



# DRAFT FINAL Version CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)



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# Construction of Roads, Infrastructure & Buildings at the Commercial Terminal & Operational Zone Areas, Port of Duqm - IP2

## CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

Submitted to



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Rev 2.1	August 2017	Rahul Datar and Kris Vallancey	AIIB and SEZAD Comments incorporated
Rev 2.2	September 2017	Rahul Datar and Kris Vallancey	AIIB supplemental comments incorporated

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## DEFINITIONS

Client	Special Economic Zone Authority Duqm (SEZAD) & Port of Duqm (PDC)
Contractor	Serka Taahhut & MSF Engenharia JV (Serka MSF)
Consultant	Five Oceans Environmental Services (5OES)
Project	Infrastructure Package (IP) 2: Construction of Roads, Infrastructure & Buildings at the Commercial Terminal & Operational Zone Areas, Port of Duqm
Sub-Contractor	Any organization providing specific services to Contractor
Shall	Indicates a mandatory requirement
Should	Indicates a recommended requirement

## ACRONYMS & ABBREVIATIONS

AIIB	Asian Infrastructure Investment Bank
AST	Above Ground Storage Tank
CEMP	Construction Environmental Management Plan
dB (A)	A-weighted Decibels
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPO	Environmental Protection Officer
EU	European Union
HC	Hydrocarbons
HSE	Health, Safety & Environment
IP	Infrastructure Package
ISO	International Organization for Standardization
JV	Joint Venture
LA Eq	Equivalent Continuous Sound Level
LOD	Limit of Detection Cubic
M <sub>3</sub>	meter
MD	Ministry Decree
MECA mgm- 3	Ministry of Environment and Climate Affairs milligrams per cubic meter
PM <sub>10</sub>	Particulate Matter less than 10 microns
ppb	Part Per Billion
ppm	Part Per Million
SDS	Safety Data Sheet (AKA MSDS)
STP	Standard Temperature and Pressure
TSP	Total Suspended Particulates
TSS	Total Suspended Solids
USEPA	US Environmental Protection Agency
VOC	Volatile Organic Carbons
WB	World Bank
WHO	World Health Organisation



## 1. EXECUTIVE SUMMARY

### 1.1. Project Background

The Port of Duqm is being developed in a series of seven packages. This CEMP refers to Infrastructure Package 2 (IP2).

Duqm is a port town small town within the Al Wusta region of Oman on the chosen by State and Sultanate of Oman as the new frontier development area and a future candidate for a number of key activities such as, transportation, commerce, industrial activities and tourism. The proposed IP2 project is an integral part of this investment thrust.

The scope of works of IP2 includes the construction of roads, infrastructure & buildings for the commercial terminal & operational zone areas. The terminal will be constructed on reclaimed land (constructed previously) that forms the eastern flank of the Port of Duqm breakwater.

The Scope of Works to be executed under this Contract shall include, but not be limited to, the construction, installation, testing, commissioning and remedying of defects of the following:

- Road and Paving Works;
- Infrastructure Works;
- Building Works; and • Crane Beam and Track Works.

The project is being funded through a loan from the Asian Infrastructure Investment Bank (AIIB). The AIIB is a multilateral development bank, which supports infrastructure development and enhanced connectivity in Asia.

### 1.2. Preliminary EIA

A Preliminary Environmental Impact Assessment (PEIA) was written by Khatab and Alami LLC for the development of three of the Port of Duqm infrastructure packages: IP2, IP3, and IP4. For this specific project (IP2) the primary activities that have significant environmental impacts and attract regulatory requirements under Omani law, have been identified following review of the PEIA. The following environmental management focus areas for the project have been defined as:

CEMP Focus Area 1: Management of Earthworks;

CEMP Focus Area 2: Management of Waste;

CEMP Focus Area 3: Management of Fuel & Chemicals;

CEMP Focus Area 4: Management of Marine Environment; and

CEMP Focus Area 5: Management of Material & Resource Consumption

CEMP Focus Area 6: Management of Occupational Health and Safety, including Labour



### 1.3. Construction Environmental Management Plan

This document presents a Construction Environmental Management Plan (CEMP) prepared for Serka Taahhut & MSF Engenharia JV (Serka MSF) by Five Oceans Environmental Services LLC (5OES). The CEMP has been prepared specifically for Infrastructure Package 2 (IP2): Construction of Roads, Infrastructure & Buildings at the Commercial Terminal & Operational Zone Areas, Port of Duqm (herein referred to as the Project). In the context of this CEMP, the term 'Environment' covers Occupational Health & Safety, including Labour.

The Client will be ultimately responsible for liaison with the SEZAD. The objective will be to work closely with the SEZAD and their representatives to ensure that the provisions of this CEMP are fully implemented.

SEZAD, in coordination with the AIIB, will review and assess this CEMP and issue the Construction Environmental Permit, potentially with additional conditions, prior to the start of construction. At their discretion, the SEZAD may carry out site inspections to verify Contractor compliance with the CEMP.

Review of the CEMP is required to maintain continual improvement, suitability and effectiveness of the CEMP and to review the performance of the CEMP. A formal review shall be undertaken every six months by the HSE Manager of Serka MSF.

The CEMP is a subsequent document to the Preliminary Environmental Impact Assessment (PEIA) for Port of Duqm Packages 2, 3 and 4 (prepared by K&A Consultants) in March 2015. This CEMP has been submitted as part of the commitment to environmental standards and legislation of Oman, and in accordance with the Environmental and Social Policy (February 2016) of AIIB. It thus sets out the commitment of Serka MSF to deliver on all the stated environmental and social obligations.

The purpose of the CEMP is to provide a framework for identifying, addressing and managing the potential environmental, health and safety (EHS) impacts associated with project activities on sensitive environmental resources and receptors. The CEMP has been prepared referring legal and other requirements to ensure appropriate preventive and corrective actions are undertaken in order to meet the project's EHS commitments. The CEMP also sources relevant requirements and practices based on the **Preliminary EIA study report** and the **HSE Manual of Serka MSF**.

The purpose of the CEMP is to provide information, guidance and instruction to personnel charged with environmental duties and those responsible for undertaking CEMP work during construction. It provides systematic procedures for monitoring and auditing of potential environmental impacts that may arise from the works.

The project work shall be carried-out mostly at the harbour and within an already designated industrial port. Serka MSF will mostly use already available motor ways and service subroads for material and human transport.





The local population of Duqm itself, currently just over 1000 (out of total of about 27,000 capita in Al Wusta Governorate), is not adversely impacted due to the project. Employment in the project is expected to be beneficial to the local communities. Immigration towards Duqm area is likely to increase as new jobs are created by the project. Associated trade and business opportunities will naturally attract new population (Omani as well as expatriates) to Duqm Area.

The region is arid with a typical desert ecosystem with only solitary trees and some scattered small shrubs. The population density here is low and the surrounding area is vast and mostly empty at the moment, and our work is far from dwellings and residential area. Thus, the project will not have frequent contact or relation with local people (in terms of environmental or social risks or complaints).

The Project does not require any land acquisition or displacement, as the project activities are concentrated within the existing port area, at commercial quays, that are already built.

There are no Indigenous Peoples<sup>1</sup> in the project area and the land holding in case of the proposed project is entirely Government owned and within SEZAD's control.

The project will not interfere with any agricultural or livestock feeding activity, since the work area or its surrounding do not include these activities, except a few impacts such as borrow pits outside the port area for exporting earth materials for use in backfilling etc. However, the possibility of interference with agriculture or livestock feeding or farming is very less.

Adverse impacts on aquaculture or fishery is unlikely as well since the work is far from these locations. The project does not include a liquid transmitting jetty (e.g. for fuel, petroleum, or LPG, etc.) that may extrude offshore. There is only one fuel station area in the scope of work and it is inland and not nearby the sea, hence the possibility of marine pollution due to any fuel leakage or spill is almost nil.

The CEMP document is structured as below:

- Section 1: Introduction;
- Section 2: E&S Regulatory And Safeguards Framework;
- Section 3: CEMP Implementation;
- Section 4: Construction Activities;
- Section 5: Environment Health And Safety Emergency Response Plan; And
- Section 6: EHS Monitoring, including Labour.

Environmental matters in the Sultanate of Oman are regulated through a system of Royal Decrees and Ministry Decrees (RD & MD). The principal Royal Decrees are RD 114/2001: Law on Conservation of the Environment and Prevention of Pollution covering environmental protection, RD 35 / 2003 on Labour Law and MD 286 / 2008 addressing Occupational Health

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<sup>1</sup> As defined in ESS3 of AIIB's E&S Framework



and Safety in Oman. Additional RDs / MDs addressing specific requirements related to EHS regulation in Oman have been included in the Section 3.1 of this CEMP.

As per the E&S Policy, AIIB recognizes that environmental and social sustainability is a fundamental aspect of achieving outcomes consistent with its mandate to support infrastructure development and enhance interconnectivity in Asia. The objective of this overarching policy is to facilitate achievement of these development outcomes, through a system that integrates sound environmental and social management into Projects. AIIB has established an E&S framework for improving and maintaining the E&S performance of its borrowers.

Section 3.14 presents the environmental and social safeguard requirements of AIIB that are applicable to this project and the nature of their implementation.

CEMP provides a basis for ensuring that specific EHS conditions are met during the Project construction. It describes actions that will be carried out and responsible personnel. These actions can be categorized into three groups:

- Techniques which mitigate EHS impacts to acceptable levels;
- Monitoring to provide data on activities that may impact the environment and people; and
- Response procedures that ensure corrective actions are taken if impact mitigation is not being implemented or is not considered to be effective.

The CEMP is to be considered a mandatory reference document by Serka MSF and would serve as a minimum requirement for Contractor and Sub-Contractors involved in Project activities. The Sub-Contractors shall be provided a copy to which they must comply or adopt into their own procedures, if available. Should the Sub-Contractors have additional requirements and/or stricter controls, the most stringent shall apply. Where there is a conflict in the contents between the Sub-Contractor's procedures and those stipulated in this CEMP, the CEMP shall be followed.

The CEMP should be considered the key tool for achieving environmental compliance. The following describes how this CEMP is to be implemented including:

- Roles and Responsibilities;
- Communication;
- Training;
- Liaison with SEZAD;
- Response to Complaints;
- Incident Investigation and Response; and
- CEMP Audits

Serka MSF has deployed a robust HSE organizational structure for this project to effectively address all the issues described in this CEMP.



Under the overall direction of the HSE Manager, a deputy HSE Manager and his team of an Environmental Protection Officer, Safety Officer (Omani), Safety Supervisor and 4 HSE Officers (2 Omani officers) manage the entire HSE function on the project site.

Fire officers and first aiders drawn from their own team as well as from other project staff, will support this team.

A temporary medical facility and occupational health care centre will support on medical requirements during incidents / accidents.

Specific Roles and Responsibilities have been assigned to each of the above HSE team members. These are described in Section 4.3.

Awareness raising campaigns and training programmes are periodically conducted for the HSE team as well as other project staff based on a needs assessment and risk mapping.

In line with the AIIB safeguard requirements and to improve the social performance of the project, a project-level grievance redress mechanism (<http://www.duqm.gov.om/sezad/csr/sezad-grievance-redress-mechanism-sgrm>) has been developed by SEZAD and is being operated by Serka MSF during project construction as well as operation.

Serka MSF along with third party external consultants, will carry out periodic EHS audits and inspections to ensure that the project conforms to the policy and applicable regulatory requirements.

EHS monitoring data, site environmental conditions and audits will be reported by the EPO on a monthly basis to SEZAD determined by monitoring effort. Quarterly summary reports will also be produced ET and certified by Serka MSF. The quarterly reports will be submitted to SEZAD to show compliance with permit conditions, CEMP, EIA and local regulations. SEZAD will forward the quarterly reports to AIIB.

An Emergency Preparedness and Response Plan has been developed and executed on site by Serka MSF. Emergencies such as natural disasters, chemical spills, fire and other events have been considered in this plan. This plan is periodically tested and suitable corrective actions are taken up.

Environmental, Health and Safety monitoring, including Labour, is a fundamental component of CEMP compliance. Internal and External audits should verify compliance with EHS monitoring through a review of monitoring documentation.

The EHS monitoring work throughout the project period will be carried out in accordance with this CEMP and reported by the ET. Monitoring works will comprise of quantitative assessment of physical parameters such as water, air and noise quality impacts, which also form an important part of the whole monitoring programme.

#### ملخص تنفيذي 1.4.

##### نبذة عن المشروع

يجري العمل على تطوير ميناء الدقم عبر سلسلة مكونة من سبع حزم. وتتعلق خطة الإدارة البيئية بالمشاريع الإنشائية (CEMP) هذه بأعمال البنية الأساسية لميناء الدقم (الحزمة الثانية). والدقم هي عبارة عن مدينة صغيرة لها ميناء، وتقع في محافظة الوسطى في سلطنة عُمان، وقد وقع عليها اختيار حكومة سلطنة عُمان لتكون هي منطقة التطوير الحدودية الجديدة، كما أنها مرشحة في المستقبل لاحتضان عدد من الأنشطة الرئيسية، مثل النقل والتجارة والأنشطة الصناعية والسياحية. ويشكل المشروع المقترح لتطوير البنية الأساسية ضمن الحزمة الثانية جزءاً لا يتجزأ من هذا التوجه الاستثماري. ويشمل نطاق الأعمال ضمن الحزمة الثانية مشاريع بناء الطرق والبنية الأساسية و أعمال البناء في المحطة التجارية ومناطق العمليات. حيث سيتم بناء المحطة على أرض مستصلحة (تم إنشاؤها سابقاً)، تقع على الجانب الشرقي من كاسرات الأمواج في ميناء الدقم. كما يشمل نطاق الأعمال الذي سيتم تنفيذه بموجب هذا العقد، على سبيل المثال لا الحصر، البناء والتركيب والاختبار والتشغيل، إلى جانب معالجة أي عيوب في ما يتعلق بما يلي:

- أعمال الطرق والرصف؛
- أعمال البنية الأساسية؛
- أعمال البناء؛
- جسور الرافعات

ويتم تمويل هذا المشروع من خلال قرض من البنك الآسيوي للاستثمار في البنية التحتية، حيث يعتبر هذا البنك بمثابة منصة إقليمية متعدد الأطراف للتمويل والاستثمار بهدف تطوير مشاريع البنية التحتية وتعزيز الترابط بين دول قارة آسيا.

##### تقييم الأثر البيئي الأولي

تم إعداد دراسة التقييم الأولي للأثر البيئي من قبل شركة خطيب وعلمي ش.م.م بالنسبة للحزم الأولى والثانية والثالثة لمشاريع تطوير البنية الأساسية في ميناء الدقم. وبالنسبة لهذا المشروع المحدد (الحزمة الثانية)، فقد تم تحديد الأنشطة الرئيسية التي يحتمل أن يكون لها آثار بيئية هامة، على النحو الذي يساعد على وضع الاشتراطات الرقابية اللازمة بموجب القانون العُماني، بناء على النتائج التي تضمنتها دراسة تقييم الأثر البيئي الأولي. وقد تم تحديد المجالات التالية التي ينبغي التركيز عليها بخصوص الإدارة البيئية للمشروع:

- 1: إدارة أعمال الحفر؛
- 2: إدارة النفايات؛
- 3: إدارة الوقود والمواد الكيميائية؛
- 4: إدارة البيئة البحرية؛
- 5: إدارة استهلاك المواد والموارد
- 6: إدارة الصحة والسلامة المهنية ، بما في ذلك العمال.

##### خطة الإدارة البيئية بالمشاريع الإنشائية

تتضمن هذه الوثيقة خطة الإدارة البيئية في البناء، والتي تم إعدادها لصالح المشروع المشترك بين شركتي " سيركا تاهوت" و"إم إس إف إنجنهاريا" (Serka Taahhut & MSF Engenharia JV) (يشار إليها في ما يلي باسم " سيركا و إم إس إف") من قبل شركة المحيطات الخمسة للخدمات البيئية. وقد تم إعداد خطة الإدارة البيئية الإنشائية خصيصاً للحزمة الثانية لتطوير البنية الأساسية والتي تشمل: إنشاء الطرق والبنية الأساسية والمباني في المحطة التجارية والمناطق التشغيلية بميناء الدقم (يشار إليها فيما يلي باسم المشروع). وفي سياق هذا البرنامج، يغطي مصطلح "البيئة" الصحة والسلامة المهنية، بما في ذلك العمل.

حيث سيكون العميل مسؤولاً عن التنسيق مع هيئة المنطقة الاقتصادية الخاصة بالدقم، وذلك بهدف هو العمل بشكل وثيق مع الهيئة ومندوبيها لضمان تنفيذ الأحكام الواردة في هذه الخطة على أكمل وجه.

وستقوم هيئة المنطقة الاقتصادية الخاصة بالدقم بالعمل إلى جانب الممولين في البنك الآسيوي للاستثمار في البنية التحتية على مراجعة وتقييم هذه الخطة وإصدار التصريح البيئي للبناء، مع احتمال فرض شروط إضافية قبل البدء بالأعمال الإنشائية. ويجوز للهيئة -وفقاً لما تراه مناسباً- القيام بعمليات تفتيش على الموقع للتحقق من التزام المقاول بخطة الإدارة البيئية الإنشائية.

كما أنه من الضروري إجراء مراجعة لهذه الخطة من أجل إجراء التحسينات المستمرة، والتأكد من ملاءمتها وفعاليتها ومراقبة تطبيقها. علماً أنه سيتم إجراء مراجعة رسمية كل ستة أشهر من قبل مدير الصحة والسلامة والبيئة في شركة "سيركا ام اس اف".

ويجدر التنويه إلى أن خطة الإدارة البيئية الإنشائية هي عبارة عن وثيقة لاحقة للتقييم الأولي للأثر البيئي بخصوص الحزم الأولى والثانية والثالثة لتطوير ميناء الدقم (من إعداد شركة خطيب وعلمي وشركاهم) في مارس 2015. وقد تم تقديم خطة الإدارة البيئية الإنشائية هذه بموجب متطلبات الالتزام بالمعايير والتشريعات البيئية وفقاً للتصريح البيئي ومتطلبات حماية البيئة ذات الصلة (المرجع: الإطار البيئي والاجتماعي، فبراير 2016) المعتمدة من ممول المشروع (البنك الآسيوي للاستثمار في البنية التحتية). وهي بذلك تحدد الالتزامات المفروضة على شركة "سيركا ام اس اف" وفي ما يتعلق بالوفاء بجميع الالتزامات البيئية والاجتماعية المنصوص عليها.

والغرض من خطة الإدارة البيئية الإنشائية هو توفير الإطار اللازم لتحديد الآثار المحتملة على صعيد البيئة والصحة والسلامة والمرتبطة بأنشطة المشروع على الموارد والمستقبلات البيئية الحساسة ومعالجة تلك الآثار وإدارتها. وقد تم إعداد هذه الخطة بالرجوع إلى الاشتراطات القانونية وغيرها لضمان اتخاذ الإجراءات الوقائية والتصحيحية المناسبة من أجل الوفاء بالالتزامات المشروع بشأن البيئة والصحة والسلامة. كما تعتمد الخطة أيضاً على المتطلبات والممارسات ذات الصلة، بناء على تقرير دراسة تقييم الأثر البيئي الأولي ودليل الصحة والسلامة المعتمد في شركة "سيركا ام اس اف".

كما تهدف هذه الخطة أيضاً إلى توفير المعلومات والتوجيهات والتعليمات اللازمة للمكلفين بالواجبات البيئية والمسؤولين عن تطبيق خطة الإدارة البيئية الإنشائية أثناء أعمال البناء. وهي توفر الإجراءات المنهجية اللازمة لرصد وتدقيق الآثار البيئية المحتملة التي قد تنشأ عن تلك الأعمال.

وسيتم تنفيذ غالبية أعمال المشروع في الميناء وفي منطقة الميناء الصناعي الذي تم تحديده بالفعل. وسوف تستخدم شركة "سيركا ام اس اف" غالباً الطرق المرورية المتاحة بالفعل وطرق الخدمات الفرعية لنقل المواد والعمال.

ووفقاً لتقييم الأثر البيئي الأولي، فإن السكان المحليين في منطقة الدقم نفسها، والبالغ عددهم حالياً أكثر بقليل من 1000 نسمة (من أصل حوالي 27 ألف شخص يقطنون في محافظة الوسطى)، لن يتأثروا سلباً بسبب المشروع. وعلاوة على ذلك، وكما هو مبين أعلاه، فمن المتوقع أن تكون فرص العمل في المشروع مفيدة

للمجتمعات المحلية. ومن المرجح أن تزداد الهجرة نحو منطقة الدقم و توفير وظائف جديدة من قبل المشروع. ومن المتوقع أن تجتذب فرص التجارة والأعمال للسكان الجدد (العُمانيين والمغتربين) إلى منطقة الدقم.

المنطقة قاحلة مع نظام بيئي صحراوي نموذجي وبعض الشجيرات الصغيرة المنتشرة. الكثافة السكانية هنا منخفضة والمنطقة المحيطة بها واسعة وخالية في الغالب في الوقت الراهن، وعملنا هو أبعد ما يكون عن المساكن والمنطقة السكنية. وبالتالي، لن يكون للمشروع اتصال أو علاقة متكررة مع السكان المحليين (من حيث المخاطر أو الشكاوى البيئية أو الاجتماعية).

ولا يتطلب المشروع أي حيازة للأراضي أو تهجير، لأن أنشطة المشروع تتركز داخل منطقة الميناء الحالية، في الأرصفة التجارية، التي بنيت بالفعل.

لا توجد شعوب أصلية في منطقة المشروع، والأرض المملوكة في حالة المشروع المقترح مملوكة بالكامل للحكومة وضمن هيئة المنطقة الاقتصادية الخاصة بالدقم.

ولن يتداخل المشروع مع أي نشاط من أنشطة الزراعة أو الثروة الحيوانية، لأن منطقة العمل أو المناطق المحيطة بها لا تشمل هذه الأنشطة. فإن إمكانية التدخل في الزراعة أو تغذية الماشية أو الزراعة أقل بكثير. كما أن التأثيرات السلبية على تربية الأحياء المائية أو مصائد الأسماك غير مستبعدة أيضاً لأن العمل بعيد عن هذه المواقع. ولا يتضمن المشروع رصيفاً لنقل السائل (مثل الوقود أو البترول أو غاز البترول المسال، وما إلى ذلك) يمكن أن يخرج من الخارج. وهناك منطقة محطة وقود واحدة فقط في نطاق العمل وهي داخلية ولا تقع على مقربة من البحر، ومن ثم فإن احتمال التلوث البحري الناجم عن أي تسرب للوقود أو تسرب ما يقرب من صفر.

وتتمحور وثيقة خطة الإدارة البيئية الإنشائية حول ما يلي:

- القسم 1: مقدمة؛
- القسم 2: الإطار التنظيمي البيئي والاجتماعي وإجراءات الوقاية؛
- القسم 3: تطبيق خطة الإدارة البيئية الإنشائية؛
- القسم 4: أنشطة التشييد؛
- القسم 5: خطة الاستجابة للطوارئ في مجال الصحة والسلامة والبيئة؛
- القسم 6: مراقبة الصحة والسلامة والبيئة.

وكما هو معلوم فإن المسائل البيئية في سلطنة عُمان قد نظمتها المراسيم السلطانية والقرارات الوزارية. ومن أبرزها في هذا الصدد المرسوم السلطاني رقم 2001/114 بإصدار قانون حماية البيئة ومكافحة التلوث، والذي يشمل موضوع حماية البيئة، والمرسوم السلطاني 2003/35 بإصدار قانون العمل، و القرار الوزاري 2008/286 بشأن الصحة والسلامة المهنية في عُمان. ويتضمن القسم (1-3) من هذه الخطة المراسيم السلطانية والقرارات الوزارية الإضافية التي تتضمن متطلبات محددة فيما يتعلق بتنظيم الصحة والسلامة والبيئة في سلطنة عُمان.

ووفقاً لسياسة الصحة والسلامة والبيئة المعتمدة من قبل البنك الآسيوي للاستثمار في البنية التحتية، فإن الاستفادة البيئية والاجتماعية تعتبر ركناً أساسياً لتحقيق النتائج المتوخاة التي تتناسب مع رسالته في دعم مشاريع تطوير البنى الأساسية وتعزيز الترابط بين دول آسيا. والهدف من هذه السياسة الشاملة هو تسهيل تحقيق هذه النتائج الإنمائية، من خلال نظام يدمج الإدارة البيئية والاجتماعية السليمة في المشاريع. وقد وضع البنك الآسيوي للاستثمار في البنية التحتية الإطار اللازم من أجل تحسين وتطوير أداء المقترضين منه.

ويعرض القسم 3-14 متطلبات الحماية البيئية والاجتماعية للبنك الآسيوي التي تنطبق على هذا المشروع، فضلاً عن طبيعة تنفيذها.

وتوفر هذه الخطة الأساس اللازم لضمان استيفاء الشروط المحددة في مجال الصحة والسلامة والبيئة أثناء تنفيذ المشروع. وهي تبين الإجراءات الواجب اتخاذها والأطراف المسؤولة عنها. ويمكن تصنيف هذه الإجراءات ضمن ثلاث مجموعات:

- أساليب التخفيف من الآثار على الصحة والسلامة والبيئة وصولاً إلى المستويات المقبولة؛
- القيام بالرصد لتوفير البيانات اللازمة حول الأنشطة التي قد تؤثر على البيئة والناس؛
- إجراءات الاستجابة الضرورية لضمان اتخاذ الإجراءات التصحيحية اللازمة إذا لم يتم تطبيق الإجراءات التخفيفية، أو في حال كانت غير فعالة.

وتعتبر هذه الخطة وثيقة مرجعية إلزامية من قبل شركة " سيركا ام اس اف "، وستكون بمثابة الحد الأدنى من المتطلبات بالنسبة للمقاولين والمتعاقدين من الباطن المشاركين في أنشطة المشروع. حيث سيحصل المقاولون الفرعيون على نسخة منها بحيث يجب عليهم الالتزام بها أو إدراجها في اللوائح التي لديهم بهذا الخصوص، إن وجدت. وفي حالة وجود متطلبات إضافية و/ أو ضوابط أكثر صرامة لدى المقاولين الفرعيين، فيجب تطبيق تلك الشروط الأشد صرامة. أما إذا هناك أي تعارض في المحتويات بين إجراءات المقاولين الفرعيين وتلك المنصوص عليها في خطة الإدارة البيئية الإنشائية، فتكون الأولوية هي للإجراءات المنصوص عليها في الخطة.

وينبغي اعتبار هذه الخطة بمثابة الأداة الرئيسية لتحقيق الالتزام البيئي. وفيما يلي وصف لكيفية تنفيذ هذه الخطة، بما في ذلك ما يلي:

- الأدوار والمسؤوليات؛
- الاتصالات؛
- التدريب؛
- التنسيق مع هيئة المنطقة الاقتصادية الخاصة بالدقم؛
- الرد على الشكاوى؛
- التحقيق في الحوادث والاستجابة لها؛
- التدقيق على الخطة

وقد وضعت شركة " سيركا ام اس اف " هيكلًا تنظيميًا راسخًا للصحة والسلامة والبيئة بالنسبة لهذا المشروع لمعالجة جميع المسائل الموضحة في هذه الخطة.

