PROPOSED NEW WAREHOUSE FOR BULK HANDLING OF COPPER CONCENTRATE ON THE SITE OF WALVIS BAY CARGO TERMINAL IN THE PORT OF WALVIS BAY

ENVIRONMENTAL IMPACT ASSESSMENT SCOPING (INCLUDING AN IMPACT ASSESSMENT) REPORT

Prepared for: Walvis Bay Cargo Terminal (Pty) Ltd

FEBRUARY 2023

DOCUMENT CONTROL

Report Title	EIA SCOPING (INCLUDING AN IMPACT ASSESSMENT) REPORT FOR THE PROPOSED NEW WAREHOUSE FOR BULK COPPER CONCENTRATE ON THE SITE OF WALVIS BAY CARGO TERMINAL IN THE PORT OF WALVIS BAY
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Client	Walvis Bay Cargo Terminal (Pty) Ltd
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EXECUTIVE SUMMARY

1. General introduction and project motivation

Walvis Bay Cargo Terminal (Pty) Ltd (WBCT) proposes to construct a new warehouse, adjacent to their existing rubbhall warehouses in the port area of Walvis Bay (see Figure A).

Walvis Bay is a preferred point of export for Zambian copper, recently reaffirmed by new bilateral agreements between Namibia and Zambia. Bulk handling of Zambian copper forms part of the core business of WBCT. WBCT wants to diversify and grow this business by including the bulk handling and export of copper concentrate – also from Zambia – as an additional commodity and for this reason proposes to construct a new warehouse on its premises.

This Environmental Impact Assessment (EIA) Scoping (including an impact assessment) Report summarises the EIA process being followed for WBCT's proposed new warehouse for the bulk handling of copper concentrate. It includes an assessment of the environmental impacts that the proposed facilities and activities are likely to have. The proposed management and mitigation measures relating to the proposed project are documented in an Environmental Management Plan (EMP).

2. Environmental Impact Assessment process

EIAs are regulated by the Ministry of Environment, Forestry and Tourism (MEFT) in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966) and its associated regulations were promulgated in January 2012 (Government Gazette No. 4878).

Prior to the commencement of the construction of the proposed warehouse, an application for an environmental clearance was submitted in terms of this act and its associated regulations to the Department of Transport (Directorate of Maritime Affairs at the Ministry of Works and Transport (MWT), as the competent authority. MWT reviews the application and documents and submits comments to the MEFT for their final review and decision.

The EIA process for the proposed project is explained diagrammatically in Figure B.

FIGURE A: LOCATION OF THE PROPOSED NEW WAREHOUSE, RELATIVE TO THE EXISTING FACILITIES ON THE WBCT SITE IN THE PORT OF WALVIS BAY

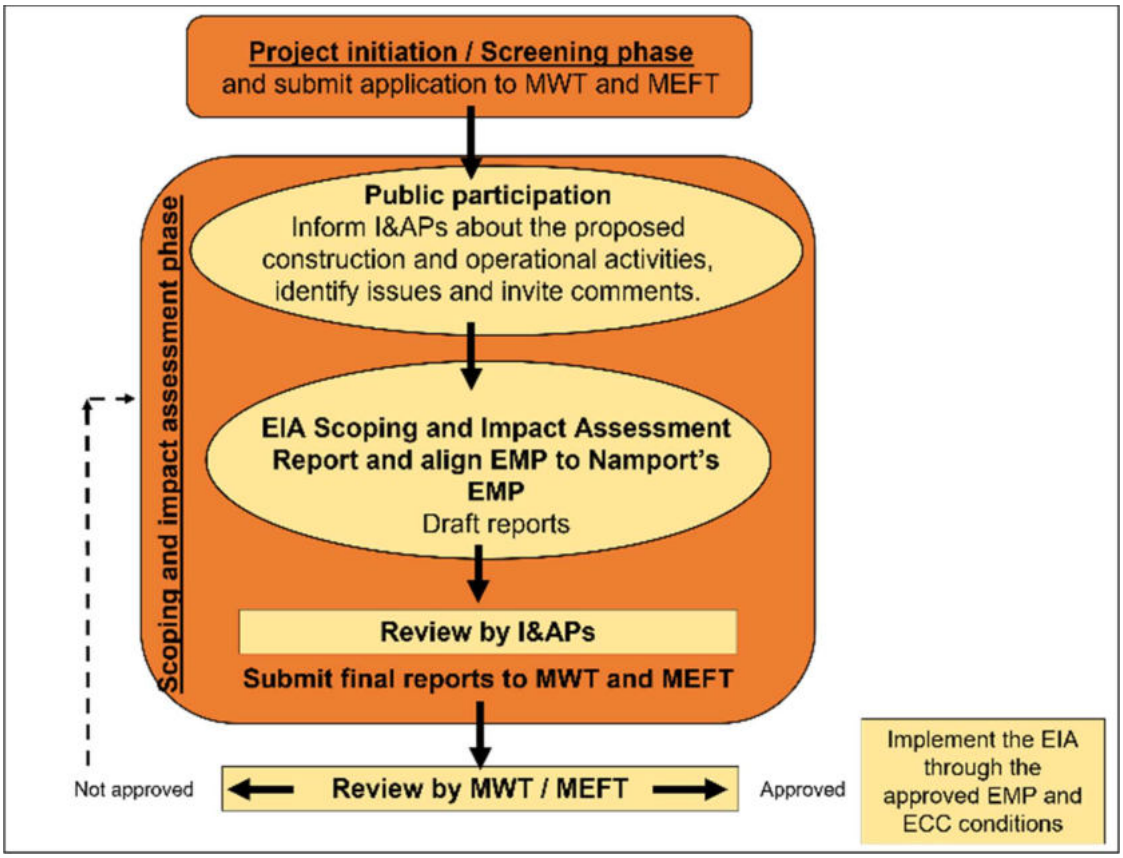

FIGURE B: THE EIA PROCESS

2.1 EIA Team

WBCT appointed Namisun Environmental Projects and Development (Namisun), as an independent environmental consulting company to undertake the required EIA process.

Dr Pierré Smit, the project manager, holds a PhD in Landscape Ecology and has more than twenty-seven years of experience in environmental management, managing environmental assessment, the implementation of EMPs and Environmental Management Systems (EMSs) in Namibia.

Werner Petrick, the project reviewer, has more than twenty-three years of relevant experience in conducting / managing EIAs, compiling EMPs and implementing EMPs and EMSs. Werner has a B. Eng (Civil) degree and a master's degree in environmental management and is certified as lead environmental assessment practitioner (EAP) and reviewer under the Environmental Assessment Professionals Association of Namibia (EAPAN).

2.2 Steps in the public participation process

Registered Interested and Affected Parties (I&APs) were provided with the opportunity to comment on the EIA Scoping (including an impact assessment) Report. The comment period ended on 24 February 2023 where after the report and EMP was updated to a final report with due consideration of the comments received, for submission to the MWT as the competent authority and the MEFT for decision-making.

The steps that were followed as part of the consultation process are summarised below:

- Namisun notified MEFT and MWT of the proposed project through a Background Information Document (BID).
- Namisun notified MEFT through the submission of the EIA Application Form (Form 1) and registration via the online portal of the MEFT (APP-221109000287).
- Submit the Application Form to the MWT (Department of Transport, Directorate of Maritime Affairs), who is the Competent Authority for the EIA process, on the 25th of November 2022.
- Project initiation meetings and site visit with the WBCT team to discuss the proposed project.
- Namisun developed an EIA-specific stakeholder database for the project. This database (see Appendix D) was updated throughput the EIA process, as and when required.
- Namisun contacted (telephonically) various key stakeholders to confirm their e-mail addresses, to obtain further input and to share the relevant information.
- E-mails were sent to all I&APs on the database and site notices were placed in the port area of Walvis Bay (i.e. where the warehouse is planned).
- BIDs were distributed via email to relevant authorities and I&APs on the stakeholder database and copies were made available on request during the period 26 October – 9 November 2022. The purpose of the BID was to inform I&APs about the proposed project activities, the EIA process being conducted, possible environmental impacts and ways in which I&APs could provide input to Namisun. Attached to the BID was a registration and response form, which provided I&APs with an opportunity to submit their names, contact details and comments on the project.
- Block advertisements were placed on the 26th of November and again the 2nd of December 2022 in the Market Watch, which forms part of the following newspapers: Die Republikein; Allgemeine Zeitung; and The Namibian Sun.
- Focus Group Meetings were held in Walvis Bay on 7 and 18 November 2022.
- A hard copy of the Draft Scoping (including an impact assessment) Report and EMP (including all appendices) were made available for review at the public library in Walvis Bay during the period 27 January 2023 – 24 February 2023.
- Electronic copies of the executive summary of the Scoping (including an impact assessment) Report and EMP (excluding the appendices) were distributed to all registered I&APs and relevant regulatory authorities via e-mail.

- Electronic copies of the full report (including appendices) were available on request.
- Authorities and I&APs had the opportunity to review the draft report and submit comments in writing to Namisun. The closing date for comments was 24 February 2023.
- Namisun incorporated the comments from I&APs and regulatory authorities received. Where relevant, the report was updated. A copy of the final report, including authority and I&AP review comments, was delivered to the MWT, who will forward it, with their recommendations, to MEFT for their review and final decision regarding the application for environmental clearance.

2.3 Opportunity to comment

I&APs were invited to comment on this EIA Scoping (including an impact assessment) Report, which was available for a review and comment period from **27 January 2023**. Comments must have been sent to Namisun at the address, telephone number, or e-mail address shown below before **24 February 2023**.

Namisun
Attention: Pierré Smit
E-mail address: oudoring@gmail.com
Cell number: +264 (0)81 752 7207

3. Project description

3.1 Design

The proposed new warehouse will be of a rectangular shape and is planned to cover a surface area of <4,000 m^2. The warehouse will have 3 m-high free-standing concrete walls with a steel structure on top for the roof. The maximum height of the building will be <10 m. The pavers that cover the area where the warehouse is planned will be replaced with a 150 mm thick concrete-sealed surface to make the floor more stable for the use of heavy vehicles and equipment and to eliminate the possibility of seepage.

3.2 Construction

All components for the construction of the warehouse will be delivered and offloaded onsite and all construction activities are planned to take place onsite. Construction activities include concrete mixing and pouring, bricklaying, welding and metal works, use of cranes and scaffolding, placement of the roof structure and roof, and painting. Only one contractor, with not more than ten of its own employees, will be appointed to do the proposed construction and the anticipated

period of construction is not more than five months. Construction will only commence when all required compliances are in place and when the final approval is given by Namport in the form of a construction permit.

3.3 Operations

The new warehouse will be used for the bulk handling and storage of copper concentrate only, no blending of product will take place, and only copper concentrate from one source in Zambia will be received and handled.

WBCT will receive the bagged copper concentrate on flat-bed trucks from Zambia. Inside the warehouse the trucks will be offloaded, the bags will be opened, and the content stockpiled in bulk by a payloader. No stacking of bags will take place. Less than 70 truckloads of the bagged copper concentrate per week is expected.

Once a vessel arrives in the port, the stockpiled concentrate will be reloaded by the payloader into skips mounted on trucks (inside the warehouse), which will be transported to the quayside where the skips will be hoisted by crane and decanted into the ship's cargo hold.

All services to the new warehouse (water, electricity, sewage, waste removal, access, etc.) will be provided from the existing facilities and arrangements of WBCT.

Six new employees will be appointed.

3.4 The product

Copper concentrate is the first commercial product in the value-adding chain of copper and is a powdery product that typically contains 20 – 30% copper and <5% variable co-constituents. It is stable under storage at normal ambient temperatures, but it must be kept away from heat, hot surfaces, sparks, open flames, and other ignition sources due to its self-heating properties. Strong acids and oxidising agents are regarded as incompatible materials.

As cargo in transit, copper concentrate is not classified as hazardous or dangerous goods. No special arrangement in terms of Namport's operating procedures for the handling and storage of dangerous goods have to be made, neither is any arrangement with the Walvis Bay Municipality or the Ministry of Safety and Security in terms of the planning of routes necessary.

The product is regarded as very toxic to aquatic life and releases into the environment must be avoided. Spillage on dry ground must be scooped up and put in closed and suitable containers for relocation or disposal. Disposal of waste must be in accordance with environmental legislation and waste codes applicable per local conditions.

4. Identification of environmental aspects and potential impacts

The proposed project has the potential to cause impacts on the environment. Environmental aspects and potential impacts were identified by the environmental team during the screening and scoping phases, in consultation with authorities, I&APs and the project team. For context, the description of the potential impacts should be read with the corresponding descriptions of the current environment in Chapter 6 of this report.

Furthermore, it must be noted that the proposed new warehouse will be constructed on an already disturbed area and potential impacts are considered cumulatively. The potential impacts were assessed by Namisun, taking the existing situation as well as additional facilities and activities into consideration with a specific focus on potential impacts on the closest sensitive receptors. Based on the discussions in Chapter 6, the following aspects / potential impacts require further assessment (see Chapter 7):

- Noise – from the use of vehicles and equipment during construction, receiving copper concentrate on flat-bed long-distance trucks, debagging, stockpiling and reloading activities in the warehouse, transport of copper concentrate from the warehouse to the quayside and decanting activities.
- Air quality (dust) – from debagging, stockpiling and reloading activities in the warehouse, transport of copper concentrate from the warehouse to the quayside and decanting activities.
- Potential spillage of copper concentrate into seawater during decanting activities.

5. Environmental impact assessment findings

This section describes and assesses the significance of the potential impacts related to the proposed project, taking the proximity of the existing facilities and activities in the port area into consideration.

The issues that were identified as requiring further assessment; and the assessment findings are summarised in Table A.

TABLE A: SUMMARY OF POTENTIAL IMPACTS ASSOCIATED WITH THE PROPOSED PROJECT

Potential Impact	Significance	
	Before mitigation	After mitigation
Noise from vehicles and equipment during construction	**M**	**L**
Noise from receiving copper concentrate on flat-bed long-distance trucks	**M**	**L**
Noise from debagging, stockpiling and reloading activities in the warehouse	**M**	**L**
Noise from transporting copper concentrate from the warehouse to the quayside	**M**	**L**
Noise from decanting activities	**M**	**L**
Dust from debagging, stockpiling and reloading activities in the warehouse	**M**	**L**
Dust from transporting copper concentrate from the warehouse to the quayside	**M**	**L**
Dust from decanting activities	**M**	**L**
Spillage of hazardous substance (copper concentrate) into seawater during decanting activities	**M**	**L**

6. The way forward

The way forward is as follows:

- Submission of the final report (including I&APs' comments) to MWT and MEFT for their review and decision.
- MWT and MEFT review the final report and provide record of decision.

7. Environmental impact statement and conclusion

Namisun believes that all environmental aspects and potential impacts associated with the proposed amendment was identified and appropriately assessed.

The activities associated with the proposed amendment have the potential to cause impacts to the environment. However, the impacts can be avoided / minimized (i.e. mitigated) to acceptable levels with the implementation of the EMP applied.

Based on the findings of the EIA Scoping (including an impact assessment) Report, Namisun is of the opinion that this document is sufficiently robust and provides sufficient information for MEFT to make an informed decision.

It is recommended that, if MEFT provides a positive decision on the application for an environmental clearance, they should include a condition to the clearance certificate that WBCT must implement all commitments in the EMP.

EIA SCOPING (INCLUDING AN IMPACT ASSESSMENT) REPORT FOR THE PROPOSED NEW WAREHOUSE FOR BULK HANDLING OF COPPER CONCENTRATE ON THE SITE OF WALVIS BAY CARGO TERMINAL IN THE PORT OF WALVIS BAY

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ACRONYMS AND ABBREVIATIONS

The list of acronyms and abbreviations used in this report are summarized in the table below:

Acronyms / Abbreviations	Definition
amsl	Above mean sea level
CO	Carbon monoxide
COVID-19	Corona Virus Disease
CV	Curriculum vitae
DEA	Department Environmental Affairs
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals Association of Namibia
EC	European Community
ECC	Environmental Clearance Certificate
EIA	Environmental Impacts Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
GDP	Gross Domestic Product
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
I&APs	Interested and / or affected parties
IHME	Institute for Health Metrics and Evaluation
IMO	International Maritime Organization
MEFT	Ministry of Environment, Forestry and Tourism
MET	Ministry of Environment and Tourism
MoHSS	Ministry of Health and Social Services
MWT	Ministry of Works and Transport
NACOMA	Namibian Coast Conservation and Management Project
NAAQS	National ambient air quality standards
Namport	Namibian Ports Authority
NamRa	Namibia Revenue Agency
NDP	National Development Plan
NNNP	Namib-Naukluft National Park
NO_2	Nitrogen dioxide
NSA	Namibia Statistics Agency
O_3	Ozone
PM	Particulate matter
PPE	Personal protective equipment
(Pty) Ltd	Proprietary Limited
SADC	Southern African Developing Community
SAIEA	Southern African Institute for Environmental Assessment
SANS	South African National Standards
SDG	Sustainable Development Goals
SDS	Safety Data Sheet
SEA	Strategic Environmental Assessment
SEMP	Strategic Environmental Management Plan
SME	Small and medium enterprise
SO_2	Sulphur dioxide

SWAPO	Southwest Africa People's Organisation
TB	Tuberculosis
TSP	Total suspended particulates
WB	World Bank (Group)
WBCT	Walvis Bay Cargo Terminal
WHO	World Health Organization

1 INTRODUCTION

This chapter describes the purpose of the report, briefly describes the background and location of the project, summarizes the legislative requirements, explains the report structure, summarizes assumptions and limitations of the study and explains how the input from key stakeholders was included.

1.1 PURPOSE OF THIS REPORT

This Environmental Impact Assessment (EIA) Scoping (including an impact assessment) Report has been compiled as part of the EIA process for the proposed new warehouse for the bulk handling of copper concentrate on the site of Walvis Bay Cargo Terminal (Pty) Ltd (WBCT) in the port of Walvis Bay.

Registered Interested and Affected Parties (I&APs) were provided with an opportunity to comment on this report (see Section 1.5). After the comment period closed, the report was finalized with due consideration of the comments received and will be submitted to the Department of Transport (Directorate of Maritime Affairs) at the Ministry of Works and Transport (MWT) (i.e. the competent authority) and the Ministry of Environment, Forestry and Tourism (MEFT), Department of Environmental Affairs (DEA) for decision-making.

1.2 BACKGROUND AND LOCATION

WBCT commenced business in April 2011, as a company that specializes in logistics and warehousing. The company is a joint venture between IXM and AccessWorld and registered in Namibia.

IXM is a global trader of a diverse range of commodities. AccessWorld is a logistics and distribution business and specialises in the movement of high volume, bulk and break-bulk products into and out of sub-Saharan Africa via its extensive road and rail transport network and warehouse infrastructure.

WBCT currently has 25,000 m^2 of warehousing space within the port of Walvis Bay. The port is managed by the Namibian Ports Authority (Namport). The WBCT site is situated close to the northern entrance of the port area and opposite Etosha Fishing (see Figure 1). WBCT handles a range of minerals and other commodities, which are being exported via Walvis Bay and or imported into Namibia and other sub-Saharan African countries.

WBCT proposes to construct a new warehouse, adjacent to their existing warehouses (see Figure 2). The new warehouse will be used for bulk handling and storage of copper concentrate.

