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## DRAFT SCOPING REPORT (Re-Circulation)

EIA REF: 14/12/16/3/3/2/2132

**Arm Scor EIA Application in support to the Atmospheric Emissions License (AEL) Application for the operation of Arm Scor Dockyard Foundry in Simon's Town, City of Cape Town Metropolitan, Western Cape.**

**FEBRUARY 2022**

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**Prepared for:**

**ARMSCOR (SOC) Ltd.**



**ARMSCOR**  
Armaments Corporation of South Africa SOC Ltd

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## LIST OF ACRONYMS

BAR	Basic Assessment Report
CFP	Chance Finds Procedure
DFFE	Department of Forestry, Fisheries and Environment
DOT	Department of Transport
DWS	Department of Water and Sanitation
EMPr	Environmental Management Programme
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
HGM	Hydrogeomorphic
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act 107 (Act 107 of 1998)
NEMPAA	National Environmental Management: Protected Areas, 2003 (Act 57 of 2003)
I&AP	Interested and Affected Parties
EAP	Environmental Assessment Practitioner
GA	General Authorisation
SCADA	Supervisory Control and Data Acquisition
SCC	Species of Conservation Concern

## **GLOSSARY OF ITEMS**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## PURPOSE OF THIS DOCUMENT

Assessment of impacts related to the operation of the Armscor Dockyard foundry in Simon's Town, City of Cape Town Metropolitan (CTM), Western Cape, in order to ensure the Client's compliance with all relevant environmental legislation. These activities are carried out in terms of Section 24(5) and Section 44 of the National Environmental Management Act, 1998 (Act No.107 of 1998) read in conjunction with the Environmental Impact Assessment (EIA) Regulations of 04 December 2014, amended in 2017.

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

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

## **LIMITATIONS AND ASSUMPTIONS**

The following assumptions and limitations accompany the scoping exercise:

- ✚ In accordance with the purpose of Scoping, the report does not include specialist investigations on the receiving environment, which will only form part of the Environmental Impact Report (EIR). The environment in the project area was primarily assessed in the Scoping phase through site visits and appraisals, desktop screening, incorporating existing information from previous studies, and input received from authorities and I&APs.

## EXECUTIVE SUMMARY

Arm Scor (SOC) Ltd in Simon's Town intend to apply for an Atmospheric Emission License (AEL) with regard to the operations of the Arm Scor Dockyard foundry at the end of Cole Point Road, Simon's Town, Western Cape. In terms of the legal environmental requirement, Arm Scor will apply for the Section 22 (A) rectification for an AEL application for the foundry. Consequently, the Environmental Impact Assessment (Scoping and EIR) process has commenced, in support of the application for the AEL for the operation of the Arm Scor Dockyard foundry. Atmospheric Emission s licenses (AELs) are obligatory under the National Environmental Management: Air Quality Act 39 of 2004 (AQA) for activities that result in atmospheric emissions which have a significant negative environmental impact, as listed in GN 893 of November 22, 2013, and amended in 2015.

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

The NEMA Environmental Impact Assessment (EIA) Regulations (2014) as amended in 2017, govern the process of applying for environmental authorization for certain developments. A provision in the EIA Regulations is made for two forms of assessment: Basic Assessment and Scoping & EIA, depending on the scope of the activity. The EIA regulations specify that: Activities identified in Listing Notice 1 and 3 (GNR 327 and 324 of 2017) require a Basic Assessment while activities identified in Listing Notice 2 (GNR 325 of 2017) are subject to a Scoping and EIA. The listed activity associated with the proposed development is classified under Listing Notice 2, Activity 6. Therefore, this application will follow a full Scoping and EIA process.

The Public Participation Process (PPP) for both the Scoping and Environmental Impact Assessment will be undertaken in accordance with chapter 6 of GN No. 326 (7 April 2017), as well as the EIA regulations and the Disaster Management Act, 2002 (Act No. 57 of 2002) as published on 29 April 2020 (**Refer to Appendix E**).

The preferred 'Alternative A: Demand Alternative', indicates that the Arm Scor Dockyard foundry will cause minimal ambient air pollution as the casting will be carried out on an *ad hoc* basis, this will be consolidated with the 'Scheduling Alternative'. 'Alternative B: Scheduling Alternative', indicates that the Arm Scor Dockyard foundry will only result in ambient air pollution within staggering fixed periods, unlike the continuous day to day emissions, as the casting orders will be

consolidated and be undertaken as a batch process. This will provide relief to the ambient air quality, as the pollution will only be experienced at certain fixed periods. This option also takes into consideration other aspects such as the prevailing wind direction and speed. The 'Alternative C: Technology Alternative', indicates that the Amcor Dockyard foundry function as two (2) independent extraction systems, one for the copper and aluminium furnaces, and one for the zinc furnaces. Each diesel-fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m<sup>3</sup>.h<sup>-1</sup>. Therefore, these alternatives cannot be evaluated in isolation as they are interlinked to one another.

Direct and indirect impacts as a result of the proposed development, include biophysical impacts and socio-economic impacts. The foundry metal casting process release the flue gases of chemical compounds such as cadmium, lead, sulphur dioxide, and other chemical compounds (depending on the furnace input) into atmosphere via stacks. As a result, the potential impact is observed to be ambient air atmospheric pollution. The Air Quality Impact Assessment and Terrestrial Biodiversity Impact Assessment will be conducted to ascertain any significant impact within the study area, as well as within the identified buffer zone. These studies will be integrated and discussed in the EIR, and mitigation measures will be outlined in the EMP.

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



## 1 INTRODUCTION AND BACKGROUND

Armcor (SOC) Ltd manages and operates the South African (SA) Naval dockyard in Simon's Town, Western Cape, as a South African Navy's third-line maintenance and refitting authority. The Armcor Dockyard focusses on maintaining the required capabilities to support the SA Navy's operations, thereby providing for a planned preventative maintenance, corrective maintenance, upgrades, and reconstruction of SA Navy's vessels. Some of the components for SA Navy vessels are produced at Armcor Dockyard foundry. As a result, Armcor (SOC) Ltd in Simon's Town intend to apply for an Atmospheric Emission License (AEL) with regard to the operations of the Armcor Dockyard foundry. Therefore, in terms of the environmental legal requirement, Armcor will apply for an AEL for the operation of a foundry i.e., Section 22 (A) of National Environmental Management: Air Quality Act [NEM: AQA (Act No.39 of 2004)] rectification for an AEL application for the foundry. Consequently, the Environmental Impact Assessment (Scoping and EIR) process has commenced, in support of the application for the AEL.

Atmospheric Emission s Licenses (AELs) are mandatory under NEM: AQA (Act No.39 of 2004) for activities that result in atmospheric emissions which have a significant negative environmental impact, listed in GN 893 of 22 November 2013, as amended on 12 June 2015.

Envelo Quality and Environmental Consultant (PTY) Ltd. has been appointed by Armcor (SOC) Ltd, as an independent Environmental Assessment Practitioner (EAP) to undertake an Environmental Impact Assessment (EIA) in support to the Atmospheric Emissions License (AEL) Application for the operation of Armcor Dockyard foundry in Simon's Town, CTM, Western Cape.

An AEL can be obtained through two possible routes, namely: AEL process that runs parallel with the Environmental Impact Assessment (EIA) process (combined process); or the AEL process applied for separately from the EIA process. For this project, the AEL process will run parallel with the EIA process representing a combined process.

This report has been prepared in compliance with the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ["NEMA"] and the Environmental Impact Assessment ("EIA") Regulations contained in Government Notice (GN) No. R982 of

2014 as promulgated in terms of the NEMA [“EIA Regulations”] as amended up to and including GN 326 in GG 40772 of 07 April 2017.

This EIA process will include the facilitation of the Scoping/Environmental Impact Assessment processes required in terms of the NEMA for this application.

## 2 PROJECT TITLE

Arm Scor EIA Application in support to the Atmospheric Emissions License (AEL) Application for the operation of Arm Scor Dockyard foundry in Simon’s Town, CTM, Western Cape.

## 3 PROJECT LOCALITY

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

### 3.1 Geographic locational context

The study area falls within the CTM at Simon’s Town, Western Cape. The study area is situated at (34°11'31.9"S 18°26'26.4"E) approximately 26km south-west of Cape Town on the shores of False Bay, located on the eastern side of the Cape Peninsula (**Figure 1**).

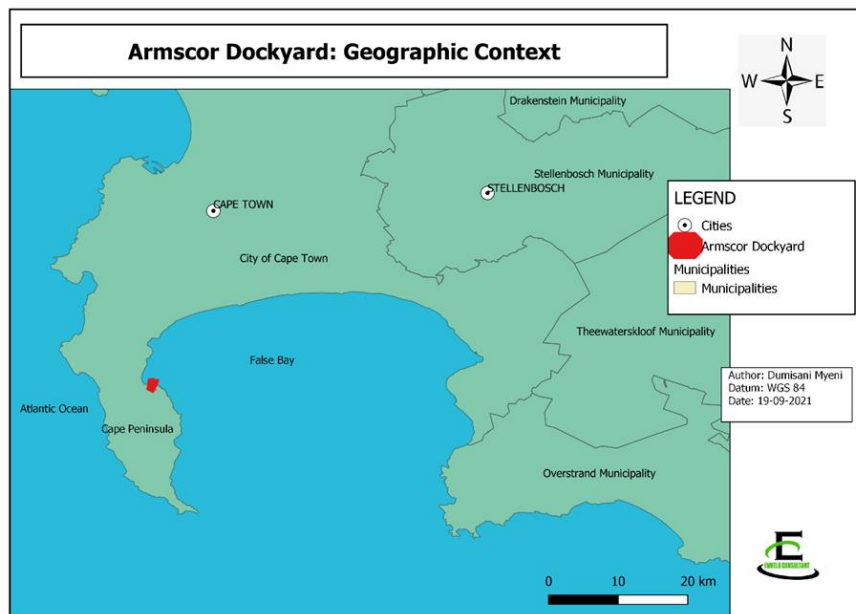


Figure 1: Geographic locational context of Arm Scor Dockyard

### 3.2 Site Context

The Armscor Dockyard foundry is situated within Erf 3779 at the dockyard of the SA Naval Base, at the end of Cole Point Road in Simon's Town which is in Ward 61 of the CTM.

Table 1 provides the Global Positioning System (GPS) co-ordinates for the proposed development site.

**Table 1: Co-ordinates (Armscor Dockyard foundry).**

Latitude /Longitude	Degrees	Minutes	Seconds
Armscor Dockyard Foundry Location			
South	34°	11'	31.9"
East	18°	26'	26.4"
Armscor Dockyard Facilities Perimeter (including offices and storages)			
South	34°	11'	30.70"
East	18°	26'	24.60"
South	34°	11'	29.88"
East	18°	26'	25.62"
South	34°	11'	34.68"
East	18°	26'	29.84"
South	34°	11'	35.16"
East	18°	26'	29.07"

Table 2 provides the 21-digits Surveyor General Code (SGC).

**Table 2: 21-digits Surveyor General Code**

C	0	1	6	0	0	5	4	0	0	0	0	3	7	7	9	0	0	0	0	0
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The (**Figure 2**) below, depicts the proximity locality map of the proposed development.

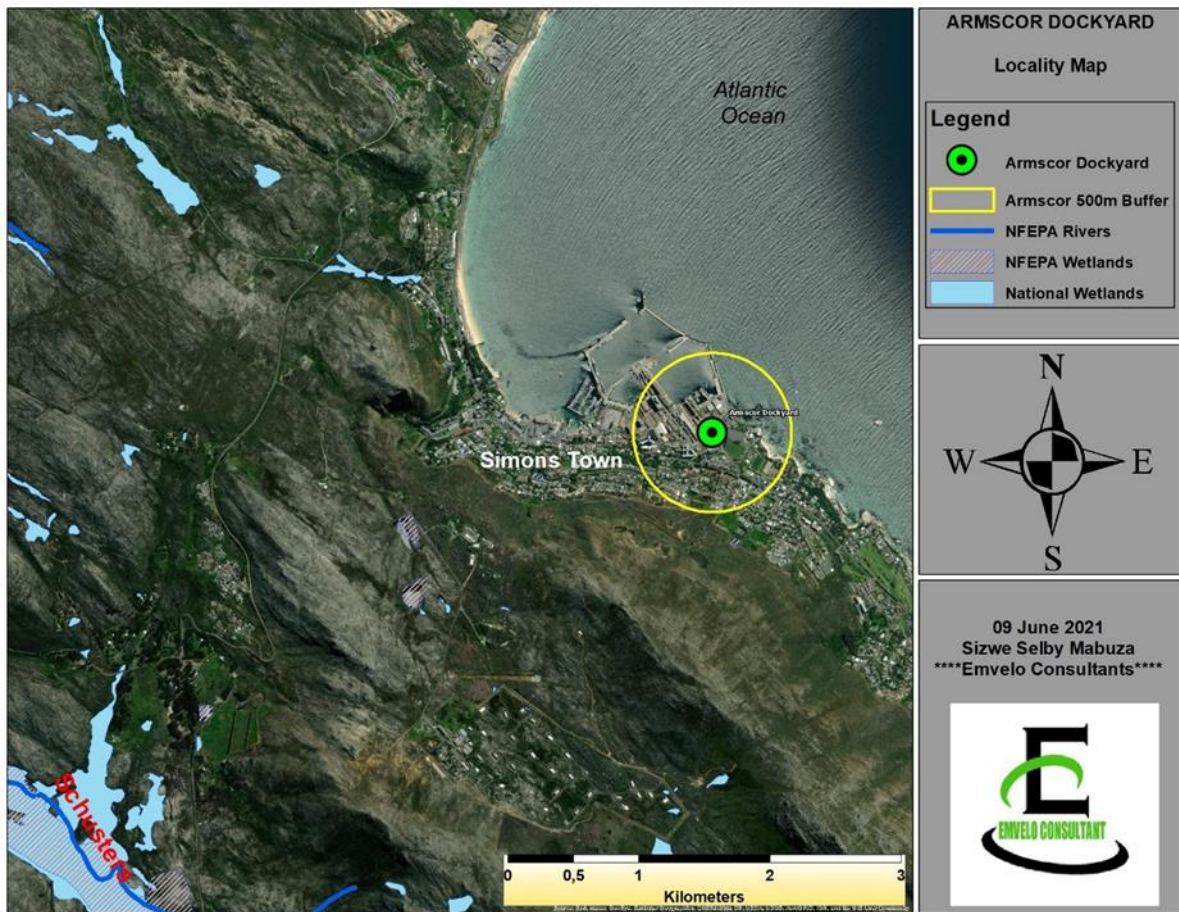


Figure 2: Locality map (Amscor Dockyard Foundry)

### 3.3 Site Access

The site can be accessed via the M3 from Cape Town towards Muizenberg, along Muizenberg take M4 and head towards Fish Hoek, past Fish Hoek continue on the M4 (St George's Street) towards Simon's Town and left to the end of Cole Point Road towards Simon's Town Naval Base.

## 4 CURRENT ACTIVITIES DESCRIPTION

The Amscor Dockyard in Simon's Town operates a non-ferrous foundry by producing aluminium, copper, lead and zinc base alloy metal castings. The foundry operates five (5) diesel-fired furnaces: 3x 0.25T, 1x 0.5T and 1x 1T on an *ad hoc* basis, probably once or twice a week. A zinc furnace and a gun metal/brass furnace are used at the foundry. It must be noted that the five furnaces do not operate simultaneously. Each furnace is dedicated to its

desired product. The foundry casts aluminium, copper, lead and zinc base alloy metal castings, in a batching process.

The metal casting involves:

- ✚ Furnaces for melting metal alloys;
- ✚ Casting of molten metal into a mould containing a cavity of the desired shape to produce a metal product;
- ✚ Removal of the mould and excess metal through fettling process;
- ✚ Polishing and surface coating or finishing before the finished product can be dispatched.

During the above process the flue gases from the five (5) furnaces and the melting process are removed by the extractor fans and discharged into the atmosphere via stacks. The foundry metal casting process releases the flue gases of chemical compounds such as cadmium, lead, and sulphur dioxide. Each diesel-fired furnace is fitted with, filtration system, shut-off valves, and an extraction hood that is linked to the ducting.

The dockyard foundry in Simon's Town was established in 1968 and had been operational since then.

#### 4.1 Armscor Dockyard Foundry Process Flow

The Armscor Dockyard foundry does not operate daily, as other manufacturing foundries do. The foundry operates five (5) furnaces on an *ad hoc* basis, probably once or twice a week on a day shift. The furnaces used are a zinc furnace and a gun metal/brass furnace.

The process flow as illustrated below (**figure 4**) is as follows:

1) *Request for casting:*

- ✚ A request is made either by the SA Navy or the Armscor Dockyard personnel for the foundry to produce metal castings.