وتحت إشراف العام لمدير الصحة والسلامة والبيئة، يقوم مساعد مدير الصحة والسلامة وفريقه المكون من مسؤول حماية البيئة، ومسؤول السلامة (عُماني)، ومشرف السلامة و 4 من موظفي الصحة والسلامة (اثنان منهم عُمانيان) بإدارة كافة جوانب الصحة والسلامة والبيئة في موقع المشروع.

كما سيتولى المسؤولون عن مكافحة الحرائق وتقديم الإسعافات الأولية التابعين لفرقهم الخاصة أو من موظفي المشروع الآخرين بتقديم الدعم اللازم لهذا الفريق.

كما سيكون هناك مركز طبي مؤقت ومركز للرعاية الصحية المهنية لتلبية الاحتياجات الطبية في حال وقوع أي حوادث.

وقد تم تعيين الأدوار والمسؤوليات المحددة لكل من أعضاء فريق الصحة والسلامة والبيئة المذكورين أعلاه، على النحو الوارد في القسم 4-3.

كذلك سيتم تنظيم حملات التوعية وبرامج التدريب بشكل دوري لفريق الصحة والسلامة والبيئة، بالإضافة إلى موظفي المشروع الآخرين بناء على تقييم الاحتياجات وتحديد المخاطر.

وتماشياً مع متطلبات الحماية الخاصة بالبنك الآسيوي للاستثمار في البنية التحتية، وكذلك من أجل تحسين القبول الاجتماعي للمشروع، سيتم وضع آلية لمعالجة الشكاوى من قبل هيئة الدقم، وسيتم إدارتها من قبل شركة " سيركا ام اس اف" أثناء تشييد المشروع ولاحقاً خلال تشغيله.

كما ستقوم شركة " سيركا ام اس اف" بالتعاون مع استشاريين خارجيين مستقلين بإجراء عمليات المراجعة الدورية على جوانب الصحة والسلامة والبيئة والقيام بعمليات التفتيش للتأكد من أن المشروع يتوافق مع السياسة ذات الصلة والاشتراطات التنظيمية المعمول بها.

وسيتم رفع نتائج رصد جوانب البيئة والصحة والسلامة ومراقبة الظروف البيئية للموقع وعمليات التدقيق على أساس شهري إلى هيئة المنطقة الاقتصادية الخاصة بالدقم. كما سيتم إصدار تقارير فصلية موجزة معتمدة من قبل شركة " سيركا ام اس اف". وسيتم رفع التقارير ربع السنوية إلى هيئة الدقم للتأكد من الالتزام بشروط التصريح، وخطة الإدارة البيئية الإنشائية، ودراسة تقييم الأثر البيئي واللوائح المحلية ذات الصلة. على أن تقوم هيئة الدقم بإحالة تلك التقارير الفصلية إلى الآسيوي للاستثمار في البنية التحتية على أساس دوري.

كما قامت شركة " سيركا ام اس اف" بوضع خطة الاستعداد والاستجابة لحالات الطوارئ وتنفيذها في الموقع. وتشمل تلك الخطة الإجراءات اللازمة في حالات الطوارئ مثل الكوارث الطبيعية وتسرب المواد الكيميائية والحرائق وغيرها. ويتم اختبار هذه الخطة بشكل دوري واتخاذ الإجراءات التصحيحية المناسبة. وتعتبر مراقبة جوانب البيئة والصحة والسلامة مكوناً أساسياً من مكونات الالتزام بخطة الإدارة البيئية بالمشاريع الإنشائية. وينبغي إجراء عمليات التدقيق الداخلية والخارجية للتأكد من الالتزام بمراقبة البيئة والصحة والسلامة من خلال مراجعة نتائج الرصد.

كما سيتم تنفيذ أعمال رصد البيئة والصحة والسلامة طوال فترة المشروع وفقاً لهذه الخطة والإبلاغ عن نتائجها عن طريق الأطراف المعنية. وستشمل أعمال الرصد إجراء التقييم الكمي للبارامترات الفيزيائية، مثل التأثيرات على جودة المياه والهواء وكذلك مستويات الضوضاء، والتي تشكل بدورها جزءاً هاماً من برنامج الرصد والمراقبة بشكل عام.





## 2. INTRODUCTION

This Construction Environmental Management Plan (CEMP) has been prepared for Serka Taahhut & MSF Engenharia JV (Serka MSF) by Five Oceans Environmental Services LLC (5OES). The CEMP has been prepared specifically for Infrastructure Package 2 (IP2): Construction of Roads, Infrastructure & Buildings at the Commercial Terminal & Operational Zone Areas, Port of Duqm (herein referred to as the Project).

The CEMP is a subsequent document to the Preliminary Environmental Impact Assessment (PEIA) for Port of Duqm Packages 2, 3 and 4 (prepared by K&A Consultants) in March 2015. This CEMP has been submitted as part of the commitment to environmental standards and legislation of Oman in accordance with the Environmental and Social Policy (February 2016) of AIIB. It thus sets out the commitment of Serka MSF to deliver on all the stated environmental<sup>2</sup> and social obligations.

The purpose of the CEMP is to provide a framework for identifying, addressing and managing the potential environmental, health and safety (EHS) impacts associated with project activities on sensitive environmental resources and receptors. The CEMP has been prepared referring legal and other requirements to ensure appropriate preventive and corrective actions are undertaken in order to meet the project's EHS commitments. The CEMP also sources relevant requirements and practices based on the **Preliminary EIA study report** (Arabic version of the Executive Summary of the PEIA is provided in Appendix M) and the **HSE Manual of Serka MSF**.

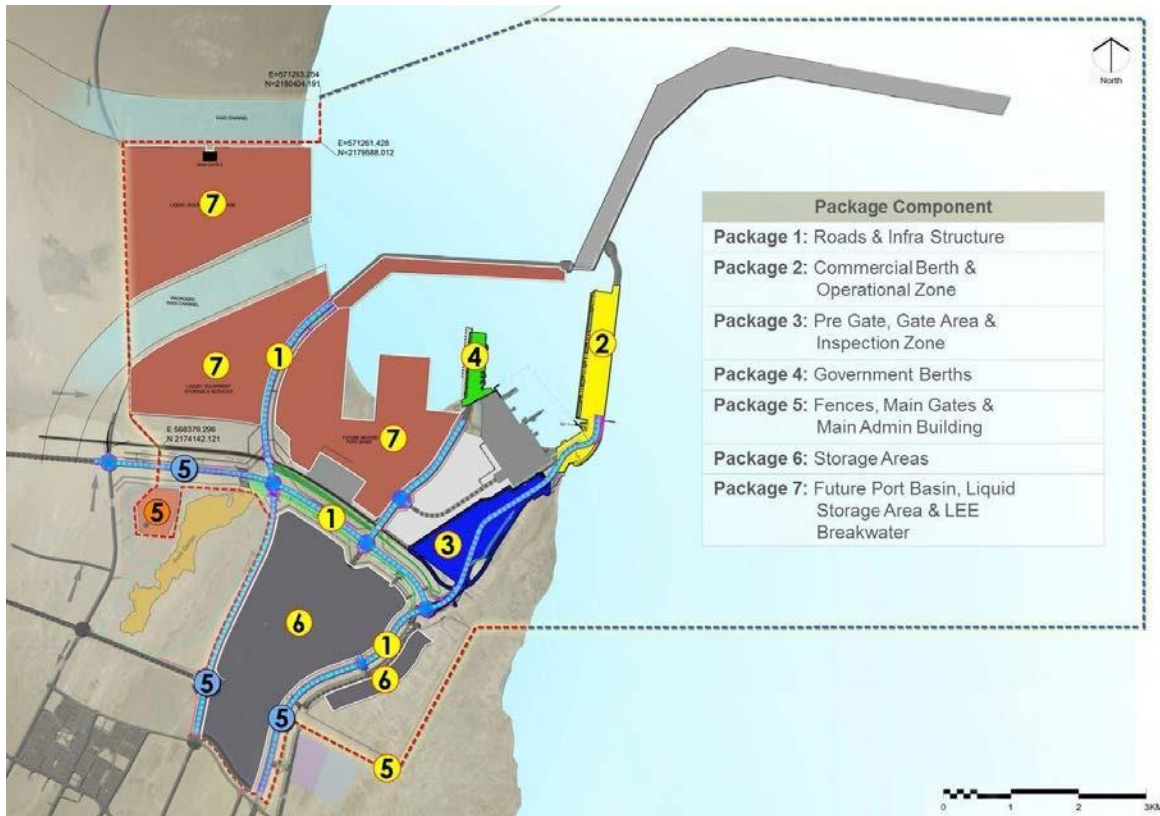
### 2.1. Project Description

The Port of Duqm is being developed in a series of seven packages, as shown in the map below. This CEMP refers to Infrastructure Package 2 (IP2).

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<sup>2</sup> In the context of this CEMP, the term 'Environment' includes Occupational Health & Safety and Social aspects.

**Figure 2-1: Map of Port of Duqm & Infrastructure Packages (IP 1-7) (Courtesy of SEZAD)**



**Figure 2-2: Illustration of Port of Duqm & Infrastructure Packages 2-4 with IP2 to the right hand side.**



The project area for IP2 is shown in Figure 2-3 below and illustrated in Figure 2-2 above.

**Figure 2-3: Photograph of Infrastructure Package 2 Project Area prior to construction**



## 2.2.Scope of Works

The scope of works of IP2 includes the construction of roads, infrastructure & buildings for the commercial terminal & operational zone areas. The terminal will be constructed on reclaimed land (constructed previously) that forms the eastern flank of the Port of Duqm breakwater.

The Scope of Works to be executed under this Contract shall include, but not be limited to, the construction, installation, testing, commissioning and remedying of defects of the following:

- Road and Paving Works;
- Infrastructure Works;
- Building Works; and
- Crane Beam and Track Works.

### 2.2.1 Road & Paving Works

Road Works is summarized as follows:

- Construction of 3.00 km of double lane 2 (Two) way carriageway;
- Construction of all internal roads as access to buildings and Parking areas;
- Construction of yard and terminal areas;
- Construction of 1 No. Helipad;
- Construction of parking areas to serve all activities;
- Construction of retaining wall; and
- Supply and Installation of Traffic Signals (One Location as per tender 16/2013 requirements).



The scope of works for roads will include all earthworks (cut/fill, including import/disposal as necessary), fill embankment slope protection, trimming and preparation of surfaces, laying of the pavement structure for both flexible (Asphalt) and rigid (Concrete and concrete heavy duty) pavements, road furniture, traffic control (markings and signs) and traffic signals, all in accordance with Omani and International standards.

### **2.2.2 Infrastructure Works**

Infrastructure Works is comprised of the following:

- Potable Water;
- Fire Fighting Network;
- Storm Water Drainage;
- Sewerage Network;
- Pump Stations;
- Electrical works;
- Telecommunications;
- Street Lighting;
- Yard Lighting;
- Spare Ducts;
- Lightning Protection;
- Reefer Gantry;
- Ground Improvement Works; and
- Fencing and Gate Works.

All works to be conducted as per Tender 16/2013 requirements.

### **2.2.3 Building Works**

Buildings at the Commercial Terminal & Operational Zone Areas is included in this "Tender 16/2013" and the scope of Building works comprises the following:

#### **Operation Zone – (Zone 3)**

- Block 3A - Terminal Administration Building;
- Block 3B - Training & Amenities Centre;
- Block 3C - PDC Emergency & Firefighting Centre; • Block 3F - Electrical Service Building (Type-2); and • Block 3G - Electrical Service Building (Type-3).

#### **Multipurpose Terminal (1) – (Zone 4)**

- Block 4A - MPT Warehouse & Offices;
- Block 4B - MPT Workshop & Maintenance Building;
- Block 4C - MPT Gatehouse; and
- Block 4J - MPT Electrical Service Building (Type-2).

#### **Container Terminal (2) – (Zone 4)**

- Block 4E - CT Workshop & Maintenance Building;
- Block 4F - CT Gatehouse;



- Block 4K - CT Electrical Service Building (Type-1); and
- Block R-4K - CT Electrical Service Building (Type-1).

#### **Dry Bulk Terminal Area – (Zone 4)**

- Block 4H - DBT Workshop & Maintenance Building;
- Block 4I - DBT Gatehouse; and
- Block 4L - DBT Electrical Service Building (Type-1).

#### **2.2.4 Crane Beam & Track Works**

The Scope of work for this part will include the provision of a crane beam and track, rear crane beam supported on bored concrete piles.

The rear crane beam is approximately 2.3m wide and 2m deep, supported on a total of 562 piles of which 549 piles are 1.2m diameter and 13 piles are 0.9m diameter with a nominal length of 35m at 4m centres.

The Scope of Work for this item includes, but is not limited to the following:

- Part 1: Investigation and site preparation;
- Part 2: Construction and testing of piles and rear crane beam; • Part 3: Design, installation and testing of rail track; and
- Part 4: Commissioning.

All works to be conducted as per Tender 16/2013 requirements.

### **2.3.Objectives Of The CEMP**

The purpose of the CEMP is to provide information, guidance and instruction to personnel charged with environmental duties and those responsible for undertaking CEMP work during construction. It provides systematic procedures for monitoring and auditing of potential environmental impacts that may arise from the works.

An Environmental Impact Assessment (EIA) was written by Khatab and Alami LLC for the development of three of the Port of Duqm infrastructure packages: IP2, IP3, and IP4. For this specific project (IP2) the primary activities that have significant environmental impacts and attract regulatory requirements under Omani law, have been identified following review of the EIA and the following environmental management focus areas for the project have been defined as:

- CEMP Focus Area 1: Management of Earthworks;
- CEMP Focus Area 2: Management of Waste;
- CEMP Focus Area 3: Management of Fuel & Chemicals;
- CEMP Focus Area 4: Management of Marine Environment; and
- CEMP Focus Area 5: Management of Material & Resource Consumption

The CEMP also identifies environmental and social criteria based on the environmental and social safeguard policy of the project lender (AIIB).



Following additional focus area(s) would be applicable to the project based on this policy are also covered in this CEMP.

#### CEMP Focus Area 6: Management of Occupational Health and Safety, including Labour

This CEMP contains the following information to address the focus areas mentioned above:

- Responsibilities of the Contractor(s), Environmental Team (ET), EHS Officers / Safety Supervisors and the Developer with respect to the environmental monitoring and audit and mitigation requirements during the course of the project;
- The basis for, and description of, the broad approach underlying the CEMP;
- Requirements with respect to the construction and the necessary environmental, health and safety (EHS) monitoring, audit and mitigation programme to track and manage the varying environmental impacts;
- Details of the methodologies to be adopted including field, laboratory and analytical procedures, and details on quality assurance and quality control programme;
- The rationale by which the EHS monitoring data will be evaluated and interpreted;
- Preliminary definition of Corrective Actions and Limit levels;
- Establishment of Event and Action plans;
- Requirements for reviewing pollution sources and working procedures required in the event of exceedance of applicable environmental criteria and/or receipt of complaints;
- Requirements for presentation of EHS monitoring and audit data and appropriate reporting procedures;
- Requirements for review of EIA predictions and the effectiveness of the mitigation measures/environmental management systems and the CEMP;
- Identify the requirements for EHS Training during the project
- Act as a stimulus for the production of the Operational Environmental Management Plan upon completion of the project; and
- Act as a key, project specific element of Serka MSF's corporate level EHS Management Systems (ISO 14001 and OHSAS 18001).
- Act as a basis for external audits and the ensuring corrective actions as basis for continual improvement both on this project and at Serka MSF at a corporate level.

The broad objective of this CEMP is to clearly set proposed mitigation during construction and define the procedures for monitoring the EHS performance of the project. The construction impacts arising from the implementation of the project are specified in the Environmental Impact Assessment (EIA) Report. The EIA Report also specifies mitigation measures and construction practices that will be needed to ensure compliance with the environmental criteria.

The main objectives of the CEMP are to:

- Ensure the mitigation recommendations are implemented in the project;
- Provide a database of environmental, health and safety parameters against which to determine any adverse impacts, through monitoring and site auditing;
- Provide an early warning system should any of the EHS control measures or practices fail to achieve the acceptable standards;



- Clarify and identify potential sources of pollution, impact and nuisance arising from the project;
- Confirm compliance with regulatory requirements and EIA Report recommendations;
- Monitor performance of the mitigation measures and assess their effectiveness;
- Take remedial action if unexpected issues or unacceptable impacts arise; • Verify the environmental impacts predicted in the EIA Report; and
- Audit environmental performance.

CEMP procedures are required during the construction phases of the project to ensure that impacts identified during the impact assessment phase are managed accordingly.

## **2.4. Structure of the CEMP Report**

Section 1: EXECUTIVE SUMMARY

Section 2: INTRODUCTION; (This section)

Section 3: E&S REGULATORY AND SAFEGUARDS FRAMEWORK;

Section 4: CEMP IMPLEMENTATION;

Section 5: CONSTRUCTION ACTIVITIES;

Section 6: ENVIRONMENT HEALTH AND SAFETY EMERGENCY RESPONSE PLAN; and

Section 7: EHS MONITORING, INCLUDING LABOUR.

An earlier version of the CEMP was approved by SEZAD as well as by Haskoning UK Ltd. in March 2017 (See Appendix L: Approval of CEMP for IP2 by Haskoning UK). Based on the comments from AIIB (the lender of the project) revisions have been carried out in the CEMP and presented in this version.



### 3. E&S REGULATORY AND SAFEGUARDS FRAMEWORK

#### 3.1. Overview of Regulations & Laws

Environmental matters in the Sultanate of Oman are regulated through a system of Royal Decrees and Ministry Decrees (RD & MD). The principal Royal Decrees are RD 114/2001: Law on Conservation of the Environment and Prevention of Pollution covering environmental protection, RD 35 / 2003 on Labour Law and MD 286 / 2008 addressing Occupational Health and Safety in Oman. Further Royal Decrees of relevance are listed below in Table 3-1, with the relevant Ministry Decrees listed in Table 3-2 below:

**Table 3-1: Relevant Royal Decrees Regarding Environment**

Royal Decree Number	Royal Decree Description
RD 24 / 2002	Regulations for Waste Management
RD 28 / 2015	Promulgating the Law on Granting Concession to Develop, Manage and Operate Duqm Port
RD 29 / 2000	Law of Protection of Water Resources
RD 35 / 2003	Labour Law
RD 46 / 1995	Law of Handling and Use of Chemicals
RD 79 / 2013	Issuing the regulation of the Special Economic Zone at Duqm
RD 114 / 2001	Law on Conservation of the Environment and Prevention of Pollution
RD 115 / 2001	Law on Protection of Source of Potable Water from Pollution
RD 326 / 2015	Regulations of the environmental permits in Duqm Special Economic Zone
RD 6 / 80	Law on Protection of Natural Heritage
RD 6 / 2003	Law on Nature Reserves and Wildlife Conservation

**Table 3-2: Relevant Ministry Decrees Regarding Environment**

Ministry Decree Number	Royal Decree Description
MD 17 / 1993	Management Of Solid Non-Hazardous Waste
MD 18 / 1993	Management Of Hazardous Waste
MD 25 / 2009	Issuing The Regulation For Organization Of Handling And Use Of Chemicals
MD 37 / 2001	Control And Management Of Ozone Depleting Substances
MD 39 / 2004	Marine Environmental Management Bylaws
MD 79 / 1994	Noise Pollution Control In Public Environment
MD 80 / 1994	Noise Pollution Control In Working Environment
MD 118 / 2004	Air Pollution From Stationary Sources





Ministry Decree Number	Royal Decree Description
MD 145 / 1993	Regulation For Waste Water Re-Uses And Discharge
MD 159 / 2005	Discharge Liquid Effluent In Marine Environment
MD 187 / 2001	Issuance Of Environmental Approvals And Final Environmental Permit
MD 200 / 2000	Crushers Quarries & Transport Of Sand
MD 243 / 2005	Regulation For The Control & Management Of Ozone Depleting Substances
MD 248 / 1997	Registration Of Chemical Substances And Relevant Permits
MD 286 / 2008	Occupational Health and Safety
MD 317 / 2001	Regulation For Packing And Labelling Of Hazardous Chemicals
MD 421 / 1998	Regulation For Septic Tank, Soakaway Pits Holding Tanks

These laws established the framework for environmental, health and safety protection in the Sultanate of Oman and has the following key objectives:

- Protection and conservation of the quality and natural balance of the environment;
- Control of all forms of pollution and avoidance of any immediate or long term harmful effects;
- Development of natural resources and conservation of biological diversity;
- Protection of society, human health and health of other living creatures;
- Labour welfare and Occupational Health and Safety Management
- Protection of the State environment from the harmful effects of activities undertaken outside the region or State;
- Compliance with international and regional conventions ratified or approved by the State regarding environmental protection, control of pollution and conservation of natural resources.

### 3.2. Powers and Functions of SEZAD

The Royal Decree 79 / 2013 refers to issuing the regulation of the Special Economic Zone at Duqm. According to this RD, SEZAD has been assigned the same functions as MECA within their boundary and is the competent Authority for implementation of these Regulations in Duqm.

Article 16: In the enforcement of the laws on Environmental Protection, Combating Pollution, Protection of Potable Water Resources, Nature Reserves, Preservation of Wildlife and regulation on Handling and Use of Chemicals within the Zone, the Authority shall have the functions of the Ministry of Environment and Climate Affairs in relation to issuing environmental permits for the projects and take necessary environmental measures, and the Chairman of the Board shall assume functions of the Minister of Environment and Climate Affairs.



A Royal Decree has been issued in July 2015, Royal Decree No. 28/2015 promulgating the Law on granting concession to develop, manage and operate Duqm Port and endorsing its related agreements.

Additionally, the SEZAD has issued two decisions under this:

- Decision No. 326/2015 issuing the regulations of the environmental permits in Duqm Special Economic Zone; and
- Decision No. 327/2015 issuing the regulation of the utilization of state-owned lands in Duqm Special Economic Zone.

Local standards and limits relevant to construction are provided in the sections below.

### 3.3. Ambient Air Quality

The ambient air quality will be greatest relevance to **CEMP Focus Area 1 Management of Earthworks**.

National legislation pertaining to ambient air quality standards in Oman has recently been enacted through Ministerial Decision MD41/2017, reference has therefore been provided below to both Omani standards and international standards stipulated by a number of foreign environment agencies and international bodies. Those referred to here are listed in Table 3-3 and table 3-4 below.

**Table 3-3: International Ambient Air Quality Standards**

Parameter	Threshold Value		Issuing Body	Averaging Period	Note
	$\mu\text{gm}^{-3}$	ppb			
PM <sub>2.5</sub>	35	N/A	EPA	24 Hours	-
	25	N/A	EU	Annual	-
PM <sub>10</sub>	150	N/A	USEPA	24 Hours	[i]
	50	N/A	EU	24 Hours	-
	40	N/A	EU	Annual	-
	125	N/A	MECA	24 Hours	[vi]
TSP	150	N/A	USEPA	24 Hours	-
Sulphur Dioxide (SO <sub>2</sub> )	350	875	EU	1 Hour	[ii]
	125	315	EU	24 Hours	[iii]
	176	500	WB	24 Hours	-
	34	100	WB	Annual	-
	500	1300	WHO	1 Hour	-
	20	52	WHO	24 Hours	-
	500	1300	USEPA	3 Hours	-
	140	365	USEPA	24 Hours	-
	30	80	USEPA	Annual	-
	125	N/A	MECA	24 Hours	[vi]
Nitrogen	200	400	EU	1 Hour	[iv]



Parameter	Threshold Value		Issuing Body	Averaging Period	Note
	$\mu\text{gm}^{-3}$	ppb			
Dioxide (NO <sub>2</sub> )	40	80	EU	Annual	-
	53	100	USEPA	Annual	-
	200	400	WHO	1 Hour	-
	40	80	WHO	Annual	-
	112	N/A	MECA	24 Hours	[vi]
Benzene	85	5.0	EU	Annual	-
	85	5.0	UKEA	Annual	-
Toluene	260	3380	WHO	1 Week	-
Parameter	Threshold Value		Issuing Body	Averaging Period	Note
	$\mu\text{g}/\text{m}^3$	ppb			
Ethyl-Benzene	2200	N/A	WHO	N/A	[v]
Xylene	4.8	59	WHO	24 Hours	-
Carbon Monoxide (CO)	10000	9000	EPA	8 hour	[i]
	40000	35000	EPA	1 hour	[i]
	10000	9000	EU	8 hour	-
	6000		MECA	8 Hour	[vi]
Hydrogen Sulphide (H <sub>2</sub> S)	40		MECA	24 Hour	[vi]
Ozone (O <sub>3</sub> )	120		MECA	8 Hour	[vi]

**Notes:**

- [i] - not to be exceeded more than once per year on average over 3 years. Issuing Bodies:
- [ii] - not to be exceeded more than 24 times per year EU – European Union
- [iii] - not to be exceeded more than 3 times per year WB – World Bank
- [iv] - not to be exceeded more than 18 times per year WHO – World Health Organisation
- [v] - this value constitutes the odour threshold – exposure at this level may cause public Environmental annoyance. A 'tentative' toxic threshold of ten times this value, i.e. 22mgm<sup>-3</sup>, is suggested by WHO's International Program on Chemical Safety. USEPA – United States Protection Agency UKEA – United Kingdom Environmental Agency
- [vi] – provisional limits yet to be approved by ministry Agency
- PM<sub>10</sub> - Fraction of particulates in air of size <10  $\mu\text{m}$  MECA – Ministry of Environment and Climate Affairs (Oman)
- TSP – Total Suspended Particles

**Table 3-4: Oman Ambient Air Quality Standards**

Pollutant	Maximum Level of Pollutant Concentrations		Average Pollutant Measurement Period
	Parts Per Million ppm	Microgram / m <sup>3</sup> $\mu\text{g} / \text{m}^3$	
Sulfur Dioxide SO <sub>2</sub>	0.124	350	Hour
	0.0532	150	(24) hours
Hydrogen Sulfide H <sub>2</sub> S	0.020	30	Hour
Nitrogen Dioxide NO <sub>2</sub>	0.123	250	Hour
	0.642	130	(24) hours
Ozone O <sub>3</sub>	0.0568	120	(8) hours
PM <sub>10</sub>	-	150	(24) hours
PM <sub>2.5</sub>	-	65	(24) hours
Carbon Monoxide CO	24.3	30 mg/m <sup>3</sup>	Hour
	8.11	10 mg/m <sup>3</sup>	(8) hours
Non-methane Hydrocarbon NMHC	0.24	160	(3) hours
Lead Pb	-	1.5	(3) months



Pollutant	Maximum Level of Pollutant Concentrations		Average Pollutant Measurement Period
	Parts Per Million ppm	Microgram / m3 $\mu\text{g} / \text{m}^3$	
NH3		200	(24) hours

### 3.4. National Noise Legislation

The ambient and source noise quality will be greatest relevance to **CEMP Focus Area 1: Management of Earthworks.**

The Environmental Permit refers to existing national legislation, namely MD 79-94 and MD 80-94 (regulations for noise pollution control in the public / working environment respectively). The Ministerial Decisions contain the following articles pertinent to the Project site:

#### 3.4.1 MD 79-94 Noise Pollution Control in Public Environment

The currently local regulation MD 79-94, identifies only one form of noise source attributable to operations, namely noise associated with construction work itself:

Article 2: External Noise Sources are:

- a) Industrial plants and public works: Include factories, similar commercial facilities, and the like as well as the works of assembling, dismantling and repair. It will also include public works, power plants and installation for extraction, pumping and refining of water, oil, gas, sewage treatment etc.

