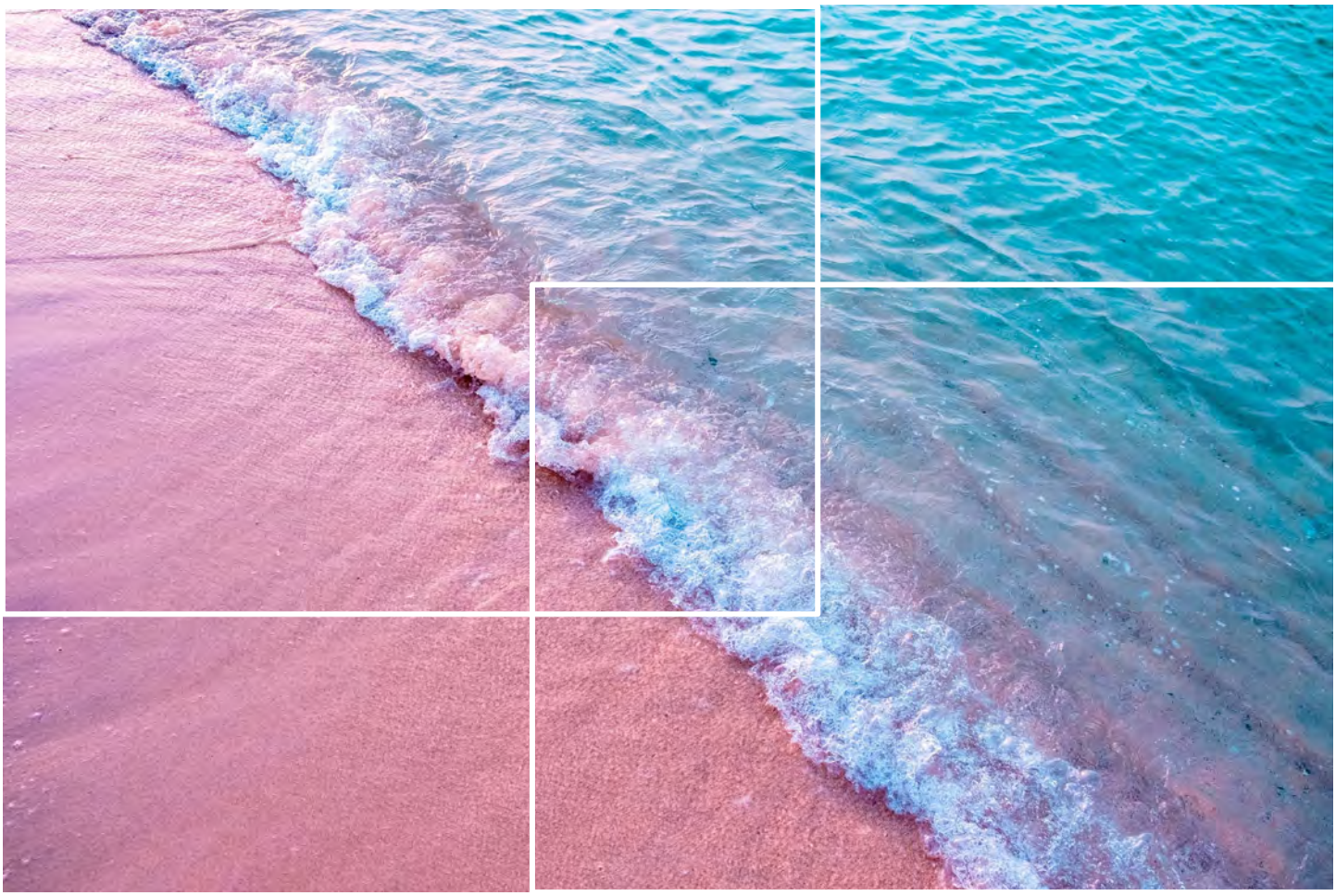

Namibian Marine Phosphate (Pty) Ltd

Submitted to: Namibian Marine Phosphate (Pty) Ltd
Attention: Mr Chris Jordinson
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Walvis Bay

REPORT:

BACKGROUND INFORMATION DOCUMENT FOR THE PROPOSED SANDPIPER MARINE PHOSPHATE PROJECT WITHIN ML 170, OFFSHORE, NAMIBIA.

PROJECT NUMBER: ECC-133-377-BID-02-B

REPORT VERSION: REV 02

DATE: 23 FEBRUARY 2022

Prepared by:

ECC ENVIRONMENTAL COMPLIANCE CONSULTANCY

TITLE AND APPROVAL PAGE

Project Name:	Background information document for the proposed Sandpiper Marine Phosphate Project within ML 170, offshore, Namibia.
Client Company Name:	Namibian Marine Phosphate (Pty) Ltd
Client Name:	Mr Chris Jordinson
Ministry Reference:	APP-00
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1 BACKGROUND INFORMATION DOCUMENT

1.1 PURPOSE OF THIS DOCUMENT

Environmental Compliance Consultancy (ECC) has been contracted by Namibian Marine Phosphate (Pty) Ltd (NMP) to revise and update the environmental and social impact assessment (ESIA) for dredging of marine phosphate material within ML 170, offshore, Namibia.

The purpose of this Background Information Document (BID) is to provide Interested and Affected Parties (I&APs) a background to the proposed project and to invite I&APs to register as part of the Environmental Social Impact Assessment (ESIA) process.

