EIR) process. Note that these dates are subject to change.

Table 33: EIA Time Frames

Scoping Phase	Start	Finish
Review of the Draft Scoping Report by authorities & I&APs (30 days)	26/06/2023	25/07/2023
Submit Final Scoping Report	04/08/2023	
DFFE Review and Decision (43 days review period) on scoping report	04/08/2023	18/09/2023
Review of Draft EIR by authorities & I&APs (30 days)	31/10/2023	29/09/2023
EAP Submit Final EIA Report & EMPr to DFFE	12/09/2023	
DFFE Review and Decision (107 days)	12/09/2023	Max 107 days
I&AP Notification on Decision (14 days)	Undetermined	

23 CONCLUSION

The scope of an environmental assessment is defined by the range of issues and alternatives it considers, the nature of the receiving environment, and the approach towards the assessment. Key outcomes of the Scoping phase for the Grindrod Navitrade Expansion are as follows:

- ✚ Stakeholders were effectively identified and were afforded adequate opportunity to participate in the scoping process.
- ✚ Alternatives for achieving the objectives of the proposed development/activity were duly considered.
- ✚ Significant issues pertaining specifically to the construction and operational phases of the upgrading of the were identified.
- ✚ Sensitive elements of the environment to be affected by the proposed pipeline were proposed development/activity identified.
- ✚ A Plan of Study comply with appendix 3 of GN R.326, was developed to explain the approach to executing the EIA phase, which also includes the Terms of Reference for the identified specialist studies; and
- ✚ The scoping exercise set the priorities for the ensuing EIA phase.
- ✚ No fatal flaws were identified in terms of the proposed activities and the receiving environment that would prevent the environmental assessment from proceeding beyond the Scoping phase. It is the opinion of the EIA team that Scoping was executed in an objective manner and that the process and report conform to the requirements of Regulation 21 and Appendix 2 of GN No. 326 (7 April 2017), respectively. It is also believed that the Plan of Study for EIA is comprehensive and will be adequate to address the significant issues identified during Scoping and to ultimately allow for informed decision-making.

This Draft Scoping Report is available for a review and comment period of 30 days, from **26th of June 2023** to the **25th of July 2023**. Comments and submissions received in response to this report will be submitted to EDTEA (the competent authority).

Written submissions must be addressed to:

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APPENDICES

APPENDIX A. EAP DECLARATION OF INFORMATION

APPENDIX B. LOCALITY MAP AND LAYOUT

B-1: Locality Map

B-2: Other Maps

APPENDIX C: CIVIL LAYOUTS

APPENDIX D: CASE IMAGES/ SITE PHOTOGRAPHS

APPENDIX E PUBLIC PARTICIPATION PROCESS

E-1: News Paper Advert

E-2: Background Information Document

E-3: Onsite Notices

E-4: I&APs Registers

E-5: Department Acknowledgement Letters

E-6: Minutes of the EIA Pre-Application Meeting

E-7: Proof of Documents Circulation

E-8: I&APs Comments & Responses

APPENDIX F. EAP CV(S)

APPENDIX G. ENVIRONMENTAL SCREENING REPORTS