MD 79-94 also defines the weighting and the reference level for the noise measurements being taken, lists penalties to be included for tonal or impulse noise and defines the three sub-daily reference periods. The corresponding articles from the MD 79-94 are listed below:

Article 3: Public noise shall be described in terms of emission values expressed by the equivalent continuous A -weighted sound pressure level over relevant time intervals, in decibels relative to 20 micro pascal.

Article 4: For noise of tonal or impulse character, an adjustment shall be made to the measured or calculated value of the equivalent continuous A -Weighted sound pressure level of the noise. This shall be as follows:

- b) For tonal noise, the adjustment shall be 5 dB (A).
- c) For impulse noise, the adjustment shall be 5dB (A).
- d) For the noise of combined tonal and impulse character the adjustment shall be 7 dB (A).'

Article 6: For noise from sounds described in items a, b, and c of Article (2), the time limits of noise occurring in specific parts of the day and night for working days versus holidays shall be as follows:

- a) Workdays - daytime (A): After seven a.m. up to six p.m. LMT
- b) Workdays- Evenings (B): After six. p.m. up to eleven p.m. LMT



c) Holidays and Nights (C): After eleven. p.m. up to seven a.m. LMT

The Ministry Decree also defines the legislative limits for A-weighted, time averaged equivalent noise level as a result of construction activities. The relevant district type (industrial) has been highlighted in bold, i.e. **70 dB (A) throughout the 24-hour period.**

Article 7: The limits of noise generated from the sources enlisted in item (a) of Article (2), in terms of equivalent continuous A-weighted sound pressure level over each particular time period A, B, C as defined in Article (6) shall be:

**Table 3-5: National Ambient Noise Limits**

Type of District	Leq, T, dB (A) Over Time Period		
	A	B	C
Rural Residential Recreational	45	40	35
Suburban Residential	50	45	40
Urban Residential	55	50	45
Urban Residential With Some Workshops Or Business; City Hub	60	55	50
<b>Industrial and Commercial</b>	<b>70</b>	<b>70</b>	<b>70</b>

### 3.4.2 MD 80-94 Noise Pollution Control in Working Environment

The current local regulation for noise in working environment MD 80-94, defines the legislative limit for the A-weighted, time averaged equivalent noise level experienced by workers on site. This shall not exceed 85 dB (A).

Article 4: The noise level, which an employee working in a workshop is exposed to, shall be 85 dB (A).

## 3.5. Waste Management (Non-Hazardous & Hazardous)

The waste management will be greatest relevance to **CEMP Focus Area 2 Management of Waste.**

### 3.5.1 MD 17/1993 Management of Solid Non-Hazardous Waste

As stated in MD 17/1993 Article 1, Solid Non-hazardous Waste is classified as any solid material or semi solid which does not have any danger to the environment or to the human health, if it is dealt with in a safe scientific way, they are:

- Household waste (the solid non-hazardous materials generated from domestic activities);



- Solid materials or semi solid discarded or produced from residential, commercial, industrial, agricultural and other activities;
- Construction and demolition debris;
- Metal scrap including discarded motor vehicles;
- Dewatered sludge from domestic, industrial or agricultural wastewater treatment always providing that such sludge contains no toxic constituents in concentrations in excess of those acceptable within the terms of the wastewater regulations; and
- Slag and ashes from incineration processes always provided that these materials have an available toxic content within the criteria applied to the characterization of dewatered sludge from wastewater treatment.

The Ministerial Decree also contains the following articles pertinent to the Project site:

Article 2: Occupants of premises used for residential, commercial, industrial, agricultural or other purposes shall store and dispose solid non-hazardous waste in accordance with the provisions of these Regulations and the decision of the Concerned Authority to this effect, such that there is no nuisance or hazard to the public health.

Article 3: The Concerned Authority shall establish a suitable system for the collection, storage and transport of all solid non-hazardous waste arising within its specialized area towards all residential complexes, other than residential complexes of less than 500 inhabitants which can be excluded by a decision from the Minister, provided that no nuisance or hazard to the public health is risked thereby.

Article 5: The user of commercial, industrial, agricultural or any other sites that produce solid non-hazardous waste except domestic waste, shall collect these waste and transport it in a safe manner to a site designated by the Concerned Authority for this purpose, unless this Authority decides else Article 4 is followed.

Article 6: In areas where collection systems have been established the Concerned Authority shall provide the necessary number of waste containers and points shall be allocated for the collection of this waste. It is not permitted for any person to dispose of solid non-hazardous waste in places other than these places.

Article 11: The Concerned Authority shall ensure that treatment and disposal of solid nonhazardous waste within its area of responsibility are carried out without creating any health or environmental hazard.

Article 13: No solid non-hazardous waste should be mixed with any category of hazardous waste at any time.

### **3.5.2 MD 18/1993 Management of Hazardous Waste**

Article 1 of MD 18/1993 states that Hazardous Waste is classified as any waste arising from commercial, industrial, agricultural or any other activities which, due to its nature, composition, quantity or any other reason is hazardous or potentially hazardous to human health, to plants or animals, to air, soil or water. This includes explosive, radio-active or flammable substances; which may cause disease as well as those issued by a decision from the Minister.



The Ministerial Decree also contains the following articles pertinent to the Project site:

Article 4: No hazardous waste shall be mixed with any other category of waste nor shall it be discharged to a common or other internal or external sewerage or other drainage system without a licence from the Ministry.

Article 5: Every hazardous waste generator shall complete a Consignment Note for each category of hazardous waste before the hazardous waste leaves his land or premises.

Article 6: All hazardous waste shall be labelled and packed according to the Ministerial Decision issued in this respect.

Article 8: Every hazardous waste generator shall store hazardous waste in approved storage facilities on his land or at his premises until its removal in accordance with the terms of the licence issued by the Ministry.

Article 9: Hazardous waste shall be transported by transporters licensed by the Ministry to collect, handle, store and dispose hazardous waste outside the waste generator's premises. This licence will be issued with conditions after the approval of Royal Oman Police.

Article 10: Every owner of any site where hazardous waste is to be stored, shall apply for a licence from the Ministry and shall operate the site only in accordance with the terms of the issued licence which shall include a requirement that all hazardous waste received at the site shall be accompanied by appropriate Consignment Note(s) in accordance with Article (5).

### **3.6. Chemical Management (MD25/2009 Organization of Handling and Use of Chemicals)**

The handling and storage of chemicals will be greatest relevance to **CEMP Focus Area 3 Management of Fuel and Chemicals.**

As stated in MD25/2009 a "Chemical" is any substance, enlisted, as hazardous material according to the International Classification of Hazardous Material, which affects the public health and the environment.

Article 2: The user of the chemical substance, in the event of storage, shall comply with the following conditions:

- Store chemicals in designated areas away from industrial activities, each type to be separated, and a partition of 10 meter width shall be made between the flammable materials and any source of combustion and they shall be separated from any facility for the production of flammable materials by 3 m.
- They shall be stored in an orderly and harmonized manner with labelling of each chemical showing its common name, chemical composition and degree of risk, with chemical containers not to be placed on each other in an accumulated manner, and flammable materials to be kept away for a distance of not less than one meter from the warehouse doors.



- The roofs of the store shall be designed in such a manner that prevents accumulation of smoke which may result from any fire.
- The store shall have at least two emergency gates for use in emergency cases with emergency signs affixed to the gates.
- The floor of the store shall be lined with impermeable materials, preventing any shock or electrical short, non-slippery and its walls and structures shall be non-flammable.
- The store shall have outlets and back-up emergency ducts in case of leakage of rainwater.
- Electrical connections shall not be bare, shall be connected in parallel and maintained to permanently ensure their safety.
- The store shall be provided with adequate and secure lightening at all times and the operating keys shall be outside the store near its gate.
- The store shall be far from any source of heat or any flammable source.
- It shall contain odours, gases and smoke suction and exhaust devices.
- The store shall be well ventilated with sound insulation to prevent any echo, which may lead to fall or collision accidents.
- The store shall be provided with security and safety devices to be decided by the competent authorities.
- The store shall contain guidelines and warning signs of various types of risks.
- The store entrances shall be controlled, monitored and supervised in a safe and sound manner with prohibition of entry to non-authorized staff.
- Review the Material Safety Data Sheets when a chemical substance spills, leaks, or any other emergency incidents.
- No construction, extension or change in the store or any removal works unless after the approval of the Ministry and The Directorate General of Civil Defence, Royal Oman Police.

### **3.7. Effluent Discharges (MD 159/2005 Discharge liquid effluent in Marine Environment)**

Effluent discharge to marine environment will be relevant to **CEMP focus area: 4 Management of the Marine Environment.**

As mentioned in article 1 of MD159/2005 'Discharge' is classified as throwing or leaking or emitting or pumping or pouring out or releasing or sinking any pollutant in the marine environment whether directly or indirectly.

The Ministerial Decree also contains the following articles pertinent to the Project site:

Article 5: It shall be prohibited to discharge any liquid effluents to the marine environment either directly or indirectly without obtaining the required permit.

Article 7: The permit applicant shall be committed to reuse or recycle the liquid effluents or eliminate or reduce the harmful contents of such effluents through the application of proper environmental treatments. The Ministry may refuse to issue the permit if





it determines that appropriate opportunities exist to reuse, recycle or treat the effluent without undue risks to human health or environment.

Article 9: The quantity of the liquid effluent shall be within the indicated limits in Table 3-6.

**Table 3-6: Discharge Liquid Effluent Limits**

Parameter	Symbol	Units	Standard/Limit
Temperature	°C	°C	<10°C below ambient seawater T
Biochemical oxygen demand (5d at 20°C)	BOD	mg/l	20
Chemical oxygen demand	COD	mg/l	200
Total Suspended Solids	TSS	mg/l	30
Aluminium	Al	mg/l	5
Arsenic	As	mg/l	0.1
Barium	BA	mg/l	2
Beryllium	Be	mg/l	0.3
Boron	B	mg/l	1
Cadmium	Cd	mg/l	0.01
Chromium	Cr	mg/l	0.05
Cobalt	Co	mg/l	0.05
Copper	Cu	mg/l	0.2
Cyanide	CN	mg/l	0.1
Fluoride	F	mg/l	2
Iron	Fe	mg/l	1.5
Lead	Pb	mg/l	0.08
Lithium	Li	mg/l	0.07
Mercury	Hg	mg/l	0.001
Molybdenum	Mo	mg/l	0.05
Nickel	N	mg/l	0.1
Ammonia Cal	NH <sub>3</sub>	mg/l	1
Nitrate	NO <sub>3</sub>	mg/l	15
Kjeldahl Nitrogen	NH <sub>3</sub> -N	mg/l	5
Nitrogen (Total)	N	mg/l	15
Oil & Grease	-	mg/l	10
Phenols (Total)	Ph	mg/l	0.002
Phosphorus	P	mg/l	2
Selenium	Se	mg/l	0.002
Silver	Ag	mg/l	0.01
Sulphide	S <sub>2</sub> <sup>-</sup>	mg/l	0.1
Total Chlorine	Cl	mg/l	0.4
Vanadium	V	mg/l	0.1
Zinc	Zn	mg/l	1
Faecal Coliform Bacteria	-	l	1000
Viable Nematode Ova	-	l	<1



Parameter	Symbol	Units	Standard/Limit
Organ Halogens	C-Hal	mg/l	<0.001
Pesticides Or Their By – Products		mg/l	<0.001
Organosilicon Compounds	C-Si	mg/l	<0.001
Organocopper Compounds	C-Cu	mg/l	<0.001
Organotin Compounds	C-Sn	mg/l	0.00002

Article 10: For issuing the permit the following details in respect of the discharge site shall be provided:

- a) The physical, chemical and biological characteristics of the water column and sea bed within a 2 kilometre radius of the discharge point. Special attention shall be given to the location of algal beds sea grass beds and coral reefs;
- b) The recreation locations and other uses of the marine area under consideration; and
- c) An assessment of the components of the liquid effluents being discharged in the area with special attention to the flux of phosphate and nitrate as appropriate.

Article 11: The owner of the permit shall be committed to the following:

- a) The discharge end of the effluent discharge pipe shall be placed at a minimum depth of 1 meter below the lowest low tide level;
- b) The temperature of the liquid effluents at the discharge point shall not exceed 10 degrees Celsius above the inlet intake temperature. The Ministry may require the submission of continuous monitoring of intake and outfall seawater temperatures in monthly report forms. In addition, spot checks should be made from time to time to check that the intake temperature is equivalent to ambient temperatures;
- c) The end of the outfall pipe shall be placed on a site such that the effluent does not impinge on coral reefs, algal beds and sea grass beds;
- d) The private facilities and equipment shall be maintained through sampling of the sea water and effluents according to the Ministry's requirements and conditions; and
- e) Determination of a 300 meter radius from the point of effluent discharge as the initial zone of dilution so that the disposed effluent in this area shall not result in the following:
  - An increase in the ambient water temperature of more than 1°C (weekly average);
  - A depression of the dissolved oxygen values of more than 10% (weekly average);
  - Changes in ambient pH of more than 0.2 units and
  - An increase or decrease in the salinity greater than 2 practical salinity units from ambient daily values.



### **3.8. Protection of Cultural Heritage Act**

It was reported in the media<sup>3</sup> in March 2017, that the State Council in Oman has approved a draft cultural heritage law. The draft law, transferred by the Council of Ministers received approval following the inputs from the report of the Committee of Culture, Information and Tourism on the draft law and the report of the Majlis Ash'shura. The report of the Committee on Culture, Information and Tourism included the observations of the members, which accrued from the recommendations of the technical committee instituted for drafting.

However an official copy of this draft law (in English or Arabic) is not available for review.

### **3.9. Law on Nature Reserves and Wildlife Conservation**

Article 5 of the RD 6 / 2003 requires that the Environmental Assessment of any public or private development project shall include all data concerning measures that are to be followed to avoid damage to reserves and wildlife, prior to obtaining approval for the project.

### **3.10. Labour Law (RD 35 / 2003)**

Royal Decree No. 35/2003 and published in the Official Gazette No. 742, dated May 3, 2003.

The primary articles of relevance are reproduced below:

Article 4: Save in cases where it is specifically provided for, the provisions of this Law shall apply to all employers and employees, establishments of different types, their local and foreign branches which practice their activities in the Sultanate whether they are public or private including private national and foreign educational institutions.

Article 5: With effect from the date on which this law comes into force all employers shall provide or at least maintain the minimum standards and conditions of service stated in this law. The standards and conditions of service under which the employee has been employed before the implementation of this law shall not be reduced if the employee remains in the service of the employer after its implementation.

Article 6: An employer may establish schemes by which his employees acquire benefits more generous than those awarded by this law, or may provide his employee with other benefits or may enter into agreements with them the conditions of which are more generous than those provided for in this law. If a condition in this law contradicts with any of the conditions in such schemes or agreements, the condition, which is more generous to the employee, shall be applicable.

The law consists of chapters on Definitions, General rules, Employing citizens, Employing expatriates, Employment contract, Wages, Leaves, Work hours, Employing non-adults, Minors, Employing women, Industrial security, Labour disputes, Representative committees and Punishment.

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<sup>3</sup> The following [media link](#) was accessed on 08<sup>th</sup> August 2017



While some of the specific requirements (monetary fines, time limits, document formats etc.) under this Royal Decree may have been amended since 2003, the key requirements remain as listed below:

### **General rules**

- This law is not applicable to the armed forces, security and government departments and domestic servants such as cook or child-minder.
- Any settlement against this law shall be invalid.
- Justice officials have the right to check the execution of the law.
- The worker's right as per this law shall expire after one year from that time that right was awarded to him.
- Legal cases raised by workers are exempted from fees.

### **Employing citizens**

- Employers should employ Omani citizens to the maximum possible level.
- Omanis may register their names for work in the department concerned, which provides career advice and work nomination.
- Employer should provide the department with a list of vacant jobs.
- Employer should have a list of Omanis working with him with details such as their names, salary and so on.
- Employers employing more than 50 workers shall recruit persons with special needs in suitable jobs.

### **Employing expatriates**

- Employers are prohibited to employ non-Omani workers without obtaining the proper permits from the Manpower Ministry. Non-Omanis are prohibited to work in Oman without having proper work permits.
- Nobody is allowed to import foreign workers without having the proper licence from the Manpower Ministry. Employers are prohibited to make contract with anybody who does not have licence to import foreign workers. Employers or work contractors are prohibited to take any money from workers in return for employment.

### **Work contract**

- Signing contracts
- If any of the two parties does not know the contract language the contract should be accredited by the authorised legal body.
- The contract should include personal details of the worker, nature of work, wage and end-of-contract notice. It shall also include a commitment from the workers to comply with the conditions in the contract, respect Islam, country's law and traditions, and not to engage in activities harming the country's security.
- Test period should not exceed three months.
- Employer should not violate the conditions in the contract or ask the worker to do works other than that agreed upon.



- Employer should keep a file for each worker, including his/her name, wage and so on.
- Worker should personally carry out the work as per the contract, carry out the instructions of employer, protect work property and adhere to safety procedures.
- Employers employing more than 15 workers should display a work statute showing duties and responsibilities of the worker and employers, salary groups, allowances and promotion system. Employer should also display disciplinary statute in the workplace, after confirming it by the Manpower Ministry.
- Worker shall not be accused of a violation after 15 days from its discovery.
- Employer shall not fine the worker more than five days' wage per one violation.
- Worker committing a crime at the workplace may not be suspended for more than three months, but if proved innocent, the worker shall return to work.
- Employer should provide workers with first-aid facilities at the workplace.
- If employer has more than 100 workers in one place or one company, he should provide a nurse to treat them at the workplace and provide a doctor for medical treatment free of charge. If the number of workers exceeds 500, the employer, in addition to the above, should provide workers with all other medical care facilities, including specialists and surgery operations for free, with the exception of dental treatment, eye-testing and maternity expenses. If the worker is treated in a government or private hospital, the employer should bear the expenses for treatment, medicine and hospital stay.
- Employer having workers in zones, specified by manpower minister, should provide workers with transport, accommodation food and water.
- Worker causing damage to employer's propriety due to negligence should bear the cost of the damage.
- If the contract has a specific period and the two parties continuing it after its expiry, it would be considered renewed for unspecified period of time.
- If the contract has no specified period, each of the two parties may end it by giving 30 days' notice, failure of which will lead to appropriate compensation.
- The notice will not be valid during the worker's leave period.
- Workers not benefiting from social insurance are given end-of-service benefit (gratuity) which is equivalent to 15 days' wage for each year of the first three years and a month's wage for each of the following years, taking the final basic salary as a base for calculation.
- The employer has the right to dismiss the worker without notice or gratitude in cases of fraud, commitment of a damaging mistake, failure to comply with safety conditions giving away work secrets, sentence in a crime, under the influence OF alcohol during work, attack on employer, director or fellow workers or major failure to carryout contract.
- Worker has the right to leave work if employer uses fraud in the contract, employer fails to fulfil major contract obligations, employer attacks him/her and feels major threat at the workplace.
- Leaving work for above reasons gives worker the right to compensation.
- Work contract ends in case of end of contract, death of worker, worker's disability to do the work, resignation, dismissal or leaving work according to this law and illness of worker for a period no less than 10 weeks in one year. The employer cannot end contract before the worker reaches 60 years of age at least.



- Workers' savings funds may be established after obtaining Manpower Ministry's approval.
- Employer should give worker at the end of contract an end-of-work certificate.
- Establishment's dissolution or bankruptcy shall not prevent workers from receiving their rights.

## **Wages**

- Wages are given on a working day, at least once in a month.
- All wages should be paid immediately at the end of work.
- Employer cannot be free of responsibility unless worker signs receiving all wages agreed.
- Wages are given priority over payment of other credits due to be paid by employer.
- Worker shall not be obliged to buy items/products from employer's shops/establishments.
- Employer should return worker to his/her home country at the end of contract, unless he/she is transferred to another employer. If employer fails to do so, the labour department transports the worker on government expense and charges the employer.
- Employer is not allowed to transfer workers from monthly payment to weekly paid category without workers' approval.
- Employer cannot reduce more than 15 per cent of wage for repayment of a loan given to a worker and loans to workers shall not have any interest.
- Workers paid on hourly basis shall get the wage of hours they actually worked, but he/she should be paid for hours he/she is absent because of going to court or public prosecution.

## **Leave**

- Worker has the right to 15 days' paid leave for first year increased to 30 days for each successive year.
- The worker has the right to a paid emergency leave of four days per year.
- The worker cannot abandon his/her leave.
- Worker has the right to full wage of public holidays and in case a holiday falls on worker's weekly day-off it would be compensated by another day-off.
- It is allowed to ask worker to work on official holidays in the interest of work and be paid his full day wage plus an addition of not less than 25 per cent or given a compensatory off.
- Worker is allowed a sick leave of not more than 10 weeks in one year.
- Worker is entitled to a special paid leave in case of marriage (3 days), death of son, daughter, mother, father, wife, grandfather, grandmother, brother or sister (3 days); death of uncle or aunt (2 days); go to Haj (15 days) and for examination (15 days).

## **Working hours**

- Workers should not be asked to work for more than nine hours per day or 48 hours per week. Rest interval should be given during working hours, provided that work cannot be continuous for six hours.



- If a worker is asked to work more than the working hours, the employer should give him/her extra pay equivalent to his/her wage for the extra period plus 25 per cent or give a permission to be absent for the number of hours he/she worked, provided that the worker agrees to this arrangement.
- Employer should give worker not less than 24 hours rest after six days of work.
- Employer should display at the workplace a timetable showing working hours and rest hours and send a copy of it to the labour department.

### **Employing minors**

- It is prohibited to employ any male or female under 15 years of age.
- It is not allowed to employ minors who are less than 18 years old between 6pm and 6am.
- Minors cannot work extra hours or be kept at workplace after working hours.
- In case of employing a minor, the employer should display at the workplace a copy of the non-adult working rules, list of minors working and given an advance report on minors working at the establishment to the department concerned.

### **Employing women**

- Women cannot work between 7pm and 7am.
- Women cannot work in jobs harmful to health or involving hard work.
- Women are entitled to a six-week maternity leave, which, she could consider as maternity leave or sick leave.
- Employer is not allowed to dismiss a woman because of illness due to pregnancy or child delivery.

### **Industrial facility**

- Employer should tell the worker in advance about the risks involved in work and protection measures.
- Employer should provide all safety conditions.
- Worker should refrain from damaging safety equipment and should comply with safety procedures.
- The Manpower Ministry shall undertake inspection of safety requirements at workplace, and in case of danger should take appropriate measures against the firm concerned.
- 
- In case of an emergency, the department concerned should be notified within 24 hours.
- Employer should display safety procedures in a clear place and carry them out adequately, and carry out routine safety inspections.
- Employer should prepare a rescue point.

### **Labour disputes**

- Employers employing over 50 workers should have a system for complaints and appeals, approved by the department concerned, stating the worker's right to complain to the employer.



- Dismissed workers have the right to ask the department concerned, within 15 days, to cancel the dismissal decision and the department has to take measures for cordial settlement. In case the settlement is not fulfilled, the labour department transfers the issue to the court concerned within two weeks. If the dismissal is unjustified, the worker would be reinstated and compensated.

### **Representative Committees**

- Workers in any establishment may form a representative committee aimed at taking care of their interests and protecting their legal rights and representing them in all affairs concerning them.
- The representative committees in establishments may select a main representative committee representing them in local, regional and international meetings and conferences.
- The manpower minister shall issue a decision on the rules of formation and functioning of the representative committee and main committee.

### **Punishments**

- Employer refusing to provide officials with information about his employees shall be imprisoned for not more than a month and fined not more than RO100 or both.
- The illegal non-Omani workers shall be fined between RO10 and RO100, paying the expenses of returning to his/her home country and denying him/her import of non-Omani workers for no more than a year.
- Non-Omani workers illegally working in the Sultanate shall be imprisoned for no more than a month and fined no more than RO100.
- Employers allowing workers to work for another employer shall be imprisoned for no more than a month and fined for no more than RO200 for each worker or one of the two punishments, in addition to denying him to import non-Omani workers for no more than one year.
- Employer not complying with Omanisation percentage shall be fined 50 per cent of average of non-Omani workers who represent the difference between the target and actual Omanisation.
- Employer refusing to display a complaint system shall be fined no less than RO100 and no more than RO300.
- Worker giving away company secrets shall be fined no more than RO100 and imprisonment no more than three months or one of the two punishments.
- Persons obstructing officials undertaking responsibilities shall be fined no more than RO100 and imprisonment nor more than one month or the two punishments.

### **3.11. Occupational Health and Safety (MD 286 / 2008)**

All establishments subject to the labour law issued by Royal Decree No. 35/2003 shall comply with the provisions of these regulations on Occupational Health and Safety. The key articles are reproduced below.





Article 4: Within the process of monitoring the employers commitment to implementing the provisions of these regulations, the inspectors shall be authorized to take the following procedures:-

- Issue the necessary orders to rectify violations within a specific period of time.
- Immediate stoppage of work partially or totally, or stoppage of operating one or more machines in case of an eminent hazard, and seeking the assistance of the ROP if necessary

Article 7: The employer or his representative shall inform the workers, before they take up work, of all the hazards they may be exposed to, and train them on the protective procedures. Such instructions shall be prominently posted in the establishment.

The employer shall also post the warning signs in hazardous areas and take all the necessary actions and procedures to assure that the materials , factors and conditions existing in the work environment do not pose any hazard on the workers' health . The results of the periodical assessments and actions related to the levels of the various hazards existing in work environment shall be kept in a special record.

Article 9: The owner of the establishment shall provide protective equipment free of charges for the workers who may be exposed to any kind of hazards.