All those who register as an I&AP will be kept informed throughout the ESIA process. Registration provides a platform for participants to submit comments, concerns, or recommendations regarding the proposed project. This BID includes the following information:

- The proposed project and location
- The necessity of the project, benefits or adverse impacts anticipated
- The alternatives within the project that will be considered and assessed
- How the ESIA process works
- The public participation process and how to become involved
- Next steps and the way forward

1.2 DESCRIPTION OF THE PROPOSED PROJECT

The proposed project is located within mining licence ML 170 and is referred to as the Sandpiper Marine Phosphate Project (referred to as “the Project” herein). Namibian Marine Phosphate (Pty) Ltd (hereafter referred to as “The Proponent”), is the official applicant for the proposed project and environmental clearance application.

Previous exploration activities have verified to internationally approved standards the existence of a world-class economically viable marine phosphate deposit in the mining licence area ML 170. The mining licence comprises an area of 2,233 km^2 and is located offshore approximately 120km southwest of Walvis Bay. The eastern boundary of the mining licence is located approximately 40 km off the coast (directly west of Conception Bay) and water depths where the deposit is situated range from 190 m at the eastern boundary to 300 m and the western boundary of the mining licence.

The intention is to develop these deposits using proven deep water dredging techniques, transfer the product to shore at Walvis Bay where minimal beneficiation is required to separate the phosphate from other marine sediments. The processed product is an exportable phosphate concentrate.

In terms of Section 32 (1) of the Environmental Management Act, No. 7 of 2007, ECC has determined that the Ministry of Mines and Energy (MME) is the competent authority for the proposed mining project. The mining activity triggers the listed activities as per the Environmental Management Act Regulations. The relevant activities list provided later in the BID.

1.3 PROJECT LOCATION AND ENVIRONMENT WITHIN THE MINING LICENCE

The proposed project within ML 170 is located approximately 120km off the coast to the southwest of the regional town of Walvis Bay (-24° 19’ 59.99” S : 13° 53’ 20” E). The eastern boundary of the mining licence is located approximately 40 km off the coast (directly west of Conception Bay). The deposit occurs in water depths ranging from 190 m at the eastern boundary to 300 m at the western boundary (see Figure 1). The initial 20-year mining target comprises an area of approximately 34 km^2 within ML 170 representing approximately 2.2 % of the total mining licence area.

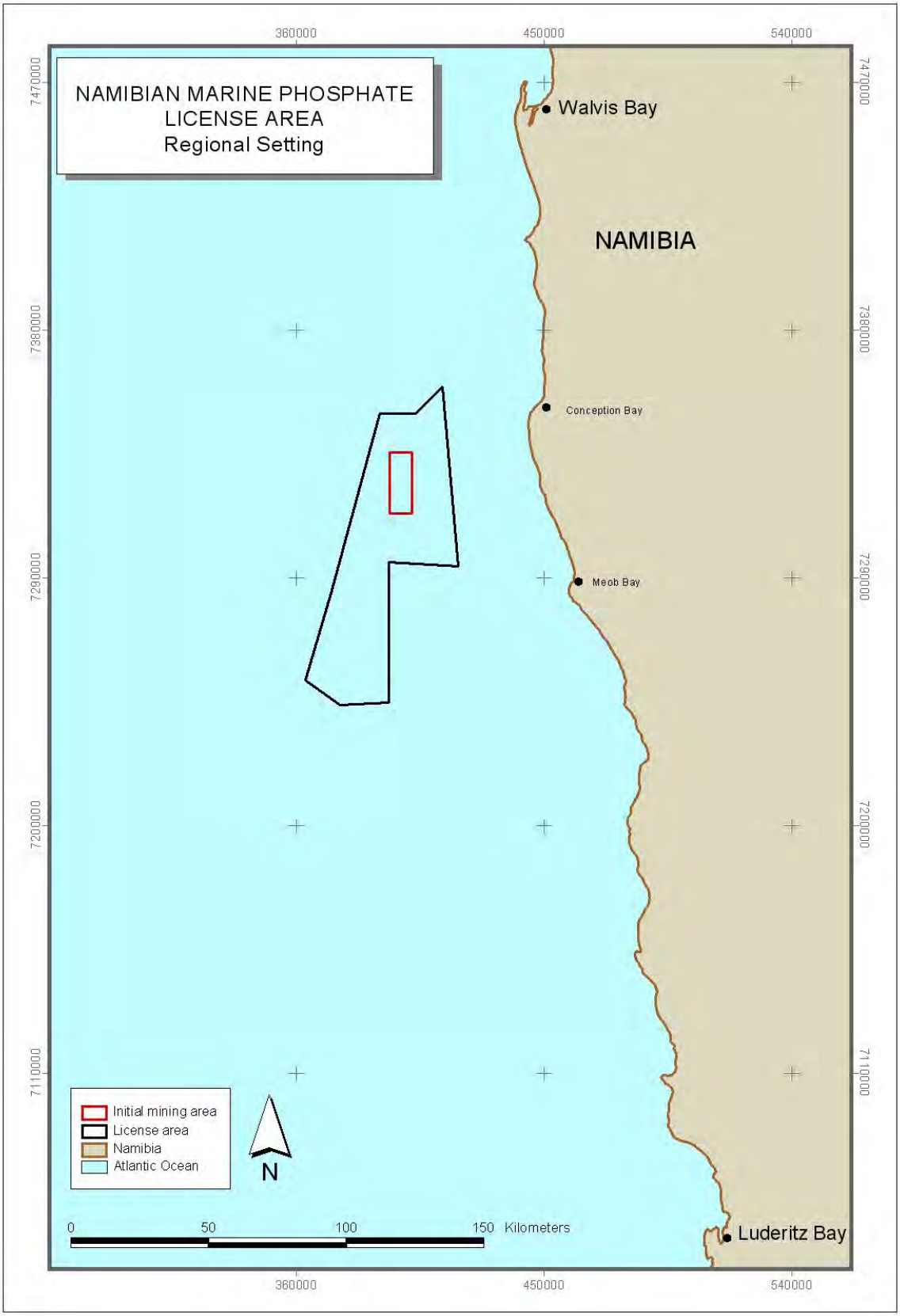

Figure 1 – Location map showing the ML in proximity to towns and boundaries

1.4 EXPLORATION AND PROJECT PROGRESS

There are known phosphate enriched sediments of varying grades (economic and uneconomic) covering approximately 37,000 km^2 of the Namibian continental shelf. The proponent has secured exploration and mining rights over known core areas of highest phosphate concentration and economic potential.