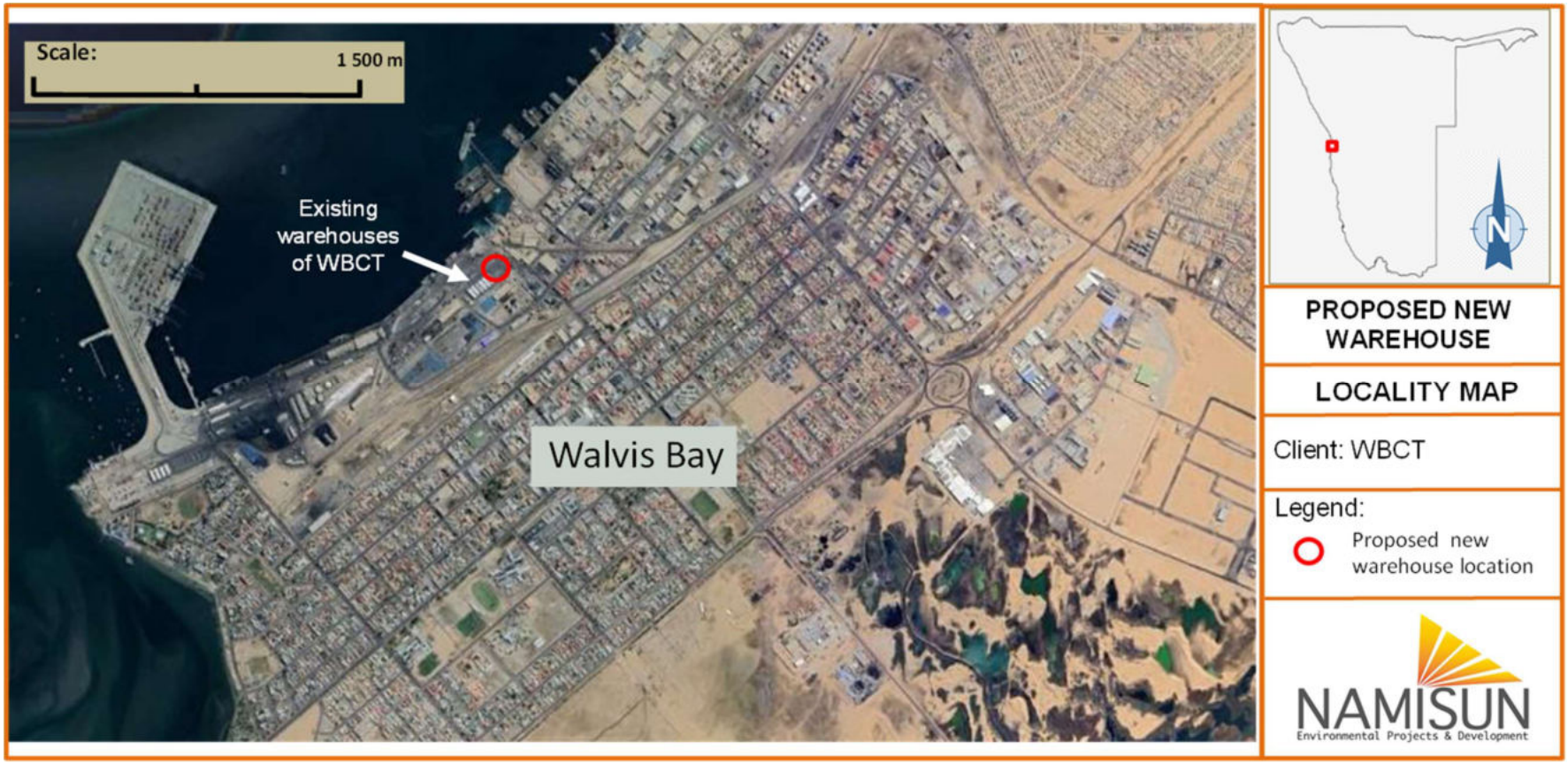

FIGURE 1: LOCATION OF THE PROPOSED NEW WAREHOUSE ON THE WBCT SITE IN THE PORT OF WALVIS BAY

FIGURE 2: PROPOSED POSITIONING OF THE NEW WAREHOUSE ON THE SITE OF WBCT

The area where the proposed new warehouse is planned is currently used for the open storage of random items, including temporary containers of WBCT. These items will be relocated to avail the area for construction.

1.2 MOTIVATION (NEED AND DESIRABILITY) FOR THE PROPOSED PROJECT

As a sheltered deep-water harbour, Walvis Bay is the primary port of Namibia, linked to the national rail network and a well-developed road network which constitutes the Trans-Caprivi and Trans Kalahari corridors. These corridors connect the port with Angola, the Democratic Republic of Congo, Zambia, Zimbabwe, Botswana and South Africa. The port is under jurisdiction of Namport, who acts as landlord over the tenants in the port and handles container imports, exports and trans-shipments, storage, as well as bulk and breakbulk volumes of various commodities.

Walvis Bay is a preferred point of export for Zambian copper, recently reaffirmed by new bilateral agreements between Namibia and Zambia. Export of Zambian copper forms part of the core business of WBCT and to diversify and grow the current business, the bulk handling and export of copper concentrate – also from Zambia – will be added as an operational activity. To include this activity, it is proposed to construct a new warehouse on its premises.

By adding a facility to do the bulk handling of copper concentrate, WBCT will play an important role to strengthen the port of Walvis Bay as a preferred point of export for Zambian copper. This intention is also aligned to several strategic development objectives of Namibia, as discussed below.

1.2.1 NATIONAL OBJECTIVES

One of the objectives of Vision 2030 is to "*ensure the development of Namibia's 'natural capital' and its sustainable utilization, for the benefit of the country's social, economic and ecological well-being*". In line with this objective, the Fifth National Development Plan 2017/18 – 2021/22 (NDP5) aims to achieve rapid industrialization while adhering to the four integrated pillars of sustainable development: Economic Progression, Social Transformation, Environmental Sustainability and Good Governance.

NDP5 recognises the importance of Namibia's transformation into an industrialized economy, value-added industrialisation, creating value-chains of production, and to accelerate Small and Medium Enterprise (SME) development (Ashby, 2022, referenced in Namisun, 2022). To achieve rapid industrialization, transport and logistics are seen as priority sectors which require support for developing Namibia into a gateway to the region. The port of Walvis Bay and the development of the Trans-Caprivi and Trans-Kalahari corridors are key elements in this thinking, emphasized

in the master plan for the development of an international logistics hub for the Southern African Developing Community (SADC) countries in Namibia by the National Planning Commission in 2015. The master plan aims at developing a logistics hub in Namibia and highlights the port of Walvis Bay as a key role in this venture. The plan furthermore recognizes the importance of adequate transport infrastructure linking the port of Walvis Bay to potential markets (Namport, 2019).

1.2.2 REGIONAL OBJECTIVES

The Erongo Regional Council aims to support and enhance initiatives that are aligned with national objectives expressed in strategic documents such as NDP5. The role of the council is to coordinate and deliver quality and accessible service for the (sustainable) upliftment of the livelihood of the community through good governance. Its Strategic Plan (2017/18 - 2021/22) is aligned to the national planning initiatives contained in the Vision 2030, NDP5, Harambee Prosperity Plan, SWAPO Party Election Manifesto, Decentralization Policy and Sustainable Development Goals (SDG) of the United Nations. The proposed project is in line with the council's strategic objectives to promote regional economic development.

1.2.3 LOCAL OBJECTIVES

On the local level Walvis Bay Municipality aims to facilitate development of the town as an industrial and logistical hub of southern Africa. This intention is contained in strategic documents such as the Integrated Urban Spatial Development Framework and the Walvis Bay Structure Plan.

Development of the port of Walvis Bay is closely coupled to the development agenda of the Walvis Bay Municipality. Activities of the port bring several benefits to the town and reason the existence for many of the local businesses and is one of the biggest employers of the town's residents.

1.3 THE EIA PROCESS

Prior to the commencement of the construction of the proposed new warehouse for the bulk handling of copper concentrate, environmental clearance is required from the regulatory authority, the DEA of the MEFT in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966) and its associated regulations were promulgated in January 2012 (Government Gazette No. 4878).

WBCT appointed Namisun Environmental Projects and Development (Namisun), as an independent environmental consulting company to undertake the required EIA process, and to

compile the report and accompanying Environmental Management Plan (EMP) as part of the application process for an Environmental Clearance Certificate (ECC).

1.3.1 General description of the EIA process

This EIA process includes a screening phase and a scoping phase (including an impact assessment) and the development of an EMP (see Figure 3). The assessment methodology is discussed in Chapter 2, which describes the phases of the assessment process in detail.

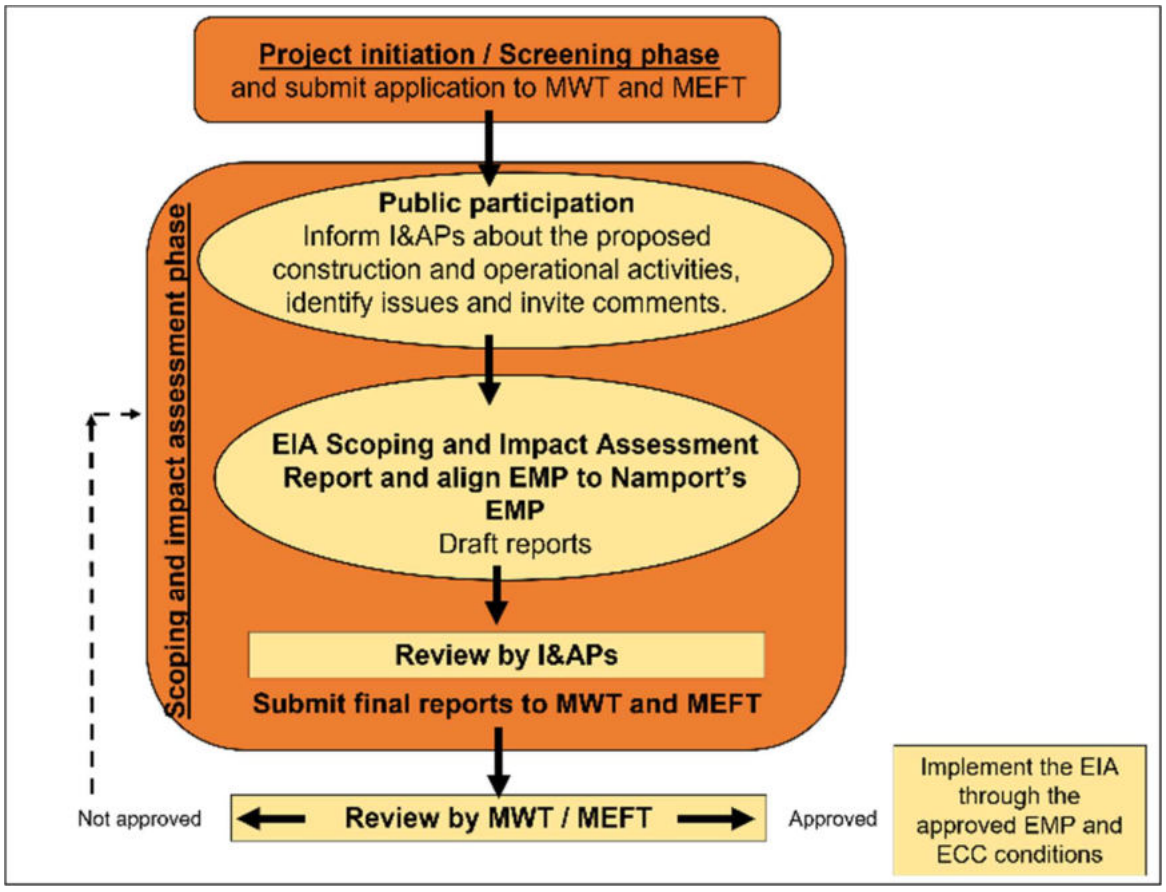

FIGURE 3: THE EIA PROCESS

This report is the Scoping Report, with impact assessments included, the main purpose of which is to provide information relating to the proposed project and to indicate which environmental aspects and potential impacts have been identified during the internal screening and scoping phases. Existing information was used in this report and has been further augmented by site visits and input from comments gathered during consultations with key stakeholders through focus

group meetings. The potential cumulative impacts of the activities associated with the proposed project could therefore be assessed and the assessment findings are included in this report.

The overall objectives of this assessment process are to:

- Provide information on the proposed project.
- Describe the current environment in which the project will be situated, within the existing WBCT area inside the port of Walvis Bay.
- Identify, in consultation with I&APs the potential environmental aspects associated with the project.
- Assess the potential impacts associated with the facilities and activities relating to the bulk handling and storage of copper concentrate inside the proposed new warehouse.
- Develop an EMP specific for the proposed new warehouse to avoid / minimise the potential impacts of the project, also considering the existing EMP for the 'bigger' port area administered by Namport.

The EIA process has been registered on the EIA online portal of the MEFT. A final decision relating to the application will be made by the DEA of the MEFT. Parallel application for an ECC was submitted to the competent authority, the MWT, who will review the application and relevant reports and submit their comments to the MEFT.

The EIA process and corresponding activities which have been undertaken for this project are outlined in Table 1. The process that was followed was in accordance with the requirements outlined in the EIA Regulations of 2012.

TABLE 1: THE EIA PROCESS

Objectives	Corresponding activities
Project initiation and screening phase (October 2022)	
• Information requirements • Initiate the EIA Scoping process	• Project initiation meetings and site visit with the WBCT team to discuss the proposed project and EIA / ECC Application process. • Early identification of environmental aspects and potential impacts associated with the proposed project activities and determine additional legal requirements. • Decision on EIA process to be followed. • Identify key stakeholders and compose an I&AP database.
Scoping (including an impact assessment) phase (November 2022 to February 2023)	
• Involve I&APs in the scoping process through information sharing.	• Notify authorities and I&APs of the proposed EIA process (phone calls, e-mails, newspaper advertisements and site notices). • I&AP registration and initial comments.

• Identify potential environmental issues. • Consider alternatives. • Provide details associated with the potentially affected environment. • Assessment of potential environmental impacts associated with the proposed project. • Develop management and mitigation measures. • ECC application. • Receive feedback on the application.	• Key stakeholder (focus group) meetings and include I&AP issues and concerns in the study where relevant. • Compilation of EIA Scoping (including an impact assessment) Report and EMP. • Distribute the report and EMP to relevant authorities and I&APs for review. • Update and finalizes the report with EMP • Online registration of the project onto MEFTs portal. • Submit application and finalized report with EMP and I&APs comments to MWT and MEFT for decision-making.

It is thought that this EIA Scoping (including an impact assessment) Report and accompanying EMP will provide sufficient information for MEFT to make an informed decision regarding the application, and whether an ECC can be issued or not. Table 2 outlines the report content.

TABLE 2: SCOPING REPORT CONTENT

Chapter	Objective
Chapter 1: Introduction	Describes the purpose of the report, briefly describes the project, explains the report structure, summarises assumptions and limitations of the study and explains how the input of I&APs was included.
Chapter 2: EIA process methodology	Outlines the EIA process, including the I&AP consultation process.
Chapter 3: Legal framework	Provides an overview of relevant Namibian policies and applicable Namibian legislation
Chapter 4: Description of the proposed project	Describes the construction and operation of the proposed new warehouse for bulk handling of copper concentrate.
Chapter 5: Alternatives	This chapter summarises the project alternatives.
Chapter 6: Description of the current environment	Provides a general overview of the current baseline conditions associated with the proposed new warehouse.
Chapter 7: Identification and description of potential impacts	Outlines the environmental aspects and potential impacts associated with the construction and operations of the proposed new warehouse.
Chapter 8: Impact Assessment	Assesses the key potential impacts (as identified in Chapter 7).
Chapter 9: Way forward	Describes the way forward to include the EIA process.
Chapter 10: Conclusion and recommendations	EIA conclusion and impact statement
Chapter 11: References	Reference list.
Appendices	Contains all supporting information

The EMP is a stand-alone document, based on the findings from the EIA process as presented in this Scoping (including an impact assessment) Report. The EMP is aligned to the existing EMP for the port area administered by Namport. The EMP is thus site-specific and provides the necessary management and mitigation measures relating to the construction and operations of the proposed new warehouse for the bulk handling of copper concentrate only.

1.3.2 EIA TEAM

Namisun Environmental Projects and Development (Namisun) is an independent environmental consultancy firm appointed by WBCT to undertake the EIA process.

Dr Pierré Smit, the EIA Project Manager, holds a PhD in Landscape Ecology and has more than twenty-seven years of experience in environmental management, managing environmental assessment, the implementation of EMPs and Environmental Management Systems (EMSs) in Namibia.

Werner Petrick, the EIA Project Reviewer, has more than twenty-three years of relevant experience in conducting / managing EIAs, compiling EMPs and implementing EMPs and Environmental Management Systems (EMSs). Werner has a B. Eng (Civil) degree and a master's degree in environmental management and is certified as lead environmental assessment practitioner (EAP) and reviewer under the Environmental Assessment Professionals Association of Namibia (EAPAN).

The relevant curriculum vitae (CV) documentation is attached as Appendix A.

The environmental project team and proponent details for the EIA amendment process relating to the project is outlined in Table 3.

TABLE 3: EIA TEAM AND PROPONENT DETAILS

Team	Name	Designation	Tasks and roles	Company
Project proponent	Ockert Botha	General Manager	Technical input Implementation of the EMP	WBCT
EIA Project Manager	Pierré Smit	EAP	Management of the EIA process and reporting	Namisun
EIA Project Reviewer	Werner Petrick	EAP	Review of the EIA process and reports	

1.4 Assumptions and Limitations

Some general assumptions are described below.

1.4.1 Study Area

The area under investigation is defined as the site of WBCT, meaning that the rest of the port area under administration of Namport is of peripheral interest to the assessment.

1.4.2 Existing Baseline Information

It is assumed that the information provided by WBCT, covering all technical information and the baseline environmental description, is accurate. It is also assumed that the existing EMP for the port area, which is administered by Namport, is based on accurate baseline information.

1.4.3 Environmental Assessment Limit

The following activities and associated potential impacts are excluded from this application / assessment (i.e. this report):

- Potential impacts associated with other proposed facilities and activities outside of the WBCT site are not considered in this report.
- The assessment focuses only on the handling and storage of copper concentrate inside the proposed new warehouse.
- Transport of copper concentrate outside the port boundaries are excluded from this study.
- The EIA focused on third parties only and did not assess health and safety impacts on workers because it is assumed that these aspects are separately regulated by health and safety legislation, policies and standards, and that WBCT will adhere to these.

1.4.4 Consultation with I&APs

Personnel from Namport were engaged during the assessment.

Focus group meetings took place on 7 November 2022 with personnel of Namport, other port users, immediate site neighbours and other parties (in Walvis Bay) who registered as I&APs. An additional focus group meeting with key personnel of the Walvis Bay Municipality was held on 18 November 2022. Consultation with I&APs was ensured through an advertisement in newspapers, site notices, email notifications and the distribution of relevant EIA documents, i.e. a background information document (BID) and this EIA Scoping (including an impact assessment) Report and EMP (see Section 2.2 for further details).

1.5 OPPORTUNITY TO COMMENT

I&APs were invited to comment on this Scoping (including an impact assessment) Report and EMP, which were available for a review and comment period from 27 January 2023 to 24 February 2023. Comments on the reports must have been sent to Namisun at the telephone number, or e-mail address shown below before 24 February 2023.

Namisun

Attention: Dr Pierré Smit or Werner Petrick

E-mail address: oudoring@gmail.com or wpetrick.namisun.com

Cell number: +264 (0)81 752 7207 or (0)81 739 4591

2 EIA PROCESS (SCOPING AND ASSESSMENT) METHODOLOGY

This chapter outlines the EIA Scoping and Impact Assessment methodology and I&AP consultation process followed.