2) *Receive job card:*

- ✚ Project Management load the job cards on the system so that the foundry can execute the job.
- 3) *Confirm availability of input material*
- ✚ The foundry personnel confirm the job after checking the details, material specification, finish weights and the availability of correct material and tools.
- 4) *Pattern making:*
- ✚ Pattern making is the first stage for developing a new casting.
  - ✚ The pattern is constructed either from wood or plastic materials.
  - ✚ These patterns are re-used for other similar mouldings if required.
- 5) *Sand Preparation:*
- ✚ A silica sand No2 (AFS 75), combined with a breakdown agent and sodium silicate, is mixed in a sand mixer to achieve a chemically bonded sand of high refractoriness that maintains the shape of the mould during pouring.
- 6) *Mould and core making:*
- ✚ The Armscor Dockyard foundry utilises both the sand moulds and die moulds.
  - ✚ The die mould is made up of a high strength aluminium metal to produce the final casting.
  - ✚ Die moulds are permanent and are repeatedly used until they distort and are not usable.
  - ✚ As explained on (**Section 9.2**), the Armscor Dockyard is in a process of acquiring the 3D modelling, which will provide an advantage as it allows a large variety of materials with more complex geometries to be produced and this new technology will reduce wastage.
- 7) *Melting process:*
- ✚ The foundry operates five (5) diesel-fired furnaces, 3 x 0.25T, 1 x 0.5T and 1 x 1T on an ad hoc basis, probably once or twice a week during day shifts. A zinc furnace and a gun metal/brass furnace are used.
  - ✚ Before melting can proceed, an ingot sample is sent to the laboratory to verify if the material conforms to the specification.

- ✚ To prevent cross contamination, all the base alloys are melted separately in their dedicated furnaces.
- ✚ The main by-product, namely Atmospheric Emissions from melting may include cadmium, lead, and sulphur dioxide.

#### 8) *Casting metals:*

- ✚ Molten metal is transferred from the furnace to a ladle and held until it reaches the desired pouring temperature.
- ✚ The molten metal is poured into the prepared moulds and allowed to solidify.

#### 9) *Solidification of castings:*

- ✚ Once the metal has been poured, it goes through the solidification and cooling process.
- ✚ The casting needs to cool, often overnight (depending on the casting size) for ambient cooling before it can be removed from the mould.

#### 10) *Casting ejection:*

- ✚ The moulding boxes are separated, and the casting is removed and inspected.
- ✚ Since the foundry does not reclaim any sand, the sand residue are disposed in a dedicated skip and collected by the contracted service provider who manages waste disposal for the organisation.

#### 11) *Inspection:*

- ✚ The casting is inspected by checking for any casting defects like misrun, porosity, shrinkage, slag inclusion, etc. If the casting shows any signs of defects, the casting is rejected, and the job is repeated.

#### 12) *Finishing and polishing*

- ✚ After the casting has been inspected, the gating system is removed, often using electrical cut-off devices.
- ✚ A parting line flash is typically formed on the casting and must be removed by grinding or with chipping hammers, these are done at the fettling bay.

- ✚ Shot blasting, propelling abrasive material at high velocity onto the casting surface, is often used to remove any remaining metal flash, refractory material, or oxides.
- ✚ Depending on the type of casting, there may be a need for machining.
- ✚ Any debris from the fettling bay is disposed via the waste management system in place.

13) *Final Casting:*

- ✚ The accepted casting is dispatched to the client along with the Metallurgical Test Certificate.

14) *Documentation:*

- ✚ When the job is completed, the job card is closed on the system and the relevant paperwork is filed accordingly.



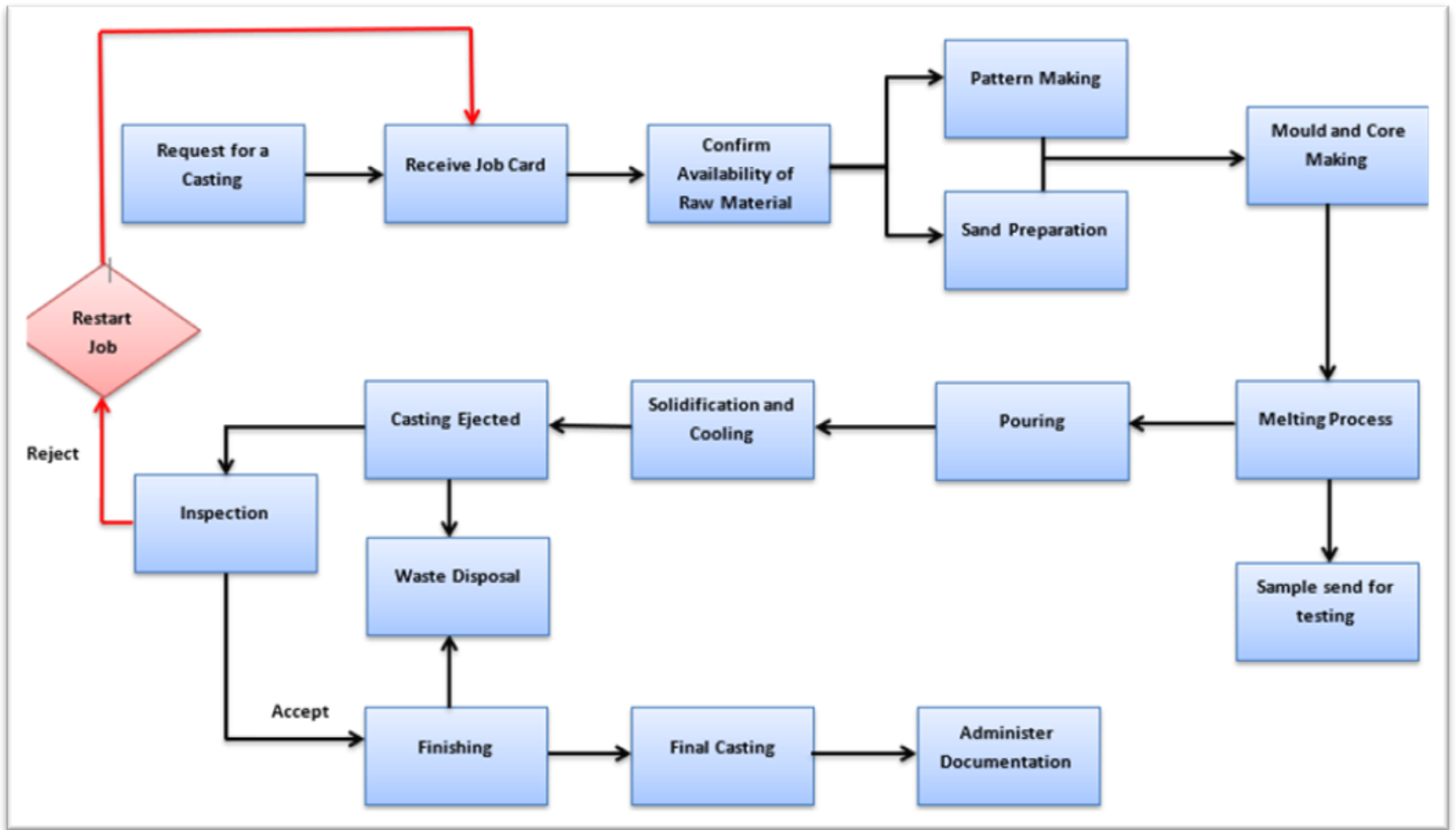


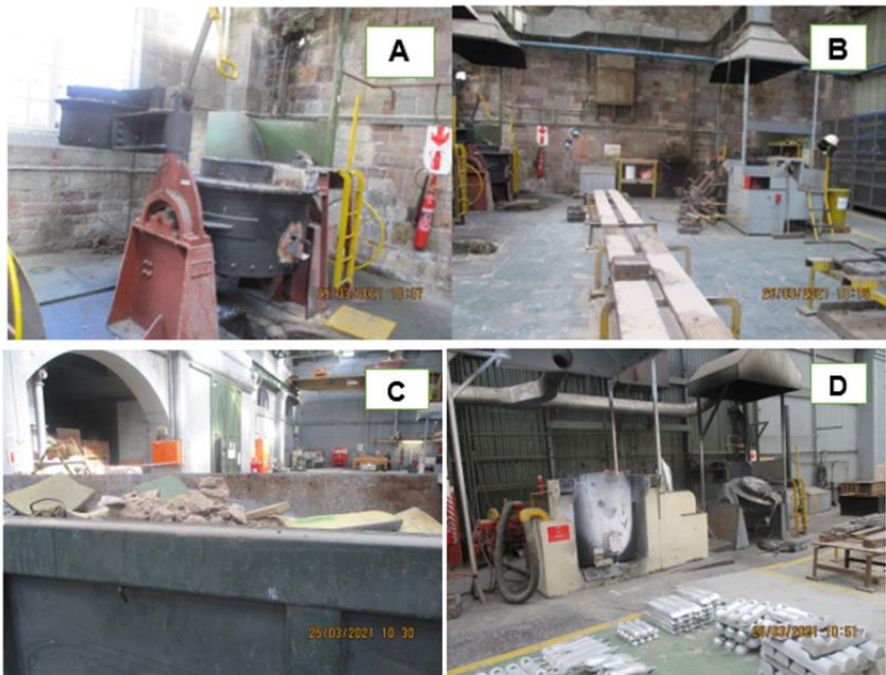
Figure 3: Armscor Dockyard Foundry Process Flow

The (**Table 3**) below outlines the major consumables at the dockyard foundry per month.

**Table 3: Major consumables (in tons per month at the dockyard foundry)**

Input material	Description	Tons/Month
Silica Sand	Silica sand mixed with chemicals	1.4
Sodium silicate	Mixed with silica sand	0.03
Breakdown agent	Mixed with silica sand	0.06
Zinc	Casting Zinc base alloys	0.5
Aluminium	Casting Aluminium base alloys	0.03
Copper	Casting Copper base alloys	0.3
Lead	Casting Lead base alloys	0
Coveral 11	Fluxing of Aluminium base alloys	0.001
Albral 2	Fluxing of Copper base alloys (Alu-Bronze)	0.004
Cuprex 1	Fluxing of Copper base alloys (Gunmetal)	0.004

Images of the Armscor Dockyard foundry are illustrated below as (**Figure 4**).



**Figure 4 Images of the Armscor Dockyard foundry**

**Notes:** A= 0.25Ton diesel-fired crucible furnace for melting copper base alloys; B= Foundry casting bay; C= Sand rabble skip; D= 1Ton and 0.25Ton diesel-fired crucible furnaces for casting zinc base alloys anodes.

## 5 BACKGROUND AND PURPOSE OF THE SCOPING REPORT

This report fulfils the requirement of the EIA Regulations for the documentation in the scoping phase. The structure of this report is based on part 3 of GN R.326, of the EIA Regulations as amended, which clearly specifies the required content of a scoping report.

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

## 6 DETAILS OF ROLE PLAYERS

### 6.1 Environmental Assessment Practitioner

In accordance with Appendix 2, Section 2(1)(a) of GN No. 326 (7 April 2017), this section provides an overview of Emvelo Consultant and the company's EIA experience, as well as the details and experience of the EAPs that form part of the Emvelo Consultant project team, as well of the team of specialists, as detailed by (Table 4 & 5) below:

**Table 4: Project Team**

Name	Qualification	Experience (Years)	Duties
Phumzile Lembede	B.Sc. Honours in Environmental Management. (EAPASA, IAIA & SACNASP registered as a Pr.Sci.Nat. in the Environmental Science Field of Practice)	10	Principal EAP and Environmental Scientist
Dumisani Myeni	B.Sc. Honours in Environmental Management. (Registered with SACNASP as a Cand.Sci.Nat. in the	8	Study Lead and Environmental Scientist

	Environmental Science Field of Practice)		
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## 6.2 Expertise required

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

**Table 5: Team of Specialists**

Name	Qualification	Experience (Years)	Duties
Andrew Husted	MSc Aquatic Health. BSc Natural Science Pr.Sci.Nat. (Aquatic Science, Ecological Science, Environmental Science)	13 years	Terrestrial Biodiversity Impact Assessment
Kevin Munsamy	BSc. Chem Eng. (registered as a Candidate Engineer with ECSA), Member of the National Association for Clean Air and is accredited with the South African Council for the Projects and Construction Management Professions (SACPCMP).	10 years	Air Quality Impact Assessment.
Roy Muroy	Masters Archaeology Cultural Heritage and Museum Studies (Professional Member of Association of Professional Heritage Practitioners; Professional Member of Association of Southern African	8 Years	Cultural and Heritage Impact Assessment

	Professional Archaeologists).		
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## 7 EIA PROCESS AND METHODOLOGY

Armcor EIA application in support to the Atmospheric Emissions License (AEL) application for the operation of the dockyard foundry, comprise two main phases, namely; the Scoping phase and Impact Assessment phase.

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

- ✚ Ensure that the process is open and transparent and involves the Authorities, proponent, and stakeholders (**Refer to Section 7.2, 7.3 & 7.4**);
- ✚ Ensure compliance with the relevant legislation (**Refer to Section 8**);
- ✚ Ensure that feasible and reasonable alternatives are identified and selected for further assessment (**Refer to Section 10**);
- ✚ Identify the important characteristics of the baseline environment (**Refer to Section 11**);
- ✚ Assess and determine possible impacts of the proposed project on the biophysical and socio-economic environment and associated mitigation measures (**Refer to Section 15**).

### 7.1 Scoping Process

The process for seeking Environmental Authorization under NEMA is being undertaken in terms of the prevailing EIA Regulations of 2014 as amended in 2017. An outline of the process flow for Scoping and EIA process for the project is presented by (**Figure 5**) below.

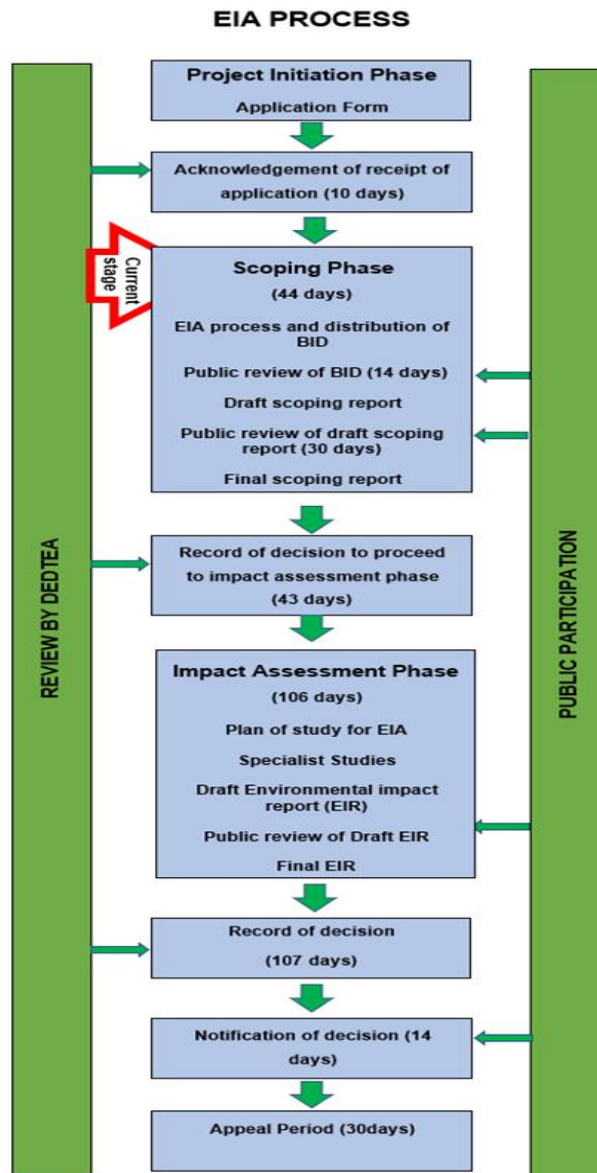


Figure 5: Scoping and EIA Process Flow Diagram

## 7.2 Landowner

According to Regulation 39(1) of GN No. 326 (7 April 2017), if the applicant is not the owner or person in control of the land on which the activity is to be undertaken, the applicant must, before applying for an Environmental Authorization in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land.

The Armscor Dockyard foundry operates within SA Naval Base in Simon's Town, in this regard the SA Navy is the landowner. The consent letter has been obtained from SA Navy.

### 7.3 Consultation with Authorities

The relevant authorities required to review the proposed project and to provide an Environmental Authorisation were consulted from the outset of this study and have been engaged throughout the project process. In terms of NEMA Section 24 (C), the lead decision-making authority for this application for Environmental Authorisation is the National Department of Forestry, Fisheries and Environmental (DFFE).

However, other authorities with jurisdiction over elements of the receiving environment or project activities will also be consulted and listed as I&As such as the Western Cape Environmental Affairs and Planning, and City of Cape Town Air Quality Management Unit who were also noted as key commenting authorities.