During exploration within the mining licence area, a confirmed world-class phosphate resource has been established and classified to the international Joint Ore Reserves Committee, Australia (JORC) and National Instrument 43-101 (Canadian) ore reserve standards of identification. Exploration and resource development of the Sandpiper Marine Phosphate Project to date has defined the Ore Reserves and Mineral Resources as set out in Table 1.

Table 1 – Resource definition

Ore Reserves	Mineral Resources	Cut-off grade
Proven and Probable Ore Reserves of 132.76 Mt at 20.41% P2O5	Indicated Mineral Resource of 80Mt at 19.8%P2O5 (Indicated)	Ore Reserves and Mineral Resources were estimated at a 15% cut off grade
	Inferred Mineral Resource of 1.61 billion tons at 18.9% P2O5	

As such, the project is a potentially world class marine phosphate deposit with an initial resource and reserve base of adequate size and average grade required to support the development of a long term economically viable mining operation.

Historic sampling data shows the deposit is up to 6 m thick in places with the current Ore Reserves and Mineral Resources identified by the Proponent being estimated from sampling only in the upper 2-3 m of the deposit. Exploration programs will be continued as needed to define and quantify the resource in ML170.

The proposed development of the current identified Ore Reserves and Mineral Resources will support an initial 20-year mine plan with an annual recovery of approximately 5.5 Mt per annum of the phosphate rich sediment to produce a final product of 3 Mt phosphate concentrate per annum. These levels of production are expected to require approximately 43 weeks of dredging per year operating at approximately 3 dredge cycles per week. The defined phosphate resources are adequate to support sustainable mining at the proposed rates for several generations, potentially extending up to 100 years from commencement.

1.5 NEED FOR THE PROJECT

Phosphate deposits contain phosphorus which is a vital element for growth in plants, animals, and humans. There is no artificial substitute for phosphorous for this purpose. It is therefore an essential element used in the production of fertiliser and animal feed to promote and sustain health and growth. More recently phosphorus has proven to have significant technical and environmental benefits if used as an alternative to highly toxic metals such as cobalt to produce lithium iron phosphate batteries in the green energy and electric vehicle sectors.

With one of the world's largest undeveloped phosphate resources, establishing a phosphate-based Industry could position Namibia to meet the future global demand for phosphate to support production of agricultural products (fertilizers and animal feed) as well the requirements for the developing green energy and electric vehicle battery markets. The Proponent would be only one company within a new phosphate-based industry in which an independent economic study has shown, has the potential to contribute up to 9% to Namibia's GDP and create over 50,000 direct, indirect, induced jobs.

The Proponent intends to pursue mining activities with the aim of producing a beneficiated phosphate concentrate product from these new mining prospects. This new mining project will enable production of phosphate concentrate in Namibia that can be used both as a direct application phosphate and as the primary product for producing fertilisers and animal feed. The definitive feasibility study for the project completed by the Proponent as well as an independent economic study on the potential development of a phosphate-based industry in Namibia shows that development of this new mine could have a positive impact on the country's local and national economy in the areas of job creation, industrialisation, and revenue generation.

1.6 CONSTRUCTION AND OPERATIONAL PHASES

Mining activities shall take place within the boundaries of mining licence 170. The plan and vertical view of the current 20-year mine plan design covering approx. 2.2 % of ML 170 is shown in Figure 2.