2.1 INFORMATION COLLECTION

Namisun obtained information from WBCT to identify the potential environmental aspects and impacts associated with the construction and operations of the proposed new warehouse and the associated handling and storage of copper concentrate. Additional information for the preparation of this report was sourced from:

- Atlas of Namibia (Mendelsohn et al., 2002).
- Technical information provided by WBCT.
- Site visits by Namisun (October, November 2022).
- Consultations and focus group meetings with I&APs (November 2022).
- Information retrieved from the current EMP for the port area (Namport, 2019).
- Relevant EIA Reports by Namisun (Namisun, 2021 and 2022).
- Relevant EIA Reports conducted by SLR (SLR, 2013; 2015 and 2022).
- Air quality information (MME, 2019; Airshed, 2022).
- Information retrieved from the internet:
    - http://worldpopulationreview.com/countries/namibia-population/;
    - www.boz.zm;
    - www.mhss.gov.na;
    - www.meteoblue.com
- Socio-economic information retrieved from several reports (NPC, 2011; IHME, 2016; WHO, 2016; NHS, 2017 and 2019; SPC, 2020)
- Google Earth.

2.2 SCOPING REPORT STRUCTURE

The structure of this EIA Scoping (including an impact assessment) Report is outlined in Table 4, following largely the Scoping Report requirements as set out in Section 8 of the EIA Regulations (2012), promulgated under the Environmental Management Act, No. 7 of 2007.

TABLE 4: REPORT STRUCTURE, AS STIPULATED IN THE EIA REGULATIONS

Component	Report reference
(a) Details of the Environmental Assessment Practitioner (EAP) who prepared the report.	Section 1.3.2 and Appendix A
(b) A description of the proposed activity.	Chapter 4
(c) A description of the environment that may be affected by the activity and the way the physical, biological, social, economic, and cultural aspects of the environment may be affected by the proposed project.	Chapters 6, 7 and 8
(d) A description of the need and desirability of the proposed listed activity and identified potential alternatives to the proposed listed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.	Section 1.2, Chapter 5, 7 and 8
(e) An identification of laws and guidelines that have been considered in the preparation of the Scoping Report.	Chapter 3
(f) Details of the public consultation process conducted in terms of Regulation 7(1) in connection with the application, including:	Section 2.3
(i) steps that were taken to notify potentially interested and affected parties of the proposed application;	Section 2.3.2 and Appendix B
(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;	
(iii) a list of all persons, organisations and organs of state that were registered in terms of Regulation 22 as interested and affected parties in relation to the application; and	Section 2.3.1 and Appendix D
(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	Section 2.3.3 and Appendix C
(g) an indication of the methodology used in determining the significance of potential effects / a description and assessment of the significance of effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Chapters 7 and 8
(h) a description and comparative assessment of all alternatives identified during the assessment process;	Chapter 5
(i) a description of all environmental issues that were identified during the assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures;	Chapter 7 and 8
(j) an assessment of each identified potentially significant effect;	
(k) a description of any assumptions, uncertainties and gaps in knowledge;	Section 1.5
(l) a management plan;	Separate document

Component	Report reference
(m) an opinion as to whether the proposed listed activity must or may not be authorised, and if the opinion is that it must be authorised, any conditions that must be made in respect of that authorisation	Chapter 10
(n) a non-technical summary of the information	Executive Summary

2.3 PUBLIC PARTICIPATION PROCESS

The public participation process for the proposed project was conducted to ensure that all persons and or organisations that may be affected by, or are interested in the proposed activities and infrastructure, were informed of the project and could register their views and concerns. By consulting with relevant authorities and I&APs, the range of environmental issues to be considered in this report has been given specific context and focus.

Section 2.3.1 provides a summary of I&APs consulted, Section 2.3.2 describes the process that was followed, and the issues that were identified are summarized in Section 2.3.3.

2.3.1 INTERESTED AND AFFECTED PARTIES

The broad list of persons, group of persons or organisations that were informed about the project and were requested to register as I&APs, should they be interested and or affected, include:

- The Department of Transport (Directorate of Maritime Affairs) at the MWT.
- The DEA at the MEFT.
- Erongo Regional Council.
- The local authority of Walvis Bay.
- Namport.
- Other port users (near the WBCT site).
- Site neighbours and I&APs.

These stakeholders were informed about the need for the proposed project activities, the EIA process (including the public consultation), as well as the outcomes of the assessment (see Appendix B). The full stakeholder database for this project is included in Appendix D of this report.

Various focus group meetings were held with key stakeholders with the following objectives:

- Provide the locations and description of the proposed activities.
- Provide a description of the EIA process.

- Provide I&APs with an initial opportunity to be involved in the EIA process.
- Identify any potential environmental issues and impacts.
- Describe the way forward highlighting further opportunities to be involved in the EIA process.

Minutes of the meetings are contained in Appendix C.

2.3.2 STEPS IN THE CONSULTATION PROCESS

Table 5 sets out the steps that were followed as part of the consultation process.

TABLE 5: CONSULTATION PROCESS WITH I&APS

TASK	DESCRIPTION	DATE
Notification - regulatory authorities and I&APs		
Notification to MWT and MEFT	Namisun notified the DEA of the MEFT of the proposed project through registering the project on their online portal and uploading the BID. The ECC application form and BID were submitted to the competent authority	November 2022
I&AP identification	The WBCT EIA stakeholder database was developed and was updated as and when required. A copy of the I&AP database is attached in Appendix D.	October 2022 – ongoing
Distribution of the BID	Copies of the BID were distributed via email to relevant authorities and I&APs on the stakeholder database and hard copies were made available on request. The purpose of the BID was to inform I&APs and authorities about the proposed project, the assessment process being followed, possible environmental impacts and ways in which I&APs could provide input / comments to Namisun. Copies of the notifications and BID are attached in Appendix B.	November 2022
Site notices	Site notices were placed at on the boundaries of the WBCT site to notify I&APs of the proposed project, and the EIA process being following. Photos of the site notices that were displayed are attached in Appendix B.	November 2022
Newspaper Advertisements	Block advertisements were placed in the Market Watch (on 26 October 2022 and 2 November) as part of the following newspapers: • The Namibian Sun • Die Republikein • Allgemeine Zeitung Copies of the advertisements are attached in Appendix B.	October and November 2022
Key stakeholder and focus group meetings		
Focus group meetings	Five focus group meetings were held, with: • Namport-personnel. • Other port users. • NamRa personnel (immediate site neighbours). • Personnel of Etosha Fishing (immediate site neighbours)	November 2022

TASK	DESCRIPTION	DATE
	• Personnel of the Walvis Bay Municipality. The minutes of these meetings are summarised and attached under Appendix C.	
Submission of comments by I&APs		
Comments and responses	A summary of all questions / comments / issues raised (with responses) by I&APs throughout the process and during the meetings are documented and were incorporated in this report (see Section 2.3.3).	November 2022
Review of the draft Scoping (including an impact assessment) Report and EMP		
I&APs and authorities review of the draft Scoping (including an impact assessment) Report and EMP	Copies of the Scoping (including an impact assessment) Report with the accompanying EMP were available for public review. Electronic copies of the report were also available on request from Namisun. Summaries of the report were distributed to all relevant authorities and I&APs on the stakeholder database via e-mail (see Appendix B). Authorities and I&APs had the opportunity to review the draft report and submit comments in writing to Namisun. The comments period commenced on **27 January 2023** and the closing date for comments was **24 February 2023.**	January and February 2023
MWT and MEFT review of the final Scoping (including an impact assessment) Report and EMP and decision on the application	Namisun incorporated the comments received. A copy of the final report with the Application Form, including comments from authorities and I&APs, was submitted to the MWT for review and recommendation to MEFT who will do the final review for decision-making. The final report (including I&APs comments) and application were also uploaded onto the MEFT portal.	February 2023
Communicate decision to I&APs	MEFT's decision regarding the ECC application will be communicated to all register I&APs via email.	After MEFT's review period

2.3.3 SUMMARY OF THE ISSUES RAISED

During the initial I&AP registration and BID-comment period:

No comments were received per email or discussed per phone call or WhatsApp.

Raised during the Focus Group Meetings:

The following were the main topics covered in the comments received from I&APs (also during the focus group meetings):

- An increase of activities in the port area is closely coupled to an increase in noise levels and the additional business may contribute to the cumulative impact of noise.
- An increase of activities in the port area contributes to the cumulative impact of dust.

- Like with any commodity that is handled in the port area, spillages may occur and as stakeholders are unfamiliar with the new product, they raise questions about the potential of copper concentrate spillages and how it will be managed.
- Additional volumes and types of waste are generated by the new activity.
- Based on previous experiences with manganese, some stakeholders were concerned about side effects of exposure to copper concentrate.
- An increase of activities in the port area implies an increase in traffic and related issues such as congestion, deterioration of some roads and road safety.

The issues described above, together with their responses are described in greater detail in the Issues and Response Report contained in Appendix C.

No further comment was received during the public review period.

3 LEGAL FRAMEWORK

This chapter provides an overview of relevant Namibian policies and applicable Namibian legislation and international conventions / treaties applicable to the proposed project.

The Republic of Namibia has five tiers of law and a few guiding policies relevant to environmental assessment and protection, which include the Constitution of the Republic of Namibia, statutory law, common law, customary law and international law.

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. Article 95 (1) of the Constitution says: *"The State is obliged to ensure maintenance of ecosystems, essential ecological processes and biological diversity and utilisation of living natural resources on a sustainable basis for the benefit of Namibians both present and future"*.

In this context and in accordance with the constitution, Namibia has passed numerous laws intended to protect the natural environment and mitigate against adverse environmental impacts.

3.1 RELEVANT ACTS

The acts of relevance to this project are summarized in Table 6.

TABLE 6: RELEVANT LEGISLATION FOR THE PROPOSED PROJECT

YEAR	NAME	Natural Resource Use (energy & water)	Emissions to air (fumes & dust)	Emissions to land (non-hazardous & hazardous)	Emissions to water	Noise	Visual	Traffic	Impact on Land use	Impact on biodiversity	Impact on Archaeology	Socio-economic	3rd Party Safety & Health	Other
1956	Water Act, No. 54 of 1956, as amended	X			X							X		
1969	Soil Conservation Act, No. 76 of 1969 and the Soil Conservation Amendment Act, No. 38 of 1971	X		X	X				X	X				
1974	Hazardous Substance Ordinance, No. 14 of 1974													X
1976	Atmospheric Pollution Prevention Ordinance, No. 11 of 1976		X											
1990	The Constitution of the Republic of Namibia of 1990	X	X	X	X	X	X	X	X	X	X	X	X	
1990	Petroleum Products and Energy Act, No. 13 of 1990		X	X	X					X			X	X
1992	Minerals (Prospecting and Mining) Act, No. 33 of 1992	X	X	X	X					X				
1994	Namibian Ports Authority Act, No. 2 of 1994	X							X			X		X
1999	Road Traffic and Transport Act, No. 22 of 1999		X					X						
2000	Marine Resources Act, No. 27 of 2000	X			X					X				X

YEAR	NAME	Natural Resource Use (energy & water)	Emissions to air (fumes & dust)	Emissions to land (non-hazardous & hazardous)	Emissions to water	Noise	Visual	Traffic	Impact on Land use	Impact on biodiversity	Impact on Archaeology	Socio-economic	3rd Party Safety & Health	Other
2001	Road Traffic and Transport Regulations, Government Notice No. 53 of 2001		X	X	X			X					X	
2002	Aquaculture Act, No. 18 of 2002	X			X				X	X		X		X
2003	Pollution Control and Waste Management Bill (3rd Draft September 2003)		X	X	X	X								
2004	National Heritage Act of Namibia, No. 27 of 2004										X			
2007	Labour Act, 2007, No. 11 of 2007			X								X	X	
2007	Environmental Management Act, No. 7 of 2007	X	X	X	X	X	X	X	X	X	X	X	X	
2012	Regulations promulgated in terms of the Environmental Management Act, No. 7 of 2007	X	X	X	X	X	X	X	X	X	X	X	X	X
2013	Water Resources Management Act, No. 11 of 2013	X			X							X		
2014	Integrated Coastal Zone Management Bill	X			X				X	X				
2015	Public and Environmental Health Act, No. 1 of 2015					X							X	

3.2 Relevant Policies

In addition to the operational Namport Safety, Health, Environment and Quality Policy, some other policies and plans are relevant to this assessment:

- EIA Policy (1995)
- National Environmental Health Policy (2000).
- Draft Wetland Policy (2003).
- Minerals Policy of Namibia (2004).
- The National Climate Change Policy of Namibia (September 2010).
- National Marine Pollution Contingency Plan of 2017.
- National Development Plan, 2017/2018 – 2021/2022, guided by Vision 2030.
- Namibia Vision 2030.

3.3 Applicable Listed Activities

The EIA Policy (1995) is enforced through the Environmental Management Act, 7 of 2007 and the EIA Regulations of 6 January 2012 (EIA Regulations). In terms of this legal framework certain identified activities may not commence without an environmental clearance issued by MEFT.

The following activities identified in the regulations apply to the proposed new warehouse for the bulk handling of copper concentrate by WBCT:

"**HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE**

9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974".

3.4 Other Guidance and Regulatory Frameworks

3.4.1 International Legislation, Treaties, Standards and Guidelines

Some international legislation, treaties, standards and guidelines – some to which Namibia is a signatory – are also of relevance, including the following:

- Convention on the Prevention of Marine Pollution by Dumping Wastes and other Matter (London Convention) of 1972.
- International Convention for the Prevention of Pollution from Ships – MARPOL (1973)
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (referred to as the Ramsar Convention) of 1975.

- Convention on the Law of the Sea (1982).
- Vienna Convention for the Protection of the Ozone Layer (1985).
- Montreal Protocol on Substances that Deplete the Ozone Layer (1987).
- Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal (1989).
- International Convention on Oil Pollution Preparedness, Response and Cooperation (1990).
- Convention on Biological Diversity (1993).
- International Maritime Organization (IMO) Guidelines on Marine Security: International Ship and Port Facility Security Code (2004).
- Convention for the Prevention of Marine Pollution from Land-based Sources (2012).
- Benguela Current Convention of 2013 – an official treaty between Angola, Namibia and South Africa that sets out a coordinated intention to promote a coordinated regional approach to the long-term conservation, protection, rehabilitation, enhancement and sustainable use of the Benguela Current Large Marine Ecosystem, to provide economic, environmental and social benefits.

3.4.2 LEGISLATION AND GUIDELINES RELEVANT TO ATMOSPHERIC POLLUTION

The Atmospheric Pollution Prevention Ordinance, No. 11 of 1976 defines a range of pollutants as noxious and offensive gases, but does not include any ambient air standards with which to comply, or emission limits provided for Namibia per se. Reference is usually made to international ambient air quality guidelines and standards such as contained in the Atmospheric Pollution Prevention Act, No 45 of 1965 of South Africa, and the air quality criteria published by the World Bank Group (WB), World Health Organisation (WHO) and European Community (EC). The WHO is widely referenced, by neighbours such as South Africa and Botswana who have air quality standards in place.

Air quality guidelines and standards are based on benchmark concentrations that normally indicate safe daily exposure levels for the majority people, including the very young and the elderly, throughout an individual's lifetime. Air quality guidelines and standards are normally given for specific averaging or exposure periods and are evaluated as the observed air concentration expressed as a fraction of a benchmark concentration. A standard, as opposed to a benchmark concentration only, is a set of instructions which include a limit value and may contain a set of conditions to meet this limit value. A common condition included in a standard is the allowable

frequency of exceedances of the limit value. Standards are normally issued for criteria pollutants, i.e. those most commonly emitted by industry (Airshed, 2022, referenced in Namisun 2022).

In the absence of Namibian legislation with reference to air quality, guidelines and standards derived from the WB, WHO, EC, and South African National Standards (SANS) are thus used in Namibia to measure and monitor particulate matter (PM) <10 µm in aerodynamic diameter (PM_{10}), and Total Suspended Particulates (TSP) such as dust fall, sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3) and carbon monoxide (CO).

The international assessment criteria which are used to set the national ambient air quality standards (NAAQS) for South Africa (SA) are contained in Table 7. These standards were determined based on international best practice and closely follow WHO interim targets for developing countries, i.e. also applicable to Namibia (Airshed, 2022 referenced in Namisun, 2022).

TABLE 7: INTERNATIONAL ASSESSMENT CRITERIA FOR CRITERIA POLLUTANTS

Pollutant	Averaging Period	WHO Guideline (in µg/m³)	SA Guideline (in µg/m³)
Particulate Matter (PM_{10})	1-year	70 (IT1) 50 (IT2) 30 (IT3) 20 (IT4) 15 (guideline)	40 (e) (b)
	24-hour	150 (IT1) 100 (IT2) 75 (IT3) 50 (IT4) 45 (guideline)	75 (e)
Particulate Matter ($PM_{2.5}$)	1-year	35 (IT1) 25 (IT2) 15 (IT3) 10 (IT4) 5 (guideline)	25 (f) 20 (g) 15 (h)
	24-hour	75 (IT1) 50 (IT2) 37.5 (IT3) 25 (IT4) 15 (guideline)	65 (f) 40 (g) 25 (h)

Source: Airshed, 2022 (referenced in Namisun, 2022)

Notes:

(a) Intermediate goal based on controlling motor vehicle emissions; industrial emissions and/or emissions from power production. This would be a reasonable and feasible goal to be achieved within a few years for some developing countries and lead to significant health improvement.
(b) 4 permissible frequencies of exceedance per year
(c) 88 permissible frequencies of exceedance per year
(d) 526 permissible frequencies of exceedance per year
(e) Applicable from 1 January 2015.

(f) Applicable immediately to 31 December 2015.
(g) Applicable 1 January 2016 to 31 December 2029.
(h) Applicable 1 January 2030.

Air quality standards are not defined by all countries for dust deposition, although some countries may refer to annual average dust fall thresholds above which a 'loss of amenity' may occur. In the southern African context, widespread dust deposition impacts occur because of windblown dust from natural sources, unsealed roads, mining operations, and other fugitive dust sources. General measures for the control of dust in all areas including residential and light commercial areas in SA are regulated by dust control regulations since 2013. Similarly, Botswana applies dust deposition evaluation criteria, which are contained in Table 8 (Airshed, 2022 referenced in Namisun, 2022).

TABLE 8: DUST FALL RATES FOR BOTSWANA

Band number	Band description	30 Day average dust fall rate (mg/m^2-day)	Comment
1	Residential	Dustfall rate < 600	Permissible for residential and light commercial
2	Industrial	600 < Dustfall rate < 1 200	Permissible for heavy commercial and industrial
3	Action	1 200 < Dustfall rate < 2 400	Requires investigation and remediation if two sequential months lie in this band, or more than three occur in a year.
4	Alert	2 400 < Dustfall rate	Immediate action and remediation required following the first exceedance. Incident report to be submitted to relevant authority.

Source: BOS 498:2013, Airshed, 2022 referenced in Namisun 2022.

3.4.3 LEGISLATION AND GUIDELINES RELATED TO MARINE AFFAIRS

Namibia has a number of legislative frameworks in place to manage marine affairs through the Department of Works (Directorate of Marine Affairs) at the MWT. There are also a number of international conventions in place (see Section 3.3.1). It must be noted that this legislation and guidance are of direct relevance to offshore affairs and is only of an implied relevance to this assessment. Legislation includes amongst others:

- The Dumping at Sea Control Act, No. 73 of 1980, which provides for the control of dumping of substances in the sea and the permitting of dumping at sea of scheduled substances.