Authority consultation included the following activities:

- ✚ Submission of EA Enquiry to DFFE;
- ✚ The EA Pre-Application Meeting was convened with DFFE on 29<sup>th</sup> June 2021 (**Refer to Appendix E** for a copy of the minutes).
- ✚ An application for authorisation. in terms of NEMA (Act 107 of 1998), was submitted to DFFE, has been registered and given the following reference number: **REF: 14/12/16/3/3/2/2132.**

### 7.4 Consultation with other Relevant Authorities

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

- ✚ Western Cape: Department of Environmental Affairs and Development Planning (DE&DP);
- ✚ Department of Water and Sanitation ((DWS);
- ✚ Department of Transport and Public Works
- ✚ Department of Economic Development and Tourism

- ✚ City of Cape Town Directorate: Specialised Environmental Health Services and Air Quality Management
- ✚ South African Biodiversity Conservation
- ✚ South African National Parks
- ✚ Heritage Western Cape
- ✚ South African Heritage Agency
- ✚ Flag Officer Commanding Naval Base (Simon's Town)

See Appendix E for the full list.

## 7.5 Overview of the Public Participation Process

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

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

## 7.6 Scoping Phase Public Participation

Section 24 (4) (a) (v) of NEMA, provides that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment, must ensure, with respect to every application for an Environmental Authorisation, the public information and participation procedures which provide all I&APs, with a reasonable



opportunity to participate in those information and participation procedures, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity.

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

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

**Table 6: Notification of I&APs**

<b><i>All the Interested and Affected parties were notified of the application by-</i></b>		
Fixing a notice board at the place conspicuous to and accessible by the public at the boundary, on the fence, or along the corridor of any alternative sites.	<b>YES</b>	<b>NO/NA</b>
Erected by Naval Base entrance, Public Parking at Simon's Town Naval Base, Simon's Town Information Board.		
Any alternative site also mentioned in the application	<b>YES</b>	<b>NO/NA</b>
<b><i>Has a written notice been given to-</i></b>		
Landowner or person in control if the applicant is not in control of the land South African Navy is the owner of SA Naval Dockyard	<b>YES</b>	<b>NO/NA</b>
The municipal councillor of the Ward in which the site and alternative site of the proposed activity. Ward 61 Cllr: Simon Liell-Cock	<b>YES</b>	<b>NO</b>
The municipality which has jurisdiction in the area and other organs of state: City of Cape Town Metropolitan	<b>YES</b>	<b>NO</b>
<b><i>Placing an advertisement in-</i></b>		
Regional newspaper ( <b><i>False Bay Echo, 2/09/2021</i></b> ); National News Paper ( <b><i>Mail &amp; Guardian, 10/09/2021 date</i></b> )	<b>YES</b>	<b>NO</b>
Any official Gazette that is published specifically for providing public notice of applications	<b>YES</b>	<b>NO</b>
One provincial newspaper, any official Gazette that is published with the purpose of providing public notice of applications.	<b>YES</b>	<b>NO</b>

**Table 7: Scoping Phase Public Participation**

<b>Scoping Phase</b>
Interested and Affected Parties (I&APs) have been identified throughout the process. Initial identification of I&APs includes State Departments, Organs and Agencies, Municipality, and Ward Councillors ( <b><i>Refer to Appendix D: PP Plan</i></b> ).

Notification BIDs have been circulated to all identified I&APs informing them of the proposed development and the opportunity to comment.
The A3 onsite notices have been placed at boundaries and intersections as well as strategic points <b>(Refer to Appendix D: PP Plan)</b>
An advertisement was placed on <i>False Bay Echo</i> , published on (02/09/2021), and <i>Mail &amp; Guardian</i> , published on (10/09/2021), attached on <b>(Appendix D)</b> .
Due to the COVID-19 lockdown regulations, where the gathering of large groups of people mass is prohibited, several approaches will be implemented to facilitate an inclusive public participation process for the proposed project, in accordance with the EIA regulations and the Disaster Management Act, 2002 (Act No. 57 of 2002) as published on 29 April 2020. A focus group for community representatives was formed. This focus group was made up of the Ward Councillor, Simon's Town Civic Association, and other community members who requested to be registered as I&APs. Emvelo Quality and Environmental Consultant (Pty) Ltd had an online meeting with the focus group, tabling the content of the Draft Scoping Report. The focus group plays an important role for facilitation of information dissemination to the broader community <b>(Refer to Appendix D: PP Plan)</b> . Draft Scoping Report, and Draft EIR was forwarded to the Ward Councillor and the focus group as an electronic (CD & email and hardcopy version based on their request. The EAPs will then set up the online meeting with the Ward Councillor and the focus group to discuss the contents of the Draft EIR to empower the group towards effective information dissemination.
Copies of the report were delivered and sent via email to relevant State Departments and Organs of State And their inputs and comments were requested.
All comments received during the commenting period will be included in the Final Scoping Report & Final EIR.

### 7.6.2 Review of Draft Scoping Report

The Draft Scoping report is circulated for 30 days, and this document will be lodged for public review using the public participation methods mentioned on **(Table 8)** above **(Note: This could change subjected to Covid-19 Regulation. Also, refer to PP Plan)**.

### 7.6.3 Comments from I&APs

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

The proof of document circulation to I&APs is attached as appendix E.

The current comments (**Appendix E6**) involve the inputs from the BID, onsite notices, newspaper adverts and the public meeting (held online as focus group meeting).

### 7.7 Screening of Alternatives

Consideration of alternatives is one of the most critical elements of the environmental assessment process. The key criteria for consideration when identifying alternatives are that they should be “practicable”, “feasible”, “relevant”, “reasonable” and “viable” (DEAT,2004). As a result, after weighing the following alternatives: Demand, Scheduling, and Technology Alternative will be feasible to offset the No-Go Alternative (**Refer to Section 10**).

### 7.8 Prediction of Impacts

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

The potential environmental impacts associated with the proposed project were identified during the Scoping phase (**Refer to Section 15**) through consideration of the following:

- ✚ Proposed locations and the extent of the proposed development, which included site investigations as well as a desktop evaluation with a Geographical Information System (GIS), inputs from various data sources, and aerial photography;
- ✚ Activities associated with the project life cycle (i.e. operation and decommissioning).
- ✚ Profile of the receiving environment and the potential sensitive environmental features and attributes;
- ✚ Input received during public participation from authorities and I&APs; and
- ✚ Legislation framework, and policy context.

The EIA will therefore provide a qualitative and quantified impact assessment methodology, which will be conducted through the contributions of the project team and requisite specialist studies. Subsequently, the suitable mitigation measures will be identified to manage (i.e.

prevent, reduce, rehabilitate and/or compensate) the environmental impacts, and will be included in the Environmental Management Programme (EMPr).

The Environmental Scoping Phase has been undertaken in accordance with the requirements of sections 24 and 24D of the National Environmental Management Act (Act 108 of 1998), as read with Government Notices R 543 of the NEMA.

## 8 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

NEMA is the primary South African legislation governing the requirements for Environmental Impact Assessments. In the context of the operation of the Armscor Dockyard foundry, the provisions of NEMA, and the associated EIA Regulations (regarding Scoping and EIA) are of fundamental relevance.

In terms of the Environmental Regulations promulgated under the NEMA, an EIA must be conducted for any development or activity that requires an Environmental Authorisation.

The applicable legislation and the listed activities in the NEMA, relevant to this project, that triggers the need for an Environmental Authorisation are listed below:

**Table 8: Environmental Legislative Context**

Legislation	Relevance
Constitution of the Republic of South Africa, (No. 108 of 1996)	<ul style="list-style-type: none"> <li>➤ Chapter 2 – Bill of Rights.</li> <li>➤ Section 24 – Environmental Rights.</li> </ul>

Legislation	Relevance	
National Environmental Management Act (NEMA) (No. 107 of 1998)	<ul style="list-style-type: none"> <li>➤ Section 24 – Environmental Authorisation (control of activities which may have a detrimental effect on the environment).</li> <li>➤ Section 28 – Duty of care and remediation of environmental damage.</li> <li>➤ Environmental management principles.</li> <li>➤ Authorities – Department of Environmental Affairs (DEA) (national) and Department of Economic Development Tourism and Environmental Affairs (provincial).</li> </ul>	
GN No. 326 (7 April 2017)	<ul style="list-style-type: none"> <li>➤ Purpose - regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing, and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to and EIA, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.</li> </ul>	
	<ul style="list-style-type: none"> <li>➤ Purpose – to identify activities that would require environmental authorizations prior to commencement of that activity and to identify competent authorities in terms of sections 24(2) and 24C of NEMA.</li> <li>➤ The investigation, assessment, and communication of the potential impact of activities must follow the procedure as prescribed in regulations 19 and 20 of the EIA Regulations published in terms of section 24(5) of the Act. However, according to Regulation 15(3) of GN No. 327, Scoping and an Environmental Impact Report (S&amp;EIR) must be applied to an application, if the application is for two or more activities as part of the same development for which S&amp;EIR must already be applied in respect of any of the activities.</li> <li>➤ Activity under Listing Notice 2 that is relevant to this application.</li> </ul>	
GNR No. 325 (7 April 2017) <b>Listing Notice 2</b>	Activity under Listing Notice 2 relevant to this application is as follows;  <b>Listed Activity 6:</b> ‘The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national	<b>Applicability:</b>  The Armscor dockyard in Simon’s Town operates a non-ferrous foundry by producing

Legislation	Relevance	
	<p>or provincial legislation governing the generation or release of emissions, pollution or effluent.’</p>	<p>aluminium, copper, lead and zinc based alloy metal castings. Therefore, the operation of foundry for casting of iron, steel and zinc releases emissions which requires an Atmospheric Emission s License (AEL).</p>
<p>National Water Act (Act No. 36 of 1998)</p>	<ul style="list-style-type: none"> <li>➤ Chapter 3 – Protection of water resources.</li> <li>➤ Section 19 – Prevention and remedying effects of pollution.</li> <li>➤ Section 20 – Control of emergency incidents.</li> <li>➤ Chapter 4 – Water use.</li> <li>➤ Authority – Department of Water and Sanitation (DWS).</li> </ul>	
<p>National Environmental Management Air Quality Act (Act No. 39 of 2004)</p>	<ul style="list-style-type: none"> <li>➤ Section 22 (A) of [NEM: AQA (Act No.39 of 2004)] rectification for an AEL application for the foundry.</li> <li>➤ Air quality management</li> <li>➤ NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015.</li> <li>➤ Section 32 – Dust control.</li> <li>➤ Section 34 – Noise control.</li> <li>➤ Authority – DFFE &amp; CTM</li> </ul>	
<p>National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)</p>	<ul style="list-style-type: none"> <li>➤ Management and conservation of the country’s biodiversity.</li> <li>➤ Protection of species and ecosystems.</li> <li>➤ Authority – DFFE.</li> </ul>	
<p>Occupational Health &amp; Safety Act</p>	<ul style="list-style-type: none"> <li>➤ Provisions for Occupational Health &amp; Safety</li> <li>➤ Authority – Department of Labour.</li> </ul>	

Legislation	Relevance
(Act No. 85 of 1993)	
National Heritage Resources Act (Act No. 25 of 1999)	<ul style="list-style-type: none"> <li>➤ Section 34 – protection of structures older than 60 years.</li> <li>➤ Section 35 – protection of heritage resources.</li> <li>➤ Section 36 – protection of graves and burial grounds.</li> <li>➤ Authority – Heritage Western Cape c</li> </ul>
National Road Traffic Act 1996 (Act No. 96 of 1996)	<ul style="list-style-type: none"> <li>➤ Authority – Western Cape Department of Transport and Public Works.</li> </ul>

### 8.1 Environmental Assessment Triggered

Based on the type of activity involved and the extent and the biophysical environment within which it is set to occur as reflected in **Table 8** above, the required environmental assessment for the project is a Scoping and EIR process.

## 9 ACTIVITY MOTIVATION

The SA Naval Base in Simon's Town is the South African Navy's largest naval base of the South African National Defence Force (SANDF) and is the home port of the frigate and submarine flotillas, where the Armscor Dockyard is located.

Armscor (SOC) Ltd manages and operates the South African Naval dockyard in Simon's Town, Western Cape, as a South African Navy's third-line maintenance and refitting facility. The Armscor Dockyard focusses on maintaining the required capabilities to support the SA Navy's operations, thereby providing for a planned preventative maintenance, corrective maintenance, upgrades, and reconstruction of SA Navy's vessels. Some of the components for SA Navy vessels are produced at the Armscor Dockyard foundry.

## **9.1 The need**

The Armscor Dockyard has a foundry to cast several types of materials and components for use during the maintenance and repair of the vessels of the SA Navy. Therefore, the operation of the foundry forms a key activity of the maintenance and reconstruction of the SA Navy vessels.

## **9.2 Desirability**

The Armscor Dockyard foundry is committed to meeting the environmental legal requirements, and hence the application for the Section 22 (A) rectification for an AEL for the operation of the foundry, as a result emission of flue gases from combustion and metal processing during the foundry's operation.

In addition, the Armscor Dockyard foundry will have additional manufacturing capability to complement the current work at the foundry, such as the use of 3D modelling, which will provide an advantage as it allows a large variety of materials with more complex geometries to be produced and also reduces wastage, amongst others. This will involve the computer aided engineering and drawing capabilities that are not currently in the Armscor Dockyard and will ensure that the manufacturing environment is elevated to higher industry standards. This will give the Armscor Dockyard foundry the edge to deliver more effectively on the mandate in terms of service delivery to the SA Navy and others.

## **10 ALTERNATIVES**

The DFFE provides guidelines on the assessment of alternatives, to which the impact assessment must be considered. Regulations indicate that any alternatives considered in an assessment process be reasonable and feasible. Additionally, I&APs must be provided with an opportunity of providing inputs into the process of formulating alternatives. Once a full range of potential alternatives have been identified, the reasonable and feasible alternatives should be formulated as activity alternatives for further consideration during the basic assessment or scoping and EIA process (DEAT,2004a; DEAT, 2006). These alternatives are: location (site), activity (project), site layout, design, scale, routing, scheduling, process, demand, input, technology, and no-go options.

It is, however, important to note that the regulation and guidelines specifically state that only 'feasible' and 'reasonable' alternatives should be explored. It also recognizes that the



consideration of alternatives is an iterative process of feedback between the applicant and the appointed EAP, which in some instances culminates in a single preferred project proposal (DEAT, 2006).

After weighing all project alternatives for this project (Discrete Alternative Approach), the preferred “Alternative A: Demand Alternative, Alternative B: Scheduling Alternatives, and Alternative C: Technology Alternative” were adopted as alternatives that will meet the stated need for and purpose of the project, by providing proper mitigation measures, as discussed below.

### **10.1 Alternative A (Demand Alternative)**

The “Demand alternatives arise when a demand for a certain product or service can be met by some alternative means” (DEAT,2004a). Therefore, as explained in **Section 4**, the Armscor Dockyard foundry does not operate daily. The foundry operates five (5) furnaces on an ad hoc basis, once or at most twice a week. Therefore, the demand-based foundry operation will reduce emissions for long durations, as the the foundry will only operate to cast metals for components which are currently in demand at that time. The ‘Demand Alternative’ cannot be taken in isolation but will require strict adherence to integration of the ‘Scheduling Alternative’ which is discussed below.

### **10.2 Alternative B (Scheduling Alternative)**

The ‘Scheduling Alternative’ involves scheduling activities in a different order or at different times and as such produce different impacts, which forms part of the project description (DEAT,2004a). Therefore, the ‘Scheduling Alternative’ provides that the Armscor Dockyard foundry, cast aluminium, copper, lead, and zinc base alloy metal, as a batching process. This simply means that the orders (demand) as mentioned above (**Section 10.1**) will be consolidated, and the schedule date for casting be determined based on a large number of orders, thus preventing the daily operation of the foundry which will reduce the daily accumulation of emission and ambient air pollution.

The ‘Scheduling alternative’ proposes that the casting be undertaken once or twice a week, within minimal time (**Refer to Section 4**).

The wind speed and direction must be taken into consideration when scheduling the foundry melting and casting processes, so that the flue gases are prevented from being transported, dispersed, and deposited over a wide area, especially populated areas such as residential and commercial areas and sensitive ecosystems. Studies indicate that, the foundry operations is likely to have the least impact during prevailing westerly winds.

### 10.3 Alternative C (Technology Alternative)

The technology to be used in the activity, refers to a consideration of the method of operation, such that an alternative includes the option of achieving the same goal by using a different method or process (DEA&DP, 2007). The flue gases from five furnaces, metal melting and casting process are removed by extraction fans and discharged into the atmosphere via stacks. It is essential that exhaust volumes are sufficient to control generated fumes. Heavy fume generation during charging, the initial melt stage and any refining may increase the air volume required and consequently the collector size. This will require filtration to reduce chemical compounds from being vented out to the ambient environment.

Therefore, the Amcor Dockyard foundry operates two (2) independent extraction systems for the copper and aluminium furnaces, and the zinc furnaces.