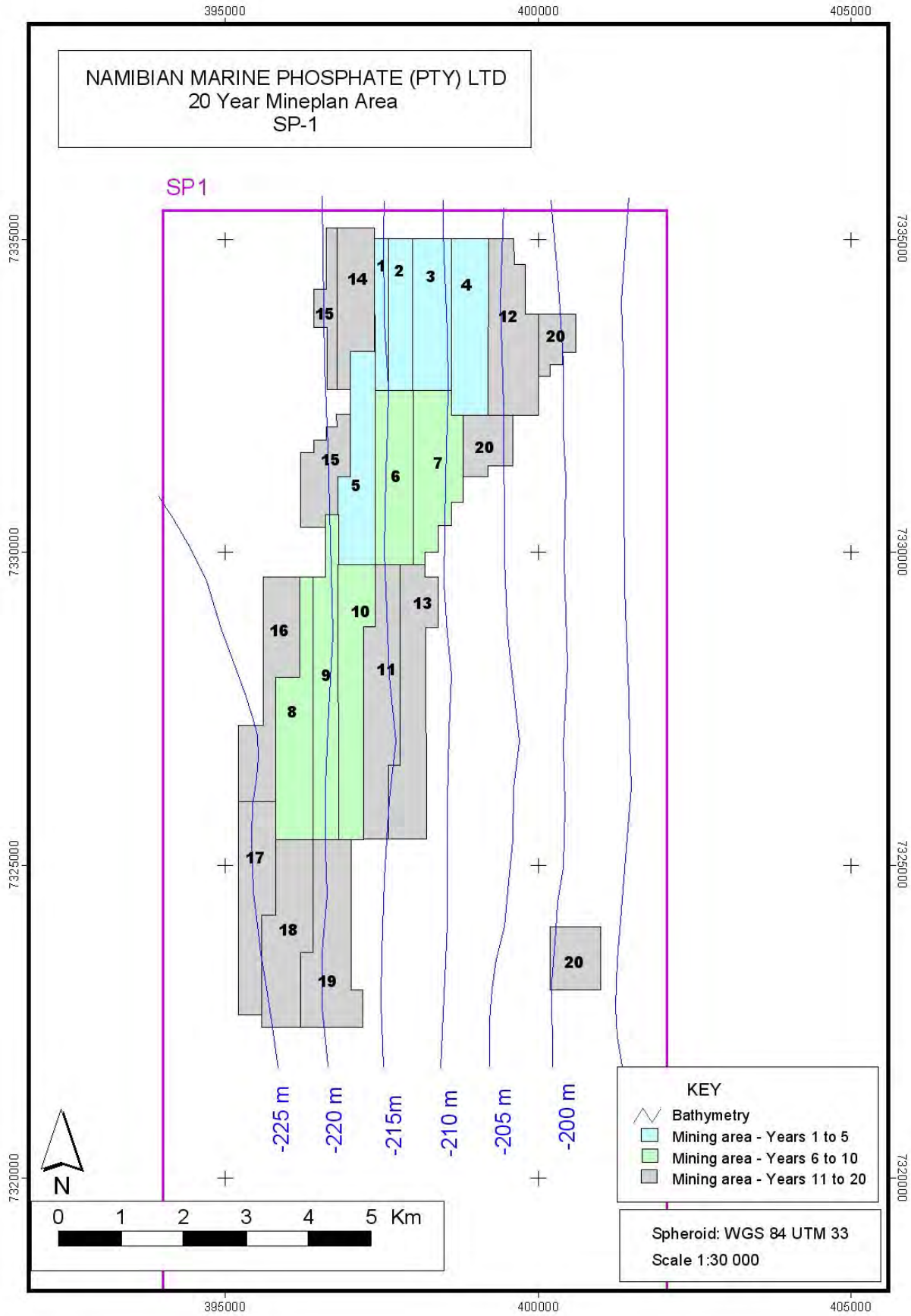

Figure 2 – Plan showing vertical view of the 20-year mine plan

It is envisaged that the mining operation at the proposed Sandpiper Marine Phosphate Project will entail dredging and recovery of marine phosphate sediments by use of a Trailing Suction Hopper Dredger (TSHD) from water depths between 190 to 250 m, within ML 170. The scale of the proposed project will involve mining of approximately 2.5 square kilometres per annum which equates to approximately 0.0003% of seabed within Namibia's exclusive economic zone. The proposed project will have to coexist in the marine environment with marine diamond mining industry and the commercial fishing industry at their current approximate scales of operation as shown in Figure 3.