- Marine Notice, No. 2 of 2017, which sets forth the conditions and requirements under which the MWT may grant permission for the transfer of oil within the prohibited area of the Namibian waters.
- Marine Notice, No. 4 of 2018, which provides guidance on shipboard garbage management requirements in Namibia, in terms of the International Convention for the Prevention of Pollution from Ships (referred to as MARPOL).
- Prevention and Combating of Pollution of the Sea by Oil Act, No. 6 of 1981 and its amendment (No. 24) of 1991, which provides for the prevention of pollution of the sea where oil is being or is likely to be discharged.
- Marine Traffic Act, No. 2 of 1981, which regulates marine traffic in Namibia.

3.4.4 STRATEGIC ASSESSMENTS

A few Strategic Environmental Assessments (SEAs) are also of relevance to this project.

Two Namibian coastal SEAs were undertaken between 2006 and 2008, one for the northern coastal areas of the Kunene and Erongo Regions and another for the southern coastal areas of the Karas and Hardap Regions. These two SEAs relate to the rapid assessment of development plans, biodiversity conservation projects and the socio-economic situation of the Namib coastal regions done previously by the Namibian Coast Conservation and Management Project (NACOMA). Both SEAs draw on international experience and were undertaken at a time of mounting production sector pressures within Namibia. Being an initiative of the Ministry of Environment and Tourism (MET), the two SEAs seek to inform political and technical decision makers at local, regional and national levels.

The 2008 SEA for the coastal areas of the Erongo and Kunene Regions was compiled by NACOMA and is aimed at ensuring informed decisions on issues related to biodiversity conservation, land use planning and socio-economic development planning in the coastal regions of the Kunene and Erongo Regions.

Although the SEA does not address spatial planning within the Walvis Bay townlands, it does identify areas of conservation importance along the coastline. Potential developments in the coastal region must take these environmental priority areas into account. The SEA classifies, amongst other, the wetland (lagoon) to the south of Walvis Bay as an area as of very high conservation priority as it is a proclaimed Ramsar site.

In 2014 a SEA for the new port of Walvis Bay SADC Gateway was conducted as well. This SEA intends to guide decision makers to consider environmental and sustainability aspects during the

proposed expansion of the port at the time. The SEA evaluated the development scenario at the time and identified possible constraints, benefits and impacts that might emanate from the planned Port of Walvis Bay SADC Gateway development (Namport, 2019).

Also of relevance is the recent and ongoing work related to the Central Marine Spatial Plan of Namibia and the associated SEA. The SEA assesses the zonation of the regulations pertaining to each zone of the plan, against sustainability criteria such as ecosystem health; social and economic benefits; research and monitoring and spatial governance. Eight main marine sectors are considered in the assessment: Defence; Environmental Protection; Fisheries; Mining; Mariculture; Tourism; Transport and Infrastructure. The implementation of the plan depends on the respective planning and licencing authorities, considering the respective laws and regulations. The assessment pointed out that the increase in activities related to the port of Walvis Bay comes with an increase in pollution risks and associated negative impacts such as noise, deteriorated water quality and negative impacts on biodiversity. For this reason, the SEA advocates intersectoral, adaptive management measures.

World demands for uranium increased sharply during the second half of the first decade of the 21st century due to the growing needs of nuclear reactor requirements worldwide. These projected shortcomings resulted in uranium prices rising sharply in June 2007. This favourable outlook triggered renewed interest in uranium exploration in the central part of the Erongo Region, with 36 exploration licences for nuclear fuels being granted by the end of 2007.

In 2009 this sudden scramble for prospecting rights in the Central Namib Desert resulted in the central government to contract the Southern African Institute for Environmental Assessment (SAIEA) to undertake a SEA for the Central Namib Uranium Rush. This study provided a tool for authorities and other stakeholders how best to manage developments in association with this Uranium Rush. The SEA allows decision-makers to integrate the full spectrum of environmental considerations within the planning process. Furthermore, the SEA provides an overview and advice on how to avoid negative cumulative impacts, as well as how to enhance opportunities and benefits within the uranium sector and between mining and other industries.

The cumulative effects of the Uranium Rush on infrastructure, especially roads essentially fall into two categories: increased volumes of traffic and demand for new road infrastructure. At the time of the study cumulative impacts on the port of Walvis Bay were not assessed, except for a recommendation of the harbour expansion and handling of bulk materials, which is in the process of being taken further.

The SEA makes recommendations in regard to road infrastructure development and set a target that roads are designed for maximum safety and are in good condition.

Furthermore, the SEMP recommends the harbour authorities to provide reliable, accessible and convenient loading, offloading and handling services to ensure, amongst other that no chemical spills to enter the Ramsar site.

3.4.5 MUNICIPAL BY-LAWS, GUIDELINES AND REGULATIONS

Walvis Bay Municipality has an Integrated Urban Spatial Development Framework in place, which sets the vision to transform Walvis Bay to being the primary industrial city in Namibia. In addition, the municipality is awaiting the new Walvis Bay Structure Plan, which will outline specific strategic pointers for the future development of the town. One of the key aspects emphasized in these strategic documents is the development of the port of Walvis Bay and the development of the town as an industrial and logistical hub of southern Africa.

Walvis Bay Municipality also has an Integrated Environmental Policy of the town in place, which indicates the directions for the town to fulfil its responsibilities to manage its environment, in collaboration with is residents and institutions. The policy pertinently focuses on conservation and protection of the environment.

Construction of the proposed new warehouse does not depend on municipal approval but is closely coupled to Namport's internal approval process. Only when all required compliances are in place, including an ECC, Namport will provide a construction permit to WBCT.

4 PROJECT DESCRIPTION

This chapter provides a description of the proposed project and the associated facilities and activities.

4.1 INTRODUCTION

As stated in Section 1.2, the site of WBCT is located in the port area, close to the main entrance and opposite Etosha Fishing (see Figure 1). WBCT plans to construct the proposed new warehouse adjacent to their existing rubbhall warehouses on an open area, which forms part of their site (see Figure 2).

Currently WBCT receives cargo, which are offloaded and stored in one of seven rubbhall facilities. No debagging or repacking takes place. On despatch the cargo is packed into containers in the same form as it was received into the warehouse, for export through the port of Walvis Bay when vessels are available. The commodities currently handled are copper and cobalt hydroxide.

The new proposed warehouse is planned as a new business venture of WBCT, to accommodate the bulk handling and storage of copper concentrate from Zambia for export through the port of Walvis Bay.

Section 4.2 describes the activities associated with the construction and Section 4.3 describes the activities associated with the operations of the proposed new warehouse and associated handling and storage of copper concentrate in greater detail. Section 4.4 describes the product.

4.2 CLOSEST SENSITIVE RECEPTORS (NEIGHBOURS)

The site of the proposed new warehouse is adjacent to the offices of the Namibia Revenue Agency (NamRa) and opposite Etosha Fishing (see Figure 4). These two premises are the closest neighbours and were identified as the third parties most likely to be affected by the impacts as a result of the proposed new warehouse. For this reason, focus group meetings were also held with the personnel of NamRa and Etosha Fishing (see Section 2.3).

The port area of Walvis Bay forms part of the industrial district of Walvis Bay. Due to the concerns about potential impacts on other port users and tenants, these parties were also invited to a specific focus group meeting. One of these third parties is Walvis Bay Salt Holdings, which is situated almost one kilometre away from WBCT (see Figure 4). The port area is buffered by the station and railway line as well as vacant land to the east, meaning that the closest residential areas to the WBCT site is around one kilometre away.

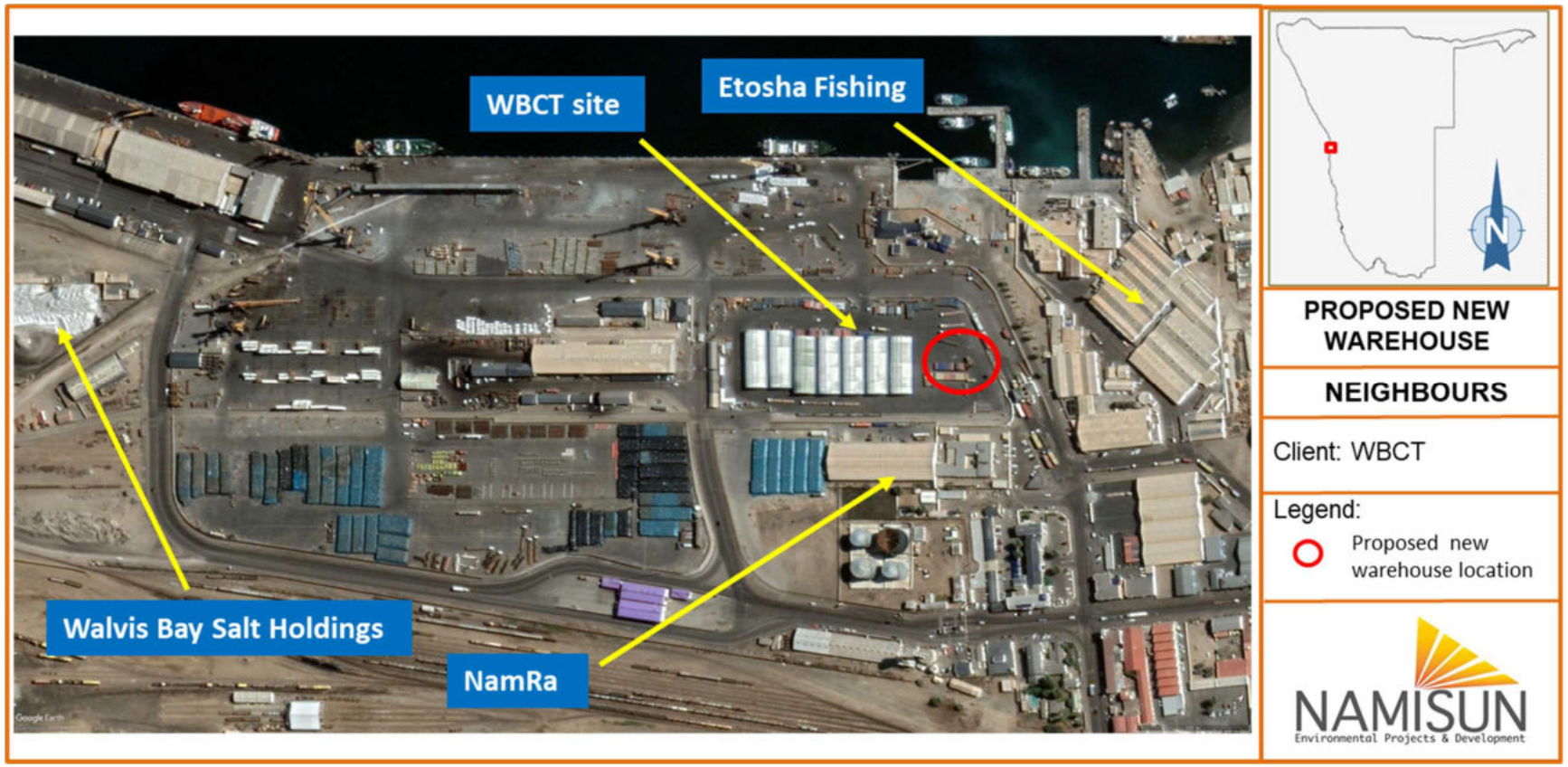

FIGURE 4: LOCATION IN RELATION TO SENSITIVE RECEPTORS

4.3 CONSTRUCTION OF THE PROPOSED NEW WAREHOUSE

The entire surface area of the site of WBCT was compacted in the past and is currently covered by a subsurface layer of reinforced concrete with interlock pavers on top.

The proposed site is currently used for uncovered storage of a variety of items of WBCT. These items will be relocated to free the area for construction.

4.3.1 DIMENSIONS AND DESIGN

The proposed new warehouse will be of a rectangular shape and is planned to cover a surface area of <4,000 m^2. The warehouse will have 3 m-high free-standing concrete walls with a steel structure on top for the roof. The maximum height of the building will be <10 m. The pavers that cover the area where the warehouse is planned will be replaced with a 150 mm thick concrete-sealed surface to make the floor more stable for the use of heavy vehicles and equipment and to eliminate the possibility of seepage. Only two doors for the building are proposed – one as an entrance and one as an exit point. The location of the warehouse and the positioning of the doors also takes the prevalent southwest wind in consideration.

4.3.2 GENERAL CONSTRUCTION

All components for the construction of the warehouse will be delivered and offloaded onsite and all construction activities are planned to take place onsite. As most of the material will be locally supplied, only a small laydown area with limited items is required.

Foundations need to be trenched and prepared for the building. Reinforcement steel will be used in the foundations, for the flooring and in the concrete walls. Concrete will be mixed and poured onsite for the foundations, the floor and the brickwork of the walls.

Associated construction activities include concrete mixing and pouring, bricklaying, welding and metal works, use of cranes and scaffolding, placement of the roof structure and roof and painting.

Water and power supply during constructions will be provided from the existing facilities of WBCT. The existing access points of WBCT will be used and no new access or route is planned. Refuelling of construction vehicles and equipment onsite from a mobile diesel bowser is possible during the construction phase. Some construction and non-hazardous waste (e.g. building rubble) and domestic waste (such as plastic bags, tins, bottles, paper, and packaging waste will be generated during construction. Generation of hazardous waste during the construction phase is not foreseen.

Only one contractor, with not more than ten of its own employees, will be appointed to do the proposed construction and the anticipated period of construction is not more than five months. Construction vehicles and equipment will be used during the construction of the warehouse.

The construction of the warehouse will only commence when all required compliances are in place (including an ECC from the MEFT) and when the final approval is given by Namport in the form of a construction permit.

4.4 OPERATIONS

It is planned that the new warehouse will be used for the bulk handling and storage of copper concentrate only. No blending of products will take place, as only copper concentrate from one source in Zambia will be received and handled.

WBCT will receive the bagged copper concentrate on flat-bed trucks from Zambia. Inside the warehouse the trucks will be offloaded, the bags will be opened, and the content stockpiled in bulk by a payloader. No stacking of bags will take place.

Less than 70 truckloads of the bagged copper concentrate per week is expected. This number averages to ten truckloads per day, and as activities inside the warehouse are planned as a 24/7 operation, it means ~ one truck per every 2.4 hours. Based on the current customer demands, about 10,000 tons of material will be stockpiled at a time, but the capacity of the warehouse exceeds this number two- to threefold.

Once a vessel arrives in the port, the stockpiled concentrate will be reloaded by the payloader into skips mounted on trucks (inside the warehouse), which will be transported to the quayside where the skips will be hoisted by crane and decanted into the ship's cargo hold. Transport will be done by a contractor. Loading is possible at Berths 1, 2, 3, 7 or 8. Transport between the warehouse and the quayside will be on sealed surfaces (tarmac or interlock) only. Distance is the main determinant in deciding on the routing of the trucks to the quayside but safety, conditions of the roads and ongoing activities in the port area may also play a role. Loading at Berths 1, 2, and 3 does not require any railway crossing, but in the case of loading at Berths 7 and 8, the crossing of a railway is implied.

Inside the warehouse WBCT will not suppress dust with water, as this will be an ineffective intervention and cause the material on the floor to become slippery and difficult to handle. The design of the warehouse makes provision for the containment of dust (no windows and only two doors) and additional precautionary measures to manage the possible impacts of dust will be introduced.

In the unlikely event of spillages outside of the warehouse, the spillages will be handled as per existing practice and per emergency procedure. No disposal is necessary as the material can be scooped up from the sealed surfaces and taken back to the stockpile.

4.4.1 WATER SUPPLY

Water use during the operation phase will be provided from the existing facilities of WBCT.

4.4.2 POWER SUPPLY

Electricity use for operational purposes will be provided from the existing facilities of WBCT.

4.4.3 FUEL SUPPLY AND STORAGE

Diesel is the main consumable and will be required for vehicles and equipment during operations. Refilling of vehicles will take place offsite as far as possible. Currently a total volume of <4,000L of diesel is kept onsite in an aboveground tank with bunding for operational use.

4.4.4 VEHICLES AND EQUIPMENT

No new vehicles or equipment will be purchased in addition to the current eight 3.5-ton forklifts and one payloader in use.

4.4.5 WASTE

Waste generated during the operational phase will not be different than the types of waste that are generated currently. The main waste item will be empty mega-bags. Mega-bags with a shoot bottom will be preferred, as these can be emptied without damage and returned to the suppliers for reuse. In the case of bags with a one-way use, the empty bags will be collected by a contractor for recycling of the material.

Generation of hazardous waste during the operational phase is not foreseen. All waste will be collected in containers for disposal as per existing operating and systems procedures and plans of Namport for the port area. Namport follows an in-house operating procedure for waste management, which is outsourced to the Walvis Bay Municipality. General and hazardous waste is removed by the municipality and sorted at the landfill site or hazardous waste site as necessary (Namport, 2019).

Drip trays will be placed during refuelling of vehicles and equipment. Any oil spill will be scooped into bags and taken to a permitted hazardous waste disposal site.

Sewage will be managed through the existing (municipal) infrastructure.

4.4.6 ACCESS ROUTES

As the warehouse is planned adjacent to the existing rubbhall warehouses of WBCT, no new access points to the WBCT site shall be used. No new roads will be constructed. Only the main entrance of Namport will be used by trucks to deliver their load, as per Namport arrangement.

4.4.7 STAFF / EMPLOYMENT

Currently eighteen employees are in service of WBCT. Not more than six employees will be newly appointed for the activities when the operational phase commences.

4.5 PRODUCT

Copper concentrate is the first commercial product in the value-adding chain of copper. Ore is crushed and milled to the smallest possible average grain size to allow the release of copper by flotation. After the removal of water, a powdery product is obtained that is made up of minute, dry particles of pure substance, constituting copper concentrate. Typically, copper concentrate contains 20 – 30% copper and <5% variable co-constituents (e.g., iron, sulphur, silica, etc.). At smelters. copper concentrate is roasted, smelted and purified to obtain blister or refined copper.

According to the Safety Data Sheet (SDS) of Trafigura, copper concentrate is stable under storage at normal ambient temperatures. Due to its inherent properties copper concentrate has the potential to be self-heating. Moisture content is critical is it can enhance the self-heating potential. Copper concentrate must be kept away from heat, hot surfaces, sparks, open flames, and other ignition sources. Strong acids and oxidising agents are regarded as incompatible materials.

The product is regarded as very toxic to aquatic life and releases into the environment must be avoided. Spillage on dry ground must be scooped up and put in closed and suitable containers for relocation or disposal. In case copper concentrate comes into touch with water, run-off into drains and water courses must be avoided. Disposal of waste, including empty spoiled and damaged mega-bags, must be in accordance with environmental legislation and waste codes must be assigned by the user, preferably in discussion with the waste disposal authorities. Handlers of copper concentrate must use personal protective equipment (PPE) as required (Trafigura, 2018).

As cargo in transit, copper concentrate is not classified as hazardous or dangerous goods. No special arrangement in terms of Namport's operating procedures for the handling and storage of dangerous goods have to be made, neither is any arrangement with the Walvis Bay Municipality or the Ministry of Safety and Security in terms of the planning of routes necessary.

For emergency responders, procedures and training modules exist to ensure that the necessary steps for decontamination and disposal are in place (Trafigura, 2018).

5 ALTERNATIVES

This chapter describes the various alternatives that were considered as part of the planning of the proposed project.

5.1 AN ALTERNATIVE EXPORT PRODUCT

There is a growing world market for copper. Copper is widely used in electrical infrastructure and equipment because of its heat and electrical conductivities (about three quarters of total copper consumption). Copper is also popular for its ability to form alloys with other metals, its malleability and its resistance to corrosion.