#### Copper and Aluminium Furnace:

- ✚ Cu and Al Furnaces (2x 0.25Ton and 1x 0,5Ton);
- ✚ Each diesel-fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m<sup>3</sup>.h-1;
- ✚ Stack height: 4.2m above ground level.

#### Zinc furnaces:

- ✚ Zinc Furnaces (1x 0.25Ton and 1Ton);
- ✚ Each diesel-fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 3720m<sup>3</sup>.h-1;

✚ Stack height: 6.65m above ground level.

#### **10.4 Alternative D (Site alternative)**

The operation of the foundry is highly dependent on its close proximity to the dockyard. Processing of metals for the navy's fleet close to the docks significantly reduces the transport footprint, safety risks, as well as costs. Additionally, the foundry, in its present location, is highly dependent on the infrastructure and utility services that have developed around it for more than 54 years.

Re-locating the foundry away from its present site has major financial and logistical implications, as well as creating undesirable impacts at another site.

Notwithstanding at least three alternative sites should be considered as part of the EIA and the merits of each site evaluated against a set of environmental aspects.

#### **10.5 Alternative E (No-Go Alternative)**

The cessation of the Armscor Dockyard foundry's operations will result in Armscor (SOC) Ltd not being able to provide components for repair and servicing of navy vessels. As a result, Armscor will not be in a position to render adequate and efficient service to SA Navy in Simon's Town which will hinder the navy's participating in counter-piracy operations, fishery protection, search, and rescue, and upholding maritime law enforcement for the benefit of South Africa and its international partners. This in turn, will hamper the SANDF's capability to conduct its mandate of protecting the sovereignty of South Africa (***Refer to Section 9***). Therefore, projects that are proposed on public land and/or for the public good should consider the major development alternatives that would meet the stated need for and the purpose of the project (DEAT, 2004a).

The EAP is therefore of the view that the NO-GO option is undesirable in the face of social and economic needs of South Africa.

## 10.6 Preferred Alternatives

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

With 'Alternative A: Demand Alternative', the Armscor Dockyard foundry will have minimal ambient air pollution as the casting will be carried on an ad hoc basis, which will be consolidated with the 'Scheduling Alternative'.

With 'Alternative B: Scheduling Alternative', the Armscor Dockyard foundry will only emit ambient air pollution within staggered fixed periods, unlike the continuous daily emissions, as the casting orders will be consolidated and be undertaken in a batching process. This will give relief to ambient air quality of the area, as the pollution will only be experienced on certain days taking into consideration favourable wind conditions.




With 'Alternative C: Technology Alternative', the Armscor Dockyard foundry functions by two independent extraction systems for the copper and aluminium furnaces, and the zinc furnaces. Each diesel-fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m<sup>3</sup>.h<sup>-1</sup>.

These above three alternatives cannot be evaluated in isolation as these are interlinked to one another.




## 10.7 Environmental sensitivity for potential alternatives

The qualitative sensitivity exercise for the proposed alternatives involves the use of preliminary desktop studies and an Environmental GIS assessment covering the following themes:

1) *Biophysical Environment:*

-  Biodiversity (flora& fauna);
-  Atmospheric emissions;
-  Hydrological features (surface and ground);

2) *Social:*

-  Ambient Air Quality
-  Pollution and Waste
-  Palaeontological, archaeological, cultural and heritage

**Table 9** provides a description of the various categories used in the environmental sensitivity exercise. This table should be read in conjunction with Section 11 below. The five categories of sensitivities are outlined by the legend below.

**LEGEND:**

Sensitivity Significance	Colour Code
Low	L
Low-Medium	L
Medium	M
Medium-High	MH
High	H

**Table 9: Description of the various sensitivity categories**

Study Component	Category	Description
<b>Biophysical Components</b>		
<b>Biodiversity (flora &amp; fauna);</b>	High Sensitivity	<p>The project has no direct impact on the vegetation, as the foundry is already operational within the dockyard, a brownfields area with no vegetation present. Hence there is no need for any vegetation clearance.</p> <p>The preliminary desktop studies for fauna availability identify the following attributes within the region:</p> <ul style="list-style-type: none"> <li>○ Availability of endemic species within study region</li> <li>○ Availability of vulnerable species within a study region</li> </ul>

Study Component	Category	Description
		<p>The environmental screening tool has picked up the Terrestrial Biodiversity Theme, as very high. However, the EIA must determine if CBAs are present within the project reach, especially as the air pollution dispersion will be determined by an Air Quality Impact Assessment.</p>
<b>Atmospheric Emission</b>	High Sensitivity	<p>A foundry has a direct negative impact on ambient air quality, due to emission of the flue gases from chemical compounds such as cadmium, lead, and sulphur dioxide.</p> <p>The operation of the Amscor Dockyard foundry has a direct impact on ambient air quality, and must be regulated, minimised, and managed.</p>
<b>Hydrological features (surface and ground water)</b>	Low Sensitivity	<p>The hydrological features include an assessment if the site is located on or near a watercourse (wetland, river, stream, lake, dam).</p> <p>Potential impacts on groundwater may arise if hazardous substances are allowed to leak onto bare soil and potentially leach into the ground.</p> <p>However, as most of the site is paved, it is unlikely that groundwater pollution may occur from the current activities on site. Most areas where materials are stored are under roof and stored within lined and bunded facilities. Therefore rainwater does not leach through or wash hazardous substances into clean water systems from these storage areas.</p>
<b>Social</b>		
<b>Ambient Air Quality</b>	High Sensitivity	<p>The foundry has a direct negative impact on ambient air quality, due to emission of the flue gases of chemical compounds such as cadmium, lead, and sulphur dioxide.</p> <p>Additionally, workers, visitors to the area and local residents will be exposed to potential health risks from such air pollution.</p>

Study Component	Category	Description
Pollution and Waste	Medium-High Sensitivity	The Amcor Dockyard foundry generates waste in the form of scrap metal, grits, and moulding sand.
Social (including visual and noise)	Low Sensitivity	<p>The social aspects of visual and noise includes a combination of the following impacts:</p> <ul style="list-style-type: none"> <li>○ There is negligible visual impact, as the foundry, is within the dockyard which is largely transformed with many other structures surrounding the foundry</li> <li>○ The noise generated at the foundry is significantly muffled due to most activities taking place within the dockyard workshops. The noise emanating from the foundry is not persistent as it is only generated on one or two days per week. Additionally, the foundry noise levels is likely to be within the ambient noise levels from all other nearby activities in the area.</li> </ul>
Palaeontological, archaeological, cultural and heritage;	Low- Sensitivity	The project site has been operated as a foundry since 1968. Any impacts that may have been generated on cultural or historical sites cannot be mitigated at this late stage. The activity on site will not be changing, but merely applying for licensing in accordance with the current environmental legislation. It is therefore, unlikely that any artefacts of cultural or historical value remains on site. Additionally, the continuing operation will not make any new impact on heritage resources, as the current foundry footprint will remain as it is.
Pollution and Waste	Medium-High	The social aspects include a combination of the solid and liquid waste during the operation, as well as general waste from foundry personnel.

## 11 DESCRIPTION OF BASELINE ENVIRONMENT

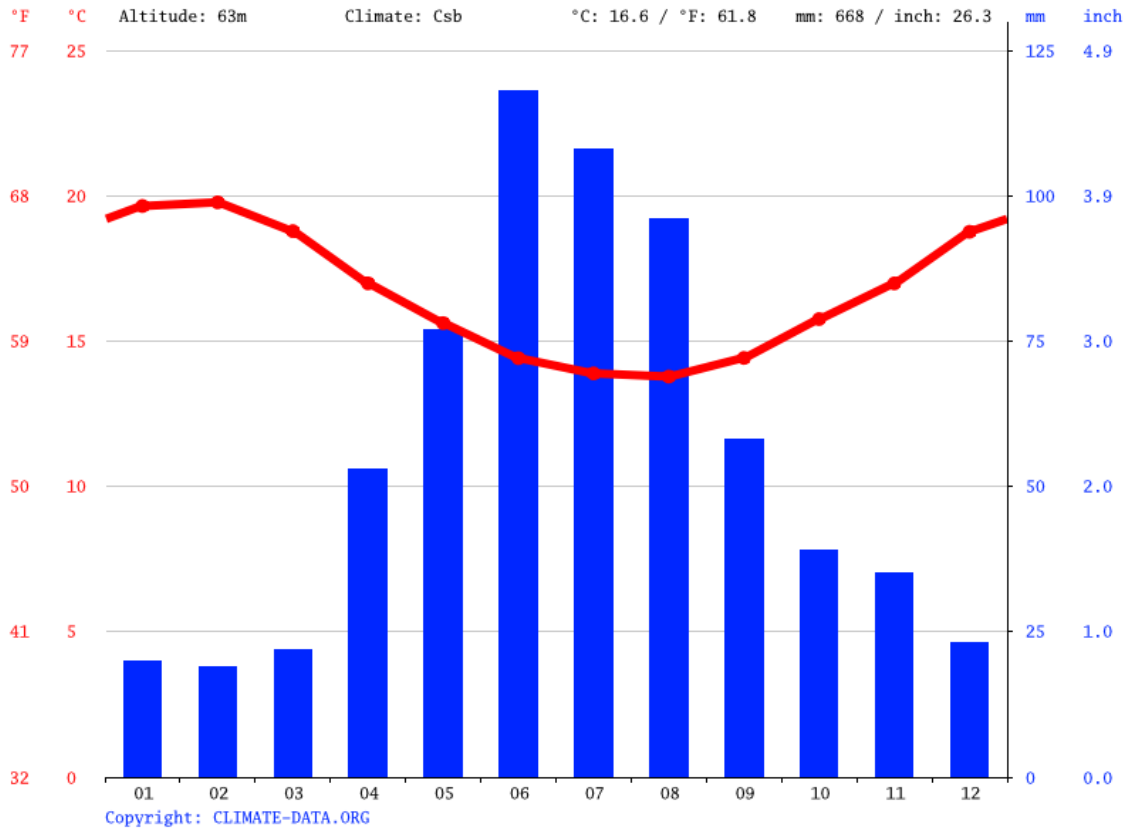
This section provides a general description of the status quo of the receiving environment in the project area. This serves to provide the context of the environmental aspects within the project region and site. It is most important to note that the description of a receiving environment forms an integral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

### 11.1 Climate

The Southern African region is divided into three climatic regions; Wet, dry, and moderate regions. Western Cape encompasses both, with categories classified by the Köppen-Geiger system such as; warm-summer Mediterranean climate (*Csb*), cold semi-arid climates (*BSk*), oceanic climate (*Cfb*), hot-summer Mediterranean climate (*Csa*), hot semi-arid climates (*BSh*), humid subtropical climate (*Cfa*), cold desert climates (*BWk*), and hot desert climates (*BWh*). The region is mostly dominated by are *Csb*, *BSk*, *Cfb*, and *Csa* (Climate-Data.org).

The climate of the study region within the Cape Peninsula, and in particular the Simon's Town is warm and temperate. The regional climate in Simon's Town falls under the (*Csb*), annual mean temperature of (16.6 °C), the annual precipitation of 668 mm which is mostly received during winter to which this period also records the highest humidity. Most of the precipitation falls in June, averaging 118 mm, while the driest period is experienced in February averaging 19 mm, which is characterised by the lowest humidity (Climate-Data.Org).





**Figure 6: Simon's Town climate graph over a 12-month period [Source: Climate-Data.Org]**

As, discussed in **Section 4** the foundry contributes to the ambient air pollution of the area, as a result of flue gasses of chemical compounds that are formed during the operation. The local environment and atmosphere are the direct recipient of air pollution from the foundry's operation. The DFFE has published a list of activities which result in atmospheric emissions that require authorisation. The Armscor Dockyard is classified as 'Category 4, Sub-category 4.10' of NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015. "Production and or casting of iron, iron ores, steel or ferroalloys, including the cleaning of castings and handling of casting mould materials."

Other factors to be taken into consideration is the prevailing wind direction and wind velocity within the study area. The Meteoblue climate diagram (**Figure 7**) below illustrate the mean wind velocities. The green shaded area displays a minimum and maximum mean monthly wind velocity, at a given month. The graphical representation indicates that the monthly average maximum wind velocity of approximately 15km/h-17km/h is experienced during the summer

season, mostly between October and March, while the wind speeds between April to September range between 13km/h to 14km/h.

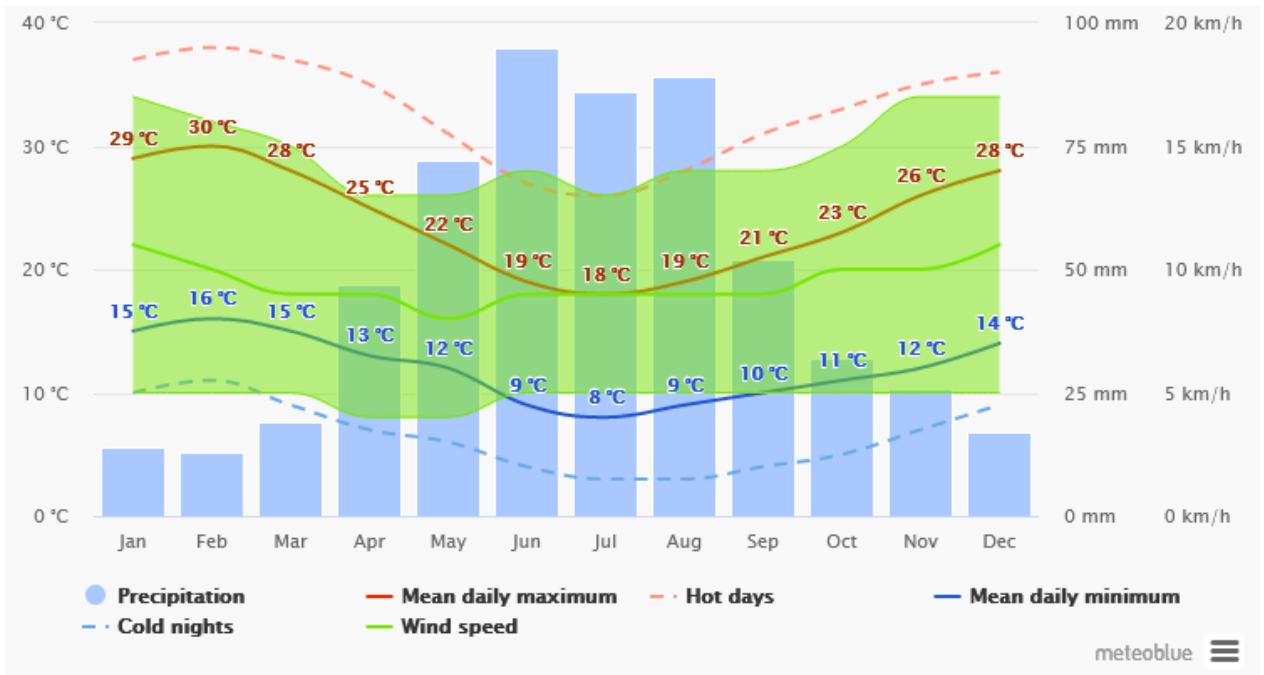


Figure 7: Simon's Town mean wind velocity [ Source: Meteoblue Climate Graphs]

### 11.1.1 Potential impact

The operation of the Amscor Dockyard foundry has a direct impact on the ambient air quality and local climate. Atmospheric Emission s Licenses (AELs) are obligatory under the NEM: AQA (Act No.39 of 2004) for activities that result in atmospheric emissions which have a significant negative environmental impact. The Amscor Dockyard is regulated under 'Category 4, Sub-category 4.10' of NEM: AQA (Act No.39 of 2004), listed in GN 893 of November 22, 2013, as amended in June 2015. Therefore, measures to regulate the foundry's activities that result in atmospheric emissions will be considered further in the EIR, through the specialist Air Quality Impact Assessment and EMPr.

### 11.2 Hydrology

The hydrological system comprise of an interlinked system of ecosystems such as the headwaters of a river catchment, rivers, and wetlands downstream, lakes, groundwater, estuaries, and the marine environment. The Western Cape's freshwater ecosystems comprise

diverse rivers and wetlands, as discuss below (Pool-Stanvliet, Duffell-Canham, Pence, & Smart, 2017).