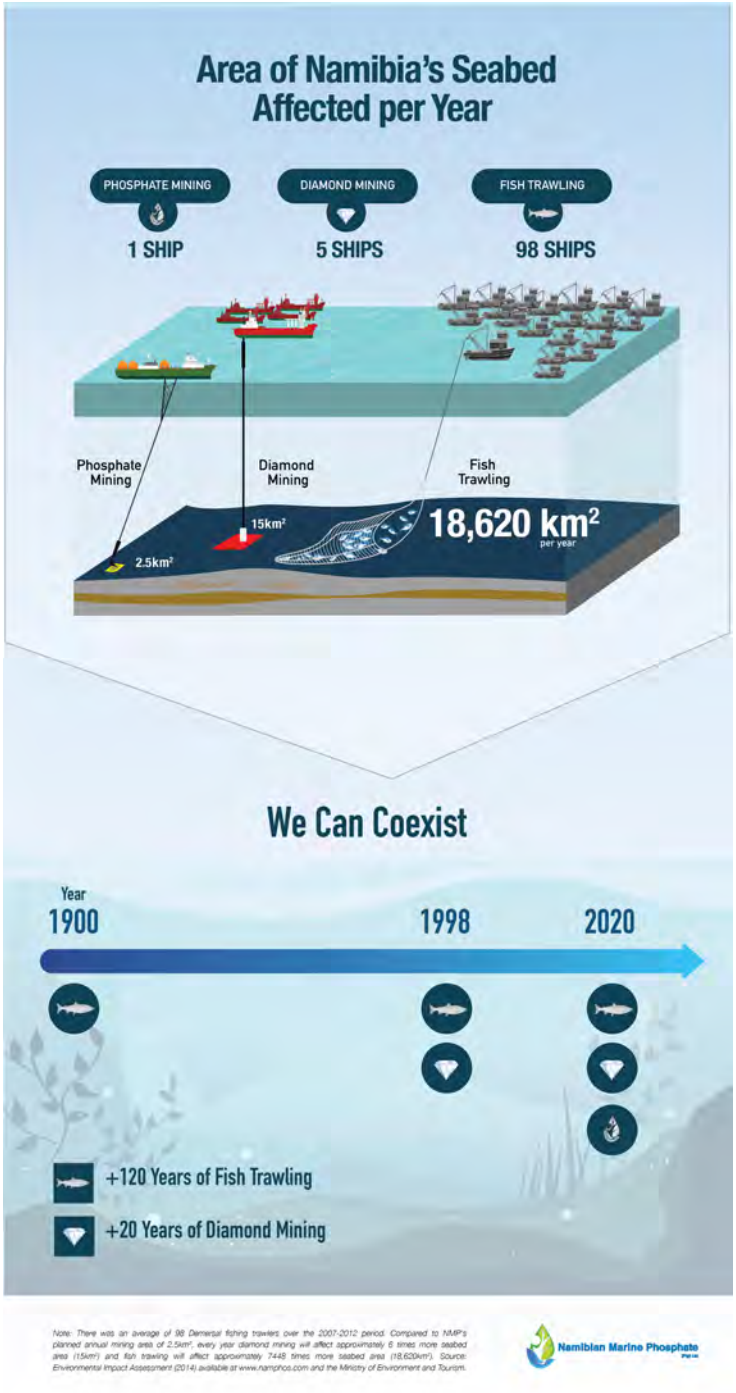

Figure 3 – Infographic showing comparison of marine industries

The project will produce 3 million tons (MT) of phosphate concentrate per annum. Mining of sediments will involve a structured dredging recovery process, that leaves recolonisation zones of undisturbed seabed for natural rehabilitation. Figure 4 renders a chart of the complete dredging cycle.

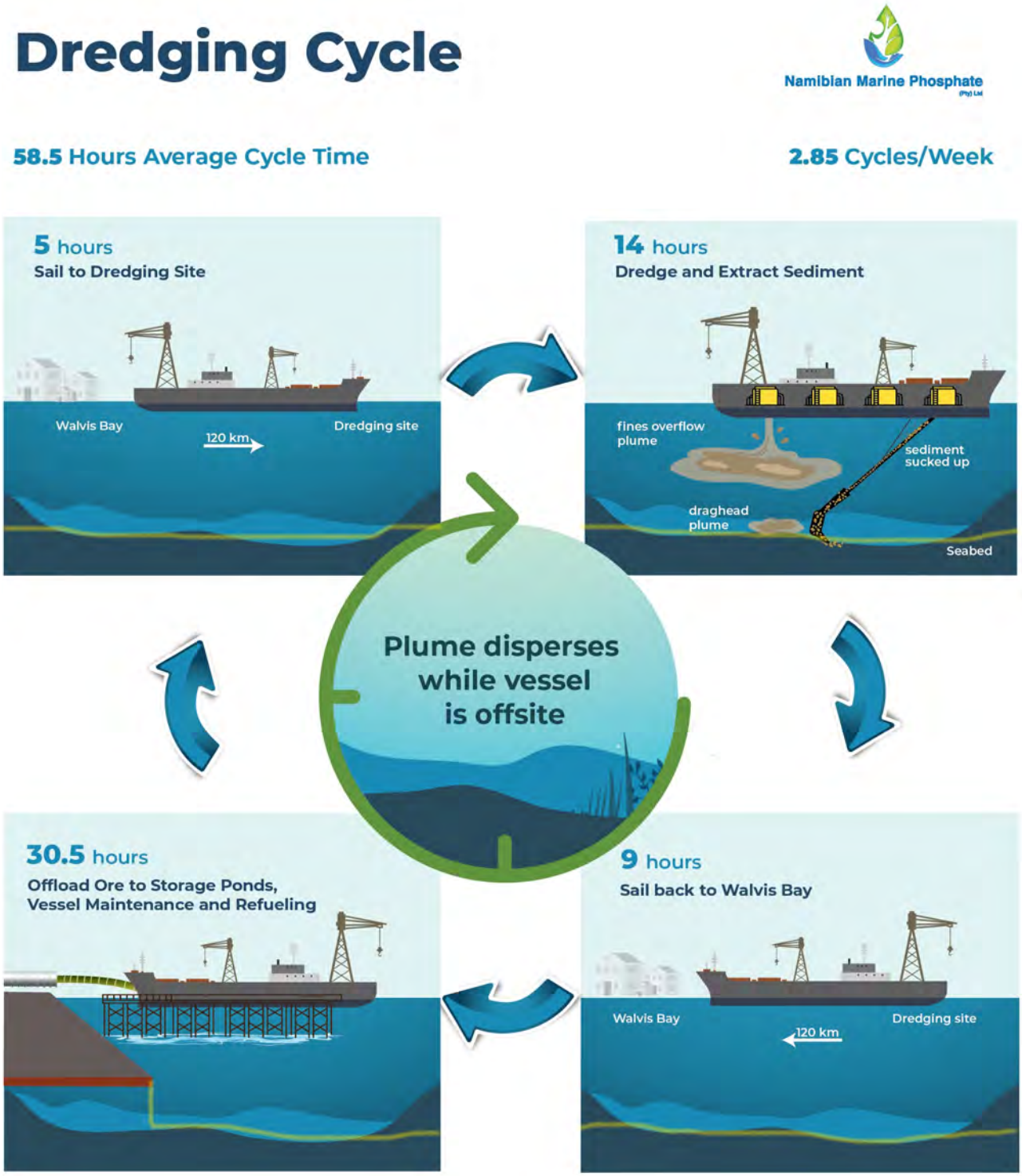

Figure 4 – Infographic showing dredging cycle

The preferred use of TSHD for the recovery of the phosphate rich sediments revolves around the adoption of proven dredging technology and experience to provide operational performance, delivery, and reliability of the 'dredge cycle'. The forecast production is expected to require approximately 43 weeks of dredging per year operating at approximately 3 dredge cycles per week. Dredging cycle comprises a four-part process as set out in Figure 4 above and detailed in Figure 5 below.