Copper is a principal export product and tax earner of Zambia, making up an estimated 10% of Zambia's Gross Domestic Product (GDP). Zambia is ranked amongst the ten largest producers of copper in the world, generating nearly 4% of the world's production. The major destinations for Zambia's copper are Switzerland, China and Singapore (retrieved from www.boz.zm).

Bulk export of copper concentrates became a viable economic option to mines lately, preferred above producing copper anodes, cathodes and blisters – which requires intense processes associated with refineries. Downstream beneficiation of copper production by means of refineries implies high energy inputs, multiple technical requirements and high operational costs. Cheap energy is vital in this regard, and if this factor is affected negatively, the business case for copper refineries becomes weak because the cost-benefits ratio of downstream value-adding becomes marginal. Although copper concentrate is more voluminous than solidified copper, handling of the commodity is easier – it can be contained in bags and stockpiled and loaded as loose material without hassle. It is against this background that the long-distance transport of copper concentrate to a point of export becomes an attractive option for Zambian copper mines.

As Zambia is a landlocked country, there are four routes to the outside markets – to Beira in Mozambique (the shortest route), to Dar Es Salaam in Tanzania, to Walvis Bay in Namibia and to Durban in South Africa (the longest route). From Zambia copper – in the form of copper anodes, cathodes and blisters – is transported by long-distance flat-bed trucks to the port of preference. Export of Zambian copper depends thus on decisive logistical determinants – road infrastructure, fuel price, clearances and border crossings, port duties and efficiency, turnaround times, etc.

Walvis Bay remains the preferred point of export for Zambia's copper and WBCT has already an established business to handle, stockpile and export copper from Zambia. The addition of copper concentrate will strengthen Zambia's preference to export its copper through the port of Walvis Bay. On the other hand, by adding the bulk handling of copper concentrate to its operations,

WBCT does not only diversify its business, but becomes able to cope with the export demands from Zambia.

5.2 Alternative Site

WBCT is not the only business that is able to do the bulk handling and export of copper concentrate through the port of Walvis Bay, yet the business is well positioned to expand its operations and to increase its throughput by adding a facility for this purpose. Its site is located within the port of Walvis Bay, providing advantages such as proximity, accessibility, and security.

No other site has been considered by WBCT as the existing site allows expansion without any difficulty.

5.3 Alternative Routes to the Site

No alternative route for transporting the copper concentrate to the site of WBCT was considered as only the main gate of Namport will be used for access.

Although the increased activity on the port creates the potential for traffic congestions towards the main gate of Namport, use of the other gates of Namport is not possible due to many reasons – traffic will have to use alternative routes through the build-up area of Walvis Bay which will create road safety issues, nuisance in the form of noise and cause street maintenance issues for the Walvis Bay Municipality. Also, use of the alternative gates requires a duplication of the services provided by the NamRa and Namport's access control.

It must be stated that Namport plans a new gate complex which includes the closure of the existing container gate, conversion of the existing main gate into an exit gate only, construction of a multi-lane entrance gate and construction of a truck staging and queuing area. This plan will reroute traffic into, through and out of the port area. It is expected that the proposed new traffic flow arrangement will alleviate and improve the potential situation of traffic congestion in the port area.

In a focus group meeting with officials of the Walvis Bay Municipality this matter was discussed, and it was confirmed that the municipality is in dialogue with stakeholders in the fishing industry, Namport and the Road Found Administration to create a common platform where concerns about the current congestion, road safety and street maintenance can be shared, and solutions be found. It was also confirmed that the municipality intends to develop a masterplan for the traffic to the port, depending on the finalized Structure Plan which is due soon. Part of this could be a truck port on the outskirts of the town to prevent bottleneck situations at the entrance to the port.

5.4 NO-GO OPTION

The “no-go” alternative relates to the option of not developing the proposed project. In this case, the residual impacts (i.e. impacts after implementation of mitigation measures) of the proposed activities would not occur (refer to Chapters 7 and 8).

The proposed new warehouse is situated on the site of WBCT and the proposed activities are similar in nature to the existing activities on the site. The proposed project can therefore be viewed as appropriate when evaluated in the context of the surrounding activities.

The “no-go” option would therefore not be maintaining the current status quo, but rather allowing for other unidentified industrial activities of a similar nature to occur.

Should the project not be implemented, the identified export demands of copper from Zambia will not be met, and Walvis Bay may lose its reputation as the preferred port for the export of Zambian copper.

WBCT is focused on growing and diversifying its business through the proposed expansion, and without development of the proposed new warehouse an important strategic objective will be lost. Other implications in case this project does not materialize are the loss of the investment by WBCT and the loss of creating additional jobs.

6 DESCRIPTION OF THE CURRENT ENVIRONMENT AND LINK TO ENVIRONMENTAL ASPECTS AND IMPACTS

An understanding of the environment and the sensitivity of the site and surroundings is important to understand the potential impacts of the project. This chapter provides a general overview of the current baseline conditions associated with the proposed project and considering the potential changes and subsequent management measures implied. Furthermore, this chapter draws links between the various environmental aspects and commitments in the approved Namport EMP to identify which aspects require further assessment and to determine specific management and mitigation measures relevant to the site of WBCT.

This chapter was compiled by utilizing the following sources of information:

- Atlas of Namibia (Mendelsohn et al., 2002).
- Technical information provided by WBCT.
- Site visits by Namisun (October, November 2022).
- Consultations and focus group meetings with I&APs (November 2022).
- Information retrieved from the current EMP for the port area (Namport, 2019).
- Relevant EIA Reports by Namisun (Namisun, 2021 and 2022).
- Relevant EIA Reports conducted by SLR (SLR, 2013; 2015 and 2022).
- Air quality information (MME, 2019; Airshed, 2022).
- Information retrieved from the internet:
    - http://worldpopulationreview.com/countries/namibia-population/;
    - www.boz.zm;
    - www.mhss.gov.na;
    - www.meteoblue.com
- Socio-economic information retrieved from several reports (NPC, 2011; IHME, 2016; WHO, 2016; NHS, 2017 and 2019; SPC, 2020)
- Google Earth.

Baseline environmental information relevant to the site of WBCT is described in this chapter.

6.1 CLIMATE

The climate of the central Namib Desert, where Walvis Bay is located, is strongly influenced by the quasi-stationary South Atlantic High off the southern Namibian coast. As a result of the sinking

air over the cold Atlantic, temperatures close to the coast are moderate, the humidity is high, and overcast days and foggy nights are common. Sea temperatures along the central part of the Namibia coast are rarely warmer than 20°C. The cold sea has a profound climatic influence over the land that borders it – climatically this part is referred to as Cool Desert.

6.1.1 TEMPERATURE

Average annual temperature over the central coast is less than 16 °C, with the lowest minima recorded between April and October, varying between 6°C and 11°C. The lowest temperatures are recorded in August, but ironically, the highest temperatures are also recorded in August. The months June, July and August are marked by both the lowest minima and highest maxima, resulting into the widest potential diurnal temperature ranges, sometimes more than 30°C. During the other months, maxima are not exceeding 30°C and the potential diurnal temperature range is between 10°C and 20°C, the narrowest between December and March. During these months the maxima are not higher than 28°C (Namisun, 2021).

Average minima are between 10°C and 11°C, the average maxima are between 28°C and 29°C and the average potential diurnal range is between 17°C and 18°C. Summer months (December, January and February) are not necessarily marked by higher temperatures, whereas the winter months (June, July and August) are marked by a possibility of recording the highest temperatures and a wide fluctuation between minimum and maximum temperatures (Namisun, 2021).

6.1.2 PRECIPITATION

Rainfall over the central Namib Desert can be described as extremely variable, patchy, unreliable, and marked by a deviation coefficient of more than 100%. Rainfall events are rare and episodic, with the total annual rainfall seldomly exceeding 50 mm. The long-term average rainfall for the central coast is less than 30 mm per annum.

To the contrary, the relative humidity is high – with a long-term monthly average higher than 70% (Mendelsohn, et al., 2002). The lowest relative humidity readings per day are recorded in June, July and August, (<40%) i.e. the same months during which the highest temperatures – to the contrary – are recorded. Daily minima for the other months remain above 40%. In contrast, the average daily maxima is more than 96%, remaining above 95% in all months (Namisun, 2021).

The high relative humidity is closely coupled to the frequent occurrence of fog episodes, which has a profound influence on the coastal parts of the central Namib Desert. Relative humidity inhibits potential evaporation along the coast to the lowest figure for Namibia (<1,680 mm per year) but the humidity reduces markedly towards the interior (Mendelsohn, et al., 2002). As it

reduces to the interior, the annual average rainfall and the potential evaporation increases and the frequency of precipitating fog episodes diminishes. Inland the aridity of the interior becomes increasingly noticeable and at an elevation of > 600 m above mean sea level (amsl), fog episodes are a rarity. Inland the temperatures show wider diurnal and seasonal ranges, winter and summer is better defined, rain is the main source of precipitation (> 50 mm per annum), and insolation is higher (SPC, 2020).

Fog occurs frequently with more than 140 fog days recorded over the central coast per annum (Mendelsohn et al., 2002). Precipitating fog, though, occurs on average 65 days per year at Swakopmund, producing a total precipitation of 35 mm per year. The occurrence of fog peaks between August and October (Viles, 2004).

6.1.3 WIND

Along the coast, the south and southwest wind which originates from the South Atlantic High and blows over the cold ocean, is responsible for the prevailing wind direction and dominates daytime and night-time wind patterns. These wind components are characterised by a high frequency of moderate to strong wind speeds. Wind speeds exceeding 5 m/s occurred for 34% of the time with a maximum of 11.9 m/s recorded at Pelican Point (see Figure 5). During the day the south-south-westerly and southerly winds are more dominant at Pelican Point and southerly winds are dominant as measured at the meteorological station in town (see Figure 6). As is typical of night-time conditions an increase in calm conditions occur.

Although the highest wind speed in all months exceeds 20 km/h, windspeed of between 10 and 20 km/h is more common – in 40% of all cases, when the wind direction is south-southwest and south. Windspeed above 20 km/h occurs in 25% of all cases when these winds blow (retrieved from www.meteoblue.com). Away from the coast, wind speed decreases and direction become more variable.

Occasional eastwinds (more accurately, from the northeast) blow during winter, as a result of cold sinking air over the interior that descends along the escarpment and flows towards the coast. This air heats up (adiabatic warming) as it blows towards the coast, and result in the recording of higher temperatures, often exceeding 30°C. Important, these hot, dry winds have a profound desiccation effect on the coast, and relative humidity figures drop noticeably during these events (Namisun, 2021).

Eastwinds occur 12.5% of the time and in 40% of the cases, have a speed of 5 - 10 km/h and in 30% of the cases have a speed of 10 – 20 km/h (retrieved from www.meteoblue.com).

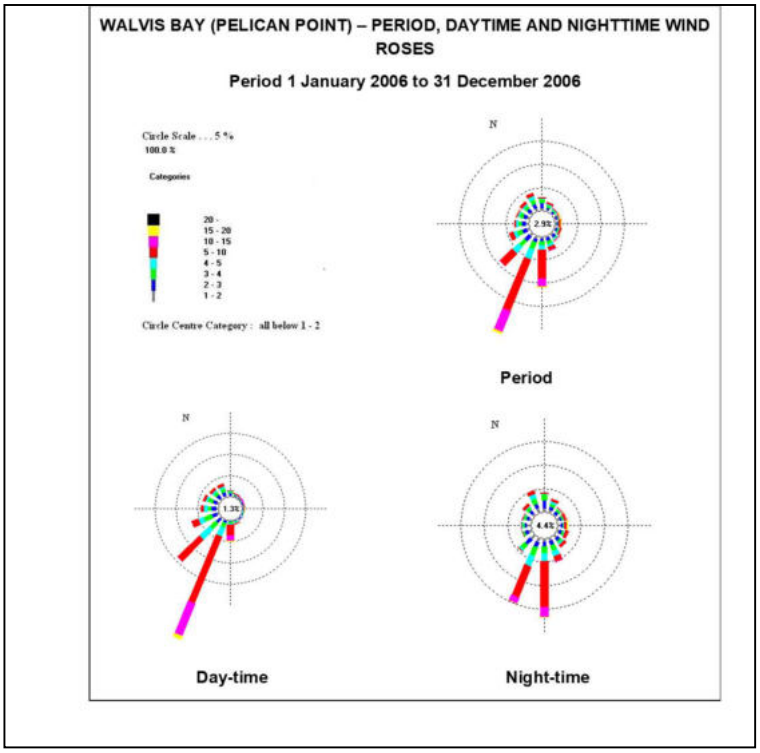

FIGURE 5: PERIOD AVERAGE WIND ROSES FOR PELICAN POINT

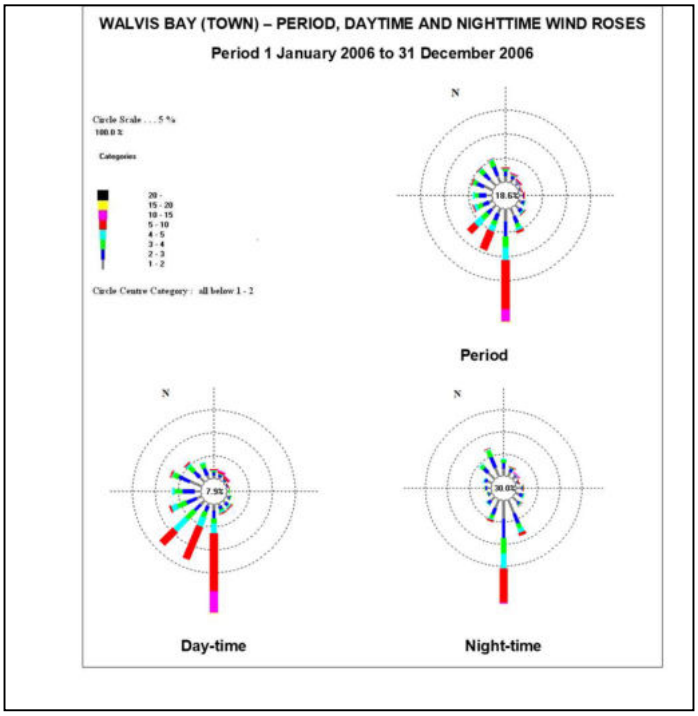

FIGURE 6: PERIOD AVERAGE WIND ROSES FOR WALVIS BAY MUNICIPALITY

The highest wind speeds as well as the highest wind gusts are recorded in August, i.e. when the potential diurnal range of temperatures are the widest. This situation is associated with eastwind episodes. In April, from June to August, and in October wind gusts are the highest, most likely associated with eastwind episodes between April and August and most likely associated with strong south-southwest and south winds during October. During eastwind episodes wind speed may exceed 20 km/h and the wind gust may exceed 40 km/h. Except the higher temperatures and drier conditions, eastwinds are loaded with dust from the interior Namisun, 2021).

6.1.4 AIR QUALITY

Emissions from fuel combustion or production processes as well as noise, vibration, light, heat, and other forms of radiation are possible in any human settlement. Emissions may also result into pollutants, impurities, fumes, and odours. Air quality of any place is closely coupled to the local climate conditions, and specifically the wind regime. Wind determines both the distance of downward transport and the rate of dilution of pollutants. Dust generation in Namibia is quite common, due to the aridity and it is quite common to manage dust (as health and nuisance factor) as minimum requirement of an air quality management plan in Namibia.

Whereas other towns in Namibia have a particular problem with dust generated from unsealed surfaces such as roads, or the proximity of activities such as crushers or mining activities, ambient dust over Swakopmund and Walvis Bay is associated with wind, especially eastwinds from the interior. In a recent study it was found that PM_{10} concentrations were the highest along the coast during eastwind conditions. Over the coastal towns the ambient dust conditions are also prolonged because of the northeast / southwest wind conversion lines and cyclonic circulation associated with coastal troughs and coastal lows. $PM_{2.5}$ does not seem to be a pollutant of concern at the coastal towns, though (Ministry of Mines and Energy, 2019).

At a regional scale, the main air pollution sources, as identified in the same study of 2019, include mining operations, exploration activities, public roads (paved, unpaved and salt / treated), and natural exposed areas prone to wind erosion. In addition, there are a number of other sources in the region emitting PM such as harbour emissions (ships, loading and unloading activities, mobile equipment, maintenance activities, etc.), small boilers and incinerators, commercial activities, charcoal packaging, construction activities (roads, buildings, etc.), and marine aerosols (sea salts and organic matter originating from the ocean) (Ministry of Mines and Energy, 2019).

From the data available, ambient air quality at the coast is likely to exceed the PM_{10} daily limit more than 3 days in a year, but the annual average is likely to be within the acceptable limit (Airshed, 2022 referenced in Namisun, 2022).

The major contributor to deteriorated air quality in the port area is windblown dust generated during ship repair procedures (grit blasting and spray painting) and as a result of bulk handling of some commodities (e.g. coal, manganese, etc.), which can be aggravated during periods of strong wind (>40 km/h). In addition to posing health risks to workers and third parties, dust has an impact on surrounding industries as well. A clear example is the contamination of the salt stockpiles by dust from other commodities. Dust can also have a deteriorating effect on seawater quality, which in turn can have consequences on the marine ecology and the mariculture industry (Namport, 2019).

6.1.5 NOISE

Zoned as an industrial area, the port of Walvis Bay is functioning without limitations on operating hours. Noise is generated continuously – emanating from heavy vehicles accessing the port area for delivery and collection of products, the use of forklifts and equipment, audible warning signs of special vehicles, loading and offloading of ships, handling of containers, construction activities, etc. Due to the constant increase in activities of the port, it is likely that the ambient noise levels are increasing steadily.

In 2009 ambient noise levels were measured at eight locations around the port area. Five of these locations were re-selected to determine ambient noise levels to five of the nearest noise-sensitive receptors to an activity for which one EIA was done in 2013 and another in 2015. All three studies confirmed that the ambient noise emanating from the port area is indicative of an industrial environment and, in some instances, is already in excess of the typical rating levels for an industrial district (SLR, 2013; SLR, 2015).

Ambient noise may impact personnel working in the port area as well as receptors such as neighbouring and nearby residential areas. In addition, the impacts of ambient noise are expected to have increased over time as activities in the port continuously increase, ultimately resulting in cumulative impacts related to all the operations and port tenants (Namport, 2019).

6.1.6 POTENTIAL CLIMATE CHANGE AND SEA LEVEL RISE

Future predictions on climate change and sea level increase are based on many variables and as a result remain speculative. Nevertheless, on a planet with more than 8 billion people since the end of 2022, environmental change is inevitable. One of the inevitable changes is a fluctuation in climatic patterns caused by human activities, supporting the presupposition that the frequency of climate extremes may increase. Due to an increased frequency of storm events associated with the change in climatic patterns, it is predicted that sea level rise will occur, leading to

increased erosion of the shoreline and the inundation of low-lying areas. A global average sea level rise of 1.8 mm per year is calculated since the 1960s, while this figure for Walvis Bay is indicated as 2 mm per year (Namport, 2019).

At an elevation of <2 m amsl, the port of Walvis Bay and the greatest part of Walvis Bay is vulnerable to potential sea level rise. The greatest concerns are possible inundation, waterlogging and flooding as well as the erosion and loss of the Pelican Point Sandpit, which can leave the Walvis Bay harbour exposed to the open ocean (SLR, 2015). In terms of potential climate change and sea level rise, the port should be safe in the short to medium term future. Considering worst case scenarios in sea level change however, careful planning is needed to ensure the future integrity and safety of the port is maintained (Namport, 2019).