### 11.2.1 Rivers

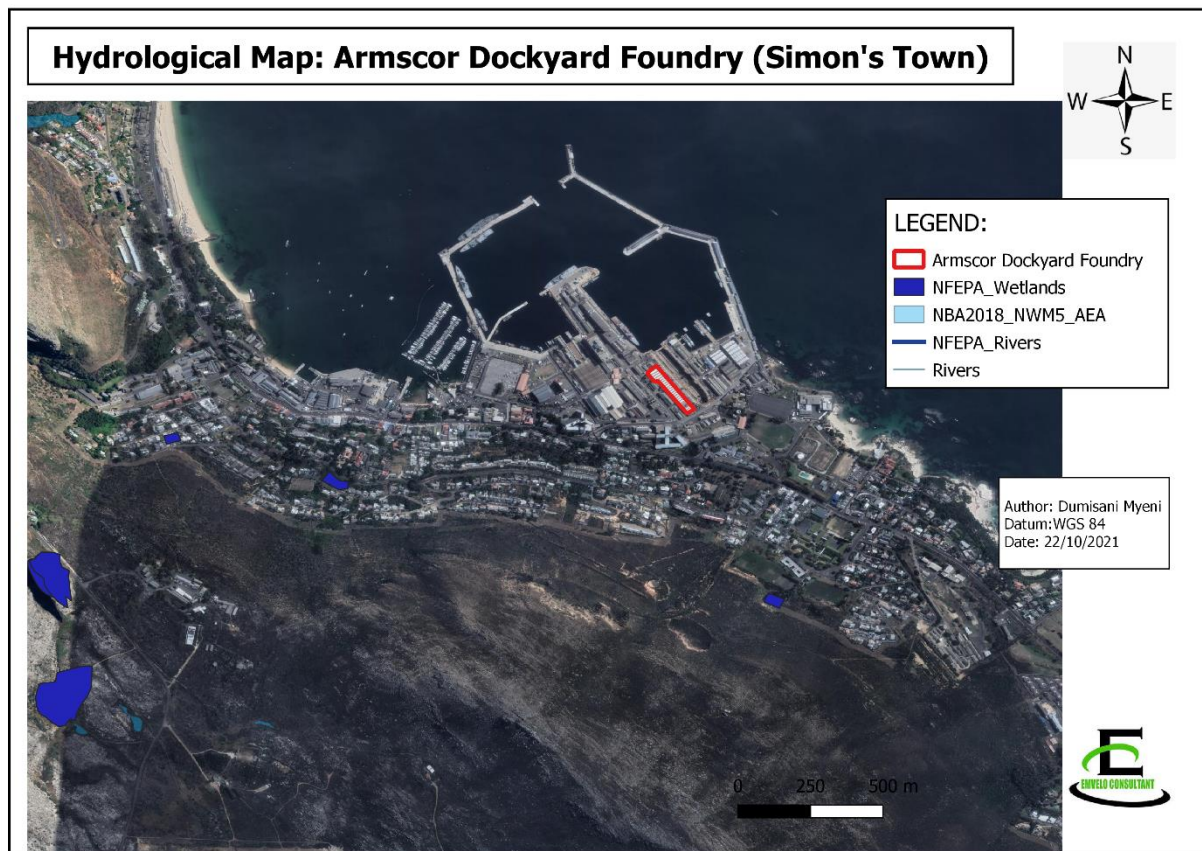
The headwaters of the Western Cape are supported by mountain catchments, often associated with seeps and other wetland types. These river systems flow down through the foothills to the lowlands and plains, until they form estuaries and empty in both the Indian and Atlantic Oceans, which are listed in 10 different ecoregions, namely the Drought corridor, Southern Folded Mountains, South-eastern coastal belt, Great Karoo, Southern coastal belt, Western Folded Mountains, South-western coastal belt, Western coastal belt, Nama Karoo, and Namaqua highlands. These rivers are classified as a National Freshwater Ecosystem Priority Area (NFEPA) River (Pool-Stanvliet, Duffell-Canham, Pence, & Smart, 2017).

The foundry is located within the G22A Quaternary Catchments under Berg-Olifants Water Management Area. However, there are no terrestrial water courses within the foundry (**Figure 8**).

### 11.2.2 Wetlands

The Western Cape plains host a number of wetland ranges of differing altitudinal zones, with diverse wetland categories, namely: plain, seeps, wilderness lakes, and vleis, etc. Wetlands are largely known for providing species habitat and ecosystem services. The region is estimated to have approximately 300 000 ha of wetland overlay, which could be translated into 1% of provincial land cover. However, only 13% of these wetlands are still intact, with a further 34% being moderately modified and the remaining 53% found to be heavily to critically modified. (Pool-Stanvliet, *et al.*, 2017).

Noticeable, there are numerous wetland and pans dispersed across the high altitudes of Cape Peninsula which are characterised of national wetlands and NFEPA Wetlands. However, these wetlands are not within 500m of the foundry (**Figure 8**).



**Figure 8: Terrestrial Hydrological Map (Armscor Dockyard Foundry)**

### 11.2.3 Potential impacts of the project hydrological features

The impacts on wetlands systems are expected to be minimal, as the foundry is not in close proximity to any of these systems. Stormwater runoff on site is contained in the site's storm water management system which in turn connects to the municipal system.

The impacts could only be linked to faunal species, who might be affected due to ambient air pollution as a result of emissions. However, this will be further explored by the Air Quality Impact Assessment, and Terrestrial Biodiversity Impact Assessment. The mitigation and recommendation will be presented in the Environmental Impact Report.

### 11.3 Ground Water Quality

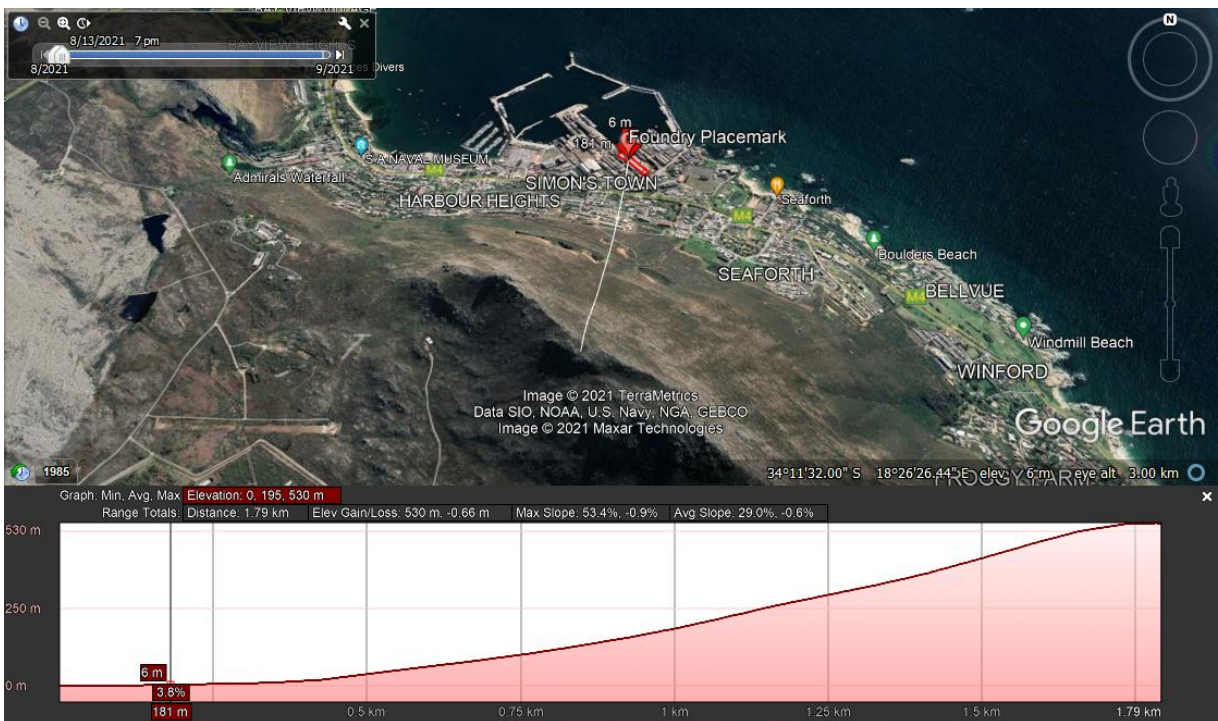
No boreholes are located at the foundry and there is no information on the quality of the groundwater below the study site.

### 11.3.1 Potential Impact

Potential impacts on groundwater may arise if hazardous substances are allowed to leak onto bare soil and potentially leach into the ground. However, as the site is paved with concrete, it is unlikely that groundwater pollution may occur as a result of the current activities on site. Most areas where materials are stored are under roof and stored within lined and bunded facilities. Hence rainwater does not leach through or wash hazardous substances into clean water systems from these storage areas.

### 11.4 Topography

Simon's Town is situated within the foothills of the Cape Peninsula on the shores of False Bay. The study area in Simon's Town is characterised of gently steep terrain, with slope gradient of approximately 17° (Average 29%) ranging from 0m to 546m above mean sea-level within 2km distance. The site is approximately 6m above mean sea level on the shores of Atlantic Ocean, False Bay (**Figure 9**).



**Figure 9: Elevation within the study area (Simon's Town)**

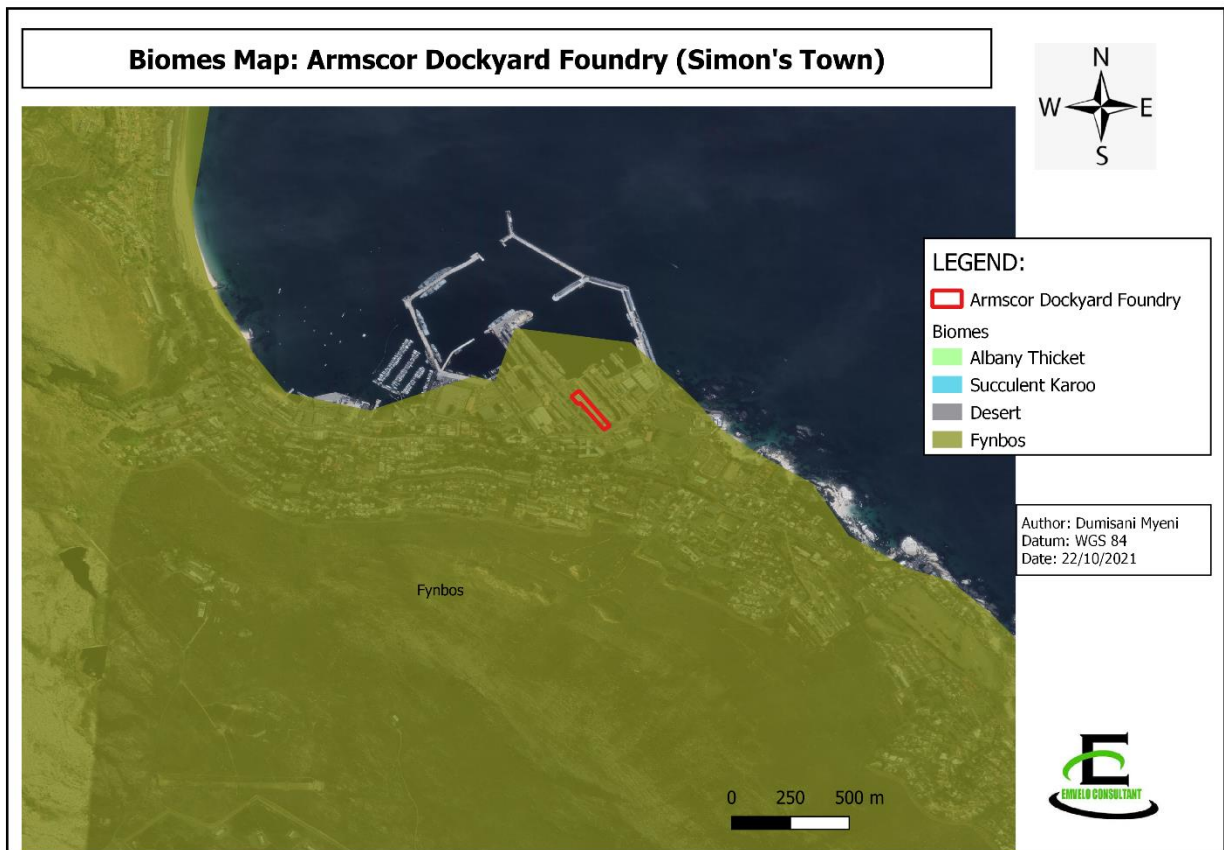
#### 11.4.1 Potential impacts

The topography characteristic of the study area comprises of a gentle steep terrain. The highest area for residential use is situated at 102m above mean sea-level at the foothill of the Cape Peninsula, at approximately 1km away from the dockyard foundry. The Air Quality Impact Assessment will be conducted to describe potential impacts, likely associated with residential areas with highest altitudes within the study area. The impact mitigation will be discussed in EIR.

#### 11.5 Biomes

The Western Cape host five distinct biomes of high levels of diversity and endemism. These biomes occupy a high proportion of South African biomes, namely; Fynbos (79%), Succulent Karoo (35%), Nama Karoo (11%), Albany Thicket (5%) and Afrotemperate Forest (47%), which are classified as 'Critical Endangered'. Also, a small proportion of Grassland Biome (0.03%) is situated along the plains (Mucina & Rutherford 2006, *as cited in* Pool-Stanvliet, *et al.* 2017).

The study area falls under the Fynbos Biome, with predominantly, Peninsula Granite Fynbos and Peninsula Sandstone Fynbos (**Figure 12**).



**Figure 10: Map Showing the biome within a study area**

## 11.6 Flora

As discussed in **Section 11.5**, there is high levels of vegetational diversity and endemism within the Western Cape region, underpinned by five distinct biomes. In addition, the Western Cape region is overlaid by 24 vegetation units that qualify as '**Critically Endangered**', '**Endangered**', and '**Vulnerable**' and a total of 67 qualifying as '**Threatened**' amongst which are the cape fynbos species, alluvial vegetation species, succulent species, and spekboomveld (Pool-Stanvliet, *et al.*, 2017).

The vegetation type with the study area (**Figure 12**) is predominantly, Peninsula Granite Fynbos (FFg3) considered '**Critically Endangered**' with a 30% conservation target, and a southern inland intrusion of Peninsula Sandstone Fynbos (FFs9) considered '**Endangered**' with a 30% conservation target (Mucina & Rutherford, 2006).

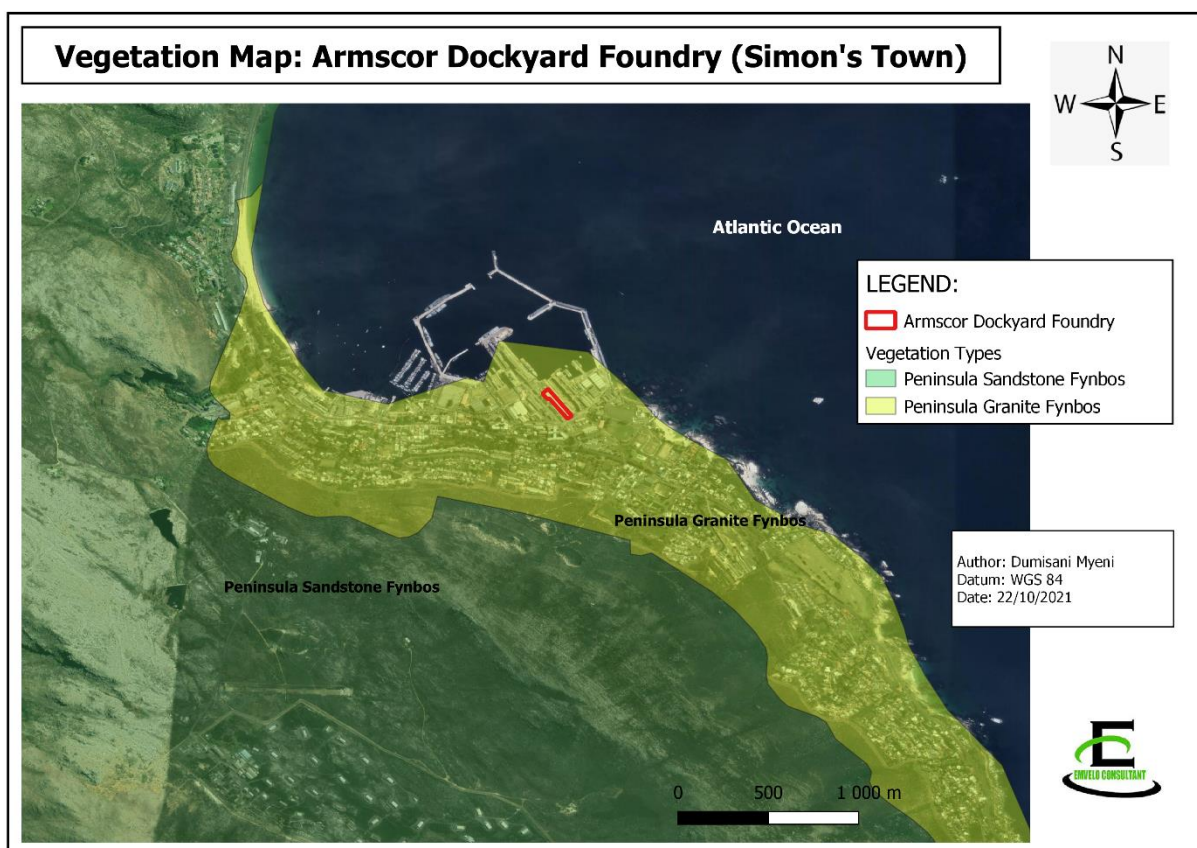


Figure 11: Map showing the vegetation types within study area

### 11.6.1 Potential Impacts

The project has no direct impact on the vegetation, as the foundry is already operational within the dockyard. The activity does not require any vegetation clearance. The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat. Also, the surrounding land is built up with both commercial land and settlement land uses.