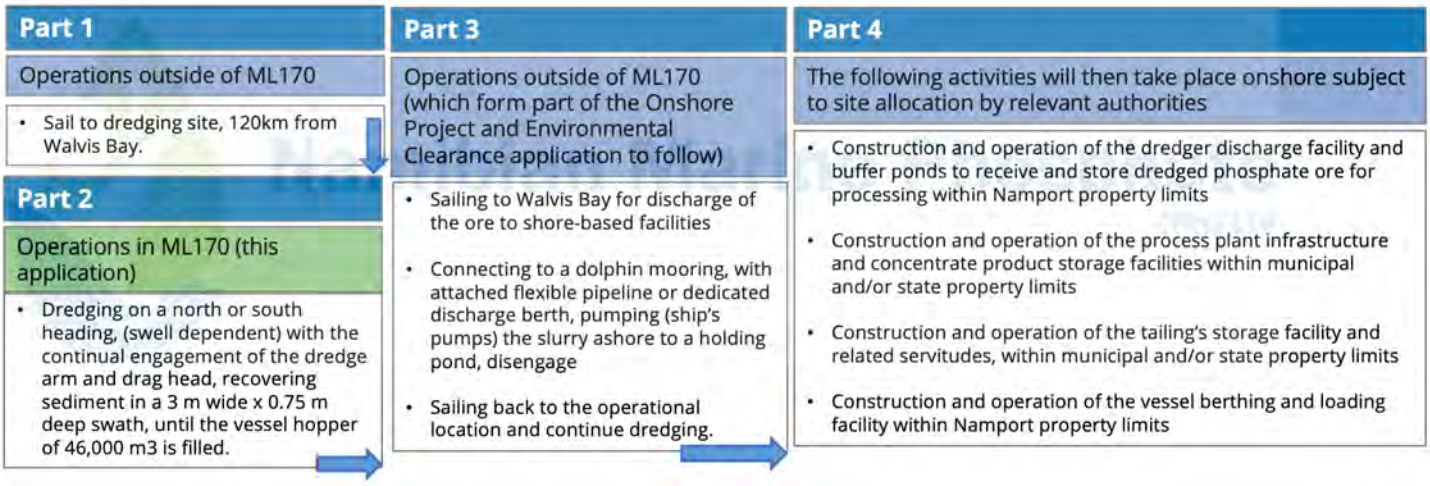

Figure 5 – Flowchart of the four-part project process

The proposed dredging activities onsite in ML170 are therefore not continuous and will amount to a total of approximately 32 hrs per week

2 CONSIDERATION OF ALTERNATIVES

Best practice environmental assessment methodology calls for consideration and assessment of alternatives to a proposed project. During the assessment phase, alternatives will be considered and assessed. The alternatives will aim to optimize designs and processes to reduce potential impacts. Some aspects where alternatives may be required could include:

- Different types of technology or operation
- Access
- Mining methods

The key aspects that have already been identified where alternatives need to be considered include six recovery methods have been evaluated by internationally qualified independent expert, in terms of: vessel availability; equipment availability; production capacity; material transport complexity (in part, relating to environmental and safety matters); capital cost; operator skill requirement; system integrity and mining accuracy. Of these systems, three have been identified as practically possible namely: Trailing Suction Hopper Dredge (TSHD), Wire Line Dredge and Fall Pipe-ROV.

TSHD is the preferred method of sediment recovery for the following reasons:

- The method has been tried and tested
- There are current internationally experienced dredge contractors with ability to operate in these water depths and marine conditions
- There are currently vessels available with the capacity to dredge the required annual production volumes (project viability)
- The international dredging industry has well established guidelines for best practices and experience in the management and mitigation of environmental impacts of dredging operations.

Notwithstanding that over the projects history several alternatives have already been assessed, any new alternatives that this assessment may considered will be incorporated into the current ESIA process.

3 THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PROCESS

The ESIA for the proposed project is being conducted by ECC and will be undertaken in terms of the Environmental Management Act, 2007 and its regulations. The process followed for this ESIA is set out in the flowchart in Figure 6.

ECC has been contracted by Namibian Marine Phosphate (Pty) Ltd, as the independent Environmental Assessment Practitioner (EPA) to facilitate the whole ESIA process. Prior to the start of the proposed project, an environmental clearance certificate is required in terms of the Environmental Management Act, 7 of 2007 and the associated EIA Regulations.

A final decision relating to the above-mentioned application will be made by Ministry of Environment, Forestry and Tourism (MEFT): Department of Environmental Affairs (DEA).

The related environmental process will include:

1. Screening phase (completed)
2. Scoping phase which includes baseline studies and the development of the Terms of Reference (ToR) for the ESIA (initiated)
3. Assessment Phase which includes impact prediction and evaluation of alternatives, assigning mitigation measures and developing monitoring and conceptual rehabilitation plans. This phase culminates in the drafting of the ESIA report and draft Environmental Management Plan (EMP) and submission to the appropriate competent authorities

The main objectives of the ESIA are to:

a) Provide information describing the proposed Sandpiper Marine Phosphate Project and associated activities
b) Provide an independent environmental and social assessment of the activities associated with the proposed project
c) Develop management and mitigation measures associated with any identified potential impacts where necessary.