6.2 GEOLOGY

On a regional scale, the oldest outcrops in the central coastal zone of Namibia are mainly rocks of the Archean to Phanerozoic eras. These metasediments are underlain by inliers of basement gneiss domes and abundant granite plutons belonging to the Abbabis Metamorphic Complex. The geology of this zone is dominated by the Swakop and Nosib Groups of the Damara Orogeny which consists of high-temperature, low-pressure metamorphosed sediments.

The Abbabis Metamorphic Complex, which are pre-Damaran in age, is overlain unconformably by Damara metasediments which generally rise to elevations of about 50 m above the alluvial surface of the central Namib Desert plains. On the surface the Namib Desert is covered by alluvial sediments of the Namib Group (Early Miocene) (SLR, 2022), also covering the built-up parts of Walvis Bay. These sediments have been formed by a combination of fluvial, estuarine, coastal and aeolian processes but are not visible in the port area due to the introduction of different materials during the various construction phases. Bedrock is estimated to occur at varying depths, up to 60 m below surface (SLR, 2013; SLR, 2015).

6.3 TOPOGRAPHY AND SURFACE COVER

The site of WBCT is reclaimed land at an elevation of <2 m amsl which forms part of the port area. The entire port area is flat, with an elevation that does not exceed 4 m amsl and is covered with warehouses, laydown and storage areas, cranes, stockpiles and buildings.

As stated in Section 4.1, the entire surface area of the site of WBCT was compacted in the past and is currently covered by a subsurface layer of reinforced concrete with interlock pavers on top. Where the earth surface of the port area is unsealed, material exists mainly of backfilling and sediments derived from the construction of the port or related facilities such as the railway line.

6.4 SURFACE AND GROUNDWATER

Surface runoff is a rarity in the central Namib Desert and occurs only after an episodic rainfall event. Although small puddles may form, precipitation from fog does not result into surface runoff.

The port area has no recognizable surface drainage line. About 15 km inland from the port area, the paleo-delta of the Kuiseb River is still visible. The delta was defined by a predominant northern and southern arm. The northern arm ended in the ocean where the present Kuisebmund is located and the southern arm 25 km south from this point. The northern arm was cut off by a flood protection wall in 1961 and only the southern arm is still functioning. Little of the former delta is still visible due to the alterations as a result of the built-up area of Walvis Bay (SLR, 2015).

When strong rainfall events do occur over Walvis Bay, the flatness of the terrain – combined with the sealed surfaces of the built-up areas of an urban environment – causes standing water and even sporadic flash floods of a high intensity. This may result in localized fluvial erosion, implying that a risk of stormwater events, flooding and erosion do exists. It furthermore implies that the necessary control measures must be in place, despite the long spells of rainless periods.

There is no known potable groundwater source in the vicinity of the site and the port of Walvis Bay does not fall within a Water Control Area (SLR, 2013). Depth to the water table is calculated as about 3.5 m below surface and implies a flow of water towards the sea, on top of water that is more saline (SLR, 2015). The hydraulic conductivity of the sediments in the unsealed parts of the port area is expected to be relatively high, and vertical flow would be mainly because of primary porosity. Natural recharge of groundwater is expected to be low, due to the scarcity of rainfall and the absence of surface water flow.

6.5 BIODIVERSITY

Being part of the port area of Walvis Bay, there is no flora or natural fauna present on the WBCT site. The Walvis Bay Wetland (lagoon) is located south of the port and a proclaimed Ramsar site as it supports the greatest number of coastal birds in southern Africa. A multiple use framework and jurisdiction clarification of the lagoon between Namport, the Walvis Bay Municipality, and the Walvis Bay Salt Refinery has been implemented.

The Namport EMP points out that operations of the port may have impacts on the near ecological sensitive areas such as the lagoon and the protected areas along the shore. The EMP states that *“ecological impacts from the port would mostly be limited to the marine environment. Impacts include deterioration of water and sediment quality as a result of pollutants, introduction of alien*

species through ballast water or biofouling on ships' hulls, mammal strikes by ships, underwater noise and potential habitat loss during additional construction events" (Namport, 2019).

It must be re-emphasized that the marine biodiversity, including the lagoon, is excluded from this assessment.

6.6 Brief Socio-economic Baseline

Information for this section was retrieved from previous EIA reports used by Namisun, as well as publications by the Namibian Statistics Agency.

6.6.1 Demographic profile

Namibia is one of the least densely populated countries in the world (2.8 persons per km^2). Vast areas of the country are without people, in contrast to some fairly dense concentrations, such as the central-north and along the Kavango River. The last national census was conducted in 2011 and counted 2.1 million Namibians (NPC, 2011). National population growth rate is estimated at less than 2%, lower than most African countries. Namibia's population is young - although 57% falls in the age group 15 – 59, 37% of the total population is younger than 15 (NSA, 2017).

An inter-censal demographic survey was conducted in 2016 and estimated the total population of the country at 2.3 million and for the Erongo Region at 182,402, i.e. 7.8% of the national population total (NSA, 2017). The population is largely urban with over 87% residing in the urban areas of Swakopmund and Walvis Bay and the inland towns of Usakos, Karibib and Omaruru. In 2011 it was reported that 61,300 people were living in Walvis Bay (NPC, 2011). The current population of Walvis Bay is estimated at 115,000 and growing at a rate of 4.7% (Ashby, 2022 referenced in Namisun, 2022)

Living in an urban environment implies better living conditions – 98% of all households have access to safe water, only 13% have no toilet facility, 76% have electricity for lighting and only 15% of all household make use of open fires to prepare food. Oshiwambo is the most spoken language (44% of all households) in the region, followed by Afrikaans (19%). Average household size is 3.1 and the literacy rate is 96% for people older than 15 (NSA, 2017). Compared to other regions in Namibia, the Erongo Region has the second highest level of development and the second lowest rate of human poverty. The region has a relatively young population, with a median age of 26 years and people of working age (between 15 and 59 years) make up over 68% of the urban population (Ashby, 2022 referenced in Namisun, 2022). About 72% of the region's population aged 15 and above are estimated to have attained secondary education – the highest

level in the country. The region is also estimated to have the second highest proportion (7.4%) of individuals with tertiary qualifications.

In 2022, Walvis Bay has 22 private and government schools offering education from aged 5 upwards as well as many early childhood development centers (kindergartens). The region's schools are better resourced compared with national figures, with approximately 70% of schools having laboratories and almost 80% having resource rooms e.g. libraries, compared to 33% and 43% nationally (Ashby, 2022, referenced in Namisun, 2022).

6.6.2 ECONOMIC PROFILE

In 2017, Namibia was classified as a high middle-income country with a per capita GDP of N$74,489, yet this status is somewhat deceptive owing primarily to Namibia's level of income inequality, which is the third highest in the world (with South Africa) with a Gini coefficient of 76, according to the World Bank. The top 10% of the population hold 65.6% of financial assets. Socio-economic inequalities inherited from pre-independence remain extremely high and structural constraints to growth have hampered job creation. Economic advantage remains in the hands of a relatively small segment of the population and the large disparities of income have led to a dual economy – a highly developed modern sector co-existing with an informal subsistence-oriented one. The duality of the labour market, combined with slow job creation and low primary-sector productivity, results in very high unemployment (Ashby, 2022, referenced in Namisun, 2022).

The economy grew between 2010 and 2015 by an average of 5.3% per annum, but since 2016, it has not come out of recession. The primary and secondary industries contracted by 2.0 and 7.8% respectively. During 2017 the economy contracted by 1.7, 0.7 and 1.9% in the first, second and third quarters respectively (Ashby, 2022, referenced in Namisun, 2022).

As of the beginning of 2020 Corona Virus Disease (COVID-19 caused illness in humans at a pandemic scale. The viral outbreak adversely affected various socio-economic activities globally and had significant impacts on the operations of various economic sectors in Namibia too. The disease caused many countries to enter a state of emergency and lockdown mode, with dire economic consequences. COVID-19 negatively impacted commodity export markets, tourism and local consumption patterns and service industries and these resulted in a further 8.5% contraction of the economy in 2020. The World Bank predicts that the rebound will be slower than initially expected, with growth projected at 2.4% in 2022 (Ashby, 2022, referenced in Namisun, 2022).

The Erongo Region, where the project is located, has a well-developed infrastructure, is the second most prosperous region in Namibia and includes Namibia's largest coastal towns of Walvis Bay and Swakopmund. Mining, fishing, tourism, transportation, and storage comprise the principal economic activities in the Erongo Region.

Mining is a pronounced industry in the Erongo Region. The main commodities are uranium, gold, salt and dimension stones. The mining sector has contributed significantly to the national economy over the years with an average of >10% to GDP since 1990. In 2021, the sector contributed 9%, compared to the highest recording in 2008 of 17%. In March 2020, Namibia had 38 mines in production.

Fishing is another prominent economic sector in the Erongo Region playing a significant role in terms of production, employment, foreign exchange earnings and government revenue. The marine fishery sector consists of a primary sub-sector that harvests fish which is landed at the port of Walvis Bay and the port of Lüderitz. The manufacturing sub-sector processes fish for both the local and export markets and is exclusively industrial, dominated by private enterprises with no direct government financial support and is internationally competitive. The sector employed about 15,600 people in 2019, and is a significant employer in Walvis Bay (Ashby, 2022, referenced in Namisun, 2022).

Walvis Bay is the principal home of Namibia's fishing industry and enjoys linkages with the rest of Namibia and its neighbours via the Trans-Kalahari and Trans-Caprivi Highways as a well as a railway, mainly because of its world-class port facilities. Except for fishing and fish processing, key economic activities of Walvis Bay include manufacturing, logistics, marine engineering, and storage. The port plays an important role in these activities, receiving between 1,800 and 2,500 vessel calls each year and handling about 5 million tonnes of cargo, prior to the COVID-19 pandemic. The port serves a wide range of industries such as mining, petroleum, salt, and fishing. The expanded container harbour at the port was in response to growth in port related activity serving the SADC region. Unfortunately, the growth has not been sustained, partly due to the impact of COVID-19 on world trade and perhaps over-ambitious targets (Ashby, 2022, referenced in Namisun, 2022).

Tertiary industries have always been the most significant contributor to Namibia's GDP in recent years, contributing 58%, in 2019 (Ashby, 2022, referenced in Namisun, 2022).

It is unlikely that Walvis Bay's continuous population growth will slow in the short and medium term, with prospects for an increase in mining activity, increased trade of fuel and other products with the SADC region through the port, expanding manufacturing opportunities, and continuing

rural-urban migration. Most of the town's population live in the low-income neighbourhoods, estimated at almost 80% in 2012 (Ashby, 2022, referenced in Namisun, 2022).

6.6.3 EMPLOYMENT

The labour force participation rate is the proportion of the economically active population, given as a percentage of the working age portion of the population (i.e. older than 15 years of age). More people aged between 15 and 65 years are active in the region's labour force than in any other region in Namibia (Ashby, 2022, referenced in Namisun, 2022). The rate of labour force participation for the region was 80.9% compared to the average of 71.2% for Namibia in 2018 (NSA, 2019).

Low education levels affect employability and prevents many households to earn a decent income. Of all employed people in Namibia, 63.5% are not higher qualified than junior secondary level (Grade 10 and lower). In total 11.8% of all employed people had no formal education. In total 29.1% of all employed people fall in the category "elementary occupation" and 15.2% in the category "skilled agriculture. Overall, the rate for unemployment is estimated at 33.4% for Namibia, using the broad definition of unemployment. The highest unemployment rates are found amongst persons with education levels lower that junior secondary. The unemployment rate of persons with no formal education is 28.6%, with primary education 34.6% and with junior secondary education 32.7% (NSA, 2019).

In the Erongo Region 67.5% of all households depend on salaries and wages as the main income (NSA, 2019). Exact figures do not exist, but this high percentage can be ascribed to the dominance of the mining, fishing and manufacturing and processing sectors together with the prominence of state departments and the administrative sectors. A total of 12.6% of households receive their income from business activities (NSA, 2019).

Average annual household consumption in urban households in Namibia was nearly double that of rural households: N$150,692 and N$81,742 respectively in 2017. In 2017 the Erongo Region ranked third highest in household consumption – urban and rural combined – at N$128,617 per annum, behind Khomas and Hardap Regions. Household income is predominantly spent on housing (38.6%), followed by food at (23.1%), which is the lowest proportion nationally. While unemployment remains a significant challenge in the region, with 30% of the labour force estimated to be jobless, this figure is the second lowest in the country. Poverty levels are on the lower side of the scale as well, with only 4.4% of all households in the region being considered poor, the lowest in the country (Ashby, 2022, referenced in Namisun, 2022).

6.6.4 HEALTH

Since independence in 1990, the health status of Namibia has increased steadily with a remarkable improvement in access to primary health facilities and medical infrastructure. Namibia has been on track to improve the health status of its citizens in recent years, with multiple health indicators showing positive trends (NSA, 2019).

In 2015 the WHO recommended strategic priorities of the health system in Namibia of which the combating of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) and Tuberculosis (TB) were highlighted (WHO, 2016). Nationally, life expectancy at birth decreased from 61.6 in 1990 to 52.2 in 2000, due to the HIV/AIDS pandemic, but has since been improving to 63.4 in 2018. Life expectancy is slightly higher for women (65 years) than men (62 years) (Ashby, 2022, referenced in Namisun, 2022).

Like elsewhere in Namibia, HIV/AIDS remains a major reason for low life expectancy and is one of the leading causes of death in the Erongo Region too. It remains the leading cause of death and premature mortality for all ages, killing up to half of all males and females aged 40 - 44 years in 2013 (IHME, 2016). HIV/AIDS does not only affect the quality of life of those infected, but also that of those having to care for them. TB is a leading killer of people infected by HIV/AIDS, and Namibia had a high burden in 2018, 35% of people notified with TB were infected with HIV. The country is included among the top 30 high-burden TB countries in the world, with an estimated incidence rate of 423 per 100,000 people and 60 fatalities per 100,000 people in 2018 (www.mhss.gov.na).

According to the website of the Ministry of Health and Social Services (MoHSS) the Erongo Region has a total of 18 primary health care facilities, two health centres, and four district hospitals – in Swakopmund, Walvis Bay, Omaruru and Usakos (www.mhss.gov.na). There are also private hospitals in Swakopmund and Walvis Bay and a private medical centre in Arandis.

In 2016 it was estimated that 12.6% of all people in the Erongo Region is younger than five years of age and 15.7% between five and fourteen years of age. Only 37.7% of children younger than five years of age in the region attended programs of early childhood development in 2016 (NSA, 2017), implying that access to these facilities and access to infant health care facilities is limited.

The largest percentage of people in the Erongo Region utilize hospitals for medical care (42.8%) and only 22.9% have to rely on a clinic. 15.6% of the total population of the region receive their medical treatment from a doctor (NSA, 2017). The death rate of 9.9 deaths per 1000 people for the region was lower than the national average of 10.8% in 2016 (NSA, 2017).

7 IDENTIFICATION AND DESCRIPTION OF POTENTIAL ENVIRONMENTAL IMPACTS

This chapter outlines the environmental aspects and potential impacts associated with the construction and operations of the proposed new warehouse for bulk handling of copper concentrate. It reasons potential key aspects and impacts, which require further assessment in Chapter 8.

7.1 ASPECT AND IMPACT IDENTIFICATION

Tables 9, 10 and 11 provide a summary of the activities associated with the project and the associated environmental aspects and potential impacts.

The potential impacts were identified during the scoping process, in consultation with I&APs and the Project Team. For context, the description of the potential impacts should be read with the corresponding descriptions of the current environment in Chapter 6 of this report.

The relevance of the potential impacts ("screening") is presented in Tables 9 – 11 to determine if certain aspects need to be assessed in further detail (Chapter 8 of this report).

TABLE 9: ENVIRONMENTAL IMPACTS AND ASPECTS ASSOCIATED WITH THE CONSTRUCTION PHASE

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
Use of construction vehicles and equipment.	Hydrocarbon leaks from construction vehicles and equipment.	• Contamination of soil. • Contamination of groundwater.	Soil and groundwater can be contaminated because of accidental spills and leaks of hydrocarbons, but the scale of activities is small and localized, and not many construction vehicles and equipment are required at once. Big spills and leaks are thus unlikely, and the spills and leaks that may occur can be cleaned-up shortly after an incident and without complication. As the entire site is currently sealed, barren soil is not exposed to hydrocarbon leaks and spills and accidental entry into groundwater is unlikely. The impacts of spills and leaks can be mitigated and managed through the implementation of the EMP for WBCT, which includes arrangements for containment and clean-up. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required. However, refer to the EMP for relevant management and mitigation measures.
	Hydrocarbon spills from handling of fuel and the onsite refuelling of construction vehicles and equipment.		
	Noise.	• Increased disturbance to third parties (sensitive receptors).	The construction activities are likely to increase noise levels and there are receptors within close proximity of the construction site. Ambient noise levels from the port area are already in excess of the typical ratings for an industrial district. Construction activities are temporary and restricted to the site, specific times and to daylight hours, however. Even though the potential impacts of noise can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport, it can contribute to the cumulative impacts of noise in the port area. This potential impact is further (qualitatively) assessed in Chapter 8.

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
	Air quality.	• Dust, resulting in potential health and nuisance impacts. • Release of airborne emissions	Construction activities will create dust and release airborne emissions, but the construction activities are restricted to the site, is of a small scale and short duration, and limited to daylight hours. This means that the potential impacts associated with dust generation during construction are not expected to be significant or contribute to the cumulative impacts significantly. As a result, this potential impact is screened out as a significant issue. No further assessment is required. However, refer to the EMP for relevant management and mitigation measures.
	Traffic.	• Congestion.	Traffic congestion occurs to and from the main gate on the roads outside of the port currently, resulting in deterioration of the road conditions and challenges related to road safety. All traffic-related matters outside of the port area falls outside the scope of work, however, and is not assessed in this study. Namport is in the process of developing a new traffic flow arrangement for the port, with planned new entrance and exit points, flow lines and truck staging lots. It is expected that the proposed new traffic flow arrangement will alleviate and improve the potential situation of traffic congestions in and around the port area. The proposed construction activities of WBCT will not increase traffic inside the port area significantly. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
General building activities (trenching and preparing of foundations, welding, grinding and general metal works, concrete mixing and pouring,	Spills and leaks of hazardous substances (concrete, paint, etc.)	• Contamination of soil. • Contamination of groundwater	The scale of activities is small and restricted to the site. As the entire site is currently sealed, soil is not exposed to accidental spills and leaks of hazardous substances and possible entry into groundwater is limited. Big spills and leaks are unlikely, and when they occur it can be cleaned-up shortly after an incident and without complication. The impacts of spills and leaks can be mitigated and managed through the implementation of the EMP for WBCT, which includes arrangements for

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
bricklaying, painting, etc.)			containment and clean-up. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment required.
		• Contamination of surface water and run off.	No contamination of surface water as a result of hazardous spills and leaks is foreseen as drainage lines and permanent surface water are absent. Spillage directly into the sea is unlikely, as the construction site is >200 m away. The impacts of spills and leaks can be mitigated and managed through the implementation of the EMP for WBCT, which includes arrangements for containment and clean-up. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
Laydown of equipment and construction materials.	Surface water	• Blocking of water flows, the diversion of water and erosion.	No disturbance or interference with surface water flow is foreseen as drainage lines are absent. Runoff directly into the sea is unlikely, as the construction site is >200 m away. In the unlikely event of an occasional rain shower, the necessary arrangements to prevent blocking and diversion of water flow and erosion can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
General waste management.	General waste	• Contamination of soil and water. • General degradation and nuisance impacts.	Although the current waste management practice will apply during construction, potential contamination-related impacts resulting from improper waste management is possible. Expected waste items include building rubble, empty containers and packaging, and domestic refuse. The scale of the construction activities is small, and the construction team is small, meaning that the potential impacts of waste can be effectively mitigated

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Hazardous waste	• Contamination of soil and water	The issue is only relevant if some of the backfill material (from the trenches for the foundations and the removal of the interlock pavers for replacement by a solid reinforced floor) has been contaminated in the past and needs to be stockpiled before removal to the Walvis Bay hazardous waste site. In such a case the current practice for the disposal of hazardous waste will be followed. As the entire site is currently sealed, the contamination of soil and groundwater as a result of exposure to hazardous waste is unlikely. Furthermore, the potential impacts of hazardous waste can be effectively mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
Socio-economic conditions	Employment	• Job creation and skills development (positive impact)	Socio-economic impacts related to the construction phase are short-term and will be done by a small construction team (less than 10 employees). The socio-economic benefits are limited in terms of creating work for ten people, skills development, local procurement, and taxes. Nevertheless, these benefits are seen as positive impacts and will be optimized. No further assessment is required.
	Local procurement	• Spendable income, local procurement, and taxes (positive impact).	