However, it is important to note that the neighbouring vegetated areas support species habitat, and that some species are endemic to a particular habitat. The vegetation and species habitat will be assessed through the Terrestrial Biodiversity Impact Assessment and discussed in EIR.

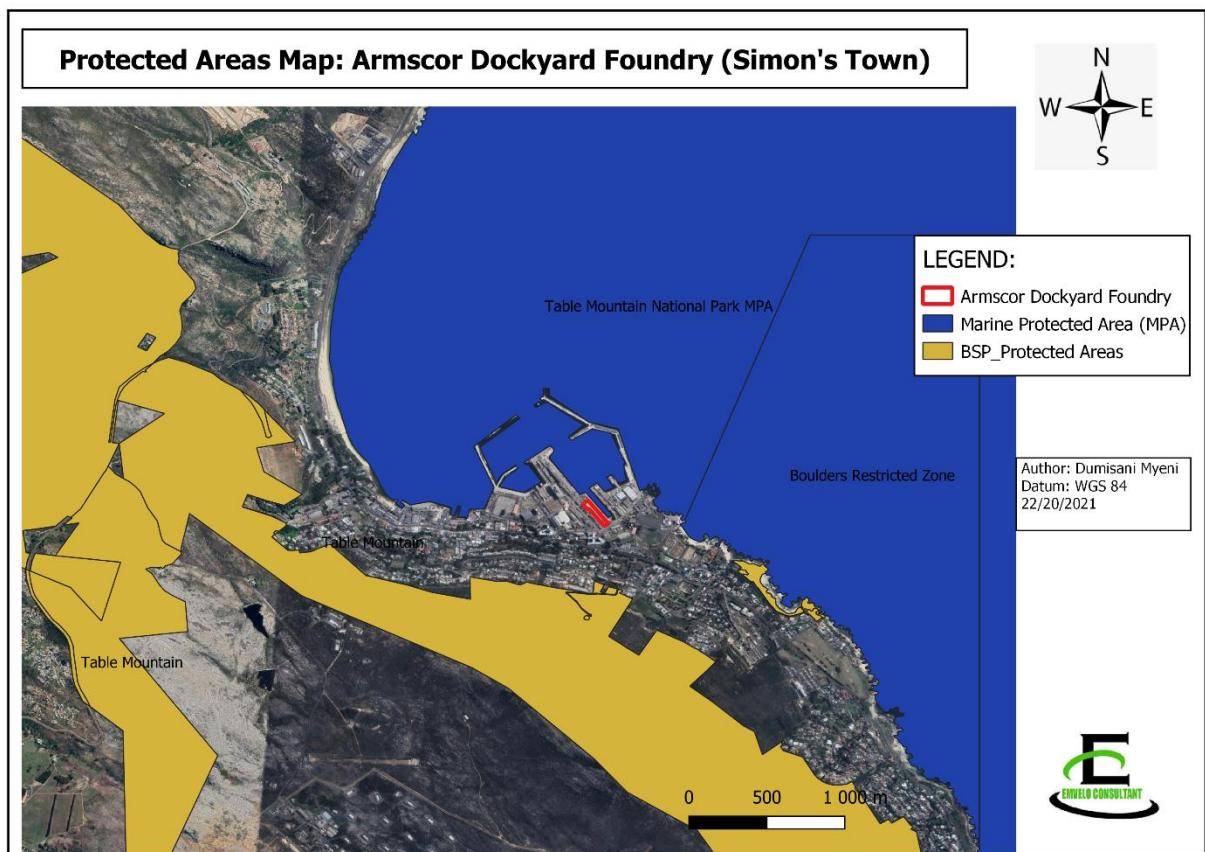
### 11.7 Protected Areas

Protected areas in South Africa are defined as parts of the landscape that are formally protected by law in terms of the NEM: PAA and managed primarily for the purpose of biodiversity conservation. The Western Cape has a number of protected areas corresponding



to high levels of species endemism. The Western Cape hosts several types of protected areas, namely Special Nature Reserves, National Parks, Nature Reserves, and Protected Environments, World Heritage Sites, Marine Protected Areas and Mountain Catchment Areas (MCAs). In addition, the whole of the Cape Peninsula, where the foundry is located is regarded as a Marine Protected Area (Pool-Stanvliet, *et al.*, 2017).

The foundry is located at approximately 1km from the Mountain Catchment Area (MCA) and is within a Marine Protected Area (MPA). Technically, the site is between Table Mountain Protected Area (MCA) and the Table Mountain National Park (MPA) and bordered with the Boulder Restricted Zone (MPA) on the east, on the shores of Atlantic Ocean. (**Figure 12**).



**Figure 12: Map showing the protected areas within a study area**

According to Western Cape Biodiversity Spatial Plan (“WCBSP”) Handbook, (2017) there are two main categories of areas that are required to meet conservation targets. These two main categories include Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs).

The CBAs are crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets including corridors. The ESAs represent the functionality and not necessarily the entire natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within a Critical Biodiversity Areas (**Refer to table 10**). However, in the Western Cape Province, about 80% of land that has important biodiversity on it, do not fall within formally protected areas, but is privately or communally owned land (Pool-Stanvliet, *et al.*, 2017).

**Table 10: Subcategories of CBA and ESAs [Source: WCBSP,2016]**

<b>Critical Biodiversity Areas (CBAs) – Crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets</b>		
<b>Critical Biodiversity Areas: Irreplaceable (CBA1)</b>		Areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems.
<b>Critical Biodiversity Areas: Optimal (CBA2)</b>		Areas that represent an optimised solution to meet the required biodiversity conservation targets while avoiding high-cost areas as much as possible (Category driven primarily by process but is informed by expert input).
<b>Ecological Support Areas (ESAs) – Functional but not necessarily entirely natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within Critical Biodiversity Areas.</b>		
<b>Ecological Support Areas</b>		Functional but not necessarily entirely natural terrestrial or aquatic areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the Critical Biodiversity Areas. The area also contributes significantly to the maintenance of Ecosystem Services.
<b>Ecological Support Areas: Species Specific</b>		Terrestrial modified areas that provide a critical support function to a threatened or protected species, for example agricultural land or dams associated with nesting/roosting sites.
<b>Ecological Support Areas: Buffers</b>		Terrestrial areas identified as requiring land-use management guidance not necessarily due to biodiversity prioritisation, but in order to address other legislation/ agreements which the biodiversity sector is mandated to address, e.g., WHS Convention, Triggers Listing Notice criteria, etc.



### 11.7.1 Potential Impacts

There are no CBAs and ESA within the reach of the foundry, as the foundry is already operational within the dockyard. The activity does not require vegetation clearance. The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat. Also, the surrounding land is built up with both commercial and settlement land uses.

However, the dispersion of the air pollution emanating from the foundry will be determined by the Air Quality Impact Assessment. A Terrestrial Ecological Impact Assessment will be conducted and further discussed in EIR phase. The identification of Species of Conservation Concern (SCC) will be covered in the EIR through the Terrestrial Biodiversity Impact Assessment.

### 11.8 Fauna

The Western Cape has 172 described mammal taxa (species and subspecies), with 19 amongst these species listed as '**Threatened**', three are 'Critically Endangered', four are 'Endangered', 10 are 'Vulnerable', and 18 are 'Near Threatened'. Also, some taxa are extant and endemic to the Western Cape such as *Acomys subspinosus* (Cape spiny mouse), *Amblysomus corriae devilliersii* (Fynbos golden mole), *Bathyergus suillus* (Cape dune mole rat), *Cryptochloris zyli* (Van Zyl's golden mole), *Damaliscus pygargus* (Bontebok), *Dasymys capensis* (Cape water rat), *Hippotragus leucophaeus* (Blue antelope), *Myosorex longicaudatus boosmani* (Boosmansbos long-tailed forest shrew) *Tatera afra* (Cape gerbil). With 10 near endemic taxa, and some taxa considered locally extinct in terms of South African Red Data Book, as well as regional assessment (Pool-Stanvliet, *et al.*, 2017).

The Western Cape recorded approximately 600 bird species, with (48%) territorial and (52%) being migratory species mostly resident south during the southern hemisphere summer. The region has 93 bird species which are listed as threatened and six of those are regionally extinct (Pool-Stanvliet, *et al.*, 2017).

The Western Cape also recorded approximately 153 reptile species (14%) which are endemic to the province. Eleven species are threatened: three Critically Endangered, two Endangered,

six Vulnerable; and eight are Near Threatened, to which most are intolerant of habitat transformation (Pool-Stanvliet, *et al.*, 2017).

The invertebrates dominate the Cape Floristic Region. It is also noted that the invertebrates constitute more than 80% of all species diversity within the Western Cape. There are three species of dragonfly of great concern in the Western Cape, two of which are considered 'Critically Endangered' and one 'Endangered'. There are 37 species of Lepidoptera (butterflies and moths) that are endemic to the Western Cape. However, the majority are of Least Concern, while one is extinct and two 'Critically Endangered' (Pool-Stanvliet, *et al.*, 2017).

The Cape Peninsula region was interrogated against Quarter Degree Square (3418AB), (**Figure 14**) obtained from the Fitzpatrick Institute of African Ornithology Virtual Museum (2019). This indicates the presence of 108 mammal species, with two considered 'Vulnerable', namely: *Damaliscus pygargus pygargus* (Bontebok) and *Hippotragus niger niger* (sable antelope), and three are considered 'Near Threatened' namely: *Pelea capreolus* (Vaal Rhebok), *Aonyx capensis* (African Clawless Otter), and *Mirounga leonine* (Southern Elephant Seal).

The Quarter Degree Square (3418AB) also indicated a total of 167 bird species with one 'Near Threatened', namely: *Buteo trizonatus* (Forest Buzzard), four considered 'Endangered', namely: *Phalacrocorax africanus* (Reed/Long-tailed Cormorant), *Phalacrocorax neglectus* (Bank Cormorant), *Eudyptes moseleyi* (Northern Rockhopper Penguin), *Spheniscus demersus* (African Jackass Penguin), and *Scotopelia peli* (Pel's Fishing-Owl).

The Quarter Degree Square (3418AB) further recorded a total of 112 Lepidoptera species, with three of conservation concern, namely, *Kedestes barberae bunta* (Cape flats freckled ranger) considered 'Critically Endangered', *Kedestes lenis lenis* (Unique ranger) considered 'Endangered', and *Aloeides egerides* (Red Hill russet) considered 'Vulnerable'.

There are 49 reptile species listed, with only six of conservation concern, namely: *Bradypodion pumilum* (Cape Dwarf Chameleon), *Caretta caretta* (Loggerhead Turtle), and *Psammophis leightoni* (Cape Sand Snake) all considered 'Vulnerable', *Chelonia mydas* (Green Turtle) and

*Cordylus niger* (Black Girdled Lizard) considered 'Near Threatened', and *Dermochelys coriacea* (Leatherback Turtle) considered 'Endangered'.

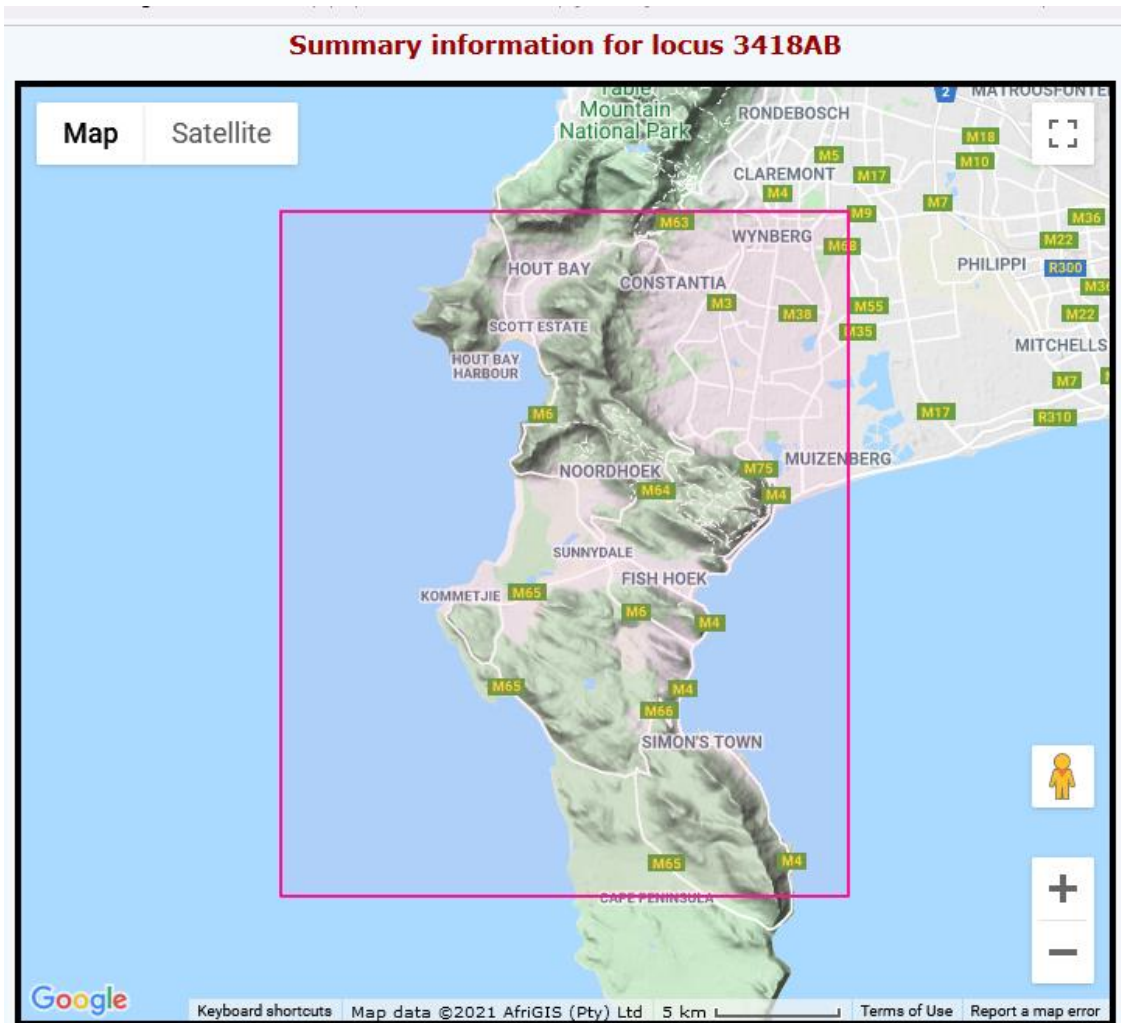


Figure 14: Locus 3418AB coverage [Source: DDI Virtual Museum (2019)]

### 11.8.1 Potential Impacts

There are no CBAs and ESA within the reach of the foundry. It must be noted that the CBAs and ESA support a rich species habitat. The foundry is already operational within the dockyard. The activity does not require vegetation clearance. The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat. Also, the surrounding land is built up with both commercial land and settlement land uses.

However, the dispersion of the pollutants from the foundry will be determined by the Air Quality Impact Assessment. The Terrestrial Ecological Impact Assessment will be conducted and discussed further in the EIR phase. The identification of Species of Conservation Concern (SCC) and all potentially sensitive fauna including insects such as bees, will be covered in the EIR through the Terrestrial Biodiversity Impact Assessment.

### **11.9 Visual environment and land use character**

Subject to the direct visual influence of the foundry, the zone of visual influence can be experienced at different scales by receptors located at various distances from the site. The viewshed area and zone of visual influence for new developments is classified as follows:

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

Pockets of land in Western Cape have undergone a land cover change, due to economic activities, largely agriculture, urbanisation, and infrastructural developments. As a result, few remnants of natural vegetation remain within these areas which are of very high conservation value (Pool-Stanvliet, *et al.*, 2017).

The Armscor Dockyard foundry is situated the Simon's Town Naval Base, within which the natural environment is largely transformed, since the establishment of naval base with the rich history dating back to 1890s, and currently modernised to meet operational capacity. This naval base is surrounded by residential areas and businesses within the foothill of Cape Peninsula.

#### **11.9.1 Potential Impacts**

The foundry is in line with local land use as the site is within a dockyard and associated workshop buildings. Also, the foundry has been operational for a number of decades, since 1968. The entire site is walled, and the operations take place mostly within the warehouse infrastructure in the middle of the dockyard site. As a result, the foundry is not visible from

outside the facility. Therefore, the viewshed area and zone of visual influence for the Armscor Dockyard foundry's operation is considered "Low Visibility" or negligible as the site is streamlined to a built environment.