Article 10: If an employer employs (10) or more workers, he shall set up an OSH programme adequate to the nature and size of the establishment. This programme shall incorporate the following:-

1. The policy and goals of the OSH in the establishment.
2. The duties and commitments of the employer and the worker.
3. The organization and management of the OSH.
4. The specified authorities and responsibilities of the establishment's management who are authorized to develop and implement the policies and goals of the OSH.
5. The specific work hazards that result from work, the methods of their assessment and the mechanisms for analysing them.
6. The specified protective arrangements, the emergency plans.
7. Specified training programmes on the procedures of OSH.
8. Specified specifications regarding the purchase or rent of OSH equipment for work.
9. The mechanism for monitoring the performance of OSH in the activities of the contractors working with the establishment.
10. A timetable for testing the equipment or materials that may expose workers to hazards.
11. A timetable for conducting medical examinations for workers.
12. Investigation into the work accidents and taking the necessary actions to prevent the repetition of such accidents.
13. The procedures that have to be carried out by workers in cases of serious hazards.



14. The procedures that have to be carried out by the workers who are exposed to occupational hazards before leaving the work site.
15. Prohibitions related to accident site.
16. Method of submitting or receiving workers' complaints regarding work hazards and the means of handling them.

The owner of the establishment shall get this programme and its amendments approved by the department or section within 2 months from the date of submitting it. Should this period lapse without a decision taken, the programme shall be deemed effective.

Article 11: The employer who employs (50) or more workers shall assign a qualified supervisor to handle the OSH work. this supervisor shall directly report to the employer or his representative, and shall set up a plan for OSH , the periodical inspections of all work sites , conducting assessment, protective measures against hazards of work environment using adequate equipment, keep the results accidents and work injuries, occupational diseases and investigate their reasons, if any.

He shall keep such results in a special record, prepare, reports on them including the ways and precautions that will prevent their repetition. He shall follow up the provision of first aid materials and basic health care for workers including taking the injured to medical centres or hospitals, if required.

He shall also take part with the professionals in setting up training programmes for the workers to protect them from the hazards of work environment and voice his opinion on the purchase of machinery or materials and to what extent they are adequate to the work environment and shall prepare guiding and warning signboards on all matters related to OSH within the establishment.

Article 12: The employer who employs (50) or more workers shall also be committed to providing the department or section with periodical statistics on serious accidents, work injuries and occupational diseases that have been established. These statistics shall be submitted in January and July annually.

Article 13: The owner of the establishment shall be committed to notifying the department or section in writing within (24) hours of any serious accident, work injury or occupational disease whose occurrence has been established putting into account notifying the public Authority for Social Insurance (PASI) of the work injury that occur to workers covered by insurance.

Chapter of General Arrangements related to Work Sites - Lighting, Ventilation, Heat and Cold, Noise, Drinking Water; Facilities – Workers Sleeping place, Places of Serving Food, Clothes Changing place, rest rooms; Specification of Work Clothes and PPE; Medical Care, Protection of Women, Protection of Handicapped; Precautions against Hazards and Special Precautionary Measures, also need to be incorporated in the OSH Programme, as relevant



### 3.12. Environmental Permit List

SEZAD have issued Serka MSF with a number of permits as listed in Appendix H: IP2 Permit tracker and Status as on June 2017. The permit of primary importance here is the Environmental Permit. Other environmental permits as may be required by SEZAD throughout the project and will be added to the above list. For example for borrow pits, cement batching plants, vehicle maintenance areas and vehicle wash areas. Ongoing liaison is expected to occur between Serka and SEZAD regarding the requirement of any additional permit.

SEZAD has also issued of a number of permit conditions, which have been translated and included in Appendix I: SEZAD Environmental Permit Conditions (Translated). Please note that there is a typo within the actual Arabic version of the permit conditions where point 29 is blank.

Written correspondence for renewal of permits, will be made by Serka MSF to SEZAD in good time prior to expiry. Refer to Appendix H: IP2 Permit tracker and Status as on June 2017

### 3.13. Environmental and Social Impacts of the project

Duqm is a small town or a sub-district and the region was particularly chosen by State and Sultanate of Oman as the future development area and a future candidate for centre of attraction in terms of multiple parameters; such as, transportation, commerce, industrial activities and tourism. The proposed project is an integral part of this investment thrust.

The project work shall be carried-out mostly at the harbour and within an already designated industrial port. Serka MSF will mostly use already available motor ways and service subroads for material and human transport.

The local population of Duqm itself, currently just over 1000 (out of total of about 27,000 capita in Al Wusta Governorate), is not adversely impacted due to the project. Employment in the project is expected to be beneficial to the local communities. Immigration towards Duqm area is likely to increase as new jobs are created by the project. Associated trade and business opportunities will naturally attract new population (Omani as well as expatriates) to Duqm Area.

The region is arid with a typical desert ecosystem with only solitary trees and some scattered small shrubs. The population density here is low and the surrounding area is vast and mostly empty at the moment, and our work is far from dwellings and residential area. Thus, the project will not have frequent contact or relation with local people (in terms of environmental or social risks or complaints).

The Project does not require any land acquisition or displacement, as the project activities are concentrated within the existing port area, at commercial quays, that are already built.

There are no Indigenous Peoples<sup>4</sup> in the project area and the land holding in case of the proposed project is entirely Government owned and within SEZAD's control.

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<sup>4</sup> As defined in ESS3 of AIIB's E&S Framework



The project will not interfere with any agricultural or livestock feeding activity, since the work area or its surrounding do not include these activities, except a few impacts such as borrow pits outside the port area for exporting earth materials for use in backfilling etc. However, the possibility of interference with agriculture or livestock feeding or farming is very less.

The wastewater generated during construction is limited by the contractors' staff and manpower. The normal sewage effluents will be treated to acceptable standards for reuse at the facility's own sewage treatment plant and is not considered to pose an environmental problem. The treated sewage effluent (TSE) will be recycled for plantation and green belt.

Regular non-toxic solid waste generated due construction and operation works will be collected and dispose into dumping site. Other non-hazardous solid waste will be produced in office buildings, canteens and other general facilities for staff working at the site.

The oil water separators along the Commercial and Governmental Berths are mounted downstream the screen chamber and upstream the pump well. The separator shall be cleaned periodically to ensure proper separation efficiency. Other oil sources from leakage from workshops and accidental spills collected as well.

The noise level from operations are expected to be below 50 dB(A) at each package scheme boundary during operation.

The impact of noise is very local to some operation facilities and doesn't impacting sensitive receptors. Workers in the immediate proximity of noisy tools and machinery to be protected from damage to their hearing by the use of PPE in accordance with Oman regulation.

The source of air pollution during operation of the proposed facilities of the three packages are roads carrying traffic flows greater than 5,000 vehicles per day) in-addition to number of small capacity pumps.

The impacts of the repair and maintenance activities on ambient air quality outside the perimeter of the dry dock and shipyard premises have been assessed for dust resulting from blasting activities, organic solvents (represented by xylene) from hull painting processes, general air pollutants from stacks and exhausts (NO<sub>x</sub> and SO<sub>2</sub>) and dioxins (from the incineration plant).

For the general air pollutants it is found that the emissions are limited and do not result in violations of international criteria for ambient air quality outside the perimeter of the dry dock/shipyard and for dioxins the emissions are considered to be negligible.

With regard to dust, the standards for PM<sub>10</sub> will be exceeded up to 300 meters outside the perimeter in the worst case, i.e. if NIX blasting is carried out with- out any measure to mitigate the influence of wind.

There is no potential impact to other sites environment of the IP2 package zone including the nearest industrial, commercial or residential areas due to operation work.

Site operations during construction phase may lead to impact of soil and or groundwater beneath. Potential areas of concern are recognized as follows:



- Fuel and lubricant storage areas and fuel stations;
- Maintenance areas and waste storage areas; ☒
- Plant & equipment holding areas.

The terrestrial and intertidal sand and mudflat habitats in the project area will be disturbed or removed due to the landside construction infrastructure works (roads, buildings etc.) and operation but this impact is minor to moderate in case well design and mitigation measures related to noise and light disturbance are considered.

The wadis channel and the rerouting path within the port area is not part of the proposed packages, however, uncontrolled wadis flow can cause slight to moderate damage to geological site and soil due to erosion. So, the proposed project will have major positive impacts in terms of wadis flow movement within project area.

The impact on coastal and aquaculture ecology is limited to landside works and potentially could be due effect of surface water run-off from the proposed development on water quality and accidental spillage and run-off of contaminants from onshore activities and ships during transit to the Port and inside the Port.

Adverse impact on aquaculture or fishery is unlikely as well since the work is far from these locations. The project does not include a liquid transmitting jetty (e.g. for fuel, petroleum, or LPG, etc.) that may extrude offshore. There is only one fuel station area in the scope of work and it is inland and not nearby the sea, hence the possibility of marine pollution due to any fuel leakage or spill is almost nil.

### **3.14. Overview of Environmental and Social Safeguards**

The project is being funded through a loan from the Asian Infrastructure Investment Bank (AIIB). The AIIB is a multilateral development bank, which supports infrastructure development and enhanced connectivity in Asia.

#### **3.14.1 E&S Policy of AIIB**

- As per its E&S Policy, AIIB recognizes that environmental and social sustainability is a fundamental aspect of achieving outcomes consistent with its mandate to support infrastructure development and enhance interconnectivity in Asia. The objective of this overarching policy is to facilitate achievement of these development outcomes, through a system that integrates sound environmental and social management into Projects. AIIB has established an Environmental and Social (E&S) Framework, for improving and maintaining the E&S performance of its borrowers, including an E&S Policy, E&S Standards and an E&S Exclusion List.

#### **3.14.2 E&S Project Category**

As per its E&S Policy, AIIB determines the Project's E&S category by the category of the Project's component presenting the highest environmental or social risk, including direct, indirect, cumulative and induced impacts, as relevant, in the Project area. Accordingly, this



project has been categorized by the AIIB as 'B', based on the nature, severity and extent of its E&S impacts.

The proposed project has a limited number of potentially adverse environmental and social impacts that are not unprecedented, a limited number of which are irreversible or cumulative and they are limited to the Project area. All the impacts can be successfully managed using good practices as outlined in the PEIA as well as this CEMP document.

### 3.14.3 Environmental and Social Standards

The following three associated environmental and social standards (ESSs), set out more detailed mandatory environmental and social requirements relating to the following:

- Environmental and Social Assessment and Management (ESS 1);
- Involuntary Resettlement (ESS 2); and
- Indigenous Peoples (ESS 3).

ESS 1 will apply to the project as the project poses environmental, health and safety risks and impacts.

ESS2 and ESS3 are **not applicable** in this project as explained earlier.

Table 3-6 below presents the status of conformance as per various requirements under ESS1.

**Table 3-7: Status Of Conformance As Per Various Requirements Under ESS1**

Sr. No.	Requirement of ESS1	Provisions undertaken by SEZAD and Serka MSF to address the Requirement
1	Environmental and Social Assessment	A Preliminary EIA addresses the E&S assessment
2	Examination of Alternatives	Alternatives have been considered in Project Planning and Design
3	E&S Management Planning	A comprehensive ESMP has been recommended in the PEIA and further detailed in this CEMP
4	Adaptive management	The systems established at Serka MSF are adaptive to modify the ESMP as necessary. The HSE manual of Serka MSF (dated May 2017) follows a risk based approach to HSE management and is amended as necessary, based on site risk assessments and internal audit findings
5	Stakeholder Consultation	<p>The port construction activity commenced in 2007 with expansion activities taking place in subsequent years.</p> <p>The IP2 Project, which involves construction, commissioning and maintenance of road, infrastructure and building at the Commercial and Operational Zone, will take place at the already constructed berths. Port of Duqm Company has done a comprehensive EIA study for Phase 1 operations, which includes the Commercial Quay. Consultation was conducted as part of this EIA study.</p> <p>The CEMP will be the subject of consultation with external and internal stakeholders in the Duqm area.</p>



Sr. No.	Requirement of ESS1	Provisions undertaken by SEZAD and Serka MSF to address the Requirement
		The CEMP will be made available online on the SEZAD website. A summary of the CEMP in Arabic will also be uploaded.
6	Information Disclosure	A summary of the CEMP, including the grievance redress mechanism, will be translated in Arabic and disclosed to all stakeholders for comments and suggestions (as described above), and finalised subsequently.
7	Grievance Mechanism	Established under SEZAD and Serka MSF – explained in Section 4.7 of this CEMP document
8	Environmental Risks and Impacts	Addressed in the PEIA and incorporated in the HSE Manual of Serka MSF
9	Biodiversity Impacts	The biodiversity management plan for the overall Port of Duqm development is under discussion in SEZAD and will be made available on their website, once finalized
10	Natural Habitats	The PEIA of the Port of Duqm development addresses the potential impacts to some of the faunal (terrestrial and marine) species relevant to the proposed project area and the management plans for their mitigation. Will be incorporated in the Biodiversity Management Plan (see point above)
11	Sustainability of Land and Water Use	Addressed in the PEIA and incorporated in the HSE Manual of Serka MSF
12	Pollution Prevention	Addressed in the PEIA and incorporated in the HSE Manual of Serka MSF
13	Resource Efficiency	Addressed in the PEIA and incorporated in the HSE Manual of Serka MSF
14	Climate Change / GHGs	Addressed in the PEIA and incorporated in the HSE Manual of Serka MSF
15	Cultural Heritage	According to the PEIA, there was no cultural heritage site identified during land reclamation of all three packages of the project.  The impact on cultural heritage and recreation landscape sites has been classified as minor. The CEMP includes provisions for the use of an Archaeological Chance Find Procedure in Section 7.7 and Appendix J.
16	Occupational Health and Safety	Addressed in the HSE Manual of Serka MSF
17	Labour Standards	Addressed in the Human Resource (HR) Policies of Serka MSF which are in line with relevant statutory requirements mentioned under the Labour Law in Oman (RD 5 / 2003)  Table 3-8, below presents a broad comparison on how the Omani Labour law conforms to AIB's requirements in ESS1 related to labour management (under paragraph on <i>Labour Management Relationships in Private Sector Projects</i> )



**Table 3-8 Mapping of AIIB’s ESS1 requirements on Labour Management with RD 35 / 2003 and Serka MSF’s Policies on Labour**

Sr.	Requirement under AIIB’s ESS1	Corresponding Requirement under RD 35 / 2003	Compliance of Serka MSF for the requirements
1	Clear and understandable written terms of employment made available to Project workers in an accessible manner	Articles 21- 26 under Contract of Employment	All employees are provided with contract copies and terms of engagement
2	Timely payment for Project work	Articles 49-60 under Salaries	Payments are made strictly on the basis of terms and conditions agreed in the contract, usually on a monthly basis
3	Adequate periods of rest	Articles 68-74 under Hours of Work	Adequate periods of rest and facilities are provided for workers during work breaks. No worker is allowed to work beyond the maximum hours of work as per Omani labour law
4	Timely notice of termination of the working relationship	Articles 38-43	Followed as per notice period agreed in the terms of contract
5	Employment on the basis of the principle of equal opportunity, fair treatment and non-discrimination	No specific mention but Article 11 requires “Employers must put all employees on the same footing when the nature and conditions of their work are alike.”	Workers are engaged on the basis of job requirements and skill sets required and the remuneration varies based on the same.  Serka follows a practice of equal opportunity, fair treatment and non-discrimination.
6	Compliance with national law relating to workers’ organizations and collective bargaining	No specific mention	While there are no labour unions existing at present in the site operations, Serka’s Management is open to receiving and discussing individual as well as collective representation from its staff and labour.
7	An accessible, understandable and transparent grievance mechanism for raising Project workplace concerns that:  (i) Does not impede access to other judicial or administrative remedies that might be available under law or through existing arbitration or mediation procedures, or substitute for grievance mechanisms provided	Article 105 requires all employers engaging more than 50 employees to put in a conspicuous place a procedure for complaints and grievances.  The aforesaid procedures must provide that the employee shall have the right to submit his complaint or grievance to the employer or the employer’s representative.  Article 120, penalises employers that refuse to lay down such a procedure on	Serka has put in place an internal grievance and feedback system that staff and workers can avail in case of any concerns.  The HR Department handles all such concerns on priority and resolves to the satisfaction of the complainant and Serka management, as relevant and appropriate.





Sr.	Requirement under AIIB's ESS1	Corresponding Requirement under RD 35 / 2003	Compliance of Serka MSF for the requirements
	through workers unions or collective agreements; (ii) Involves an appropriate level of management and addresses concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution; and Allows for confidential complaints to be raised and addressed	complaints and grievances Article 106 stipulates requirements on labour disputes and judicial interventions and requires employers to follow the statutes as applicable.	
8	A suitable system designed to inform Project workers of the grievance mechanism at the time of hiring, and make it easily accessible to them	Article 105 requires all employers engaging more than 50 employees to put in a conspicuous place, a procedure for complaints and grievances.	Please see above.

### 3.14.4 Application of the E&S Exclusion List of AIIB

AIIB will not knowingly finance certain project sectors and activities. **As such the proposed project does not directly fall under any of these sectors or activities.** However, some activities that have relevance to the overall development at Port of Duqm include:

1. Forced labour or harmful or exploitative forms of child labour
2. Trans-boundary movements of waste prohibited under international law (Basel Convention)
3. Shipment of oil or other hazardous substances in tankers that do not comply with IMO requirements (IMO, MARPOL, SOLAS and Paris MOU)

SEZAD is committed to ensure that these activities are not carried out as part of construction or in the operation of the Port of Duqm.

The first requirement has been ensured through covenant conditions in Contractor agreements that prohibit deployment of child or forced labour. Article 75 of the RD 35 / 2003 (Labour Law) prohibits employment of both male and female juveniles. Such juveniles are not permitted to enter places of work before attaining the age of fifteen (15).

The second and third requirements will apply in the operational phase of the port and as such are part of the operational procedures of the facility, as per applicable Omani statutes.



## 4. CEMP IMPLEMENTATION

### 4.1. Approach

This CEMP provides a basis for ensuring that specific EHS conditions are met during the Project construction. It describes actions that will be carried out and responsible personnel. These actions can be categorised into three groups:

- Techniques which mitigate EHS impacts to acceptable levels;
- Monitoring to provide data on activities that may impact the environment and people; and
- Response procedures that ensure corrective actions are taken if impact mitigation is not being implemented or is not considered to be effective.

The CEMP is to be considered a mandatory reference document by Serka MSF and would serve as a minimum requirement for Contractor and Sub-Contractors involved in Project activities. The Sub-Contractors shall be provided a copy to which they must comply or adopt into their own procedures, if available. Should the Sub-Contractors have additional requirements and/or stricter controls, the most stringent shall apply. Where there is a conflict in the contents between the Sub-Contractor's procedures and those stipulated in this CEMP, the CEMP shall be followed.

The CEMP should be considered the key tool for achieving environmental compliance. The following describes how this CEMP is to be implemented including:

- Roles and Responsibilities;
- Communication;
- Training;
- Liaison with SEZAD;
- Response to Complaints;
- Incident Investigation and Response; and
- CEMP Audits

### 4.2. HSE Organizational Structure

Figure 3-1 presents the HSE organizational structure proposed for this project site to implement the HSE requirements.

Under the overall direction of the HSE Manager, a deputy HSE Manager and his team of an Environmental Protection Officer, Safety Officer (Omani), Safety Supervisor and 4 HSE Officers (2 Omani officers) manage the entire HSE function on the project site.

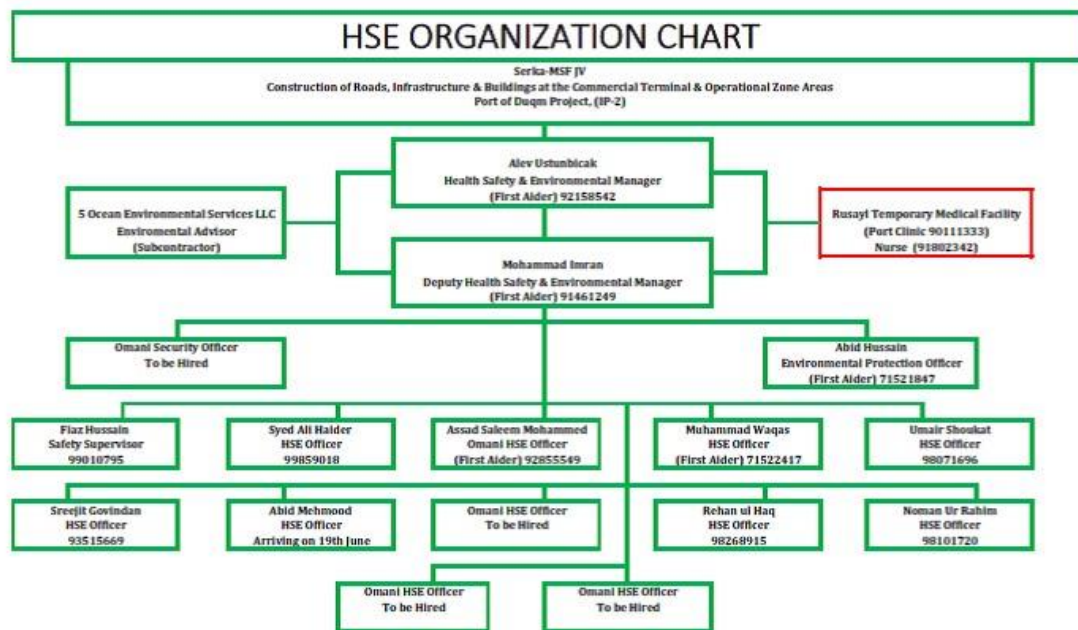
Fire officers and first aiders drawn from their own team as well as from other project staff, will support this team.

A temporary medical facility and occupational health care centre will support on medical requirements during incidents / accidents.

The HSE organizational structure has been devised based on the HSE Manual of Serka MSF and to address specific requirements such as those listed below.

- Inspections / Audits
- Training
- General Safety Practices
- Occupational Injury/Illness And First Aid
- Risk Identification, Assessment & Control
- Hazard Communications Program Hazardous Work Permits
- Incident / Accident Investigation
- Emergency Response Plans
- Temporary Electrical Power Management
- Energy Control: Lock-Out/Tag Out And Try
- Use of Ladders
- Fire Prevention
- Materials Handling, Storage And Disposal
- Hearing Conservation
- Fall Prevention
- Personal Protective And Safety Equipment
- Consumption Of Substances
- Workplace Cleanliness & Hygiene (Welfare Facility)

**Figure 4-1: Organizational Chart of the HSE Team of Serka – MSF**



### 4.3. Roles & Responsibilities

The following section outlines the key parties involved and their corresponding roles and responsibilities. A more detailed organization chart for Project management can be found in the Appendix C to help clarify the level of interaction between the different parties.



### 4.3.1 Contractor – Serka MSF

To be effective, this CEMP must be viewed as a tool reflecting the Contractors and Sub Contractors overall commitment to environmental protection. This must start at the most senior levels in the organisation. Serka MSF management must provide strong and visible leadership to promote a culture in which all employees share a commitment to environmental awareness and protection. This covers health and safety, including labour.

This will be achieved by managers:

- Putting HSE matters high on the agenda of meetings;
- Highlighting the importance of HSE considerations in business decisions and communication with stakeholders;
- Evaluating HSE aspects, before final decisions are reached;
- Being fully aware of the main HSE hazards associated with the Contractor and SubContractor activities and the systems, procedures and field practices in place to manage these hazards;
- Immediately and visibly responding and being involved in investigating incidents or other abnormal events related to HSE;
- Ensuring performance appraisals of staff and Sub-Contractors include appropriate HSE results and activity improvement targets;
- Seeking internal and external views on HSE issues; and
- Recognising HSE achievement.

With overall responsibility for the Project, the Contractor must:

- Obtain the relevant environmental permits, consents and authorisation prior to the site works;
- Demonstrate that the Project has minimal impact to the environment;
- Ensure that all business is conducted in a manner that protects the environment;
- Implement all of the recommendations on mitigation and monitoring held in the EIA Report and this CEMP;
- The environmental review activity will be led by the EPO reporting to HSE Manager;
- Retain an Environmental Team (ET) to assist with monitoring, analysis and reporting of environmental information. This team may be partly internal staff trained to undertake tasks and/or an appointed external expert(s) such as Five Oceans (5OES);
- Allow an Independent Environmental Checker (IEC) to audit and verify the overall environmental performance of the works and to assess the effectiveness of the ET in their duties;
- Supervise the activities and ensure that the requirements of the CEMP and the contract documents are fully complied with;
- Adhere to the procedures for carrying out complaint investigation;
- Participate in joint site inspections undertaken by the ET;
- Implement all of the recommendations on mitigation and monitoring held in the EIA Report and this CEMP;
- Work within the scope of the construction contract and other tender conditions;



- Submit proposals on mitigation measures in case of exceedance of Limits in accordance with the Event and Management Plans; and
- Adhere to the procedures for carrying out complaint investigation.

SEZAD shall ensure that Contractors complies with the provisions of the CEMP, by reviewing their environmental performance and carrying out environmental awareness sessions, audits and inspections where appropriate.

### **Key Project Personnel (PM, HSE & EPO)**

Key Project Personnel from Serka MSF designated to take on roles in implementing the requirements within the CEMP are described below.

Project Manager: Baburhan Gürses Mobile  
Number: +968 91452103  
Email Address: [baburhan.gurses@serka-msf.com](mailto:baburhan.gurses@serka-msf.com)

The Project Manager assigned by Serka MSF is directly responsible for compliance with statutory requirements, best practice guidelines and compliance with this CEMP.

HSE Manager: Alev Üstünbicak  
Mobile Number: + 00 (968) 92158542  
Email Address: [alev.ustunbicak@serka-msf.com](mailto:alev.ustunbicak@serka-msf.com)

The HSE Manager, having overall oversight over HSE matters, shall:

- Oversee the implementation of the CEMP and ensure that each member from Contractor and Sub Contractor is made aware of, and is fully implementing, its requirements;
- Notify the Client immediately in writing of any environmental incident. The notification shall include details of response and mitigation measures taken with amendments made to any procedures to avoid the future reoccurrence of the incident.
- Review Sub-Contractor environmental protection/performance to verify compliance with the CEMP;
- Ensure all Project staff have undergone environmental awareness induction;
- Coordinate the response to internal and external complaints relating to the environmental performance of the site;
- Conduct inspections, reviews and monthly internal audits and provide the Project Manager with monthly Internal Audit Reports.

EPO: Abid Hussain (also First Aider)  
Mobile Number: +968 71521847  
Email Address: [abid.hussain@serka-msf.com](mailto:abid.hussain@serka-msf.com)

The Environment Protection Officer (EPO) shall be responsible for monitoring all staff, Contractors and Sub-Contractors on site with regards to environmental performance. The EPO



shall be responsible for ensuring measures are implemented at all times in accordance with the CEMP.

The EPO should conduct complete weekly site inspections and results should be reported to the HSE Manager. Information that is deemed important to be reported includes:

- List of Sub Contractors on site;
- Negative observations;
- Non-compliances;
- Environmental Incidents;
- Spills and volumes;
- Complaints;
- Any Emergencies;
- Training conducted and number of staff trained; and
- Monitoring Records.