TABLE 10: ENVIRONMENTAL IMPACTS AND ASPECTS ASSOCIATED WITH THE OPERATIONAL PHASE

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
Receiving of bagged copper concentrate on flat-bed long distance trucks.	Traffic.	• Congestion.	Traffic congestion occurs to and from the main gate on the roads outside of the port currently, resulting in deterioration of the road conditions and challenges related to road safety. All traffic-related matters outside of the port area falls outside the scope of work, however, and is not assessed in this study. Namport is in the process of developing a new traffic flow arrangement for the port, with planned new entrance and exit points, flow lines and truck staging lots. It is expected that the proposed new traffic flow arrangement will alleviate and improve the potential situation of traffic congestions in the port area. The addition of 10 truckloads per day (one every 2.4 hours) will not increase the amount of traffic within the port area significantly. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Noise.	• Increased disturbance to third parties (sensitive receptors).	The operational activities are likely to increase noise levels and there are receptors within close proximity of the site of WBCT. Ambient noise levels from the port area are already in excess of the typical ratings for an industrial district. Even though the impacts of noise can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport, it can contribute to the cumulative impacts of noise in the port area. This potential impact is further (qualitatively) assessed in Chapter 8.
	Air quality.	• Dust, resulting in potential health and nuisance impacts.	It is unlikely that dust will be generated during receiving activities. The potential impacts of dust during receiving can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
		• Release of airborne emissions.	Although the addition of 10 truckloads per day implies an increase in the release of emissions in the port area, it is unlikely that it will contribute significantly to the cumulative impact. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Hydrocarbon leaks and spills from long-distance trucks.	• Contamination of soil. • Contamination of groundwater.	Accidental small leaks of hydrocarbons from the long-distance trucks are possible, but big spillages are unlikely, and the frequency of arriving trucks is low (one every 2.4 hours), which means that leaks and spills that may occur can be cleaned-up shortly after an incident and without complication. As the entire site is currently sealed, soil is not exposed to hydrocarbon leaks and spills and accidental entry into the groundwater is unlikely. The impacts of spills and leaks can be mitigated and managed through the implementation of the EMP for WBCT, which includes arrangements for containment and clean-up. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Spills of hazardous substances (copper concentrate).	• Contamination of soil. • Contamination of groundwater	During receiving, big spillages outside of the warehouse (i.e. on route between the main gate and the WBCT site) are unlikely because the material is contained in bags, fixed on the long-distance trucks and untampered with. In the unlikely event of a spillage, it is likely to be a small volume. Spillages that may occur can easily be scooped up and relocated to the stockpile inside the warehouse. As the entire floor of the site is sealed, soil is not exposed to the potential spills of hazardous substances and the possibility of spills to enter groundwater is unlikely. The impacts of spills of copper concentrate can be mitigated and managed through the implementation of the EMP for WBCT, which includes arrangements

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			for containment and clean-up. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
		• Contamination of surface water and run off	During receiving, big spillages outside of the warehouse (i.e. on route between the main gate and the WBCT site) are unlikely. Spillages that may occur can easily be scooped up and relocated to the stockpile inside the warehouse. As the entire site is sealed, and as drainage lines and permanent surface water are absent, the possibility of spills to contaminate surface water is unlikely. Spillage directly into the sea is unlikely, as the WBCT site is >200 m away. In the unlikely event of a spill during an occasional rain shower, the necessary emergency procedures through the implementation of the EMP for WBCT, which includes arrangements for containment and clean-up, will be followed. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment required.
Debagging, stockpiling and reloading activities	Air quality.	• Dust, resulting in potential health and nuisance impacts.	The likelihood of dust generation from debagging, stockpiling and reloading activities exists. Although the dust is restricted to the warehouse, it can impact on the health of workers present during the activities. The potential nuisance impact is restricted to the warehouse. It is not expected that the dust inside the warehouse will contribute to the cumulative impacts of dust in the port area significantly. This potential impact is, however, further (qualitatively) assessed in Chapter 8.
		• Release of airborne emissions.	Although the debagging, stockpiling and reloading activities in the warehouse implies an increase in the release of emissions, it is unlikely that it will contribute to the cumulative impact in the port area.

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Noise.	• Increased disturbance to third parties (sensitive receptors).	The operational activities are likely to increase noise levels and there are receptors within close proximity of the site of WBCT. Ambient noise levels from the port area are already in excess of the typical ratings for an industrial district. Even though the impacts of noise can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport, it can contribute to the cumulative impacts of noise in the port area. This potential impact is further (qualitatively) assessed in Chapter 8.
	Waste.	• Contamination of soil and water. • General degradation and nuisance impacts	Empty mega-bags bags will be generated as a result of the activities. Bags with a shoot bottom will be preferred, as these can be emptied without damage and can be returned to the suppliers for reuse. In the case of bags with a one-way use, the empty bags will be collected by a contractor for recycling of the material. The empty bags will be contained and dispose of in the same way as the current practice. It is unlikely that material will be spoiled and requires disposal. In the unlikely event of spoiled material that needs to be disposed, the current practice to dispose hazardous waste will be followed. Impacts of waste can be effectively mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Incompatible commodities.	• Industrial accidents, injuries, fatalities • Damage, loss	Only copper concentrate will be handled in the proposed new warehouse and therefore no blending of product will take place. For this reason, it is unlikely that strong acids and oxidizing agents, both incompatible materials, will come into contact with the material. In addition, since water will not be used to suppress dust, it is unlikely to enhance the self-heating ability of copper concentrate

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			through an increase in moisture content. The likelihood of industrial accidents, injuries or fatalities is thus low. Also, the likelihood of potential losses or damages of material when water is used to suppress dust, is low. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
Transport from the warehouse to the quayside	Traffic.	• Congestion.	Namport is in the process of developing a new traffic flow arrangement for the port, with planned new entrance and exit points, flow lines and truck staging lots. It is expected that the proposed new traffic flow arrangement will alleviate and improve the potential situation of traffic congestions in the port area. Even though the transport of copper concentrate from the warehouse to a waiting vessel is restricted to specific loading schedules, the resulting traffic peaks will not cause congestion and create a significant impact on the general traffic flow within the port area. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Noise.	• Increased disturbance to third parties (sensitive receptors).	The transport of copper concentrate to the quayside is likely to increase noise levels and there are receptors within close proximity of the port area. Ambient noise levels from the port area are already in excess of the typical ratings for an industrial district. Even though the impacts of noise can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport, it can contribute to the cumulative impacts of noise in the port area. This potential impact is further assessed in Chapter 8.
	Air quality.	• Dust, resulting in potential health and nuisance impacts.	The likelihood of dust generation during transport between the warehouse and quayside exists. Even though the potential impacts of dust can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			operating and systems procedures and plans of Namport, it can contribute to the cumulative impacts of dust in the port area. This potential impact is further assessed in Chapter 8.
		• Release of airborne emissions.	Although the transport of copper concentrate from the warehouse to the quayside implies an increase in the release of emissions, it is unlikely that it will contribute significantly to the cumulative impact in the port area. As a result, this potential impact is screened out as a significant issue. No further assessment is required
	Hydrocarbon leaks and spills from trucks.	• Contamination of soil. • Contamination of groundwater	Accidental, small leaks of hydrocarbons from the transport trucks are possible, but big spillages are unlikely. Leaks and spills that may occur can be cleaned-up shortly after an incident and without complication. As the trucks will drive on sealed surfaces only, soil is not exposed to hydrocarbon spills and leaks and accidental entry into the groundwater is unlikely. The impacts of spills and leaks from the transport trucks can be mitigated and managed through the implementation of WBCT's EMP, which includes arrangements for containment and clean-up. The EMP is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Spills of hazardous substances (copper concentrate).	• Contamination of soil. • Contamination of groundwater	During transport between the warehouse and the quayside, big spillages are unlikely because the material is contained in skips, mounted on transport trucks. In the unlikely event of a spillage, it will be less than one skip and can easily be scooped up and relocated to the stockpile inside the warehouse. As the trucks will drive on sealed surfaces only, soil is not exposed to the potential spills of copper concentrate and the possibility of spills to enter groundwater is unlikely.

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			The impacts of spills of copper concentrate can be mitigated and managed through the implementation of the EMP for WBCT, which includes arrangements for containment and clean-up. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
		• Contamination of surface water and run off	During transport between the warehouse and the quayside, big spillages are unlikely because the material is contained in skips, mounted on transport trucks. In the unlikely event of a spillage, it will be less than one skip and can easily be scooped up and relocated to the stockpile inside the warehouse. As the trucks will drive on sealed surfaces only, and as drainage lines and permanent surface water are absent, the possibility of spills to contaminate surface water is unlikely. In the unlikely event of a spill during an occasional rain shower, the necessary emergency procedures through the implementation of the EMP for WBCT, which includes arrangements for containment and clean-up, will be followed. The EMP for WBCT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
Decanting	Noise.	• Increased disturbance to third parties (sensitive receptors).	The decanting of copper concentrate into the ship's cargo hold is likely to increase noise levels and there are receptors within close proximity. Ambient noise levels from the port area are already in excess of the typical ratings for an industrial district. Even though the impacts of noise can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport, it can contribute to the cumulative impacts of noise in the port area.

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			This potential impact is further assessed in Chapter 8.
	Air quality.	• Dust, resulting in potential health and nuisance impacts.	The likelihood of dust generation during decanting activities exists. Even though the impacts of dust can be mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport, it can contribute to the cumulative impacts of dust in the port area. This potential impact is further assessed in Chapter 8.
		• Release of airborne emissions.	Although decanting activities imply an increase in the release of emissions, it is unlikely that it will contribute significantly to the cumulative impact in the port area. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Hazardous substance.	• Contamination of seawater	Decanting is a controlled activity during which skips are hoisted by crane to be emptied into the ship's cargo hold. Although this activity is designed and managed to ensure zero spillage, an accidental spillage onto the quayside and into seawater during this process is possible. Spillage on the quayside can be scooped up without complication, but spillage into seawater is challenging as the product is seen as a hazardous substance and very toxic to aquatic life. This potential impact is further assessed in Chapter 8.
Socio-economic conditions	Employment.	• Job creation and skills development (positive impact).	Socio-economic impacts related to the operational phase are permanent. Six new employees will be appointed. The socio-economic benefits are limited in terms of creating of jobs (only six positions), skills development, boosting of the local economy in the form of spendable income, local procurement and taxes, as well as the increase in revenue because of the increase in export volumes through the port of Walvis
	Local procurement.	• Spendable income, local procurement, and taxes (positive impact).	

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
	Economic growth.	• More export volumes through the port of Walvis Bay (positive impact).	Bay. Nevertheless, these benefits are seen as positive impacts and will be optimized. No further assessment is required.
		• Polluting of other products in the port area (negative impact).	The receiving, debagging, stockpiling and reloading activities of WBCT will take place inside the warehouse. Possible impacts on other tenants in the port area because of these activities are thus unlikely. As a result, this potential impact is screened out as a significant issue. No further assessment is required. The potential polluting of other products in the port of Walvis Bay because of dust related to the transporting of the product from the warehouse to the quayside and because of decanting activities is possible. This potential impact is further assessed in Chapter 8 (as part of the impacts resulting from dust).

TABLE 11: ENVIRONMENTAL IMPACTS AND ASPECTS ASSOCIATED WITH THE DECOMMISSIONING PHASE

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
General waste management	General waste	• Contamination of soil and water. • General degradation and nuisance impacts.	The decommissioning activities will lead to the generation of waste, and potential contamination-related impacts to soil and surface and groundwater resulting from improper waste management is possible. The relatively limited nature of the overall activities will result in a low possibility of environmental impacts provided that the waste is managed effectively. The scale of the activities is small, meaning that the potential impacts of waste can be effectively mitigated and managed through the implementation of the EMP

ACTIVITY/FACILITY RELATING TO OPERATIONS PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Hazardous waste	• Contamination of soil and water	The issue is only relevant if some of the demolished material is contaminated and needs to be stockpiled before removal to the hazardous waste site. In such a case the current practice for the disposal of hazardous waste will be followed. Furthermore, the potential impacts of hazardous waste can be effectively mitigated and managed through the implementation of the EMP for WBCT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.

7.2 Summary of the Environmental Aspects and Potential Impacts that Require Assessment

With reference to Table 9, 10 and 11, the issues identified for further assessment in Chapter 8 are summarized in Table 12:

TABLE 12: ENVIRONMENTAL ASPECTS AND IMPACTS IDENTIFIED FOR FURTHER ASSESSMENT

ASPECT	POTENTIAL ENVIRONMENTAL IMPACT
Noise	It is likely that the following activities may contribute to the potential cumulative impacts of noise in the port area: • Use of vehicles and equipment during construction. • The receiving of copper concentrate on flat-bed long-distance trucks. • Debagging, stockpiling and reloading activities in the warehouse. • Transport of copper concentrate from the warehouse to the quayside. • Decanting activities.
Air quality (i.e. dust)	It is likely that the following activities may contribute to the potential cumulative impacts of dust in the port area: • Debagging, stockpiling and reloading activities in the warehouse. • Transport of copper concentrate from the warehouse to the quayside. • Decanting activities
Hazardous substances	Spillages of copper concentrate into seawater during decanting is possible to occur.

8 ENVIRONMENTAL IMPACT ASSESSMENT

This chapter qualitatively assesses the key potential impacts (as identified in Chapter 7), relating to the proposed project and associated activities and infrastructure.

The environmental issues that require further assessment, as identified in Chapter 7, relate to noise, dust and spillage of copper concentrate into the marine environment during decanting.

The activities that are summarised in this chapter are linked to the project description provided in Chapter 4. This section must further be read in the context of the baseline conditions described in Chapter 6.

Management and mitigation measures to address the identified (potential) impacts are discussed in this chapter but are presented in more detail in the EMP that accompanies this document.

The approach and criteria used to assess the impacts and the method of determining the significance of the impacts complies with the Environmental Management Act, No. 7 of 2007 and its regulations. Table 13 provides the impact assessment criteria and the approach for determining impact consequence (combining nature and intensity, extent and duration) and significance (the overall rating of the impact). Impact consequence and significance are determined from Table 14 and Table 15 respectively.

The potential impacts are cumulatively assessed, where relevant, taking the existing environment into consideration.

TABLE 13: IMPACT ASSESSMENT CRITERIA

IMPACT ASSESSMENT CRITERIA		
SIGNIFICANCE determination	**Significance = consequence x probability**	
CONSEQUENCE	**Consequence is a function of:** • **Nature and Intensity of the potential impact** • **Geographical extent should the impact occur** • **Duration of the impact**	
Ranking the NATURE and INTENSITY of the potential impact		
Negative impacts		
Low (L)	The impact has no / minor effect/deterioration on natural, cultural and social functions and processes. No measurable change. Recommended standard / level will not be violated. (Limited nuisance related complaints).	
Moderate (M)	Natural, cultural and social functions and processes can continue, but in a modified way. Moderate discomfort that can be measured. Recommended standard / level will occasionally be violated. Various third party complaints expected.	
High (H)	Natural, cultural or social functions and processes are altered in such a way that they temporarily or permanently cease. Substantial deterioration of the impacted environment. Widespread third party complaints expected.	
Very high (VH)	Substantial deterioration (death, illness or injury). Recommended standard / level will often be violated. Vigorous action expected by third parties.	
Positive impacts		
Low (L) +	Slight positive effect on natural, cultural and social functions and processes Minor improvement. No measurable change.	
Moderate (M) +	Natural, cultural and social functions and processes continue but in a noticeably enhanced way. Moderate improvement. Little positive reaction from third parties.	
High (H) +	Natural, cultural or social functions and processes are altered in such a way that the impacted environment is considerably enhanced /improved. Widespread, noticeable positive reaction from third parties.	
Very high (VH) +	Substantial improvement. Will be within or better than the recommended level. Favourable publicity from third parties.	
Ranking the EXTENT		
Low (L)	Local (confined to within the project concession area and its nearby surroundings).	
Moderate (M)	Regional (confined to the region, e.g. coast, basin, catchment, municipal region, district, etc.).	
High (H)	National (extends beyond district or regional boundaries with national implications).	
Very high (VH)	International (Impact extends beyond the national scale or may be transboundary).	
Ranking the DURATION		
Low (L)	Temporary / short-term. Quickly reversible. (Less than the life of the project).	
Moderate (M)	Medium Term. Impact can be reversed over time. (Life of the project).	
High (H)	Long Term. Impact will only cease after the life of the project.	
Very high (VH)	Permanent	
Ranking the PROBABILITY		
Low (L)	Unlikely	
Moderate (M)	Possibly	
High (H)	Most likely	
Very high (VH)	Definitely	
SIGNIFICANCE Description		
	Positive	**Negative**
Low (L)	Supports the implementation of the project	No influence on the decision.
Moderate (M)	Supports the implementation of the project	It should have an influence on the decision and the impact will not be avoided unless it is mitigated.
High (H)	Supports the implementation of the project	It should influence the decision to not proceed with the project or require significant modification(s) of the project design/location, etc. (where relevant).
Very high (VH)	Supports the implementation of the project	It would influence the decision to not proceed with the project.

TABLE 14: DETERMINING THE CONSEQUENCE

DETERMINING THE CONSEQUENCE					
INTENSITY OF IMPACT = LOW					
DURATION	VH	Moderate	Moderate	High	High
	H	Moderate	Moderate	Moderate	Moderate
	M	Low	Low	Low	Moderate
	L	Low	Low	Low	Moderate
INTENSITY OF IMPACT = MODERATE					
DURATION	VH	Moderate	High	High	High
	H	Moderate	Moderate	High	High
	M	Moderate	Moderate	Moderate	Moderate
	L	Low	Moderate	Moderate	Moderate
INTENSITY OF IMPACT = HIGH					
DURATION	VH	High	High	Very High	Very high
	H	High	High	High	Very High
	M	Moderate	Moderate	High	High
	L	Moderate	Moderate	High	High
INTENSITY OF IMPACT = VERY HIGH					
DURATION	VH	Very high	Very High	Very High	Very high
	H	High	High	Very High	Very high
	M	High	High	High	Very High
	L	Moderate	High	High	Very High
		L	M	H	VH
		EXTENT			

TABLE 15: DETERMINING THE SIGNIFICANCE

DETERMINING THE SIGNIFICANCE					
PROBABILITY	VH	Moderate	High	High	Very high
	H	Moderate	Moderate	High	Very high
	M	Low	Moderate	High	High
	L	Low	Low	Moderate	High
		L	M	H	VH
		CONSEQUENCE			

8.1 IMPACTS RELATED TO NOISE

The port area of Walvis Bay falls in the industrial area of Walvis Bay. The port functions 24/7 and noise is generated continuously – by a wide range of sources (see Section 6.1.5).