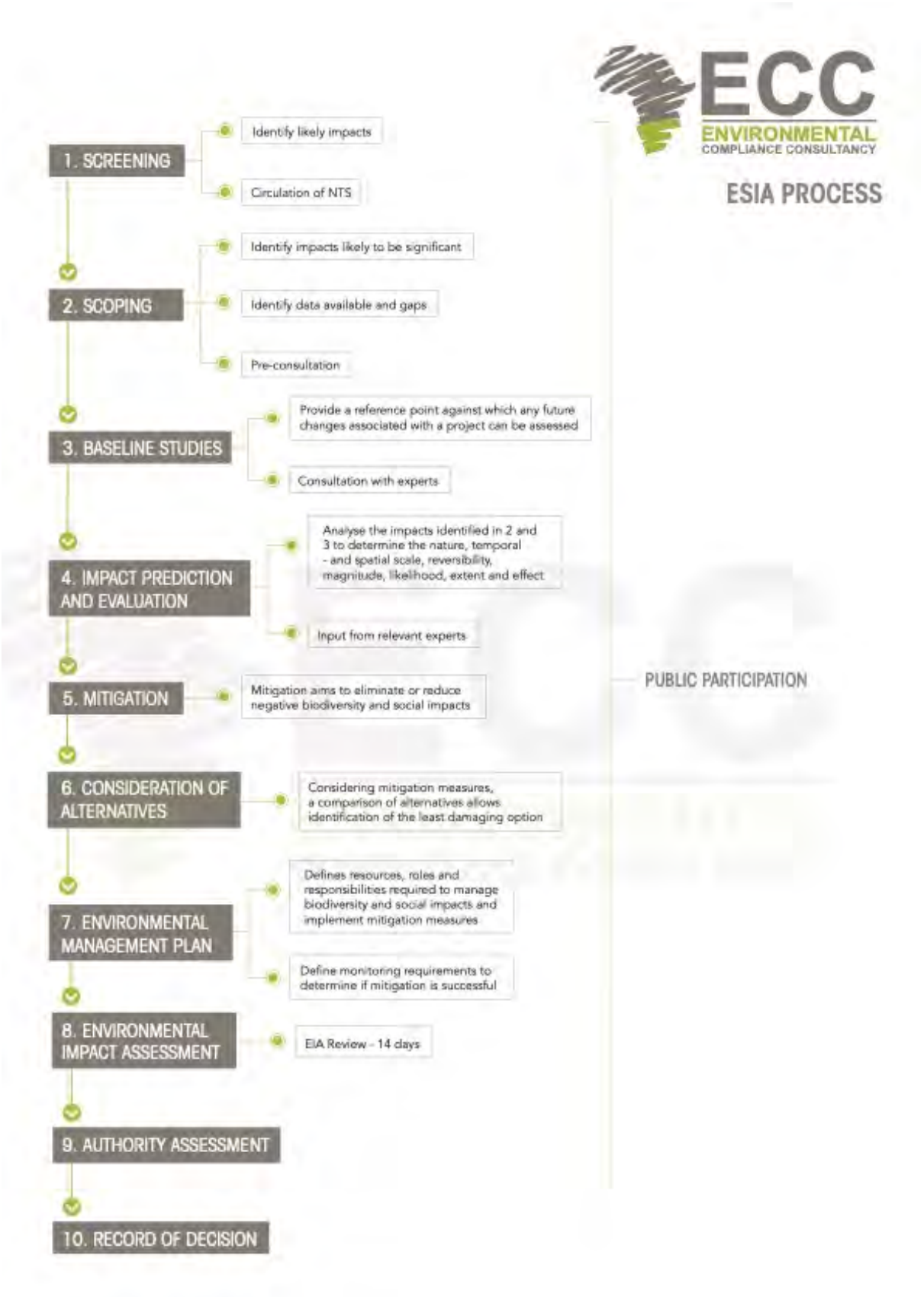

Figure 6 – Flowchart of the environmental and social assessment process

3.1 SCREENING

A review of the planned project was undertaken and the screening findings against the listed activities was conducted; the findings of which are summarised in Table 2.

Table 2 – Listed activities triggered by the proposed project

LISTED ACTIVITY	MINING ACTIVITY
ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES	Power is generated by the vessel; therefore, this is not applicable to the marine dredging operations within ML170. Screened out of the assessment.
WASTE MANAGEMENT, TREATMENT, HANDLING, AND DISPOSAL ACTIVITIES (2.1) The construction of facilities for waste sites, treatment of waste and disposal of waste. (2.2) Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976. (2.3) The import, processing, use and recycling, temporary storage, transit or export of waste.	All waste produced will be contained within the vessel and will be managed in accordance with the International Convention for the Prevention of Pollution from Ships (MARPOL) requirements to which Namibia is a signatory. Therefore, the marine dreading operations do not trigger this activity and as such this has been screened out of the assessment.
MINING AND QUARRYING ACTIVITIES (3.1) The construction of facilities for any process or activities which requires a license, right or other form of authorization, and the renewal of a license, right or other form of authorization, in terms of the Minerals (Prospecting and Mining Act), 1992. (3.2) Other forms of mining or extraction of any natural resources whether regulated by law or not. (3.3) Resource extraction, manipulation, conservation and related activities.	– Mining is the primary listed activity that will be undertaken in Mining Licence ML 170 under the provisions of the Minerals (Prospecting and Mining) Act 33 of 1992. – The Minerals Act (1992) defines mining activities under the lawful ownership of a mining licence (ML). – The primary activity to be undertaken is the mining/dredging of phosphatic sediments within ML 170. – The phosphatic sediment will be extracted in ML 170 using deep water dredging techniques and will then be transported to Walvis Bay for discharge and processing at an onshore facility. The onshore beneficiation operations, including transportation and discharge of the phosphate ore mined in ML 170 form a separate component of the project and will be the subject of a separate environmental and social impact assessment and in turn application for an environmental clearance certificate.
WATER RESOURCE DEVELOPMENT	– Water required for the vessel operations will be

LISTED ACTIVITY	MINING ACTIVITY
	generated by the vessel itself, therefore this listed activity has been screened out, as it is not applicable.
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. (9.2) Any process or activity which requires a permit, licence or other form of authorization, or the modification of or changes to existing facilities for any process or activity which requires amendment of an existing permit, licence or authorization or which requires a new permit, licence or authorization in terms of a governing the generation or release of emissions, pollution, effluent or waste. (9.4) The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.	The Proponent will ensure that the dredging company contracted to conduct the dredging operations are compliant with the provisions of MARPOL and will verify that the vessel holds valid and applicable permits associated with the prevention of pollution of hazardous substances, if applicable. The dredge vessel will hold supply of fuel in the vessels fuel tanks in accordance with standard international marine practice. Refuelling will be conducted in the Port of Walvis Bay.