The EPO shall be responsible for ensuring monitoring programs provided in this CEMP are conducted. The EPO shall be responsible for investigating incidents and communicating the investigation results and proposed corrective action (if any) to the HSE Manager. The EPO shall also be responsible for coordinating the response to internal and external complaints relating to the environmental performance of the site, along with the HSE Manger.

#### **4.3.2 Sub-Contractor(s)**

Any Sub-Contractor(s) hired directly or indirectly by the Contractor to carry out Project related tasks is designated as a Sub-Contractor.

It is the responsibility of those Sub-Contractor(s), whose activities have at least one interface with identified key environmental aspects, to comply with the CEMP at all times. They must also designate at least one person to ensure all Sub-Contractor(s) personnel receive the required training.

Sub-Contractors directly in charge of activities shall be registered and approved. Registration documentation should be provided to SEZAD prior to commencement of any activities. SubContractors are expected to demonstrate a proactive behaviour towards environmental concerns. It is their responsibility to provide information requested by SEZAD with regard to their scope of activities and to demonstrate compliance with the applicable environmental requirements, which also cover health and safety, including labor.

#### **4.3.3 Third Party Environmental Team (ET)**

Serka MSF have appointed a third party Environmental Team (ET) to assist with the monitoring and auditing works and to provide specialist advice on undertaking and implementing mitigation measures.

During the development of the project construction phases, the evidence of any nonconformance of the reviewed activities, if any, will be given to the Project Manager at site



with a copy to Construction Manager, HSE Manager and EPO officer when reported will implement preventive and remedial actions, if any, as soon as possible.

To maintain strict control of the CEMP process, the project will be monitored by an Independent Environmental Checker (IEC) to verify and validate the environmental performance of their Contractor(s) and the ET. For this project the IEC will most likely be SEZAD.

The ET should conduct quarterly site inspections and audits where results should be reported to Serka MSF and SEZAD. Information that is deemed important to be reported includes:

- Monitor various environmental parameters as required in this CEMP;
- Review the implementation of the mitigation measures;
- Assess the CEMP data and review the success of the CEMP programme, the adequacy of the mitigation measures implemented and the validity of the EIA predictions as well as identify any adverse environmental impacts before they arise;
- Review investigation reports from environmental incidents (e.g. accidental spillages or discharges) to ensure they are properly managed and documented;
- Review reporting on health and safety, including labour, and
- Produce quarterly reports for reporting environmental monitoring data, site environmental conditions and audits to SEZAD.

#### **4.3.4 Project Managing Consultant (PMC)**

The PMC will:

- Review and monitor the implementation of the CEMP and the overall level of environmental performance being achieved;
- Arrange and conduct independent site inspections/audits of the project during construction phases;
- Audit the EIA recommendations and requirements against the status of implementation of environmental protection measures on site;
- Review health and safety, including labour;
- Check complaint cases and the effectiveness of corrective measures;
- Check that the necessary mitigation measures are effectively implemented;
- Review CEMP reports submitted by the ET and feedback audit results to ET;
- Report the findings of site inspections/ audits and other environmental performance reviews to Serka MSF and ET.

#### **4.4. Communication**

Senior management support, as described above, will generate an environmentally responsible culture within Contractor as a platform for fully implementing the CEMP. In addition:

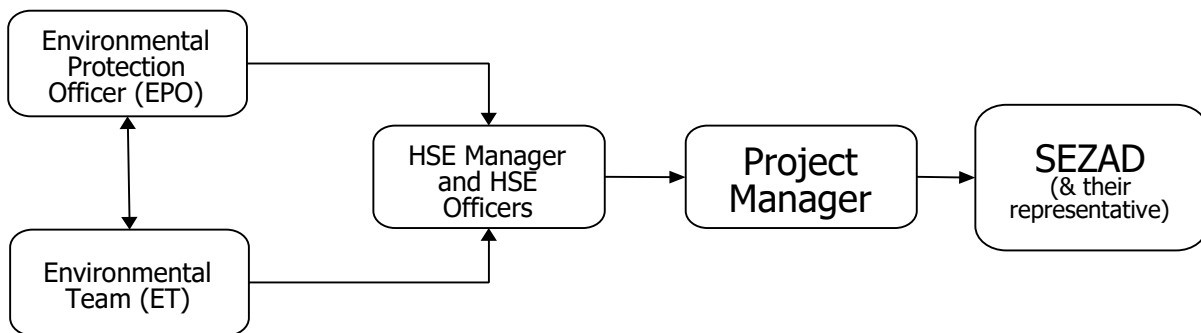
- Regular Toolbox meetings at the site will include CEMP implementation as an agenda item;
- Regular HSE meetings shall be held on site for relevant staff including representatives of the environmental monitoring teams;
- The following information will be posted to notice boards at the site office:



- Specific individuals and their responsibilities, from an HSE perspective;
- Audit timings and summary of findings;
- Locations of all HSE procedures; and
- Description of any incidents and the responses.
- Environmental reports, minute meetings, etc. generated by the HSE staff as well as a copy of the CEMP are kept on site and are easily obtainable during audits by external third party auditors.

In addition to the proposed formal training (described below), opportunities for raising awareness of the importance of environmental protection will be identified and implemented, throughout the Project.

**Figure 4-2: Lines of Communication**



#### 4.5. Training

The CEMP will not be effectively implemented unless all staff are aware of their specific responsibilities and required actions, as specified by this CEMP.

The HSE Manager shall conduct training sessions on the CEMP for the staff listed with specific responsibilities and all other senior staff with authority to implement impact mitigation commitments.

The training sessions will cover:

- CEMP objectives and approach;
- Responsibilities for CEMP implementation;
- Impact mitigation;
- Environmental monitoring programmes;
- Environmental communication channels;
- All CEMP procedures including impact mitigation auditing, environmental monitoring, incident reporting and corrective actions; and
- Emergency procedures such as response to spills.

Records of training shall be maintained by the HSE Manager/EPO, Appendix D: Environmental Training Register, which may be used for this purpose.





Specific HSE mandatory training will be carried out on site, based on the following matrix (Source: HSE Manual of Serka-MSF):

**Figure 4-3: Lines of Communication**

Training Type	Assessment Requirement	Training Frequency
New Employee Training & Orientation	Upon Assignment	Upon Assignment
Employee Emergency Plans	Monthly/ Periodic	Upon Assignment/ Periodic (As Plan Changes)
Fire Prevention Plans	Monthly/ Periodic	Upon Assignment/ Periodic (As Plan Changes)
Hazard Communication	Upon Assignment	Upon Assignment/ Periodic (As Plan Changes)
Employee access to Medical Records	Upon Assignment	Annually
Fall Arrest System	Upon Assignment	Upon Assignment
Occupational Noise Exposure	Upon Assignment	Annually
PPE	Periodic	Upon Assignment
Respiratory Protection	Upon Assignment	Annually
Confined Space Entry	Upon Assignment	Periodic (As Plan Changes)
Control of Hazardous Energy	Upon Assignment	Periodic (As Plan Changes)
Portable Fire Extinguisher	Upon Assignment	Annually
Electrical	Upon Assignment	Periodic

#### 4.5.1 Environmental Protection Officer (EPO)

Suitable training will be given to provide the EPO with requisite skills to carry out his duties. This will typically be five days dedicated Environmental training accredited to IEMA or equivalent. This may include training on developing waste management facilities, supervising environmental monitoring works (air and noise in particular).

#### 4.5.2 Site Inductions

The practice of conducting site inductions for newly joined personnel, visitors and contractors entering the work site, is strongly supported where they have been proven to have significant benefits.

Site inductions begin with a focus on safety issues but will also include a section on the Environmental Impacts including the basic rules for waste management and chemical handling.

The site induction session will provide information on the geographic locations of the following areas: waste management facilities (hazardous and non-hazardous), concrete washout facility,



water abstraction point, chemical store and the fuel storage location. The site induction will include guidance on preventive practices and preparedness to avoid emergencies (such as an oil spill, fire or release of toxic gas / fumes) and provide instructions on response in the event of an EHS emergency on site.

#### **4.5.3 Tool Box Talks**

Tool box talks are brief, 5-10 minute, once a day or once a week explanation to labourers or workers in language and means that they understand health & safety or environmental aspects that are critical to their workplace. An example might be a toolbox talk on how to refuel vehicles in a safe and responsible manner to avoid spills and static electricity related hazards.

#### **4.5.4 EHS Awareness Campaigns/Events**

These will be organised on, for example and annual basis and will be the means by which a large number of people in the space of a few hours are taken out of their daily work environment and given an explanation on the importance of key aspects of the project. Participatory style events such as workshops, beach clean ups, team building events, tree planting, etc. are preferred to a lecture style approach in this case.

An EHS Risk map has been prepared (Appendix B: Environmental Risk Map) and will be printed on A1 size paper and displayed in relevant areas such as entry gates, site cabin walls, key installations, etc. The risk maps will be maintained and updated based on changes carried out.

The updated EHS Risk Map will aid in the raising awareness and induction training for site staff as well as key stakeholders (such as Government officers. A register will be maintained based on conduct of awareness sessions, training and induction events.

#### **4.6. Liaison with SEZAD**

The Client will be ultimately responsible for liaison with the SEZAD. The objective will be to work closely with the SEZAD and their representatives to ensure that the provisions of this CEMP are fully implemented.

SEZAD along with their lenders AIIB, will review and assess this CEMP and issue the Construction Environmental Permit, potentially with additional conditions, prior to the start of construction. At their discretion, the SEZAD may carry out site inspections to verify Contractor compliance with the CEMP.

SEZAD will be provided with quarterly reports to review. These will include the quarterly external audit reports. SEZAD shall be notified when CEMP activities change or where CEMP controls need to be modified to become more effective or specific for the site. These quarterly reports will be shared periodically with AIIB as per the loan agreement of SEZAD with AIIB and their comments / suggestions will be incorporated.

SEZAD are responsible for the timely provision of permits and applicability and guidance regarding national legislation.



Responsibility to liaise with SEZAD and acting on complaints will ultimately be with Serka MSF. Please refer to the next section for communication protocol between Serka-MSF, SEZAD and AIIB on grievance redress service.

#### 4.7. Grievance Redress Mechanism (GRM) of SEZAD

SEZAD has prepared and approved a GRM that is now operational.

The intention of this mechanism is to enable anyone within DUQM; to be able to have access to a complaint process that can be used, without risk of retaliation, by individuals, workers, communities and/or civil society organisations that are being affected by business activities and operations within the special economic zone authority.

The Grievance Redress Service (GRS) being handled by the Partnership and Development Department (CSR Section) ensures that complaints are promptly reviewed, addressed and responded within a certain time frame by the department within the Special Economic Zone Authority of SEZAD.

The intention of this procedure is to validate the importance of having SEZAD more accessible to its communities and to help ensure faster and better resolution related to any grievance or service issues. Participation in the GRS is voluntary, anonymous (when requested) and without charge.

The GRS is open to all however does not relate the same with regard to lands as this is handled by the Ministry of Housing, all enquiries received with regard to this will be advised of whom to contact at the Ministry of Housing as well as the dedicated person.

There are a number of options to access / report the grievances:

- **Phone -** The Partnership & Development Department (PDD) can be contacted between the hours of operation (5 am- 3 pm) Sunday to Wednesday on 24507216.

(Note: Phone calls received must be followed up with an office visit or official letter of complaint unless enquiring; all calls taken will be noted to ensure a data of calls received).

- **Office Visit** – Complainants may visit the Partnership & Development Department {PDD) can be visited during working hours (8:00am – 3:00pm) at the following address
  - Special Economic Zone Authority Duqm 4th floor, Al Mashriq Building, No.113, Street No. 70, Block No. 248, Muscat, Oman
  - Special Economic Zone Authority Duqm, SAY Office, SAY, Duqm, Sultanate of Oman
- **Official Letter -** The Official letter can be directed to the Manager of the Partnership and Development Department (PDD) and can be dropped of either directly to any one of our offices in DUQM or Muscat- Most letters received will be stamped with the date received and a follow through call would be made within 24 hours to acknowledge



receiving the letter. Please note that Phone numbers for contacting the individual must be placed within the letter.

- **Email** - An Email can be sent to the Partnership & Development Department to [CSR@duqm.gov.om](mailto:CSR@duqm.gov.om)
- Please ensure that a copy of the letter is attached; this service is quicker and most effective and all emails will be responded to within 24 hours of receiving.
- **Website Portal** – The GRM process of SEZAD and the online grievance form can be accessed at the following links:
  - <http://www.duqm.gov.om/sezad/csr/sezad-grievance-redress-mechanism-sgrm>
  - <http://www.duqm.gov.om/sezad/csr/grievance-form>
  - An option is available for the individual filling the form to tick the anonymous button to ensure that there is no requirement for personal details to be filled.
- All information regarding the process of the grievance system is available as well as a form that can be filled online and sent directly to the Partnership and Development Department - this service provides the form directly to the CSR Section Manager as well as the Deputy Chief Executive Officer of SEZAD.

### Response Times

- All Letters and forms filled online will be acknowledged within 24 hours.
- Responses to the letters will be provided to the sender within 72 hours of being received.
- In the event the response will take longer an estimated time will be provided within 72 hours.
- All Grievance issues will be handled by the Partnership and Development Department (CSR Section); in the event the department will is unable to assist or respond; it will be raised to the Deputy CEO of SEZAD- Here responses generally will be answered within 7 days from the date of the letter/ grievance received, however it may change depending on the complexity of the grievance.

The Arabic version of the GRM of SEZAD is provided in Appendix N.

### 4.8. Complaints and Grievance Mechanism of SERKA MSF

In line with the requirements of the RD 35 / 2003, Serka MSF has established an internal Complaints and Grievance system as part of its HR Policy and HSE management.

A complaints reporting proforma is provided in Appendix E: Grievance Register. It includes a provision that "Grievances may be made anonymously".

Any incident constituting an Environmental Emergency will be dealt with under the Emergency Response Plan in Section 6.

An environmental incident report is provided in Appendix F: EHS Incident Reporting Form.



## 4.9. CEMP Audits

### 4.9.1 Internal EHS Audits

Serka MSF is committed to continuous improvement of the Project's EHS performance. In order to achieve this, weekly site inspections and monthly internal audits and reviews of onsite practices and procedures shall be performed by the EPO Officer in order to confirm that the CEMP is being actively implemented.

The monthly audit shall include the following:

- Audit date, and auditor details;
- The status of the current Project;
- Notification of schedule changes for the operational programme;
- Summary of audit findings/responses;
- Incident reports;
- Non-conformance/corrective actions/recommendations; and
- Other information (such as reported incidents).

The primary objective of the internal audit programme is to:

- Assess the effectiveness of the environmental controls established by Serka MSF and the implementation of the environmental mitigation measures recommended in the EIA.
- Check the implementation of environmental management plans on a frequent basis and ensure CEMP recommendations are implemented prior to commencement of all construction activities; and
- Identify any events of non-conformance and document in non-conformance register.

The scope of the Internal Audit Programme will include, but not be limited to the following:

- Develop internal audit checklist / protocols. These will be prepared by the internal auditor and will ensure the audits are comprehensive and consistent;
- Audit vehicle refuelling and fuel tank refilling operations;
- Assess dust and air emission controls and their conformance to the CEMP;
- Assess sediment and runoff controls and their conformance to the CEMP;
- Assess wheel-washing facilities' effectiveness in preventing outgoing vehicles from bringing dirt/dust/soil onto public roads;
- Assess noise controls and their conformance to the CEMP;
- Assess housekeeping and storage practices and their conformance to the CEMP;
- Assess the waste management program and its conformance to the CEMP;
- Audit pipes and pumps supporting the concrete pouring process and assess for leakages/spill if any;
- Audit the area of construction and assess its conformity to the planned areas;
- Ensure all environmental mitigation measures are installed prior to commencement of construction activities;
- Develop internal audit reports; and • Maintain a non-conformance register.



The EOP Officer shall ensure provision and finalisation of corrective actions and recommendations and shall forward the finalised consolidated audit and non-compliance reports to the Project Manager of Serka MSF with a copy provided to relevant Sub Contractor.

In addition, each Sub Contractor will be required to undergo a Mobilization briefing (before commencing work on site) and a Demobilisation audit (before departing the site).

#### **4.9.2 External Environmental and Safety Audits**

The ET will undertake quarterly site monitoring audits that will also review the weekly/ monthly inspections that have taken place.

The objectives of External Audit Program are to:

- Audit overall implementation of CEMP including the environmental and safety monitoring program;
- Validate and confirm accuracy of monitoring results, monitoring equipment, monitoring location, monitoring procedures and location of sensitive receptors;
- Review effectiveness of environmental mitigation measures and project EHS performance;
- Review environmental management system and procedures being followed by the Contractor and Sub Contractors;
- Review and verify monthly / quarterly monitoring reports;
- Provide an early indication and suggest appropriate additional or remedial measures should any of the environmental mitigation measures or controls fail to achieve compliance with relevant regulations/standards;
- Verify if necessary, any additional mitigation measures or alternative measures to be undertaken by the Contractor and Sub Contractors as corrective actions to prevent adverse environmental impacts arising from the works; and
- Prepare an External Audit Report reflecting all of the above.

The audit and inspection programme will undoubtedly complement the monitoring activity with regard to the effectiveness of controlling impacts on environmental receptors, the criteria against which the audits will be undertaken will be derived from the clauses within the contract documents and Environmental Permit, which will seek to enforce the recommendations of the EIA and the established management systems.

#### **4.10. Reporting**

EHS monitoring data, site environmental conditions and audits will be reported by the EPO on a monthly basis to SEZAD determined by monitoring effort. Quarterly summary reports will also be produced ET and certified by Serka MSF. The quarterly reports will be submitted to SEZAD to show compliance with permit conditions, CEMP, EIA and local regulations. SEZAD will forward the quarterly reports to AIIB on a periodic basis.



#### **4.11. Review of the CEMP**

Review of the CEMP is required to maintain continual improvement, suitability and effectiveness of the CEMP and to review the performance of the CEMP. A formal review and necessary update shall be undertaken by the HSE Manager on a six monthly basis.

Environmental performance and adherence to the requirements in this CEMP shall be included as an agenda item on Senior Management monthly meetings.

#### **4.12. Cessation of the CEMP**

The cessation of the CEMP will be subject to the satisfactory completion of a Final Review Report and agreement with the Client/PMC. The CEMP as well as the original design report then becomes the basis for the production of the Operational Environmental Management Plan.



## 5. CONSTRUCTION ACTIVITIES

This section presents the overview of the Project focusing on the equipment used, the workforce and demobilisation of the camp. Specific construction method statement for activities will be reviewed by the PMC for their environmental impact and approved prior to work commencing.

### 5.1. Construction Equipment and Machinery

The table indicates a shortened list of plant and equipment where the number required is over 10. Several other equipment will be required, a full list can be provided if required. Each item will be operated in accordance with the manufacturer's operational manual any environmental requirements contained therein. All equipment will be operated within the overall framework of this CEMP with a particular Dust suppression (CEMP Focus Area 1: Management of Earthworks), disposal of used engine oil and lubricant (CEMP Focus Area 2: Management of waste), Fuel Handling and Vehicle washing/ maintenance (CEMP Focus Area 3: Management of Fuel and Chemicals). In the case of piling operations and excavation below sea level where seawater extraction and disposal then CEMP Focus Area 4: Management of the Marine environment, will be relevant. In all cases the fuel and electricity consumption of equipment and plant covered by CEMP focus Area 5: Management of material and resource consumption.

**Table 5-1 Table showing key plant and equipment requirement**

Machinery/Equipment	No. Required
Backhoe Loader	42
Mobile Crane	15
Concrete Mixer	18
Roller compactors	22
Easy fill paver jointing Device	12
Wheel loader	12
Generators	12
Hydraulic Excavator 30 Ton	20
Tower Lights	16
Trucks	65
Vibrator probe S700	66
Vibrating Plate compactor	24
Water Tanker (20000 lts)	10

### 5.2. Construction Workforce

The project is a 30 month long project with the construction workforce which is planned to rise to 536 people in month 8, expected to peak at 670 people in month 16, reducing to 230 in month 20. The number of staff at the site will have a direct bearing on the inputs required





at the camp (potable water, electricity, food) and outputs (waste water and solid waste). The environmental impacts of these inputs and outputs will be reviewed at the camp with increasing and decreasing levels of management intervention depending on the number of people at site.

### **5.3. Demobilization**

The site will be demobilised on completion of construction with a particular focus on the demobilisation of the camp area unless subsequent instruction from the client. In particular all buried services, foundation or installation will be removed and any ground contamination will be cleared.



## 6. ENVIRONMENT HEALTH AND SAFETY EMERGENCY RESPONSE PLAN

### 6.1. Scope of the ERP

This section of the CEMP deals with Environmental as well as Health and Safety related Emergencies. Weather related emergencies such as cyclones or severe dust storms are primarily a safety concern and therefore not the subject of this response plan.

Environmental Emergencies are primarily related to Fuel, oil or chemical spills on or sea. In addition is the post emergency consequences of a large fire and the need to deal with the hazardous waste from a fire incident. This will be dealt with under CEMP Focus Areas 2,3 and 4. This Environmental ERP will deal primarily with spills prevention and response on land and sea.

**The Emergency Response Plan of the Port of Duqm is presently under development.**

Once completed, this ERP will be reviewed to ensure that there is close integration between the plans to ensure good coordination and communication in the event of an area wide emergency. In the event that this project is affected by emergencies from within the port (such as a major oil spill in the port) the Port of Duqm procedures would be followed in preference to this plan.

### 6.2. Emergency Response Contacts

This site will use the Rusayl Health Center Port of Duqm Clinic as the primary emergency facilities. There is Verbal and Mutual Agreement with Rusayl Health Centre, Port of Duqm Clinic until Serka-MSF JV Medical Clinic Facility will commence operation.

Any EHS emergency incidents will be relayed to SEZAD, who will advise Serka MSF and an appropriate course of action will be determined. In case of any emergency, the contact details for appropriate personnel are provided below.

An emergency phone number contact list for Serka-MSF, subcontractor, client, and emergency responders will be compiled and posted at the site, and carried in all vehicles used with Drivers and bulletin board. Emergency numbers and means of communication to the clinics/ ambulance service will continuously be updated and changed as needed on the site emergency information boards.

**Table 6-1: Emergency Response Team**

No.	Name	Company	Designation / Responsibilities	Contact Number	Email ID
1	Dr. Alan A. Basalio	Serka-MSF	General Practitioner – Medical Officer	(+968)95830239 (+968)24342891	TBC



No.	Name	Company	Designation / Responsibilities	Contact Number	Email ID
2	Alev Üstünbicak	Serka-MSF	HSE Manager and First Aid CPR AED	(+968)92158542 (+968)99237167	<a href="mailto:alev.ustunbicak@serka-msf.com">alev.ustunbicak@serka-msf.com</a>
3	Mohammad Imran	Serka-MSF	Deputy HSE Manager and First Aid CPR AED	(+968)91461249	<a href="mailto:mohammad.imran@serkamsf.com">mohammad.imran@serkamsf.com</a>
4	Abid Hussan	Serka-MSF	EP Officer and First Aid CPR AED	(+968)71521847	<a href="mailto:abid.hussain@serka-msf.com">abid.hussain@serka-msf.com</a>
5	Kamran Khan	Serka-MSF	HSE Officer and First Aid CPR AED	(+968)91262971	TBC
6	Muhammed Waqus	Serka-MSF	HSE Officer and First Aid CPR AED	(+968)71522417	TBC
7	Nadir AlBalushi	RHKA	HSE Engineer	(+968)93640909	<a href="mailto:Nadir.AIBalushi@khatibalami.com">Nadir.AIBalushi@khatibalami.com</a>
8	John Cunliffe	SRE	TBC	(+968)92859422	TBC
9	Baburhan Gurses	Serka-MSF	Project Manager	(+968)91452103	<a href="mailto:baburhan.gurses@serka-msf.com">baburhan.gurses@serka-msf.com</a>
10	Ahmet Sayiner	Serka-MSF	Contracts Manager	(+968)71517940	TBC
11	ROP/Security Forces	N/A	ROP/Security Forces	(+968)23436099	N/A
12	Local Fire Department	N/A	Local Fire Department	(+968)23410145	N/A
13	Local Hospital	N/A	Local Hospital	(+968)25415278	N/A
14	Pharmacy (08/13 & 17/21)	N/A	Pharmacy (08/13 & 17/21)	(+968)93219054	N/A
15	Private Clinic (08/13 & 17/21)	N/A	Private Clinic (08/13 & 17/21)	(+968)71147878	N/A
16	24 Hours local Help Desk	N/A	24 Hours local Help Desk	9999	N/A
17	First Aid	N/A	First Aid	(+968)25210777	N/A

All employees will be trained in the emergency response requirements of the project location (HSE Manual of Serka MSF). The following elements at a minimum will be covered:

- Personnel roles,
- Lines of authority and communication



- Emergency recognition and prevention
- Evacuation routes and procedures
- Emergency medical treatment and
- First aid.

### **6.3. Spill Prevention and Response**

#### **6.3.1 Spill Prevention**

The contractor is required to do everything practicable to minimize the potential for a spill. Spill prevention mechanisms include the following:

##### Training:

All Contractor employees and Sub-Contractors involved with transporting or handling fueling equipment or maintaining construction equipment will be required to complete spill training before they commence work on the Project. Spill training programs will be conducted by the HSE Manager in order to:

- Provide information concerning pollution control laws;
- Inform personnel concerning the proper operation and maintenance of fueling equipment; and
- Inform personnel of spill prevention and response requirements.

Training for other workers will be provided through ongoing weekly meetings, which will discuss safety, and spill prevention and response, including personal responsibility to initiate appropriate procedures. Attendance of training sessions will be documented using sign-in sheets that will become part of the permanent construction records.

##### Suitable Storage of Materials:

Fuels and lubricants will be stored in designated areas and in appropriate service vehicles. Storage sites for fuels, other petroleum products, chemicals, and hazardous materials including wastes will be located in uplands. To prevent these materials and other contaminants from reaching waterways, no hazardous substances will be stored within 30m of streams and/or within 60m feet of groundwater wells (120m for public wells).

##### Equipment Inspection:

Prior to moving any equipment, the contractor will visually inspect each piece of equipment for cracks, excessive corrosion, or other flaws that may compromise the integrity of its fuel, hydraulic, or cooling systems. The contractor will repair or replace leaking equipment immediately after a leak is detected and will be responsible for prompt reporting and mitigation of any fuel or lubricant spills from their equipment. Pipes and pumps supporting the concrete pouring process should also be regularly assessed for leakages/spill.

##### Care towards Sensitive Environments:

Refueling and lubricating of construction equipment will be restricted to upland areas at least 30m away from the edge of any water bodies and 45m from water supply wells wherever possible. Wheeled and tracked construction equipment will be moved to an upland area more



than 30m away from water bodies for refueling and at the end of each work day. Fuel and service truck drivers will be responsible for spill prevention during fueling and service activities and drivers will be held responsible for observing and controlling fueling operations at all times to prevent overfilling.