### 11.10 Heritage and cultural aspects

The Simon's Town Naval Base has a rich intrinsic heritage dating back from the Dutch-East Indian Company settlements, and subsequently a British Royal Navy establishment of Simon's Town Dockyard. As a result, features within the Armscor Dockyard in Simon's Town are of heritage significance. It must be noted that this EIA Application is for an existing foundry within Simon's Town Naval Base. The foundry has been in operation since 1968.

A preliminary desktop study for palaeontological sensitivity of the naval base dockyard, reveals that the site falls within 'Low sensitivity' (**Figure 15**).

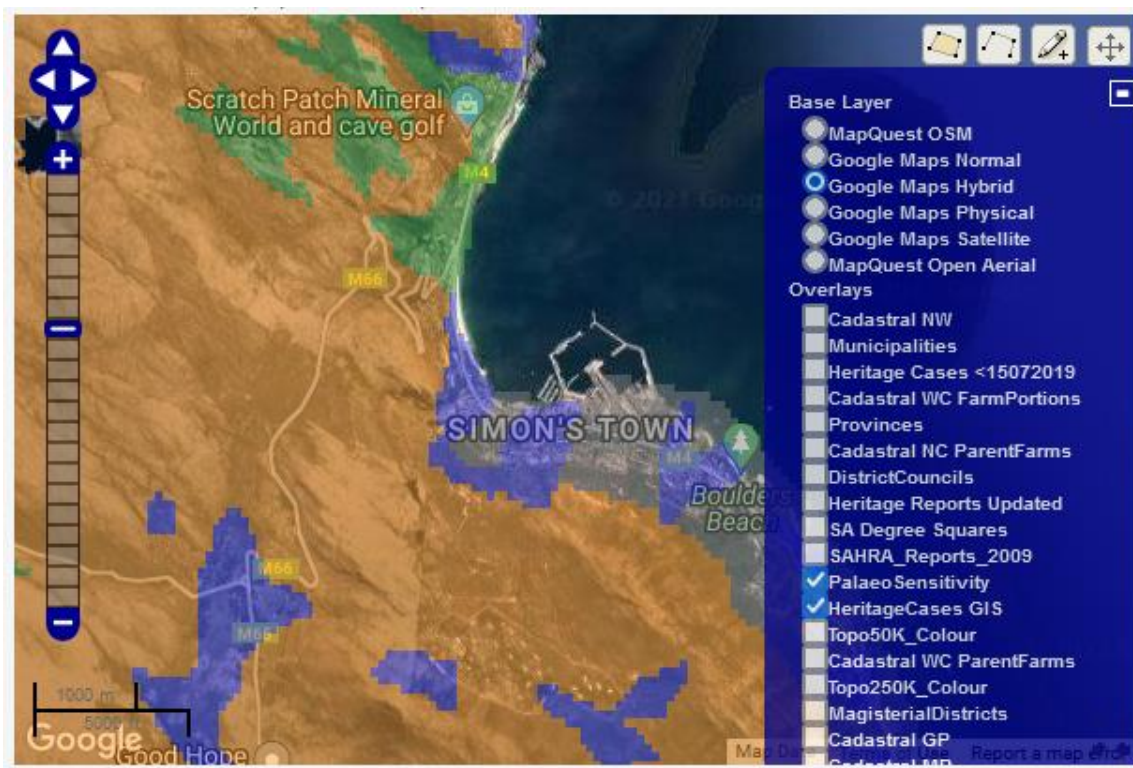


Figure 15: Simon's Town Palaeontological Sensitivity

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



### **11.10.1 Potential Impacts**

The project site has been operated as a foundry since 1968. Any impacts that may have been generated on cultural or historical sites cannot be mitigated at this late stage. The activity on site will not be changing, as this is merely an application for licensing in accordance with the current environmental legislation. It is therefore unlikely that any artefacts of cultural or historical value remains on site. Additionally, the continuing operation of the foundry will not make any new significant impact in this regard.

There will be no filed assessment and protocol for finds for Palaeontological Assessment, as the site is classified as 'Low Sensitivity'. There is also no construction work required as the foundry is already in operation.

### **11.11 Socio-economic**

Armcor (SOC) Ltd has made progress in transforming itself towards having a workforce that reflects the country's demographic profile. As a result, the Armcor Dockyard in Simon's Town, initiated a Talent Development Programme (TDP) to provide on-the-job training with mentorship to inexperienced (largely youth) and technical graduates. At the end of the learning contract, depending on the availability of posts, the said trainees are given permanent employment at Armcor.

In addition, the foundry offers job opportunities and forms part of the economic multiplier within Simon's Town, such as the buying local services and goods for all those involved at the foundry. These local suppliers in turn develop the local economy. Hence the Amcor Dockyard forms part an integral part of the local economic development within the CTM.

The foundry metal casting process release the flue gases of chemical compounds, Therefore, the social impact as a results of ambient air quality and atmospheric emission cannot be overlooked. In this regard the public participation provided consensus inputs from the neighbouring community on how the foundry must manage and report the air quality data.

### **11.11.1 Potential Impacts**

The foundry has social impact in terms of ambient air quality, as a result of emissions from the operations of the foundry. The Air Quality Impact Assessment will be conducted to ascertain if the current emissions, are above air quality thresholds. The findings and recommendation will be discussed in the EIR.

### **11.12 Traffic**

The foundry traffic access is linked to the dockyard, which was constructed during the establishment of the Simon's Town. Since the foundry is within the naval base dockyard, the road network servicing naval base provides the same service to the foundry, namely via a network of well-maintained tarred streets.

#### **11.12.1 Potential Impact**

Traffic to and from the foundry is limited to the delivery of materials as well as the collection and removal of product and waste materials from SA Naval Base. Other traffic is related to the arrival of staff to work. The access to the site does not affect any main road traffic. No significant traffic implications are envisaged, given that the scope of the foundry activities has not changed over 54 years and is not likely to change in the near future.

## **12 AIR POLLUTION AND WASTE**

The foundry's operations lead to air pollution and waste generation, and such pollution and waste have detrimental effect on the receiving environment.

### **12.1 Air Pollution**

The foundry has a direct negative impact on ambient air quality, due to emissions of the flue gases of chemical compounds such as cadmium, lead, and sulphur dioxide.

The Amcor Dockyard foundry has installed the filters in the extraction system to reduce the number of pollutants released via the stacks into the atmosphere. The foundry operates two independent extraction systems, one for the copper and aluminium furnaces, and one for the

zinc furnaces. The amount of pollutants which is reduced by these filters will be further elaborated and described by Air Quality Assessment, during EIA phase.

Copper and Aluminium Furnace:

- Cu and Al Furnaces (2x 0.25Ton and 1x 0,5Ton);
- Each diesel-fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 17000m<sup>3</sup>.h-1;
- Stack height: 4.2m above ground level.

Zinc furnaces:

- Zinc Furnaces (1x 0.25Ton and 1Ton);
- Each diesel-fired furnace is fitted with an extraction hood that is linked to the ducting, filtration and shut-off valves and a centrifugal fan of 3720m<sup>3</sup>.h-1;
- Stack height: 6.65m above ground level.

Currently, the Amcor Dockyard foundry does not have a filter register in place. This inventory is required for managing emissions, and for the maintenance and replacement of the filters.

The Amcor Dockyard has been conducting an Emission Survey for annual reporting to NAEIS on emissions inputs. This informed the need to make an application for an AEL, in order to meet environmental legal compliance.

### **12.1.1 Potential Impact**

The most significant potential environmental impact associated with foundries relate to air pollution. Foundries are very energy intensive, and the furnaces are known to emit greenhouse gases (GHGs). The foundry metal casting process release the flue gases of chemical compounds such as cadmium, lead, and sulphur dioxide.

The foundry operates five diesel-fired furnaces. Amcor is currently undertaking an application for an AEL in terms of the National Environmental Management Air Quality Act (Act 39 of 2004). The Air Quality Impact Assessment will be conducted to ascertain if the current emissions, are above air quality thresholds. The technology, procedures and measures to minimise air pollution will be discussed in detail in the Environmental Impact Report.

## **12.2 Waste**

The Amcor Dockyard foundry generates waste in the form of scrap metal, grits, moulding sand, and health care waste (HCW) which emanates from medical treatment, or first aid rendered on site after an injury on duty. The waste is temporarily stored on impervious surface and under a sheltered area within the foundry in three separate waste skips. General, hazardous and HC waste are separated and are collected by a nominated certified waste service provider. The volume of waste that is temporarily stored currently does not exceed 100m<sup>3</sup>.

Domestic waste is collected by the municipal service provider on a weekly basis.

### **12.2.1 Potential Impacts**

The incorrect handling and disposal of hazardous waste could have detrimental impacts on nearby watercourses including the sea.

Potential impacts on groundwater may arise if hazardous substances are allowed to leak onto bare soil and potentially leach into the ground or disposed of incorrectly. However, as the site is paved, it is unlikely that groundwater pollution will occur as a result of the current activities on site. Most areas where materials are stored are under roof and stored on liquid tight (lined and bunded) facilities. It is therefore unlikely that Rainwater would runoff onto waste in storage and contaminate watercourses from these storage areas.

## **12.3 Noise management**

The foundry is within the Amcor Dockyard. The entire study area emits different levels of noise due to the various workshops occupying the dockyard. In addition, sources of noise in the general surrounding area include noise generated by traffic utilising all the streets adjacent to the site, as well as all naval related activities at the dockyard.

### **12.3.1 Potential Impacts**

The noise generated by the operations and activities of the foundry are significantly muffled due to most activities taking place within the dockyard workshops. Additionally, it is not likely that the foundry noise levels will exceed the ambient noise levels given all the other noisy activities in the area.

## **13 WATER USE AND SANITATION**

### Water supply:

The water used in the SA Naval base and the Amscor Dockyard is serviced and portable water supplied by the CTM.

### Sewer Facilities:

The study site has a water-borne sewage system in place which is connected to the municipal sewage system and serviced by the CTM.

### Stormwater Management:

Stormwater falling within the property is collected in the storm water management system on site, which is connected to the CTM storm water system.

## **14 ENERGY USE**

The foundry operates five diesel-fired furnaces. The electricity to the Amscor Dockyard foundry for other operations is provided by the CTM. According to the Amscor Dockyard, the current electricity supply meets current usage, and it is not expected that additional capacity will be required in the future, as the activities of the foundry will remain the same.

## **15 FOUNDRY FUEL**

The foundry operates five (5) diesel-fired furnaces, and use the fuel from the Naval base fuel storage facility.

## 16 IDENTIFICATION OF POTENTIAL IMPACTS

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

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

### 16.1 Approach

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

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

This section does not only provide a detailed description of the receiving environment, but the section also outlines the possible impact associated with the operation of the foundry.

### 16.2 Potential Biophysical and Social Impacts

The potential biophysical and social impacts were distilled from a range of sources and summarised in **Table 11** below. The cumulative impacts are also explained briefly in **Section 16**.

**Table 11: Summary of Potential Biophysical Impacts**

Environmental factors	Summary of Potential Impacts	Further investigation/ EIA Provisions
<b>Foundry's Operation</b>		
<b>Potential Biophysical Impacts</b>		
<b>Flora</b>	<ul style="list-style-type: none"> <li>The historical and existing activities undertaken on site, together with the buildings, infrastructure and paving situated on site have rendered the site with no natural vegetation or habitat.</li> </ul>	<ul style="list-style-type: none"> <li>EIR and EMPr</li> </ul>
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>The continued operation of the foundry is not expected to generate additional significant impacts on habitat or biodiversity within the study area, as the site is located between Mountain Protected Area and Marine Protected Area. Therefore, impacts likely associated with large emissions include:                             <ul style="list-style-type: none"> <li>Direct impacts on threatened faunal taxa;</li> <li>Direct impacts on common fauna species/ faunal assemblages (including migration patterns, etc.);</li> </ul> </li> <li>Red Data species are particularly sensitive to changes in their environment, having adapted to a narrow range of specific habitat requirements.</li> </ul>	<ul style="list-style-type: none"> <li>Terrestrial Biodiversity Impact Assessment.</li> <li>Air Quality Impact Assessment.</li> <li>EIR and EMPr.</li> </ul>
<b>Impacts on Aquatic Ecosystem Functions and Services</b>	<ul style="list-style-type: none"> <li>There are no rivers, wetlands, pans, or other surface water bodies present within a 500m of the foundry. Stormwater runoff on site is contained in the site's storm water management system which in turn connects to the municipal system.</li> <li>Although the foundry is within the dockyard (marine coast), the stormwater runoff on site is contained in the site's storm water management system which in turn connects to the municipal system.</li> </ul>	<ul style="list-style-type: none"> <li>EIR and EMPr.</li> </ul>
<b>Ground Water</b>	<ul style="list-style-type: none"> <li>Potential impacts on groundwater may arise if hazardous substances are allowed to leak onto bare soil and potentially leach into the ground. Contamination of ground</li> </ul>	<ul style="list-style-type: none"> <li>EIR and EMPr.</li> </ul>

Environmental factors	Summary of Potential Impacts	Further investigation/ EIA Provisions
<b>Foundry's Operation</b>		
<b>Potential Biophysical Impacts</b>		
	<p>water due to hydrocarbon spillage and seepage into groundwater reserves, affecting groundwater quality is also likely.</p> <ul style="list-style-type: none"> <li>• However, as the site is paved, it is unlikely that groundwater pollution may occur as a result of the current activities on site. Most areas where materials are stored are under roof and stored within lined and bunded facilities.</li> </ul>	
<b>Ambient Air Pollution</b>	<ul style="list-style-type: none"> <li>• The most significant potential environmental impact associated with the foundry relates to the emissions from the various activities, as the foundry is energy intensive, and the furnaces are known to emit GHGs.</li> <li>• The foundry metal casting process release the flue gases of chemical compounds such as cadmium, lead, and sulphur dioxide. These are released into atmosphere via stacks.</li> </ul>	<ul style="list-style-type: none"> <li>• Air Quality Impact Assessment</li> <li>• EIR and EMPr.</li> </ul>
<b>Waste (General, Hazardous Waste and HCW)</b>	<ul style="list-style-type: none"> <li>• The Amscor Dockyard foundry generate waste in a form of scrap metal, grits, moulding sand, other hazardous waste and HCW.</li> <li>• Potential impacts on groundwater may arise if hazardous substances are allowed to leak onto bare soil and potentially leach into the ground. However, as the site is paved, it is unlikely that groundwater pollution will occur as a result of the current activities on site. Waste is stored in waste skips under roof and stored within lined and bunded facilities</li> </ul>	<ul style="list-style-type: none"> <li>• EIR and EMPr</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>• The foundry is currently in operation, and no expansion or construction work is planned. Hence the geology of the site will not be affected.</li> <li>• The site is within the dockyard, therefore characterised of paved, and hard impervious surface. Therefore, it is anticipated that no geological instability will occur.</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>



**Table 12: Summary of Potential Social Impacts**

Environmental factors	Summary of Potential impacts	Further investigation/ EIA Provisions
<b>Foundry's Operations</b>		
<b>Potential Social Impacts</b>		
<b>Visual</b>	<ul style="list-style-type: none"> <li>No impact on the current visual landscape.</li> <li>No impact on sensitive receptors</li> </ul>	<ul style="list-style-type: none"> <li>EIR and EMPr.</li> </ul>
<b>Ambient Air Quality</b>	<ul style="list-style-type: none"> <li>The foundry metal casting process releases the flue gases of chemical compounds such as cadmium, lead, and sulphur dioxide. These are released into atmosphere via stacks.</li> </ul>	<ul style="list-style-type: none"> <li>Air Quality Impact Assessment</li> <li>EIR and EMPr.</li> </ul>
<b>Paleontological, Archaeological, Cultural and Heritage</b>	<ul style="list-style-type: none"> <li>The project site has been operated as a foundry since 1968. Any impacts that may have been generated on cultural or historical sites cannot be mitigated at this late stage. No documented evidence that any educational, cultural, or religious activity in the area is negatively affected by the operations of the foundry. The activity on site will not be changing, and this is merely an application for licensing in accordance with the current environmental legislation.</li> </ul>	<ul style="list-style-type: none"> <li>EIR and EMPr.</li> </ul>
<b>Socio-economic</b>	<p><b>Positive Impacts:</b></p> <ul style="list-style-type: none"> <li>The foundry provides employment for the locals and contributes to the local economy of Simon's Town, in a form of supporting, procuring or buying local services and goods.</li> </ul>	<ul style="list-style-type: none"> <li>EIR and EMPr.</li> </ul>
<b>Traffic</b>	<ul style="list-style-type: none"> <li>The site is within the SA Naval Base, within the dockyard together with other associated naval base facilities.</li> <li>Traffic to and from the foundry is limited to the delivery of materials as well as the collection and removal of product and waste materials from the foundry. Other traffic is related to the arrival of staff to work.</li> <li>The access to the site does not affect any main road traffic or disrupt other activities.</li> </ul>	<ul style="list-style-type: none"> <li>EIR and EMPr</li> </ul>

<b>Noise</b>	<ul style="list-style-type: none"><li>• The foundry is located within the dockyard. The noise generated by the operations and activities of the foundry are significantly muffled due to most activities taking place within the dockyard workshops.</li></ul>	<ul style="list-style-type: none"><li>• EIR and EMPr.</li></ul>
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## 17 CUMULATIVE IMPACTS

In terms of the EIA Regulations, the cumulative impact is considered from the holistic point of view. It means that the impacts of an activity are considered from the past, present, and foreseeable future together with the impact of activities associated with that activity. The activity itself may not be significant, but when combined with the existing and reasonably foreseeable impacts emanating from similar or diverse activities, may result in a significant impact. “Cumulative impacts can be: additive, synergistic, time crowding, neutralizing and space crowding” (DEA, 2017;14), as outlined on **Table 13** below.