3.2 SCOPING

The scoping phase is directed towards defining the range and nature of anticipated potential impacts that may have significance to the biophysical and social environments at the scale of the proposed operations. The appropriate available data and the literature are identified forming the starting point for assessment of the required baseline and specialist studies that may be required for assessment of the project impacts.

3.3 BASELINE STUDIES

For the proposed project, baseline information will be obtained through the existing studies as well as site specific specialist and impact verification studies completed to date.

The ESIA will focus on the environmental receptors that could be affected by the proposed project. ECC will also engage with stakeholders, I&APs and the proponents to seek input into the assessment. The baseline studies chapter is broken into three sections, the baseline context, environmental (physical and biological), and social (includes economic).

Desktop studies a well as all available field surveys and specialist studies from the project area will be used to help define the baseline. These studies also give a further indication whether there are any local or regional future developments that could impact the project or vice versa.

Lastly the socio-economic section of the baseline studies helps to gain information on the governance, demographic profile, social stratification (employment, education, crime, infectious disease), occupation and livelihood (economic activities, occupations in study area, employment rates), land patterns (noise and vibrations) and access to services (drinking water, sanitation, healthcare facilities etc.).

3.4 TERMS OF REFERENCE

Based on the stakeholder engagement through the defined public consultation process including any written correspondence and the baseline studies, the ToR for the impact assessment will be finalised and confirmed with the Environmental Commissioner.

3.5 STAKEHOLDER ENGAGEMENT

The public and key stakeholders receive invitations to register as I&APs. After the presentation of the proposed project and ESIA process through he defined public consultation process, a period of time for input will be granted for the Environmental Assessment Practitioner (EAP) to receive any additional concerns or comments from registered I&AP's. All feedback from the initial public consultation process will be incorporated into the scoping report.

3.6 SCOPING REPORT

The scoping report will be drafted and made available to the registered I&APs for comment before being submitted to the competent authority and MEFT. The scoping report will contain a description of the project and the bio physical and socio-economic environments, the specialist baseline studies, stakeholder engagement report and the terms of reference for the ESIA.

3.7 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT PHASE

3.7.1 POTENTIAL IMPACTS

The potential social and economic impacts should be considered with due regard to the nature and scale of the proposed operations its location within the broader marine, commercial and social environments. The potential environmental and social impacts that have been anticipated may include the following:

- Potential effects on the marine benthic fauna
- Potential impairment of food chain functionality
- Potential creation of new habitat colonized by as yet unknown fauna
- Potential modification to the water column, primarily turbidity
    - Reduction in light penetration caused by localized surface turbidity plume
    - Change in, i.e. oxygen levels related to sediment releases into water column
    - Possible release of hydrogen sulphide into the water column
- Potential removal of typical spawning substrate for fish
- Potential removal of foraging substrate for fish
- Potential interference with fish behaviour
- Associated implications for the commercial fishing industry
- Potential to increase the marine traffic in the vicinity of Walvis Bay
- Potential job creation and skills development due to the proposed project
- Potential social upliftment benefits for local and regional communities
- Potential influx of people moving to the Walvis Bay areas
- Potential social nuisances
- Potential value for development of a new mining sector and phosphate-based industry
- Potential regional and national economic benefits
- Potential role in regard to national policies and objectives for Blue Economy Development and Marine Spatial Planning

3.7.2 DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

An EMP shall be developed for the proposed project setting out auditable management actions for the project to ensure careful and sustainable management measures are implemented for their activities in respect of the surrounding environment and community. The EMP becomes the legally binding commitments upon approval of the EMP and issuing of the environmental clearance certificate. Environmental clearance certificates are issued for a period of 3 years and renewal is subject to compliance with the provisions and conditions of the environmental clearance certificate.

4 THE WAY FORWARD – PUBLIC PARTICIPATION

Public participation is an important part of the ESIA process. It allows you, the public and stakeholders to raise concerns or provide valuable local environmental knowledge that can benefit the assessment process as well as aid the planning process for the scoping phase of the defined assessment process. At this phase ECC will perform the following:

- Prepare and submit the application for the environmental clearance certificate in the prescribed manner
- Identify relevant key stakeholders, authorities, municipalities, environmental groups and interested or affected members of the public, hereafter referred to as I&APs
- Carry out a public consultation process in accordance with Regulation 21 of the EMA 2007 including:
    - Distribute the BID for the Proposed Sandpiper Marine Phosphate Project (this document)
    - Advertise the environmental application and call for registration of I&AP's in two national newspapers
    - Open a I&AP register and record all comments of I&APs and present such comments, as well as responses provided by ECC, in the comments and responses report, which will be included in the scoping report that shall submitted with the application
- Prepare a scoping report and provide same to registered I&APs for comment
- Submit the scoping report and the I&AP comments to the competent authority and Environmental Commissioner for a record of decision

Your request for registration as an I&AP as well as any comments on the BID or Project must be submitted in writing and can be emailed using the details in the contact us section below. Registration as an I&AP for the project can be completed online on ECCs website on the projects page, or by using this link: https://eccenvironmental.com/projects/

Registration as an I&AP should be submitted on or before 25 February 2022.

We welcome any enquiries regarding this document and its content. Please contact:
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