From previous assessments and studies, it is indicated that the ambient noise levels emanating from the port area are indicative of an industrial environment and are in excess of the typical rating levels for an industrial district (SLR, 2013; SLR, 2015). It is thus expected that the continuous increase of activities in the port area will contribute to the cumulative impacts of noise (Namport, 2019).

In short, the addition of the proposed new warehouse of WBCT to handle bulk copper concentrate will contribute to the cumulative impacts of noise of the port area.

The assessment of impacts related to noise (Section 8.1) and dust (Section 8.2) is done with specific reference to the closest sensitive receptors (see Sections 2.3 and 4.2 for the description of these third parties).

8.1.1 ISSUE: NOISE FROM VEHICLES AND EQUIPMENT DURING CONSTRUCTION

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

Noise during construction will emanate from moving vehicles and equipment, audible warning signs of special vehicles, and general construction activities. Construction activities are temporary and restricted to the site, specific times and to daylight hours, however.

It is likely that the change will be immeasurable; the impact intensity is thus rated as **low**. The duration of the impact due to the noise that the construction vehicles and equipment will generate is short-term, temporary and can be quickly reversed; the rating is thus **low**. In terms of extent the impact is rated as **low** because the activities are restricted to the site and thus localized.

Consequence

The consequence of the impact is therefore **low**, for the unmitigated scenario and low for the mitigated scenario as well.

Probability

The probability that the closest sensitive receptors will hear the increase in noise is most likely, therefore **high** for the unmitigated scenario and moderate for the mitigation scenario as mitigation reduces impact to some extent.

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Noise from vehicles and equipment during construction

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**L**	**L**	**L**	**L**	**H**	**M**
Mitigated	**L**	**L**	**L**	**L**	**M**	**L**

Management and mitigation measures

The EMP for the port area (Namport, 2019) states the following arrangements to prevent excessive noise:

- Follow the Labour Act Regulations, specifically the Noise Regulations (Regulation 197), and / or WHO guidelines on maximum noise levels (Guidelines for Community Noise, 1999), to prevent hearing impairment for workers onsite and a nuisance to third parties (e.g. nearby residential areas / neighbours, receptors, etc.).
- Minimize or prevent noise producing activities and plan to restrict these to daytime as far as practically possible. In short, limit construction work to daylight hours.
- All machinery must be regularly serviced to ensure minimal noise production.
- The use of low frequency white noise or flashing lights should be considered instead of audible high frequency warning signals for moving forklifts or trucks.

To mitigate noise, the EMP for the port area (Namport, 2019) recommends the following interventions:

- Erect temporary or permanent noise barriers / sound baffles should the need arise.
- Place noise producing equipment, e.g. compressors, in such a way that noise is directed away from receptors and / or are attenuated.
- Where possible, use infrastructure to act as noise barriers to sensitive environments.
- Hearing protectors as standard PPE for workers in situations with elevated noise levels.

In addition to the above-mentioned recommendations, WBCT will introduce monitoring and control measures if excessive noise is generated. It will be wise to conduct a once-off noise monitoring campaign in close proximity to the sources of noise under the management of WBCT and to liaise with Namport to obtain their site-wide noise monitoring results for comparison. In the event that the actual measurements of WBCT exceed the predictions of the Namport results and

model, engagement with Namport is necessary to develop and implement additional noise mitigation measures for the WBCT sources.

8.1.2 ISSUE: NOISE FROM DELIVERY TRUCKS DURING RECEIVING

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

Noise during receiving will come from the flat-bed, long-distance trucks which transport the copper concentrate from Zambia for delivery to WBCT.

The number of daily loads is estimated at ten, i.e. on average one truck per every 2.4 hours. With such a low frequency, the impact intensity is rated as **low**. The duration of the impact is sporadic, short-term and can be quickly reversed; it is thus rated **low**. In terms of extent the impact is rated as **low** because the activities are localized.

Consequence

The consequence of the impact is considered as **low** for the unmitigated scenario and low for the mitigated scenario.

Probability

The impact will definitely occur (**high**) as it will be integral part of the operational activities of the project. However, with mitigation the potential for impacts occurring is reduced

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Noise from delivery trucks during receiving

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**L**	**L**	**L**	**L**	**H**	**M**
Mitigated	**L**	**L**	**L**	**L**	**M**	**L**

Management and mitigation measures

- See Section 8.1.1.

8.1.3 ISSUE: NOISE FROM ACTIVITIES INSIDE THE WAREHOUSE

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

Inside the warehouse the trucks will be offloaded. No stacking will take place and the bags will be opened immediately. The content will be stockpiled in bulk by a payloader. Once a vessel is available in the port, the stockpiled concentrate will be reloaded by the payloader into skips mounted on trucks for delivery to the quayside. The activities in the warehouse are planned as a 24/7 operation, to make provision for the times a vessel is awaiting loading and to make provision for the arrival times of the long-distance trucks after daylight hours.

The impact intensity is rated as **moderate** because the noise of the activities in the warehouse may possibly cause discomfort to the nearest receptors (NamRa) during peak times. The duration of the impact is for the entire lifetime of the project, i.e. long-term; therefore **moderate**. In terms of extent the impact is rated as **low** because the activities are restricted to the warehouse.

Consequence

The consequence of the impact is considered as **moderate** for the unmitigated scenario and low for the mitigated scenario.

Probability

The impact will definitely occur (**high**) as it will be integral part of the operational activities of the project. However, with mitigation the potential for impacts occurring is reduced.

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Noise from activities inside the warehouse

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**M**	**M**	**L**	**M**	**H**	**M**
Mitigated	**L**	**L**	**L**	**L**	**M**	**L**

Management and mitigation measures

- See Section 8.1.1.

8.1.4 ISSUE: NOISE FROM TRANSPORT ACTIVITIES BETWEEN THE WAREHOUSE AND THE QUAYSIDE

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

Transporting the copper concentrate from the warehouse to the awaiting vessel will be in open skips mounted on trucks. Once a vessel is available, this will be a 24/7 operation until the full order is loaded. This activity is thus marked by definite intense periods of a limited duration as the arrivals of vessels cannot be predicted with accuracy.

The impact intensity is rated as **moderate** because the noise of the transport activities may cause discomfort to workers and other port users during peak times. The duration of the impact is for the entire lifetime of the project, i.e. long-term; therefore **moderate**. In terms of extent the impact is rated as **low** because the activities are restricted between the warehouse and the quayside.

Consequence

The consequence of the impact is considered as **moderate** for the unmitigated scenario and low for the mitigated scenario.

Probability

The impact will definitely occur (**high**) as it will be integral part of the operational activities of the project. However, with mitigation the potential for impacts occurring is reduced.

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Noise from transport activities between the warehouse and the quayside

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**M**	**M**	**L**	**M**	**H**	**M**
Mitigated	**L**	**L**	**L**	**L**	**M**	**L**

Management and mitigation measures

- See Section 8.1.1.

8.1.5 ISSUE: NOISE FROM DECANTING ACTIVITIES

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

At the quayside the skips will be hoisted by crane and decanted into the ship's cargo hold. This will be a 24/7 operation during the loading period. This activity is thus marked by definite intense periods of a limited duration.

The impact intensity is rated as **moderate** because the noise of the decanting activities may cause discomfort to workers and other port users during peak times. The duration of the impact is for the entire lifetime of the project, i.e. long-term; therefore **moderate**. In terms of extent the impact is rated as **low** because the activities are restricted to the quayside.

Consequence

The consequence of the impact is considered as **moderate** for the unmitigated scenario and low for the mitigated scenario.

Probability

The impact will definitely occur (**high**) as it will be integral part of the operational activities of the project. However, with mitigation the potential for impacts occurring is reduced.

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Noise from decanting activities

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**M**	**M**	**L**	**M**	**H**	**M**
Mitigated	**L**	**L**	**L**	**L**	**M**	**L**

Management and mitigation measures

- See Section 8.1.1.

8.2 IMPACTS RELATED TO DUST

As stated earlier in this document, several sources of PM in the port area can be identified. Hereof loading and unloading activities, ship maintenance activities and release of marine aerosols are the most obvious (see Section 6.1.4 for more details).

Physical and meteorological mechanisms govern the dispersion, transformation, and eventual removal of pollutants from the atmosphere. The analysis of hourly average meteorological data is necessary to facilitate a comprehensive understanding of the dispersion potential of a site. Useful parameters for describing the dispersion and dilution potential of a site include wind speed, wind direction, temperature and atmospheric stability.

Dispersal of dust is closely coupled by wind and conditions can be aggravated during periods of strong wind along the coast, like eastwind. Furthermore, it has been stated that ambient air quality at the coast is likely to exceed the PM_{10} daily limit more than 3 days in a year, although the annual average is likely to be within the acceptable limit (see also MME, 2019).

The continuous increase of activities in the port area will contribute to the cumulative impacts of dust. Like stated earlier, the assessment of impacts related to dust is done with specific reference to the closest sensitive receptors (see Sections 2.3 and 4.2 for the identification and description of these third parties).

Dust can pose health risks to workers and third parties, may cause a nuisance impact on nearby receptors, and even deteriorate seawater quality, which in turn can have consequences on the marine ecology and the mariculture industry (Namport, 2019).

It is thus expected that the activities of WBCT may also contribute to the cumulative impacts of dust in the port area.

8.2.1 ISSUE: DUST FROM ACTIVITIES INSIDE THE WAREHOUSE

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

Inside the warehouse the trucks will be offloaded. No stacking will take place and the bags will be opened immediately. The content will be stockpiled in bulk by a payloader. Once a vessel is available in the port, the stockpiled concentrate will be reloaded by the payloader into skips mounted on trucks for delivery to the quayside. The activities in the warehouse are planned as a 24/7 operation, to make provision for the times a vessel is awaiting loading and to make provision for the arrival times of the long-distance trucks after daylight hours.

The impact intensity is rated as **moderate** because the dust can cause discomfort to workers and the closest receptors (for example to NamRa) during peak times. The duration of the impact is for the entire lifetime of the project, i.e. long-term; therefore **moderate**. In terms of extent the impact is rated as **low** because the activities are restricted to the warehouse.

Consequence

The consequence of the impact is considered as **moderate** for the unmitigated scenario and low for the mitigated scenario.

Probability

Dust generated by the activities inside the warehouse will be contained by the warehouse. The design of the warehouse (no windows, only two doors) limits the possibility for dust to escape the warehouse. Nobody except the truck driver, payloader driver and one operator at a time is allowed in the warehouse during operations, which limits potential exposure of workers to dust further. Against this scenario it is ranked as **moderate**. With mitigation the potential for impacts occurring is reduced.

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Dust from activities inside the warehouse

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**M**	**M**	**L**	**M**	**M**	**M**
Mitigated	**L**	**L**	**L**	**L**	**L**	**L**

Management and mitigation measures

The EMP for the port area (Namport, 2019) does not specify actions to prevent excessive dust inside warehouses, but only contains generic recommendations such as:

- Implement dust suppression methods where applicable.
- Warehouses for mineral ore and chemical storage must remain closed with adequate dust suppression systems to limit or prevent the formation of windblown dust.
- Any loading / offloading activities must cease if dust becomes airborne. Loading / offloading can continue after mitigation measures to reduce dust generation / transport have been implemented, or when wind speeds decrease.

- All staff working in dust producing environments must wear dust masks and related PPE.
- A complaints register should be kept for any air quality related issues and mitigation steps taken to address complaints where necessary.
- Any complaints received regarding dust or other air quality impacts should be recorded with notes on action taken.

8.2.2 ISSUE: DUST FROM TRANSPORT ACTIVITIES BETWEEN THE WAREHOUSE AND THE QUAYSIDE

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

Copper concentrate from the warehouse will be transported to the awaiting vessel in open skips mounted on trucks. Since the distance is so short, the skips will not be covered during transport. These will be nonstop activities during the mooring time of the vessel, i.e. a 24/7 operation until the full order is loaded. This activity is thus marked by definite intense periods of a limited duration.

The impact intensity is rated as **moderate** because the dust can cause discomfort to workers and other port users during peak times. The duration of the impact is for the entire lifetime of the project, i.e. long-term; therefore **moderate**. In terms of extent the impact is rated as **low** because the activities are restricted between the warehouse and the quayside. Put differently, it is unlikely that the dust may affect the closest neighbours or other port users and tenants.

Consequence

The consequence of the impact is considered as **moderate** for the unmitigated scenario and low for the mitigated scenario.

Probability

It is possible that dust may generate from the loaded trucks between the warehouse and the quayside. The amounts will be small though, and the possibility to contaminate other product in the port area is low. For this reason, the impact is rated as **moderate**. However, with mitigation the potential for impacts occurring is reduced.

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Dust from transport activities between the warehouse and the quayside

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**M**	**M**	**L**	**M**	**M**	**M**
Mitigated	**L**	**L**	**L**	**L**	**L**	**L**

Management and mitigation measures

The EMP for the port area (Namport, 2019) does not specify actions to prevent excessive dust outside warehouses, but only contains generic recommendations in terms of monitoring:

- Real time wind direction and velocity monitoring which can be linked to air quality monitoring should be initiated.
- Dust (air quality) monitoring must be conducted to determine the extent and source of dust pollution.
- All information and reporting must be included in the bi-annual report of Namport.

Accordingly, WBCT will introduce monitoring and control measures if excessive dust is generated.

8.2.3 ISSUE: DUST FROM DECANTING ACTIVITIES

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

At the quayside the skips will be hoisted by crane and decanted into the ship's cargo hold. This will be a 24/7 operation during the loading period. This activity is thus marked by definite intense periods of a limited duration.

The impact intensity is rated as **moderate** because the dust can cause discomfort to workers and other port users during peak times. The duration of the impact is for the entire lifetime of the project, i.e. long-term; therefore **moderate**. In terms of extent the impact is rated as **low** because the activities are restricted to the quayside.

Consequence

The consequence of the impact is considered as **moderate** for the unmitigated scenario and low for the mitigated scenario.

Probability

The impact will definitely occur (**high**) as it will be integral part of the operational activities of the project and can cause discomfort to workers and other port users during peak times. The possibility to contaminate other product in the port area is low, however. With mitigation the potential for impacts occurring is reduced.

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Dust from decanting activities

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**M**	**M**	**L**	**M**	**H**	**M**
Mitigated	**L**	**L**	**L**	**L**	**M**	**L**

Management and mitigation measures

- See Section 8.2.2.

8.3 Impacts related to Hazardous Substances

8.3.1 Issue: Potential spillage from decanting activities

Although decanting is a controlled activity during which skips are hoisted by crane to be emptied into the ship's cargo hold and is designed and managed to ensure zero spillage, an accidental spillage onto the quayside and into the seawater during this process is possible. Whereas spillage on the quayside can be scooped up without complication, spillage into the seawater poses a more challenging situation – copper concentrate is regarded as a hazardous substance and very toxic to aquatic life (Trafigura, 2018) – therefore this potential impact is further assessed.

Assessment of Impact

Nature and intensity, duration of impact and geographical extent

Should the entire content of one skip fall into seawater and cannot be captured, the immediate surroundings can be substantially deteriorated. The impact intensity is thus rated as **high**.

Circulation of currents in the bay is predominantly clockwise, mostly in the upper layers in the water column and depends on wind direction and strength. Considering the presence of the new container terminal, modelling indicates weak currents in the commercial harbour and in a northeast direction along the quay walls. To an extent the container terminal provides a physical barrier to pollutants that may enter the entrance to the lagoon (Namport, 2019). Although it is thus unlikely that potential contamination will disperse further than the quayside area and into the Walvis Bay Lagoon, economic impacts on various industries depending on seawater for their operations, such as the fishing industry and mariculture, are possible because it may potentially render water unsuitable for use. In terms of extent the impact is thus rated as **moderate**. Lasting effects are unlikely, the duration of the impact is likely to be short-term, temporary, and reversible; thus **low**.

Consequence

The consequence of the impact is considered as **moderate** for the unmitigated scenario and low for the mitigated scenario.

Probability

It is possible that such an incident can occur (**moderate**).

Significance

The significance of the impact is rated as **moderate** for the unmitigated scenario and low with mitigation.

Tabulated summary of the assessed impact – Dust from decanting activities

Mitigation	Intensity	Duration	Extent	Consequence	Probability of occurrence	Significance
Unmitigated	**H**	**L**	**M**	**M**	**M**	**M**
Mitigated	**M**	**L**	**L**	**L**	**L**	**L**

Management and mitigation measures

Although not specific to decanting activities, the EMP for the port area (Namport, 2019) states that:

- Emergency response plans and spill contingency plans must be in place and include all fuels, chemicals or hazardous substances being handled. In the case of tenants, copies of these documents must be submitted to Namport.

- Any mineral ore or any other hazardous substance spill on the quay area must be cleaned and disposed of to prevent it from entering the ocean either by wind or water runoff.
- Use of reputable and well-trained contractors are essential.
- A surface water quality monitoring programme should be implemented to ensure water quality in and around the harbour does not deteriorate and that the habitat in the Walvis Bay Lagoon is protected.
- A report should be compiled bi-annually of all spills or leakages reported and any monitoring results. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, comparison of pre-exposure baseline data (previous pollution conditions survey results if available) with post-remediation data (e.g. soil / groundwater hydrocarbon concentrations) and a copy of documentation in which the spill was reported to Ministry of Mines and Energy (where required for hydrocarbon spills).

9 WAY FORWARD

The way forward is as follows:

- I&APs review the report and send their comments to Namisun.
- Namisun finalises the report, incorporating I&APs' comments.
- Submission of the final report (including I&APs' comments) to MWT and MEFT for their review and decision.
- MWT and MEFT review the final report and provide record of decision.

10 CONCLUSION AND RECOMMENDATION

It is Namisun's opinion that the environmental aspects and potential impacts relating to the proposed project and the associated facilities and activities have been successfully identified. The following environmental aspects and their potential impacts associated with the construction and operational phase of the project, as well as the cumulative impacts have been assessed:

- Noise because of:
    - Use of vehicles and equipment during construction.
    - The receiving of copper concentrate on flat-bed long-distance trucks.
    - Debagging, stockpiling and reloading activities in the warehouse.
    - Transport of copper concentrate from the warehouse to the quayside.
    - Decanting activities.
- Dust because of:
    - Debagging, stockpiling and reloading activities in the warehouse.
    - Transport of copper concentrate from the warehouse to the quayside.
    - Decanting activities.
- Spillage of a hazardous substance (copper concentrate) in seawater because of:
    - Decanting activities.

Relevant management and mitigation measures have been provided to ensure significant environmental and social impacts are avoided / minimised and positive social impacts enhanced, where relevant. These measures are included in the EMP.

Namisun believes that a thorough assessment of the potential impacts associated with the proposed new warehouse of WBCT for the bulk handling of copper concentrate has been achieved and will ensure MEFT to make an informed decision regarding the issuing of an ECC.

It is recommended that, if MEFT provides a positive decision on the application for the proposed project, they should include a condition to the clearance that WBCT must implement all commitments in the EMP.

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APPENDIX A – CURRICULUM VITAE

APPENDIX B – INFORMATION SHARING RECORD

APPENDIX C – MINUTES OF MEETINGS AND ISSUES AND RESPONSE REPORT

APPENDIX D – STAKEHOLDER DATABASE