**Table 13: Cumulative Impacts**

Impact	Description Mitigation
<b>Atmospheric Emission</b>	Uncontrolled continual emission will be the most significant GHG cumulative impact, as the foundry is within the dockyard, where other activities such as ships, other industries, motor vehicles, <i>inter alia</i> also emit pollutants .
<b>Ambient Air Pollution</b>	The uncontrolled continual emission will be the most significant ambient air pollution cumulative impact within the radius of Simon’s Town, as the foundry is within the dockyard, where many other activities release emissions.
<b>Noise Pollution</b>	The foundry is located within the dockyard which will contribute to the noise levels at the SA Naval Base, although not likely to be significant.
<b>Economic Development</b>	Employment opportunities, local businesses and suppliers within the region have benefitted for the past 54 years through the operation of the foundry and will continue to derive benefits during the lifespan of the foundry.

### 17.1 Mitigation Measures

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

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

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

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

## 18 IMPACT ASSESSMENT METHODOLOGY

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

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

*Occurrence:*

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

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

*Severity:*

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

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

The following Scale will be used:

**Table 14: Impact Assessment Criteria**

<p><i>Probability = P</i></p> <p>5 – Definite (More than 80 % chance of occurrence)</p> <p>4 – Probable (Between 60-80% chance of occurrence)</p> <p>3 – Possible (Between 40-60% chance of occurrence)</p> <p>2 – Fairly Unlikely (Between 20-40% chance of occurrence)</p> <p>1 – Unlikely (Less than 20% chance of occurrence)</p>	<p><i>Duration = D</i></p> <p>5 – Permanent - The only class of impact that will be non-transitory (indefinite)</p> <p>4 - Long-term - The impact and its effects will continue or last for the entire operational life of the development (15 - 50years)</p> <p>3 - Medium-term - The impact and its effects will continue or last for some time after the construction phase (5 - 15 years)</p> <p>2 – Medium-short - The impact and its effects will continue or last for the period of a relatively long construction period and/or limited recovery time after this construction period (2 - 5 years)</p> <p>1 – Short Term - Likely to disappear with mitigation measures or through natural processes which span shorter than the construction phase (0-2 years)</p>
<p><i>Scale = S</i></p> <p>5 – International (beyond 200km)</p> <p>4 – Regional (50-200km radius)</p> <p>3 – Local (2-50km radius)</p> <p>2 – Surrounding area (within 2km)</p> <p>1 – Site (within100m)</p>	<p><i>Magnitude = M</i></p> <p>5 - High</p> <p>4– Medium High</p> <p>3 – Medium</p> <p>2 – Medium Low</p> <p>1 – Low</p>

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*Status of Impact*

+ Positive / -Negative or 0-Neutral

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

Once the impact has been assessed using the above significance categories, a rating is calculated. The rating will indicate a specific significance of the impact as illustrated by **Table 15** below. By identifying whether the impact is positive or negative, the significance will be read from the relevant portion of the table.

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

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

**Table 15: Impact Ratings and the Implicated Significance**

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

## 19 PLAN OF STUDY

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

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

The requirements of Regulation 28 of Government Notice R.543 promulgated in terms of section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998) have been reviewed in order to ensure compliance therewith. These requirements are as follows:

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

### 19.1 Description of tasks to be undertaken for the EIR

The following section describes the identified tasks that are required to form part of the EIR Process:

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

## **19.2 Specific Project Detail**

The existing foundry operation and associated emission details forming part of the licensing application will be described in detail. Process flow diagrams indicating inputs and outputs will be included.

## **19.3 Activity Motivation**

Emvelo Quality and Environmental Consultant (Pty) Ltd (the EAPs) has engaged with Amcor (SOC) Ltd (the Applicant) in order to solicit the activity motivation. This motivation includes the project need and desirability as discussed in (Section 2).

## **19.4 Project Alternatives**

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



## 19.5 Description of the Baseline Environment

A description of the Baseline Environment be provided, as described in Section 2, which will include additional information, such as desktop and field assessment from the specialist studies.

## 19.6 Summary of Public Participation Process

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

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

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

## 19.7 Specialist studies identified

The required specialist studies triggered by the findings of the Scoping process, aimed at addressing the key issues and compliance with legal obligations, include:

- ✚ Air Quality Impact Assessment; and
- ✚ Terrestrial Biodiversity Impact Assessment;

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

- ✚ Guideline for determining the scope of specialist involvement in the EIA processes (Münster, 2005).

- ✚ Guideline for involving biodiversity specialists in the EIA processes (Brownlie, 2005);

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

- ✚ Western Cape: Department of Environmental Affairs and Development Planning (DE&DP);
- ✚ Western Cape Department of Economic Development and Tourism
- ✚ City of Cape Town Directorate: Specialised Environmental Health Services and Air Quality Management
- ✚ South African Biodiversity Conservation
- ✚ South African National Parks
- ✚ Heritage Western Cape
- ✚ South African Heritage Agency
- ✚ South African Council for Natural Scientific Professions (SACNASP)

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

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

### **19.7.1 General Terms of Reference**

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

- ✚ Address all triggers for the specialist studies contained in the subsequent specific Terms of Reference.
- ✚ Address issues raised by I&APs, as contained in the Comments and Response Report, and assess all potentially significant impacts. Additional issues that have not been identified during Scoping should also be highlighted to the EAP for further investigations.
- ✚ Ensure that the requirements of the environmental authorities that have specific jurisdiction over the various disciplines and environmental features are satisfied.
- ✚ Approach to include desktop study and site visits, as deemed necessary, to understand the affected environment and to adequately investigate and evaluate salient issues. Indigenous knowledge (i.e. targeted consultation) should also be regarded as a potential information resource.
- ✚ Assess the impacts (direct, indirect, and cumulative) in terms of their significance (using suitable evaluation criteria) and suggest suitable mitigation measures. In accordance with the mitigation hierarchy, negative impacts should be avoided, minimized, rehabilitated (or reinstated) or compensated for (i.e. offsets), whereas positive impacts should be enhanced. A risk-averse and cautious approach should be adopted under conditions of uncertainty.
- ✚ Consider time boundaries, including short to long-term implications of impacts for the project lifecycle (i.e. pre-construction, construction, operation, and decommissioning).
- ✚ Consider spatial boundaries, including:
  - The broad context of the project (i.e. beyond the boundaries of the specific site);
  - Off-site impacts; and
  - Local, regional, national, or global context.
- ✚ The provision of a statement of impact significance for each issue, which specifies whether or not a pre-determined threshold of significance (i.e. changes in effects to the environment which would change a significance rating) has been exceeded, and whether or not the impact presents a potentially fatal flaw or not. This statement of significance should be provided for anticipated project impacts both before and after the application of impact management actions.
- ✚ Recommend a monitoring programme to implement mitigation measures and measure performance. List indicators to be used during monitoring.

- ✚ Appraisal of alternatives (including the No-Go option) by identifying the BPEO with suitable justification.
- ✚ Advise on the need for additional specialists to investigate specific components and the scope and extent of the information required from such studies.
- ✚ Engage with other specialists whose studies may have a bearing on this specific assessment.
- ✚ Present findings and participate in public meetings, as when necessary.
- ✚ Information provided to the EAP needs to be signed off.
- ✚ Review and sign off on the EIA report prior to submission to DFFE to ensure that specialist information has been interpreted and integrated correctly into the report.
- ✚ Sign a declaration stating independence.
- ✚ The appointed specialists must consider the policy framework and legislation relevant to their particular studies.
- ✚ All specialist reports must adhere to Appendix 6 of NEMA 2014 Regulations [GN No. 326 (7 April 2017)].

### **19.8 Stack Emission Measurement Survey Report**

The Stack Emission Survey (SEMS) report will be appended on the EIR. The main purpose of this SEMS will be to quantify the emission trend using emission inventory of the particulate and gaseous emissions from selected point sources located within the Armscor Dockyard foundry, to determine legal compliance and to provide recommendations for mitigation measures where applicable.

### **19.9 Impact Assessment**

The impact assessment will provide an evaluation of impacts prior to mitigation, as well as proposed mitigation measures, and then evaluate the impacts after mitigation. The potential environmental impacts identified in the study will be quantified as far as possible and the significance of the impacts will be assessed according to specific criteria as discussed in (Section 10.5).

### **19.10 Environmental Management Programme Report (EMPr)**

A draft Environmental Management Programme Report (EMPr) for the existing facility will be provided with the EIR Report. The EMPr will not include plans for the construction phase as the facility already exists and no additional construction is expected. The EMPr will be compiled for the operational and potential decommissioning phases of the foundry.

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

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

### **19.11 Environmental impact statement**

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

### **19.12 Environmental Impact Report**

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

- ✚ A description of the policy and legislative context.
- ✚ A detailed description of the foundry (full scope of activities).
- ✚ A detailed description of the foundry site, which will include a plan that locates the activity applied for as well as the associated structures and infrastructure.
- ✚ A description of the environment that may be affected by the activity and the way physical, biological, social, economic, and cultural aspects of the environment may be affected by the proposed development.

- ✚ The methodology of the stakeholder engagement process.
- ✚ The Comments and Responses Report and an I&APs Database will be provided as an appendix to the EIA Report.
- ✚ A description of the need and desirability of the proposed development and the identified potential alternatives to the proposed activity.
- ✚ A summary of the methodology used in determining the significance of potential impacts.
- ✚ A description and comparative assessment of the project alternatives.
- ✚ A summary of the findings of the specialist studies.
- ✚ A detailed assessment of all identified potential impacts.
- ✚ A list of the assumptions, uncertainties, and gaps in knowledge.
- ✚ An environmental impact statement.
- ✚ Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorization.
- ✚ A reasoned opinion as to whether the proposed activity should or should not be authorized, and if the opinion is that it should be authorized, any conditions that should be made in respect of that authorization.
- ✚ An opinion by the consultant as to whether the development is suitable for approval within the proposed site.
- ✚ An EMPr that complies with Appendix 4 of GN No. 326 (7 April 2017).
- ✚ Copies of all specialist reports appended to the EIA report; and
- ✚ Any further information that will assist in decision making by the authorities.

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

- ✚ Submit Draft Scoping Report
- ✚ Address comments on Scoping Report.
- ✚ Submission of the Final Scoping Report.
- ✚ Submit the Draft EIR
- ✚ Address comments on Draft EIR

- ✚ Submit Final EIR; and
- ✚ Obtain a decision.

### **19.13 Updating of IAP Database for EIR**

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

### **19.14 Review of Draft EIR**

The draft ER will be circulated for 30 days, and this document will be lodged for public review using the public participation methods mentioned on (Table 8). (**Note:** *This could change subjected to Covid-19 Regulation. Also, refer to PP Plan*).

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

### **19.15 Comments and Responses Report**

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

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

### **19.16 Notification of Decision**

Within 10 days of receipt of the final decision on the application. All stakeholders will be notified via email.

## 20 EIR OUTLINE

The following report skeleton is proposed for the EIR:

**Table 16: Proposed EIR outline**

<b>1. INTRODUCTION</b>
<b>2. PROJECT TITLE</b>
<b>3. PROJECT DESCRIPTION</b>
<b>4. PROJECT LOCALITY</b>
4.1. Geographic Context
4.2. Site Locality
<b>5. SITE ACCESS</b>
<b>6. ACTIVITY MOTIVATION</b>
6.1 The Need
6.2 Desirability
<b>7. FOUNDRY PROCESS FLOW</b>
<b>8. PROJECT ALTERNATIVES</b>
8.1 Demand Alternative
8.2 Schedule Alternative
8.3 Technology Alternative
8.4 Site Alternative
8.5 No-Go Alternative
8.6 Discussion of Preferred Alternatives
<b>9. APPLICABLE LEGISLATION, POLICIES AND GUIDELINES</b>
<b>10. DESCRIPTION OF BASELINE ENVIRONMENT</b>
10.1 Climate
10.2 Hydrology
10.3 Topography
10.4 Biomes
10.5 Flora
10.6 Protected Areas



10.7 Fauna

10.8 Air Quality

10.9 Visual and Land use Character

10.10 Heritage and Cultural Aspects

10.11 Socio-economic Aspects

10.12 Noise

**11. WASTE ,EFFLUENT AND AIR POLLUTION**

11.1 Waste

11.2 Effluent

11.3 Ambient Air and Atmospheric Pollution

**12. WATER AND ENERGY USE**

12.1 Water Use

12.2 Energy Use

**13. PUBLIC PARTICIPATION**

13.1 Background

13.2 Objectives of Public Participation

13.3 Notification of I&APs

13.4 Comments from I&APs

**14. IMPACT ASSESSMENT AND MITIGATION MEASURES**

14.1 Impact Analysis for preferred Alternatives

**15. CUMMULATIVE IMPACT ASSESSMENT AND MITIGATION MEASURES**

**16. RECOMMANDATIONS BY SPECIALIST**

16.1 Recommendations from the Air Quality Impact Assessment

16.2 Recommendation from the Terrestrial Biodiversity Impact Assessment

**17. RECOMMENDATION BY EAP**

**18. CONCLUSION**

**19. APPENDICES**

-EAP Declaration

-EMPr

-Maps and Layouts

-Public Participation Records

- Specialist Reports
- Motivation for Exclusion of other Specialist Studies
- Emission Survey Report
- Environmental Screening Report

## 21 TIME FRAMES

Table 17 presents the proposed timeframes for the EIA (Scoping and EIR) process. Note that these dates are subject to change.

**Table 17: EIA Time Frames**

Scoping Phase	Start	Finish
Review of the Draft Scoping Report by authorities & I&APs (30 days)	14/02/2021	15/03/2022
Submit Final Scoping Report	25/03/2022	
DFFE Review and Decision (43 days review period) on scoping report	25/03/2022	10/05/2022
Review of Draft EIR by authorities & I&APs (30 days)	11/07/2022	10/08/2022
EAP Submit Final EIA Report & EMPr to DFFE	20/08/2022	
DFFE Review and Decision (107 days)	20/08/2022	
I&AP Notification on Decision (14 days)		

## 22 CONCLUSION

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

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

This Draft Scoping Report is available for a review and comment period of 30 days, from **14<sup>th</sup> of February 2022** to the **15<sup>st</sup> of March 2022**. Comments and submissions received in response to this report will be submitted to DFFE (the competent authority).

*Written submissions must be addressed to:*

**Emvelo Quality and Environmental Consultant (Pty) Ltd**

Attention: **Ms Phumzile Lembede**

PO Box 101672, Meerensee, 3901

Tel: 035 789 0632 Fax: 086 577 5220

Email: [info@emveloconsultants.co.za](mailto:info@emveloconsultants.co.za) / [dumisani@emveloconsultants.co.za](mailto:dumisani@emveloconsultants.co.za)

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## APPENDICES



**APPENDIX A. DECLARATION OF INFORMATION**

I, the undersigned **Phumzile Lembede**, on behalf of **Emvelo Quality and Environmental Consultant**, hereby declare that the information provided in this application is correct and true.



21 February 2022

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Signature

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Date

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Principal EAP

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Emvelo Quality and Environmental Consultant

Position

Company

## APPENDIX B. LOCALITY MAP AND LAYOUT

## B-1: Locality Map

## B-2: Layout

## APPENDIX C: DEPARTMENT ACKNOWLEDGEMENT LETTERS

## APPENDIX D SITE PHOTOGRAPHS

## APPENDIX E PUBLIC PARTICIPATION PROCESS

## **E-1: News Paper Advert**



## E-2: Onsite Notices

### **E-3: Public Participation Plan and Register of I&APs**

## E-4: Background Information Document

## E-5: Proof of Circulation to I&APs

## E-6: Comments and Responses

## APPENDIX F. EA PRE-APPLICATION MINUTES

## APPENDIX G: ATMOSPHERIC EMISSION INVENTORY

## APPENDIX H. EAP'S CV(S)



## APPENDIX I. ENVIRONMENTAL SCREENING REPORT

## APPENDIX J: NON-COMPLIANCE NOTICE AND RESPONSES