### **6.3.2 Spill Response**

The Contractor will supply each construction crew with a suitably sized spill kit that should be readily accessible next to storage and waste areas, refuelling areas, maintenance areas and bulk fuel storage areas as a minimum. Spill Response materials shall include the following:

- Sand;
- Sand bags;
- Buckets and shovels; and
- Storage containers.

Sand is one of the most versatile containment materials, which can be used to soak up spillages of oil and chemicals and used in sand bags to block off substances from sensitive areas or channel them to a predetermined collection point. Sand stocks must be dry and buckets and shovels readily available. Mechanical loading shovels, excavators and dump trucks may also be used for distribution and clean up. Storage containers for contaminated materials and earth shall be banded. The containers shall be labelled, placed in the waste storage area and treated as hazardous waste. Bulk storage tanks will not be placed in areas subject to periodic flooding or erosion.

This material is to be used to contain and clean up spills, and care shall be taken to dispose of any absorbent materials properly. The sand or other absorbent material is not to be washed away. The HSE Manager shall keep stocks well maintained and replenished, and will provide and maintain copies of this plan to all Contractor and Sub-Contractor personnel.

For marine-based spill incidents, floating booms, skimmer pumps, and holding tanks shall be readily accessible and will be used by the Contractor to recover and contain released materials on the surface of the water.

Floating booms are temporary barriers that are generally used to contain floating spills and divert them away from sensitive habitats and/or into collection locations. Skimmers are items of mechanical equipment that can then be used to physically remove the floating spills from the water's surface. Common designs use a conveyor belt placed at the water line to carry the spillage into a reservoir, where it is collected for processing and recovery. Other skimmer technologies use suction to remove spilled material. Sorbents can also be applied to the spill area to polish up after other recovery options have been used.

For all spills, and regardless of size, contaminated soils and vegetation will be excavated and temporarily placed on and covered by plastic sheeting in a containment area a minimum of 30m away from any wetland or waterbody, until appropriate disposal can be arranged.



### 6.3.3 Response Procedures

It is the responsibility of all personnel to report any spill occurrences on site, regardless of size, to the EPO and/or HSE Manager. The HSE Manager, in his role as Spill Coordinator, shall liaise with the appropriate HSE Engineers to ensure that the appropriate spill response procedure is selected and applied. The HSE Manager shall also ensure that a report is filed containing information on date, time, location, type and quantity of spilled material, description and cause of incident, action taken, name of person reporting the incident, recommended actions for ensuring the incident doesn't reoccur and proper photo documentation.

The following is an outline of the general response procedure to be followed during spill events.

1. Assess the safety of the situation, including the risk to the surrounding public;
2. Protect personnel;
3. Confine the spill;
4. Containing at source; and
5. Clean-up/reinstatement of the site.

If a spill is beyond the scope of on-site equipment and personnel, an additional member of the Emergency Response Team will be contacted and secured to further contain and clean up the spill.

### 6.3.4 Spill Classification

A 'tiered response' to classify spill risks and the associated prevention measures and spill responses according to the size (or potential size) of the spill and its potential to result in safety and environmental impacts is outlined below. Implementing a 'tiered response' concept enables the response team to classify spills according to size and implement a predetermined level of response for a given size spill. In addition, should a spill event become more or less significant over time, the use of a 'tiered response' classification system facilitates the communication of changes in spill size and thus the changes in expected spill response requirements to all parties involved.

This plan establishes three spill tiers based on the quantity of materials spilled.

#### **Tier I: Minor Spill**

Tier I spills are considered minor in nature, with typical examples being small leaks of fuel from process equipment or piping, spills of chemicals or consumables from mobile/portable containers or pumps and drum leakage caused by human error (i.e. sub-standard maintenance or operating practices).

A Tier I spill should be managed and controlled by the Contractor's site operations staff, with coordination by site-based QHSSE officers. Tier I spills are defined as:

- Fully contained within a secondary containment area on the site and less than 10 tonnes and no immediate threat of migration outside containment area



- Outside of a secondary containment area or the site boundary and less than 1 tonne (5 – 10 bbls), and characterized by the following:
  - No wildlife in the area is likely to come into contact with the spilled material;
  - Immediate containment of spill and control of hazard/source is achievable;
    - No immediate danger to the public exists;
    - Environmental impact is not significant; and
    - Little or no media interest.

### **Tier II: Intermediate Spill**

Tier II spills are considered to be intermediate or large spills and defined as:

- Fully contained within a secondary containment area at the site and less than 20 tonnes and no immediate threat of migration beyond company property, but has potential for such if not dealt with properly and in a timely manner.
- Outside of a secondary containment area and more than 1 tonne but less than 25 tonnes (175 bbls), and characterized by the following:
  - Requires enactment of the Port of Duqm ERP (since occurring outside of site boundary);
  - No land-based wildlife in the area is likely to come into contact with the spilled material;
  - Immediate control and management of the spill and its associated hazard is achievable;
  - Potential threat to the public and moderate environmental impact
  - Contamination of marine environment highly likely if spill occurs at Jetty area; and
  - Local and regional media interest.

The potential impact of a Tier II spill occurring anywhere outside the site is such that a diverse range of response resources would be required. If occurring outside the confines of the site, the involvement of emergency services, the Port Authority and other stakeholders, is required.

### **Tier III: Major Spill**

Tier III spills are considered to be uncontained and greater than 25 tonnes (175 bbls) if occurring at any location outside of the site and cannot be contained with the on-site resources of the Contractor. Tier III spill characteristics include:

- Requires immediate enactment of the Port of Duqm Emergency Response Plan if occurring outside of company property;
  - Public safety jeopardized;
  - Uncontrolled hazards;



- Significant and ongoing environmental impacts, including in the marine environment; and
- Local, regional and national/international media interest.

Tier III spills are those that, due to their magnitude and scale, are likely to require substantial resources and support from both national and international agencies. A risk assessment is not included here but it is unlikely that a Tier III spill would result from the proposed activities of the Contractor on this project. It is included here for reference however.

### 6.4. Health and Safety Emergencies

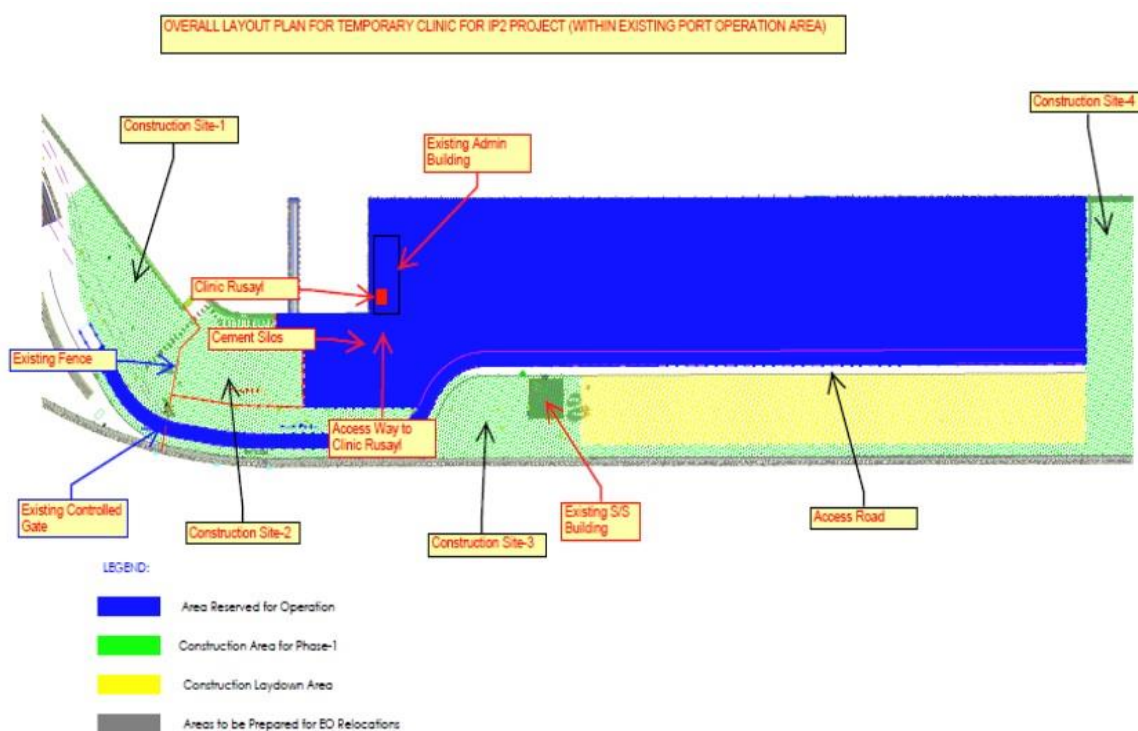
The HSE Manual of Serka MSF provides for a detailed **Construction Accident Prevention Plan and an Emergency Action Plan**. This plan includes preventive strategies, preparedness to avoid emergencies such as fire, flooding, mass exposure to large chemical spills and medical emergencies. It also includes procedures for preventing, controlling, managing and responding to all kinds of emergencies potential to the site.

This site will use the Rusay Health Center Port of Duqm Clinic as the primary emergency facilities. Emergency numbers and means of communication to the clinics/ ambulance service will continuously be updated and changed as needed on the site emergency information boards.

Ambulance Service, Clinic will be equipped with state of the art ambulance that can accommodate 5 patients at the same time for transfer to the nearest hospital. Ambulance service will be on standby at site during daylight and available 24/7 for any medical emergency.

See Figure 6-1 reproduced from the HSE Manual of Serka MSF.

**Figure 6-1: Emergency Route Map**







## 7. EHS Monitoring and Reporting

Environmental, Health and Safety monitoring is a fundamental component of CEMP compliance. Internal and External audits should verify compliance with EHS monitoring through a review of monitoring documentation.

The EHS monitoring work throughout the project period will be carried out in accordance with this CEMP and reported by the ET. Monitoring works will comprise of quantitative assessment of physical parameters such as water, air and noise quality impacts, which also form an important part of the whole monitoring programme. Detailed monitoring programme is provided in the sections below.

The calibration and testing of the monitoring equipment shall be in accordance to specifications supplied by equipment manufacturer prior to initiation of the monitoring activity.

The following section describes the types of EHS monitoring that will be carried out during the project:

### 7.1. Air Quality Monitoring

Air quality parameters will require monitoring during the construction phase. Construction equipment and processes have the potential to create a dusty environment. Monitoring here follows the requirements of **CEMP Focus Area 1: Management of Earthworks**.

#### 7.1.1 Particulate Matter Monitoring Methodology

Daily visual monitoring of air quality will be conducted by the EPO and/or HSE Manager. Visual monitoring will focus specifically on dust arising from the construction activities or construction related transportation activities. Stock piles should be covered and haul roads should be wetted down. Findings will be recorded in the Visual Dust Check Monitoring Form listing the date, time and dust intensity (slight, moderate or heavy). This checklist will be presented to the ET for reporting to SEZAD.

Weekly 24hr monitoring of TSP, PM<sub>10</sub> and PM<sub>2.5</sub> (using an Areocet 531 or equivalent) should be conducted and/or increased where necessary. Monitoring should be conducted by Serka MSF EPO and presented to the ET for reporting to SEZAD on a quarterly basis.

Quarterly 24hr monitoring of TSP, PM<sub>10</sub> and PM<sub>2.5</sub> will be conducted by the ET which will act as verification to the internal weekly monitoring, and presented to SEZAD in the Quarterly Environmental Performance Report.

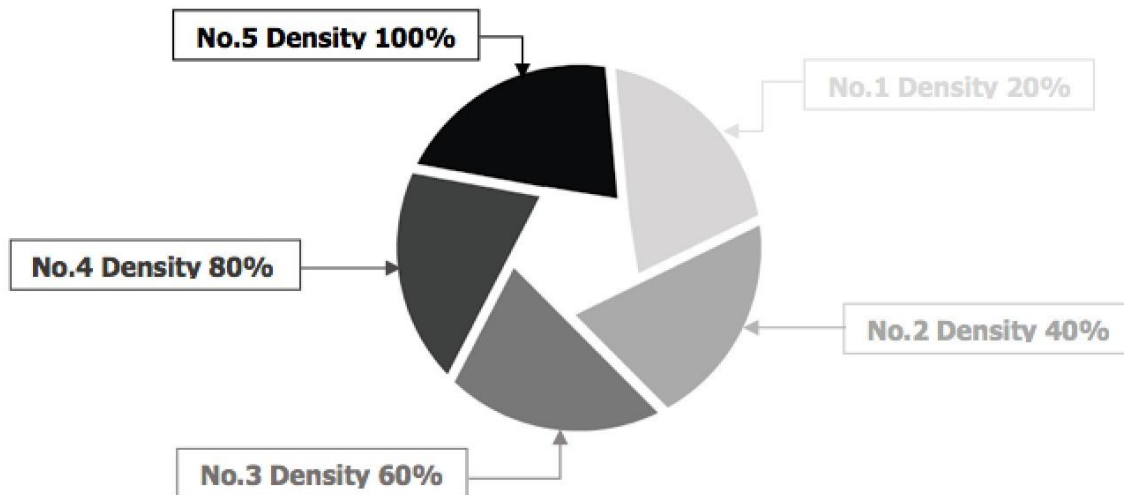
#### 7.1.2 Source Emissions Monitoring Methodology

Daily visual observations shall be made, using the Ringelmann Scale, on the smoke within exhausts for major equipment/vehicles to identify efficiency of fuel combustion. Daily monitoring to be conducted by the EPO and findings will be recorded in the Ringelmann Check



Monitoring Form listing the date, time, equipment ID and Ringelmann scale (Figure 7-1). This will be presented to the ET for reporting to SEZAD. Equipment releasing significant black smoke emissions should be shut down and serviced immediately.

**Figure 7-1: Ringelmann Scale**



Quarterly emission monitoring of all source emitting points will be conducted by the ET (using a Landcom III or equivalent) and presented to SEZAD in the Quarterly Environmental Performance Report.

## 7.2. Noise Monitoring

Noise parameters will require monitoring during the construction phase. Construction equipment and processes have the potential to create a noisy environment. Monitoring here follows the requirements of **CEMP Focus Area 1: Management of Earthworks.**

### 7.2.1 Ambient Noise Monitoring Methodology

The Contractor will implement a noise monitoring program and the EPO will undertake monitoring at the perimeter of the Project site and the nearest sensitive receptors. Construction noise will be assessed on a weekly basis using a handheld noise meter to test ambient noise levels. Locations will be positioned along each boundary side at four locations (north, east, south, and west) to confirm the levels are compliant with MD 79/94. Noise levels will be compared to baseline measurements conducted whilst no construction activities are present.

Violation of the boundary level noise limit (70dB as per MD79/94) shall be immediately reported to the HSE Manager. The Contractor shall be required to implement noise mitigation to reduce noise levels at the site boundary to the permissible regulatory standard.



## 7.2.2 Source Noise Monitoring Methodology

Noise will also be monitored on site near noisy construction equipment/activities on a daily basis in order to compare with acceptable noise levels in the workplace (85dB as per MD 80/94). To determine the noise monitoring locations, a mapping of noisy construction equipment and activities will be developed and maintained.

### Ecological Monitoring

Serka MSF will carry out ecological monitoring based on daily visual observations on birds and wildlife in the project and adjoining area. Any incidents of injury and death of fauna will be recorded and reported based on an investigation to understand the root cause. These observations and corrective actions will be verified during the periodic audits.

## 7.3. Waste Management

Waste streams from the construction phase will include:

- Non-hazardous solid waste;
- Hazardous solid waste;
- Non-hazardous liquid waste ; • Hazardous liquid waste; and
- Inert construction waste.

Various types of waste will be generated during the construction phase and will be listed and classified depending on their physical status (solid/liquid), category (municipal/inert/nonhazardous/hazardous) and final destination (reuse/recycle/recover/treat/landfill). Based on this detailed inventory, wastes will be sorted at the source to ensure appropriate segregation and storage depending on physical status, dangerousness and disposal method.

For most waste streams, classification as hazardous or non-hazardous will be straightforward and will help determine, along with other waste characteristics, how the waste will be disposed of. For some of the waste streams however, additional monitoring/analysis may be required to identify whether the waste is considered hazardous or not, as it may depend on the concentration of certain composition parameters.

Monitoring here follows the requirements of **CEMP Focus Area 2: Management of Waste.**

### 7.3.1 Non-hazardous Waste

Daily monitoring shall be conducted to ensure proper collection, segregation, storage and disposal of all wastes and maximisation of reuse and recycling opportunities. Daily monitoring will also ensure that toilets are clean, properly maintained and regularly emptied and that septic tanks are not leaking.

All non-hazardous waste will be removed and stored in a separate designated area for reuse, recycling or disposal to landfill. A Waste Log-book and consignment notes will be established



to ensure that wastes (hazardous and non-hazardous waste) are placed at the approved location(s) and treated and/or disposed of as required.

The spreadsheet outlined in Appendix G: Environmental Reporting Spreadsheet will be used to record waste volumes.

### **7.3.2 Hazardous Waste**

Daily visual checks shall be conducted for any on site hazardous materials such as fuels and chemicals to ensure there are properly stored with appropriate secondary containment. The Daily checks should be conducted to ensure that appropriate spill response material is available and located near to the fuel, chemical and waste storage areas.

The Hazardous Waste streams will be kept separate and temporarily stored within a hazardous containment zone that will prevent contamination of the environment. If in doubt the waste will be tested by taking representative samples and sending them to a laboratory for analysis. The waste will be tested to check whether it is hazardous or not, as defined by MECA guidelines and the Basel Convention. If required, waste sampling and analysis will conform to standard laboratory methods (USEPA, ASTM, APHA or equivalent), and will be performed by a laboratory accredited to ISO 17025:2005 General requirements for the competence of testing and calibration laboratories.

If waste is found to be hazardous it will be recorded and stored appropriately in the hazardous storage area until it can be removed off-site to an approved facility in Oman. A Waste Log-book and consignment notes will be established to ensure that wastes (hazardous and non-hazardous waste) are placed at the approved location(s) and treated and/or disposed of as required.

The spreadsheet outlined in Appendix G: Environmental Reporting Spreadsheet will be used to record waste volumes.

Hazardous waste will require storage, management and disposal. At this stage there is no disposal facility for hazardous solid waste in Oman. Hazardous waste will be stored at a designated site within the Serka MSF site (or an approved storage site advised by SEZAD). MD 18/93 requires that a consignment note is sought for the transportation and storage of hazardous waste. A manifest will accompany each trip, which includes the results of the parameter tests required by SEZAD. The tests that are required are determined by the type of waste that is under investigation. Therefore if in doubt SEZAD shall be consulted to understand what tests they require for each waste stream.

### **7.3.3 Housekeeping**

Daily visual checks should be conducted of the Project site and Camps to ensure they are maintained in a clean and tidy condition and litter is not being windblown around the site.



### 7.3.4 Drinking Water

Daily visual checks should be conducted for the drinking water stations to ensure they are maintained in a sanitary condition and are not dripping or leaking.

## 7.4. Water Quality Monitoring

Daily visual checks should be conducted along the water edge of the sites to check on colour, odour, turbidity and potential hydrocarbons. All data is to be logged and maintained.

If undertaking dewatering activities, ensure water quality monitoring is done as per the conditions of the Discharge/Dewatering Permit. This will include checking both the flow meter to ensure adequate settlement time in the settlement tanks and water quality upon discharge to the marine environment.

Should any works be required in the marine environment further sampling would be required before during and after the works.

Monitoring here follows the requirements of **CEMP Focus Area 4: Management of Marine Environment.**

## 7.5. Ecology

Vigilance should be made to the management of food and organic waste – it should be kept in enclosed bins to avoid attracting browsing animals and birds. SEZAD is preparing a plan with respect to Management of Important Bird Areas in the Project area, which shall be shared with AIIB, once finalised.

Serka MSF will conduct daily visual Bird and wildlife monitoring. Daily visual monitoring should be conducted for sensitive marine fauna. If any sensitive marine mammals or reptiles are observed in the channel, work activities shall cease temporarily to avoid potential impacts.

## 7.6. Material and Resource Consumption

Monitoring of materials used in construction (tonnage of concrete, steel, asphalt etc.) and enabling material used for construction (fuel, engine oil, tyres etc.) will be recorded to ensure that wastage is kept to a minimum.

Monitoring here follows the requirements of **CEMP Focus Area 5: Management of Material and Resource Consumption.**

## 7.7. Cultural Heritage

Should cultural heritage be identified during the project, work shall cease in the location and the Ministry of Heritage and Culture shall be notified immediately. Cultural heritage in this context would include archaeological, historical and/or sacred sites or materials, including graves.



While this is not expected to be a concern at the main construction site (reclaimed land), it could become one during the construction of the IP2 construction camp or in borrow pits that may be required during the construction of the works.

Ministry of Heritage and Culture (MHC) had conducted a survey in the SEZ area to identify cultural and archaeological evidences including graves and has documented the same in a report with the location co-ordinates, description, photographs and archaeological evaluation.

Since this is unlikely to be an issue at the main site, it is not a primary focus area of this CEMP. However a 'Chance-find' procedure has been developed (**Appendix J**) and will be communicated to all contractors working on the site so that action could be taken in case of observations on any archaeological or cultural findings during construction phase.

## 7.8. Occupational Health and Safety, including Labour

The objective is to set minimum inspection intervals required for health and safety equipment, motorized equipment, electrical cords and tools, lifting equipment, etc. These inspections are made by Competent Persons designated in writing (formal communication).

Monitoring for H&S aspects follows requirements based on the **CEMP Focus Area 6: Occupational Health and Safety Management, including Labour** and will be conducted by Serka MSF based on its HSE Manual that provides guidance on various inspections and audits to be carried out, as briefly described below.

### Daily Visual Inspections

No written records are required for these daily inspections:

- Ladders
- Tools
- Vehicles
- Fall protection equipment
- All welding, burning and cutting hoses and leads
- Extension Cords

### Daily Documented Inspections

- Crane pre Start inspection
- Trucks and equipment Pre start Inspection
- Excavation inspection
- Scaffold Inspections, scissor Lift, JLG
- Confined Space  Daily Site inspection

### Weekly Written Inspections

- Project Managers shall conduct weekly safety and health oversight evaluations of all work sites. All evaluations shall be documented, including the date of the



inspection, inspector's name, findings, recommendations and follow-up of previously identified findings.

- HSE and QA/QC personnel will make daily oversight evaluations of the work areas. Not only will they look for the oversights but provide positive reinforcement for the correct and well done behaviors. Positive reinforcement is a cornerstone to achieving an accident free work environment by instilling in others the will to want to work safely.
- The safety inspection checklists for this task order are included in the HSE Manual of Serka MSF.

### **Daily Site Inspections**

Daily inspections shall be conducted daily to identify hazards and unsafe conditions. Item identified shall be noted on the daily inspection log. Area shall be identified and a daily meeting with the sub-contractor Project Manager will designate the responsible person for correction and give an estimated date for completion. The Daily Inspection shall be posted on the Bulletin Board. Once the correction is completed the person responsible shall sign and date the Inspection form. These inspections shall be turned into Serka-MSF JV Safety Office daily for file.

### **Monthly Documented Inspections**

- Cranes
- Rigging
- Fall Protection Equipment
- Fire Extinguisher / Smoke Alarm
- Dining Facility
- Shops
- Equipment
- First Aid facility
- Hand & Power tools

In addition to the above Serka MSF also carries out **Perception Surveys** to elicit employee, supervision and management perceptions and views on the safety and health process in place, what they feel about the effectiveness of programs in use and whether it is a positive or negative perception. Changes are made in the HSE management practices based on an analysis of the responses to this survey.

### **Labour Management**

Serka's management follows a practice of quarterly internal reviews and annual third party audits on the compliance of Labour laws applicable to its operations. Visits from SEZAD as well as the Ministry of Manpower also support in ensuring compliance with all applicable requirements.



The inspections and audits cover all of the requirements mentioned in the Table 3-8 and involve review of documents / records from the HR department as well as sample interviews with staff. Based on the gaps observed relevant corrective actions are planned and implemented. Documentation on procedures / record keeping may be modified, if necessary to reflect these corrective actions.

### 7.9. Summary of Monitoring Activities

The below table summarizes the site monitoring activities to be conducted on site during the construction phase.

**Table 7-1: Site Monitoring Activities Summary**

CEMP Action Plan	Activity by Serka MSF	Activity by 5OES
<b>CEMP Focus Area 1 - Management of Earthworks</b>	Daily visual dust checks around project site. Weekly 24hr dust monitoring of 4 boundary locations.  Hourly monitoring of wind speed using met station, compared with visual inspection of dust. Wind speed dust generation threshold to be establish to inform dust suppression programme.	Quarterly 24hr dust measurement using Met One Aerocet particulate monitor (location to be determined) for verifications purposes. Maintenance of continuous PM10 analyser and MET station. This will record data per hour and reported quarterly.
<b>CEMP Focus Area 2 - Management of Waste</b>	Daily visual waste checks around project site. Monthly recording of waste volumes as per proforma provided.	Quarterly reporting of waste volumes and audit of waste management practice
<b>CEMP Focus Area 3 - Management of Fuel &amp; Chemical</b>	Weekly inspection of fuel and chemical handling practice	Quarterly audit of fuel and chemical handling practice
<b>CEMP Focus Area 4 - Management of the Marine Environment</b>	Weekly/Monthly monitoring of dewatering effluent at discharge point.  Monitoring of sediment before marine activities, if required.	N/A
<b>CEMP Focus Point 5 - Management of Material and Resource Consumption</b>	Monthly review of procurement procedures and resource handling.  Recording of consumption via the waste and resources tracking spreadsheet.	Quarterly audit of site practice Quarterly reporting of emissions produced from fuel consumption.
<b>CEMP Focus Area 6: Occupational Health and Safety Management, including Labour</b>	Daily, Weekly and Monthly regular and documented inspections  Incident Investigations for all incidents on site  Quarterly reviews of Records of HR and Labour management	Quarterly audit of site safety practices  Annual Audit of Labour law compliance
	Incidents as per HSE Manual of Serka MSF	Health Monitoring Reviews  Effectiveness of Incident Investigations and Corrective Actions





## 7.10. Appendix A: CEMP Activity Scope

The table below illustrates the EHS Action Plan and mitigation strategies to be employed for the project and which will be subject to auditing during the construction period. These mitigation strategies cover both mitigation measures identified in the EIA report and conditions of the Environmental Permit. These activities have been spatially mapped on the appended Environmental Risk Map. The aim of the map is to be printed at large scale and displayed on site cabins walls to act as visual reminder of this CEMP and to assist environmental awareness and training during the project.

For this specific project the primary activities that have significant environmental impacts have been identified and the following environmental objectives for the project are set as:

- CEMP Focus Area 1: Management of Earthworks;
- CEMP Focus Area 2: Management of Waste;
- CEMP Focus Area 3: Management of Fuel & Chemicals;
- CEMP Focus Area 4: Management of the Marine Environment; and
- CEMP Focus Area 5: Management of Material & Resource Consumption
- CEMP Focus Area 6: Management of Occupational Health and Safety, including Labour

A detailed action plan for each of these activities follows as Table 7-2.



**Table 7-2: EHS Management Plan Focus Areas**

<b>CEMP Focus Area 1: Management of Earthworks</b>		
The primary impacts are dust generation, loss of terrestrial ecology, and usage of sea water for dust suppression.		
<b>Ref</b>	<b>Description and Mitigation Strategy</b>	<b>Relevant Legislation and Guidance</b>
1.1	All earthworks will follow the best practice guidelines e.g. BS 6031 (2009) Code of Practice for Earthworks or similar.	BS 6031 (2009) Code of Practice for Earthworks.
1.2	All excavated material will be considered for its suitability for re-use on the site. All material that can be re-used should be. If any topsoil is present this will be stockpiled separately from sub-soil. Topsoil will then be returned as the final layer (not buried) so as to promote the germination of seeds that are found within that layer. The re-establishment of natural vegetation will serve to stabilise the soil and limit soil erosion.	As above and SEZAD permit to be obtained.
1.3	During storage, mounds of excavated material will be placed on raised ground, so that erosion risks are minimised. Limit earthworks as much as possible during windy or storm conditions. Stockpiles of fine materials will be monitored during windy conditions and as necessary dust suppression will be applied when wind speed reaches a certain threshold.	As above
1.4	Dust suppression using water or soil binders will be implemented to avoid the erosion of soils in the work areas and storage piles.	As above
1.5	Water for dust suppression will be abstracted from designated seawater location only	As above
1.6	Method statement for dust suppression to outline route for water tank and wind speed at which additional dust suppression measures should be taken	As above
1.7	Heavily used access tracks will be considered for blacktop surfacing to reduce dust generation and avoid the need for dust suppression. All off road activities will be minimised as much as possible. Where off road driving is necessary, vehicles will be provided with designated demarcated routes on which they must travel.	As above
1.8	Intake for seawater abstraction pump will have a suitable screen to avoid damage to or from marine life (fish, crabs, seaweed etc.)	As above
1.9	The contractor will minimise any activity, which negatively affects soils in the project area such as the use of heavy machinery off designated access roads. Such activities must be carefully and rigorously controlled.	As above



1.10	Wheel washes will be used for vehicles leaving the site where appropriate, to minimise the amount of mud and debris deposited on the roads.	As above
1.11	Vehicles carrying dusty materials will be covered to prevent materials being blown from the vehicles whilst travelling.	As above
1.12	Low speed limits for vehicles on unmade surfaces will be enforced, minimising the generation of airborne dust.	As above
1.13	Only modern, well maintained machinery will be used so to minimise mobile source emissions. All vehicles shall be maintained regularly and a record of maintenance retained on site. Vehicle service schedules and records shall be maintained on site; and emissions should be free from significant black smoke from each vehicle and engine – remedial maintenance measures shall be taken when this is observed to improve engine efficiency. All vehicle engines to be switched off when not in use to minimise idling of vehicles and the resultant emissions.	As above
1.14	All fill material coming on to site will be inspected to ascertain whether it should be considered a potential source of contamination as well as other geotechnical criteria required for compaction. The results of this check will determine the material's management and storage.	As above
1.15	Hunting, killing or catching of wild animals and birds is prohibited as per MD 101/2002 and removing eggs from nests and general harassment of local wildlife is considered undesirable and will be avoided during construction. All staff will be made aware of this.	As above and MD101/2002
1.16	No uncontrolled fires will be allowed on site, and construction personnel will be made aware of the key ecological features of the site and briefed to how they can avoid unnecessary disturbance.	As above
1.17	Soli hoarding will be erected around the site boundaries, adjacent to sensitive receptors to reduce the impact of dust generated at the site escaping to other areas.	As above
1.18	Construction noise to be monitored at site to ensure compliance with national standards. In addition the following mitigation measures will be employed: Work to be carried out during the hours agreed within the contract or as agreed in writing with the client; Use of vibrating methods for piling rather than hammering; Concentration of machinery to be as far away as practical from identified noise sensitive areas; Careful handling of pipes, casing and other materials particularly at night; Regular maintenance including lubricating moving parts, tightening loose parts and replacing worn out components to be undertaken; Acoustic covers on all machine engines that generate excessive noise levels are to remain closed at all times; Site personnel to communicate by radio where possible; Workers should have suitable PPE when working near noisy equipment; Noise data to be made available for Client review.	MD79/94 and MD80/94



1.19	In order to ensure that physical and cultural resources on and around the site are protected, a Chance Find Procedure to deal with any findings on such elements as well as archaeologically important sites will be included.	OP 4.11 of WB and Omani Requirements
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**CEMP Focus Area 2: Management of Waste**  
Waste and Hazardous waste will be generated from this project at both the labour camp and the construction site. This will be particularly be an issue once the earth moving phase is complete, and the building phases commences. Waste will be temporarily stored on the site the transferred to the designated landfill site approximately 7km from the site. Liquid waste from the site will be in the form of wastewater from the camp, used engine oils and lubricants.

Ref	Description and Mitigation Strategy	Relevant Legislation and Guidance
2.1	Facilities will be established for storage and handling of hazardous construction wastes prior to mobilisation on site. The facilities will be more than 30m from the water's edge in the case of the IP2 construction area. Every effort will be made to reduce the risk of windblown materials leaving the facility. Packaging material waste will be covered or weighed down and a mesh fence will be provided at the water's edge as a last resort.	MD17/1993; MD18/1993
2.2	Hazardous waste storage areas will be built with the same specification as fuel or chemical storage (see CEMP focus area 3) with the additional condition that wastes are laid out to facilitate appropriate segregation of incompatible materials. All possible drainage path to the sea from both fuel storage and waste storage areas will be prevented. Regular inspection of hazardous waste storage sites will occur to ensure compliance with guidelines.	As above
2.3	Any hazardous waste material will be sited on an impervious base within an oil-tight bund with no drainage outlet. All fill pipes, draw pipes and sight gauges will be enclosed within the bund, and the tank vent pipe will be directed downwards into it.	As above
2.4	Liquid wastes, including solvents and oil, will be securely stored in bunded compounds prior to collection by a registered waste contractor. Under no circumstances will any waste liquids be discharged to the surface water system. Some liquid wastes may be discharged to the foul sewer via a designated facility, if appropriate consent is in place.	As above
2.5	Liquid wastes will be prevented from leaching from bins or skips – this includes dry wastes that may become wet, e.g. through exposure to rain.	As above



Ref	Description and Mitigation Strategy	Relevant Legislation and Guidance
2.6	<p>Hazardous waste containers will be labelled according to MD317/2001.</p> <p>Any unused chemicals and those with remaining functional capacity will be recycled as far as possible, including wet lithium, nickel cadmium and lead acid batteries for high PCB-containing transformer fluid through a contracted specialist. Containers will be compatible with the hazardous substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.</p>	As above and MD317/2001
2.7	<p>Hazardous waste storage areas will have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 25% by volume of the total chemical waste stored in that area, whichever is the greatest. Surfaces on which chemical or oil spillage may be expected shall be surfaced with chemical resistant paving materials.</p>	As above
2.8	<p>Hazardous waste storage areas will be enclosed on at least three sides and will have adequate ventilation.</p>	As above
2.9	<p>Hazardous waste storage areas will be covered to prevent rainfall from entering (water collected within Where possible hazardous waste will be remediated before disposal. This could include treatment, stabilisation and/or neutralisation. A parameter list will be used to identify the nature of hazardous waste. Hazardous waste will be disposed of via a licensed waste collector, accompanied by a manifest for each trip for transportation from the place of generation (this will include a copy of the consignment notice), to a facility licensed to receive hazardous waste, which offers a hazardous waste collection service and supply of the necessary storage containers.</p>	As above
2.10	<p>In the event of a spill, immediate clean-up will be undertaken. It is recommended that appropriate spill kits or absorbent materials are held on site. It is essential that staff know what to do in an emergency. An up-to-date incident response plan will be maintained, hazards identified and a contingency plan drawn up, giving advice on what action to take and who to inform. These plans will be displayed clearly and regular exercises undertaken.</p>	As above
2.11	<p>Handling and use of chemicals and chemical substances will be in compliance with the requirements of Royal Decree No. 46/95, Law on Handling and Use of Chemicals.</p>	As above and RD 46/95



2.12	Waste water (sewage) from the construction camp will be taken by tanker to Duqm STP located on Muscat road. Portable toilets at the site will also be collected and emptied at Duqm STP. If Duqm STP is out of order, an alternative licenced STP will be sought for disposal following discussion with Duqm STP. The tanker used for disposal will be approximately 40m <sup>3</sup> . To prevent rainwater entering the sewage network at the camp all manholes will be properly sealed. Waste water will be minimised by efficient use of water in the camp and a schedule of preventative maintenance for any water fixtures.	As above
<b>CEMP Focus Area 3: Management of Fuel &amp; Chemicals</b> Fuel will be stored at the Labour Camp in a facility designed by Oman Oil. Refuelling of plant will occur across the construction site by an off road mobile oil truck. Chemicals will be stored at the labour camp in designated areas.		
Ref	Description and Mitigation Strategy	Relevant Legislation and Guidance
3.1	All fuel tanks and or chemical storage areas will be provided with bunds of a capacity equal to 110% of the storage capacity of the largest tank/container, to prevent spilled fuel oils from polluting soils. Loading or unloading of fuel tanks to occur on an impermeable hardstanding surface with a sump. Outlets (with valves) on the surface water drainage from bunded areas to be avoided to reduce the risk of the valve being left open. Sump pits to be preferred.	SEZAD Permit
3.2	Regular checking of bunds or drip trays will be conducted for maintenance requirements, for instance emptying drip trays.	As above
3.3	Tool box talks will be delivered to site workers on preventing pollution.	As above
3.4	Workers who are required to handle corrosive, oxidising or reactive chemicals will be provided with specialised training and appropriate PPE.	As above
3.5	A complete list of chemicals, including type, quantity and proposals for transport, storage, handling, use and disposal will be provided and appropriate permits acquired.	As above
3.6	Chemicals and chemical substances used will be registered with the Ministry of Environmental and Climate Affairs (MECA). The Material Safety Data Sheets (MSDS) for each chemical or chemical substance will be forwarded to MECA/SEZAD as part of the registration procedure.	As above
3.7	Chemicals and chemical substances will be stored according to the Hazardous Chemicals Storage Regulations from MECA, and storage and transport will be approved by the Civil Defence Administration of the ROP.	As above



3.8	Handling and use of chemicals and chemical substances will be in compliance with the requirements of Royal Decree No. 46/95: Law on handling and use of chemicals.	RD 46/95
3.9	The consumption and use of chemicals will be recorded and stored. Discrete chemicals identified as 'waste chemicals' will be recorded in a separate log book. The Environmental Manager shall approve how the waste can be disposed before it can be moved.	As above
3.10	Vandalism and theft are possible causes of pollution. Lockable valves will be fitted on all storage tanks, fences will be secure, and doors and gates kept locked. Where possible, materials will be stored under cover and potential pollutants will be transferred into safe storage without delay.	As above
3.11	The quantity of chemicals stored at site and the amount of chemicals used will be minimised as much as possible.	As above
3.12	In the event of a spill, immediate clean-up will be undertaken. Appropriate spill kits or absorbent materials will be held on site. It is essential that staff know what to do in an emergency. An up-to-date incident response plan will be maintained, hazards identified and a contingency plan drawn up, giving advice on what action to take and who to inform. These plans will be displayed clearly and regular exercises undertaken. The Contractors are required to prepare method statements and procedures for immediate clean-up actions following any spillages of oil, fuel or chemicals. It is recommended that any wider Contaminated Land Guidance Note includes general measures for addressing pollution incidents, including handling, storage, remediation and transfer.	As above
3.13	Where maintenance and washing of vehicles and other machinery is conducted, concrete sumps will be installed to ensure that oily wastes are contained for later disposal.	As above
3.14	Machinery will be kept in good working order to minimise the risk of leaks and drip trays will be used where necessary.	As above
3.15	Ensure refuelling occurs at least 10 m from a wadi to reduce risk of pollution transfer	As above
3.16	All concrete washout activities to occur in a designated area that is bunded and sealed from ground contamination. Cement truck drivers to be clearly informed of the location of the concrete washout facility and a system of penalty/rewards made for ground contamination of concrete washout in the event that the facility is not used.	As above



<b>CEMP Focus Area 4: Management of the Marine Environment</b>		
The construction site is bounded on both sides by the marine environment. Within the construction site whenever excavation is required below sea level dewatering will be required, followed by basic treatment (settlement) followed by discharge into the marine environment. Some minor marine work may be required for the construction of the oil/water separator outfalls and storm water outfall.		
<b>Ref</b>	<b>Description and Mitigation Strategy</b>	<b>Relevant Legislation and Guidance</b>
4.1	Dewatering will be required whenever excavation is required in the IP2 construction area below sea level. A permit from SEZAD will be obtained for discharge of water from the dewatering process into the port, following basic treatment of the water through a settlement tank for Total Suspended Solids. The settlement tank will be suitably designed and sized to meet the suspended solid limits specified in the discharge permit and MD 159/2005. As a rough guide the size of the tank should allow for 90 minutes of settlement time but this time should be verified prior to ordering the tanks to site based on water quality tests abstracted from the site. Once the settlement time required to meet TSS limits in the permit is known the following calculation will be made. Size of settlement tank (m <sup>3</sup> ) = required settlement time (mins) x dewatering flow rate (m <sup>3</sup> /min). Monitoring of this process will depend on the permit requirements but will include regular monitoring of the flow rate into the tank and TSS readings at the outlet point.	MD159/2005
4.2	Abstraction of sea water will be required for vibro compaction, piling and dust suppression. A permit from SEZAD will be obtained as mentioned above. The intake for the abstraction pump will include a suitably sized screen on the intake to ensure that no marine life, or marine debris is entrained into the pumping system. The screen will be checked on a regular basis and cleared as necessary. Discharge of water from such activities will follow the steps mentioned in 4.1 above.	As above
4.3	Should any construction be required in marine environment then the following will be provided a) method statement to be reviewed by ET and SEZAD, b) Baseline sediment sampling prior to works, c) Extra spills kit to be on hand, d) Sea bed restoration following works and close out marine survey.	As above
4.5	Any loading or unloading of materials onto the site from the marine environment will follow a risk assessment method statement where the environmental risk of spillage of materials into the marine environment will be reviewed and mitigation measures put in place. Environmental mitigation measures will follow safety measures such as ensuring the lifting straps, slings, harnesses, shackles chains and other devices are fit for purpose. Particular precaution will be ensured when unloading any chemicals.	As above
4.6	In addition to measures mentioned in CEMP Focus Area 2: Management of Solid Waste, particular concern will be taken for avoidance of any windblown debris, dust or litter reaching the marine environment.	As above





4.7	Any unnecessary lighting at night, will be switched off to reduce the impact on migratory or resident bird populations that frequent the coastline and port area. The alignment of light spill be projected downwards and away from the marine environment. Where possible for night time security, motion sensors for lighting will be preferred over continuous lighting.	As above
4.8	Vigilance for any illegal dumping in the marine environmental will maintained throughout the project	As above
<p><b>CEMP Focus Area 5: Management of Impacts of Material &amp; Resource Usage</b></p> <p>In this project large volumes of concrete, asphalt, steel and to a less extent glass copper and aluminium will be used. The construction contractor may be limited in his ability to influence the natural resources required to construct the project, however the construction methodology chosen, procurement strategy, storage onsite and site practices will significantly have an impact on the level of waste generated from the project. The environmental impact of material use is depletion of natural resources and climate change.</p>		
Ref	Description and Mitigation Strategy	Relevant Legislation and Guidance
5.1	Procurement of materials to ensure correct volumes to avoid over ordering or extra deliveries which could result in wastage	Waste Resources Action Programme (WRAP) Guidance on measuring and reporting construction, demolition and excavation waste <sup>5</sup>
5.2	Discussions with suppliers to limit unnecessary packaging materials whilst also ensuring transport and delivery of materials does not result in damaged products	As above
5.3	Materials laydown areas to be planned so as to limit damage of materials from collisions with vehicles/construction plant	As above
5.4	Procurement strategy during the building phase to favour prefabrication offsite wherever possible to limit cut to fit on site which in an effort to reduce waste.	As above
5.5	Procurement strategy to highlight the use of recycled products (e.g. surface water drainage pipes) where ever possible	As above

<sup>5</sup> <http://www.wrap.org.uk/sites/files/wrap/WRAP%20Waste%20Reporting%20Guidance%20Update%20-%20FINAL1.pdf>



5.6	Construction materials reuse area to be set up and well managed to encourage reuse of materials rather than disposal. Clear labelling to be adopted. Construction slogans such as 'A place for everything and everything in its place' and 'Measure twice, cut once' to be used where appropriate.	As above
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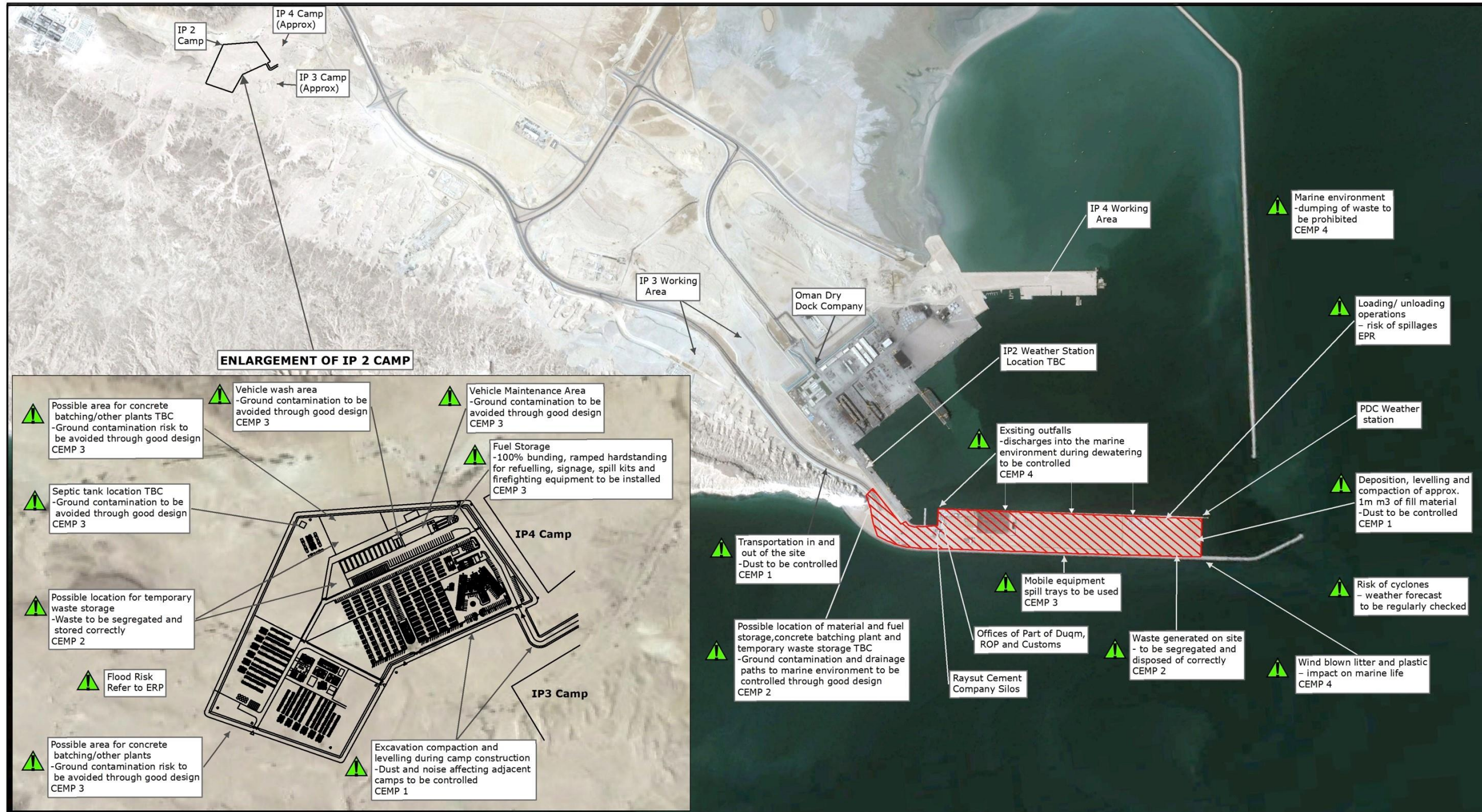
5.7	Material that have a low embodied carbon footprint will be preferred where possible over those with a higher footprint. An example will be the use of reputable blended cements (for example using fly ash or granulated blast furnace slag) over Ordinary Portland cement.	As above
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**CEMP Focus Area 6: Occupational Health and Safety Management, including Labour**  
 The construction as well as operating phases of this project will involve various tasks to be carried out where people (staff and labour) will be involved. Many of these tasks pose health and safety hazards and can create risks that can endanger life and safety on site.

Ref	Description and Mitigation Strategy	Relevant Legislation and Guidance
6.1	Occupational Health and Safety Management – Hazard Identification and Risk Control, Training, Incident Investigations and Corrective Action, Monitoring	MD 286 / 2008
6.2	Labour and Human Resource Management - Engagement, HR Policy, Contractual obligations and termination, H&S Infrastructure, Wages, Leaves, Representation and associated Worker Rights These requirements on Labour laws will be reviewed for compliance on a quarterly and annual basis (along with third party consultant), and suitable corrective actions will be taken wherever gaps are observed, and recorded	RD 35 / 2003
6.3	Project-level Grievance Redress Mechanism - The intention of this mechanism is to enable anyone within DUQM to have access to a complaint process that can be used, without risk of retaliation, by individuals, workers, communities and/or civil society organisations that are being affected by business activities and operations within the special economic zone authority.	See above Section 4.7 "Grievance Redress Mechanism (GRM) of SEZAD" and below, Appendix E: Grievance Register

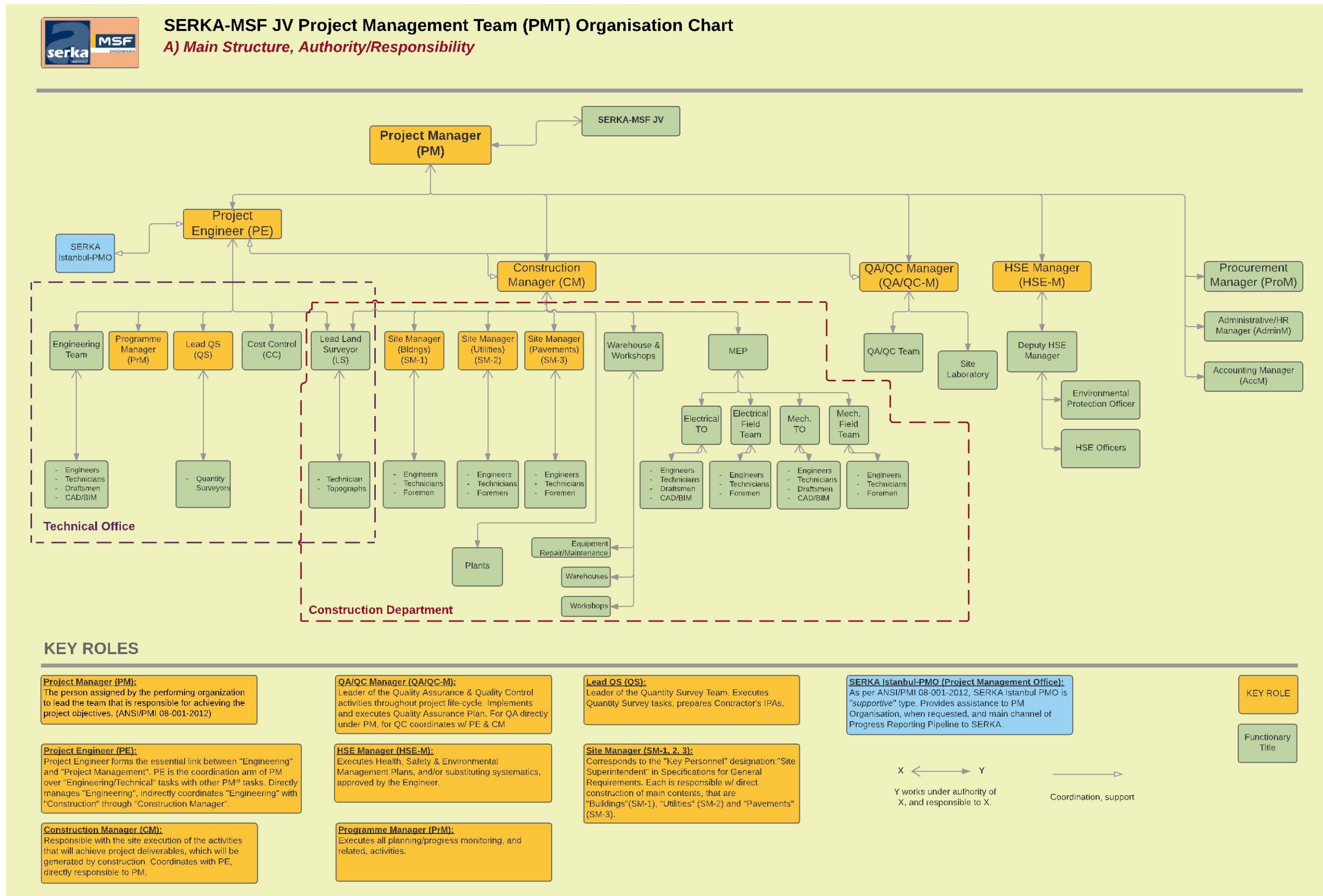
### **7.11. Appendix B: Environmental Risk Map**

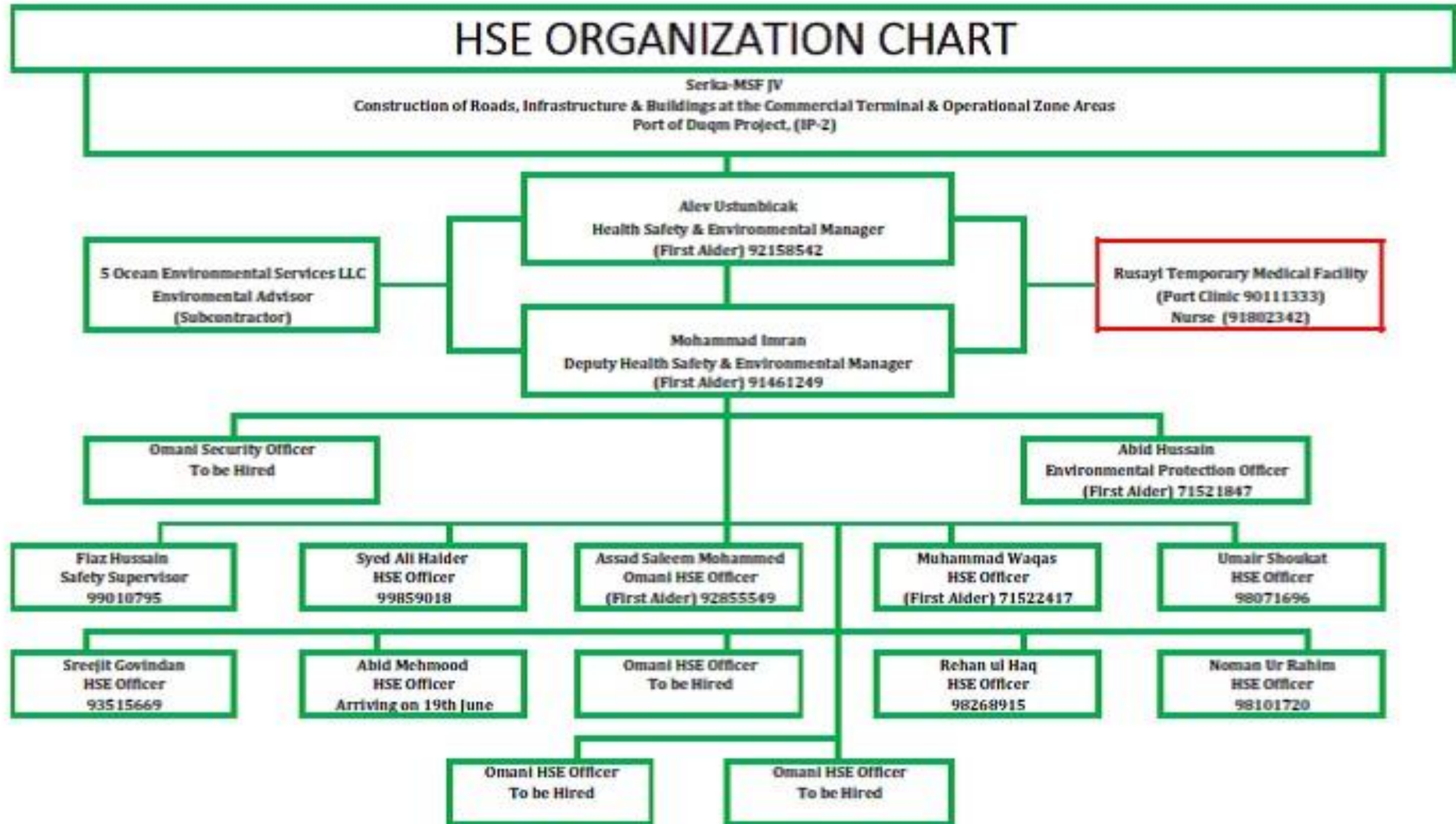
The following risk map is an integral part of this CEMP is visual display to be used in training, inductions and printed at large scale on the site cabin walls to provide a visual reference to the CEMP.



	<p><b>LEGEND</b></p> <p> IP 2 Commercial Terminal Working Area</p> <p> Environmental Risk</p>	<p><b>NOTE</b></p> <p>a) This Environmental Risk Map is part of the Construction Environmental Action Plan (CEMP) The purpose of the map is to provide a geographic reference to the CEMP, which can be displayed in large scale on site cabin walls and used in HSE inductions/training.</p> <p>b) CEMP 1, 2, 3 adjacent to the text on this map refers to the focus areas of the CEMP. These are :</p> <ol style="list-style-type: none"> <li>1. Management of Earthworks</li> <li>2. Management of Solid Waste</li> <li>3. Management of Fuel and Chemicals</li> <li>4. Management of the Marine Environment</li> <li>5. Management of Material and Resource Consumption</li> </ol> <p>c) ERP refers to Emergency Response Plan contained within the CEMP</p>	<p><b>SCALE</b></p> <p>0 0.25 0.5 1 Km</p> <p><b>REFERENCE DRAWINGS</b></p> <p>Serka MSF Camp drawing IP 2</p>	<p><b>CLIENT</b></p> <p></p> <p>Special Economic Zone Authority, Port of Duqm</p>	<p><b>CONTRACTOR</b></p> <p></p> <p><b>ENVIRONMENTAL CONSULTANCY</b></p> <p></p>	<p><b>PROJECT</b></p> <p>INFRASTRUCTURE PACKAGE 2 (IP2), CONSTRUCTION OF COMMERCIAL TERMINAL, PORT OF DUQM</p> <p><b>DRAWING TITLE</b></p> <p>ENVIRONMENTAL RISK MAP</p>
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7.12. Appendix C: Serka MSF Organizational Chart and HSE Institutional Structure







**7.13. Appendix D: Environmental Training Register**

Environmental Training Register					
This training presence list shall be prepared by the Environmental Protection Officer (EPO) and signed by every trainee for each environmental training or awareness session.					
Training Information					
<b>Type of training:</b> Pre-construction Environmental Induction <input type="checkbox"/> Weekly Awareness / Toolbox Talk      Topic:.....					
<b>Training date and time:</b>					
List of Attendees					
N o	Name	Position	Present (Y/N)	Signature if present	Justification if absent
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					



## 7.14. Appendix E: Grievance Register

Complaint Form	
This form will be used by anyone receiving a third party complaint related to environmental or social aspects of the Project's construction activities. After having taken immediate corrective action (as applicable), please complete this form and return it to the Environmental Protection Officer (EPO). Grievances may be made anonymously.	
Complaint Description	
<b>Date of complaint:</b>	<b>Time of complaint:</b>
<b>Contact details of complainant:</b>	<b>Complaint form*:</b>
<b>Area/activity concerned:</b>	<b>Precise location:</b>
<b>Complaint description:</b>	
<b>Immediate actions taken further to complaint (if any):</b>	
<b>Suggested preventive/corrective actions:</b>	
Completed by	
<b>Name:</b>	<b>Position:</b>
<b>Date and time:</b>	<b>Signature:</b>
Received by EPO	
<b>Date and time:</b>	<b>Signature:</b>
Summary Outcomes of Investigation	
<b>Root causes generating the complaint:</b>	
<b>Proposed preventive/corrective actions:</b> (Refer to the full investigation report for details as applicable)	
Reviewed and Approved by Serka MSF	
<b>Name:</b>	<b>Position:</b>
<b>Date:</b>	<b>Signature:</b>
<b>Notification to Client/PMC: Y / N</b>	<b>Date notification:</b>
<b>Date of formal response to complainant:</b>	

\* Post, email, phone calls, direct discussion,

other





### 7.15. Appendix F: EHS Incident Reporting Form

Environmental Incident Reporting Form	
This form will be used by any Project member identifying an environmental, health and safety non-conformance or incident. After having taken immediate corrective action (as applicable), please complete this form and return it to the Environmental Protection Officer (EPO).	
Non-Conformance / Incident Description	
<b>Date of identification:</b>	<b>Time of identification:</b>
<b>Area/activity concerned:</b>	<b>Precise location:</b>
<b>Non-conformance / incident description:</b>	
<b>Apparent cause (if known):</b>	
<b>Immediate actions taken (if any):</b>	
<b>Suggested preventive/corrective actions:</b>	
Completed by	
<b>Name:</b>	<b>Position:</b>
<b>Date and time:</b>	<b>Signature:</b>
Received by EPO	
<b>Date and time:</b>	<b>Signature:</b>
Summary Outcomes of Investigation	
<b>Root causes of the non-conformance / incident:</b>	
<b>Proposed preventive/corrective actions:</b>	
(Refer to the full investigation report for details as applicable)	
Reviewed and Approved by Serka MSF	
<b>Name:</b>	<b>Position:</b>
<b>Date:</b>	<b>Signature:</b>
<b>Notification to Client/PMC: Y / N</b>	<b>Date of notification:</b>



### 7.16. Appendix G: Environmental Reporting Spreadsheet

(Only Extracts are shown below)

Serka MSF Environmental Report 2016													
Activity report													
(All inputs of subcontractors working for the main contractor must be included)													
Activity on site	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Staff - employed	People												
Staff - subcontractors	People												
Excavator (greater than 15 Tonnes)	Nr												
Excavator (less than 5 tonnes)	Nr												
Bulldozer	Nr												
Tipper Truck	Nr												
Water Bowser	Nr												
Buses	Nr												
Large stationary generators	Nr												
Small mobile generators	Nr												
Lightweight Equipment (eg pumps, tower lights, vibrators etc.)	Nr												
Environmental Incidents/Near Miss:	Nr of incidents												

**Serka MSF Environmental Report 2016**  
**Waste Report**  
 (All inputs of subcontractors working for the main contractor must be included)

Non-Hazardous Waste			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average Recycled/ Reused	Disposal Location
Type of Waste	Parameter	Units	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed	Recycled/Reused	Disposed		
<b>Non Hazardous Construction Waste</b>																
	Wood	Tonnes													#DIV/0!	
	Concrete/Demolition Waste	Tonnes													#DIV/0!	
	Metal (excluding drums)	Tonnes													#DIV/0!	
	Plastic (excluding drums)	Tonnes													#DIV/0!	
	Green Waste	Tonnes													#DIV/0!	
<b>Non Hazardous Office/Domestic Waste</b>																
	Paper / cardboard	Tonnes													#DIV/0!	
	Aluminium Cans	Tonnes													#DIV/0!	
	Toner cartridges	Tonnes													#DIV/0!	
	Plastic	Tonnes													#DIV/0!	
	Kitchen Waste	Tonnes													#DIV/0!	
<b>Hazardous Waste</b>																
Oily waste	Used Oil	m <sup>3</sup>													#DIV/0!	
	Waste/Spent Lubricants	m <sup>3</sup>													#DIV/0!	
	Tank & Other sludges	m <sup>3</sup>													#DIV/0!	
	Contaminated oily sand/soil	Tonnes													#DIV/0!	
Chemical Waste	Waste chemicals - solid	Tonnes													#DIV/0!	
	Waste Chemicals - liquid	m <sup>3</sup>													#DIV/0!	
	Contaminated metal/ plastic drums	Units													#DIV/0!	
	Paint Tins	Units													#DIV/0!	
Other	Vehicle Batteries	Units													#DIV/0!	
Medical Waste (if any)	Clinical Wastes	Tonnes													#DIV/0!	

**Serka MSF Environmental Report 2016**  
**Resources Report**  
 (All inputs of subcontractors working for the main contractor must be included)

Fuel Usage:			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Diesel for vehicles/plant	m <sup>3</sup>												
	Petrol for vehicles/plant	m <sup>3</sup>												
	Diesel for Pumps/Tower Lights etc.	m <sup>3</sup>												
	Diesel for Generators	m <sup>3</sup>												
	Total deisel/petrol used	m <sup>3</sup>												
<b>Electricity Usage:</b>														
	Municipality connection - average monthly usage	kw												
	Electricity generated on site	kw												
<b>Water and Waste Water</b>														
	Potable Water Used	m <sup>3</sup>												
	TSE used for dust suppression	m <sup>3</sup>												
	TSE used for irrigation	m <sup>3</sup>												
	Sewage	m <sup>3</sup>												
<b>Concrete used in project</b>														
	Blinding concrete	m <sup>3</sup>												
	Structural concrete	m <sup>3</sup>												
<b>Steel used in project</b>														
	Reinforcing bar	Tonnes												
	Structural steel	Tonnes												
<b>Asphalt used in project</b>														
	Asphalt used in project	Tonnes												
<b>Ozone Depleting Substances (ODS) used in project</b>														
	Nr of air conditioning units using ODS (e.g R22)	Units												
	Nr of refrigerators units using ODS	Units												
	Other source of ODS	Units												



### 7.17. Appendix H: IP2 Permit tracker and Status as on June 2017

No.	Area	Permit / NOC	Authorities	Requirements	Due date	Remarks	No.
1	project site	Construction Permit	SEZAD / One Stop Shop	Contractor Pledge, Consultant Pledge, approved project drawings, approvals by governmental and other agencies.	17/01/17	16/01/18	<b>Construction</b>
2	project Site	Building permit	SEZAD / One Stop Shop	Contractor Pledge, Consultant Pledge, approved project drawings, approvals by governmental and other agencies.	17/01/17	16/01/18	<b>Construction</b>
3	project Site	Environmental Permit for Site	SEZAD / One Stop Shop	Already secured	23/01/17	23/01/18	<b>Environment</b>
4	Camp	Proposed for the camp cable 11 KV	Rural Areas Electricity Company	Camp drawings, noc, application form, cr papers of company	In progress		<b>Electricity</b>
5	Project Site	Proposed Borrow Pit location for IP2	Port of Duqm Company/ <b>SEZAD (Environmental Dept)</b>	Application form, proposed site drawings, method of statement	In progress		<b>Environment/ Borrow Pit</b>
6	project Site	<b>Environmental permit temporary /</b> For taking marine water for the project site.	SEZAD / One Stop Shop	Application form, sketch	22/03/17	22/03/18	<b>Environment</b>
7	project Site	Disposal of Waste Materials <b>to Main Dump Site.</b>	SEZAD / One Stop Shop	Application form, coordinated drawings	In progress		<b>Environment</b>
8	Camp	Permission Security and Safety	ROP Civil Define	Application letter, camp sketch, camp permit form	27/12/16	01/06/19	Security and Safety
9	Camp	Permission excavation	SEZAD / One Stop Shop	Already secured	06/11/16	07/11/17	<b>Camp Construction</b>
10	project site	Excavation permit for project	Omantel	Award letter, project drawings	26/12/16		<b>Construction</b>
11	project site	Excavation permit for project	SEZAD /	Contractor Pledge,	17/01/17	16/01/18	<b>Construction</b>



No.	Area	Permit / NOC	Authorities	Requirements	Due date	Remarks	No.
			One Stop Shop	Consultant Pledge, approved project drawings, approvals by governmental and other agencies.			
12	project site	Excavation permit for project	Public Authority for Electricity and Water	Cr papers of company, commerce certificate, land mulkia or lease agreement of the land, crooky of the land, autocad drawings	05/01/17	01/06/19	<b>Construction</b>
13	Camp	Environmental permit temporary Temporary workers camp	SEZAD / One Stop Shop	Already secured	23/01/17	23/01/19	<b>Environment</b>
14	project site	NOC drawing with Ooredoo Cable	Ooredoo	Cr papers of company, commerce certificate, land mulkia or lease agreement of the land, Krookie of the land, autocad drawings	In progress		<b>Construction</b>
15	Camp Fuel Station	Initial Permit for Security and Safety Private Fuel Station	ROP Civil Definse	Cr papers of company, commerce certificate, land mulkia or lease agreement of the land, crooky of the land, current environment permit of the camp	In progress		Security and Safety
16	project Site	Project Signboard Permit	SEZAD / One Stop Shop	Already secured	08/01/17	07/01/18	<b>Construction</b>
17	Camp	NOC from OSS for Power Supply	SEZAD / One Stop Shop	Already secured	22/01/17	22/06/19	<b>Construction</b>
18	Batching plant	Concerete Batching Plant	SEZAD / One Stop Shop	Already secured	13/06/17	12/06/18	<b>Construction</b>



## **7.18. Appendix I: SEZAD Environmental Permit Conditions (Translated)**

### **Duqm Special Economic Zone Authority**

Regarding the unified legal environmental requirements for the implementation of Package 2 of Phase 3 project of Duqm Port for Serka Taahhut Insaat Company, which the owner shall comply with throughout the project period/project no.: (191/P3/2017/HBT/5)

- 1) The information provided in the application for a special environmental permit shall be accurate and represent the project that you will operate. This Authority shall be notified of any alteration you intend to make and this permit shall be cancelled if any alteration was made without the approval of the Authority.
- 2) The approval of this Authority must be acquired for any waste disposal in the environment that has not been covered in your application for a special environmental permit.
- 3) The Company shall fully comply at all times with the applicable laws and regulations including the Law on Conservation of the Environment and Prevention of Pollution issued by virtue of Royal Decree no. 114/2001 and its implementing regulations including:
  - a. The regulations on the Management of Hazardous Waste issued by virtue of Ministerial Decision no. 18/93,
  - b. The regulations on the Management of Solid Non-Hazardous Waste issued by virtue of Ministerial Decision no. 17/93,
  - c. The regulations on Noise Pollution Control issued by virtue of Ministerial Decisions no. 79-80/1994 in public and working environments,
  - d. The regulations for the Control and Management of Radioactive Materials issued by virtue of Ministerial Decision no. 249/97,
  - e. The regulations for the Registration of Chemical Substances and the Relevant Chemical Permits issued by virtue of Ministerial Decision no. 248/97,
  - f. The regulations for Discharge of Liquid Waste in the Marine Environment issued by virtue of Ministerial Decision no. 159/2005,
  - g. The regulations on Management of Climate Affairs issued by virtue of Ministerial Decision no. 18/2012,
  - h. The Regulations for the Control and Management of Ozone Depleting substances (ODS) issued by virtue of Ministerial Decision no. 243/2005,
  - i. The Regulations for Wastewater Re-Use and Discharge issued by virtue of Ministerial Decision no. 145/1993.



- 4) The Company shall establish a wastewater treatment plant to manage the wastewater produced by the activities of the project and shall submit an application to the Environmental Inspection and Control Department of the Authority to acquire a permit to reuse treated water or set up an anaerobic digestion tank with a holding tank meeting the standards, transfer its contents regularly to dedicated locations and avoid spillage in work locations in accordance with the Authority's relevant rules and restrictions.
- 5) The Company shall utilize the best international environmental practices and technologies in the project's units and facilities in order to partially or fully achieve a zero-waste goal by treating, recycling, recovering, deconcentrating or minimizing pollutants, emissions, waste, odors or nuisance as much as possible in accordance with the relevant rules and restrictions set by the Authority.
- 6) The Company shall obtain an ISO 14001 Certificate for the environmental management systems of the project's various units and facilities and provide the Authority with a copy of the certificate during the validity period of this permit.
- 7) The Company shall have an effective environmental risk and accident contingency management plan for catastrophes, accidents, fires or sudden irregular emissions from the units or facilities of the project, prepared by an environmental consultant registered with the Authority, provided that this system includes the following main pillars:
  - a- Identifying the expected environmental risks and accidents related to the project's units and facilities on the medium and long terms and the responsibilities and capacities of the competent officers in the Company to handle them, in addition to the relevant response methods which mitigate their environmental impact.
  - b- Identifying the activities and procedures the Company must undertake before, during and after such environmental risks and accidents in order to prevent their reoccurrence in the future and mitigate the damages that they may cause.
  - c- Developing a regular practical training program for the environmental risks and accidents response expected from the project in which the competent company officers, the Authority and governmental agencies participate.
- 8) The Company shall obtain the approvals of the Public Authority for Civil Defence and Ambulances and the operating or supervising entity and provide the Authority with a copy of the approved plan during the validity period of this permit.
- 9) After three years of operating the project or in the event of an environmental pollution or continuous environmental problems, the Company shall assign, as per the Authority's rules and restrictions, an environmental consultant registered with the Authority having the necessary practical experience to prepare an environmental review and audit of the project in order to prepare a study and assess the current environmental situation in the project's operations, facilities, raw material storages, waste, disturbances and loading, handling and discharge sites, identify its environmental impacts and risks, state if they cause any harmful effects to the environment and propose the best available international sustainable environmental practices and technologies to prevent or minimize such impact.



- 10) The team of proposed experts to implement the aforementioned environmental review and audit should include approved environmental auditors and approved auditors to ensure the compliance with the requirements of ISO-14001 Certificate, provided that such study is implemented under the supervision of the Authority.
- 11) When assigning an environmental consultant to prepare the required environmental studies such as the project's impact assessment study or environmental reference and audit study, the Company shall ensure his compliance with the relevant rules and restrictions set by the Authority including submitting a proposal by the consultant to the Environmental Affairs Department on the methodology, scope and terms of reference of the aforementioned study, as well as attaching a list of proposed experts to participate in it and acquire the proper permit from the Authority to carry out the study.
- 12) The Company shall notify this department (Environmental Inspection, Control and Permits Department) electronically or by printed copies in the event of any environmental accident such as the emission of air pollutants, dust, smoke, noise or odor from the project's units or facilities. The Company shall also proceed to repair the problem as soon as possible and submit a detailed report to the Authority on the cause of the accident and the action plan that the Company will adopt to prevent or limit the probability of its reoccurrence as much as possible, in accordance with the relevant rules and restrictions set by the Authority.
- 13) The Company shall diversify the planting of trees in the project facilities' surrounding areas to minimize pollutants and gases and absorb the emitted odor, provided that the plants and trees selected are suitable for the local environment conditions and treated wastewater or greywater can be used for their irrigation.
- 14) The Company shall organize and store raw materials, finished and blended products, slag, sludge, used catalysts, disturbances, petrol, sulfur, mineral waste and ceramic pellets in suitable dedicated closed warehouses and refrain from stockpiling them in open areas in the project site. The Company shall submit an application to the Environmental Inspection, Control and Permits Department to acquire a separate environmental permit for these warehouses in accordance with the relevant rules and restrictions set by the Authority including:
  - a- The warehouse floor shall be lined with a cement sealant.
  - b- The warehouse roof shall be completely shut with fixed material impenetrable to particles, small pellets, dust or soil.
  - c- The Warehouses shall have sufficient capacity to store the blended products and waste generated by the project activity for a minimum of three months.
  - d- The company shall submit to this department the designs, drawings and blueprints of the aforementioned warehouses within two months of their production before beginning their construction.
- 15) This preliminary environmental permit does not authorize the Company to dispose of the slag and sludge in non-hazardous waste disposal sites (sanitary landfills) of the competent





municipalities. The Company shall temporarily store such waste in special warehouses in the project site in accordance with the relevant rules and restrictions set by the Authority.

- 16) The Company shall present a comprehensive hazardous and non-hazardous waste management plan (liquid and solid) to the Authority including all the details of the adopted procedures to minimize the production, promote and recycle waste. The Company shall also submit to the Environmental Inspection, Control and Permits Department an application to acquire the relevant environmental permits.
- 17) The Company shall present all technical information and clarifications requested by this Authority's departments in coordination with the project's environmental consultant during the validity period of this permit. Any obligation, undertaking or agreement entered by this company with the Authority as well as any requirements that the Authority have registered or will register through correspondences, minutes of meetings or any other means shall constitute an integral part of the terms of this permit.
- 18) The Company shall use clean fuel such as natural gas or electricity only in the project's operations and facilities. If the Company wishes to use diesel fuel for emergencies only, it shall provide the Authority with the relevant details including the fuel's type and specifications, the percentage of sulfur in it, the expected quantity that will be used in the project the number of times it will be used per year and the reasons of use in order to acquire the department's approval of these details.
- 19) This permit does not authorize the Company to use, recycle or treat raw material, waste or devices and equipment containing radioactive material or residue in the project's operations or facilities. If the Company wishes to examine or analyze some of the project's facilities using devices and equipment which contain radioactive components, it shall submit an application to the Environmental Inspection, Control and Permits Department of the Authority to acquire a permit to use such equipment.
- 20) The Company shall carry out all the plans, procedures and mitigation and adaptation steps shown in the environmental studies such as the Environmental Impact Assessment (EIA) and the Environmental Review and Audit (ERA) studies of the project, especially those related to avoiding or minimizing the impact of floods, earthquakes and sandstorms. Any environmental pollution caused by the project's units or facilities shall also be removed at the company's own cost and the Authority shall have the right to stop the project in that case.
- 21) The Company shall be fully liable of the responsibilities and consequences of any environmental impacts, damages, waste or disturbances that take place during the project's operation and after its completion, including the costs of mitigation and treatment, reimbursement and settlement of dues, if any, in accordance with the laws and regulations set by the Authority and other competent authorities.
- 22) The Company shall have the proper knowledge of implementing legal environmental requirements related to environmental inspection and control and ensuring the compliance with the environmental laws, regulations and requirements, in addition to the implementation of the requirements of the environmental risk and accident contingency



management plan of the project and provide the Authority with these plans, the names and qualifications of the employees and EIA and ERA studies during the validity period of this permit.

- 23) Within four months of the date of issue of this permit, the Company shall evaluate the concentration and quantity of pollutants expected to be emitted by the project's various operations, units and facilities particularly from the chimneys, furnaces and compare them with the permitted concentrations and quantities of this type of projects in the Sultanate of Oman and other developed countries. Such elements and pollutants include for example:
  - Regular air pollutants such as carbon monoxide, carbon dioxide, sulfur dioxide, nitrogen oxides (NO & NO<sub>2</sub>), methane and non-methane hydrocarbons and particulate matters (P.M<sub>2.5</sub>, P.M<sub>10</sub>),
  - Noise levels in the working environment and workplace,
  - Odor levels,
  - And provide the Authority with a request for the approval of the project's Environmental Monitoring Program.
- 24) The Company shall build and operate a surrounding-air quality control and monitoring station or stations to be able to evaluate and monitor the quality of air in the region and shall electronically link it to the Environmental Monitoring Center of the Authority material safety data sheet (MSDS
- 25) The Company shall prepare periodic environmental monitoring and performance reports of the element and pollutants listed above for the project's units and facilities every three months and provide the Authority with three electronic and printed copies if these reports.
- 26) Within two months of the date of issue of this permit, the Company shall prepare a detailed 3D schematics of the design of the project's units, facilities and product, waste and disturbances storage sites and afforestation, in addition to applying for this department's approval of the schematics.
- 27) The Company shall meet the requirements of electronic linkage between the devices and the environmental monitoring stations including the air quality monitoring stations in the project's units and facilities with the Ministry of Environment's Environmental Monitoring Center and shall keep environmental monitoring and performance records for the project and save them for a minimum of ten years in an electronic database.
- 28) Coordinate with the Ministry and the Authority regarding the electronic linkage of environmental monitoring stations.
- 29) The Company shall control the emissions of pollutants, dust, soil, odor and nuisance caused by the loading, discharge and storage of materials and waste, by using the suitable environmental practices in accordance with the relevant rules and restrictions set by the Authority.



- 30) The Company shall allow the competent Authority officials to access the project's units, facilities and operations to carry out environmental inspection and monitoring and shall provide the required information and clarifications to ensure the Company's compliance with the environmental requirements listed in this permit.
- 31) The company shall install continuous emission monitoring systems (CEMS) on chimneys, flames and combustion systems in the project's units and facilities.
- 32) Low nitrogen oxide fuel burners shall be installed on all power generators in order to decrease the emissions of pollutants in the atmosphere.
- 33) An evaporation pond shall be built to host all polluted water used for water and chemical cleaning and hydro testing.
- 34) The Company shall submit an application to this Authority to acquire a separate permit to build a discharge tube to the marine environment and its related maritime works.
- 35) The Company shall cooperate with Oman Environmental Services Holding Company S.A.O.C (Be'ah) in all matters related to the disposal of the project's hazardous waste in the facilities approved by the Ministry of Environment in accordance with letter no. (beah/HW/7/267) sent by Be'ah. Alternatively, the Company may provide the Authority with the preliminary agreement with an approved recycling, treatment or disposal facility abroad to regularly transport the hazardous waste to it and avoid its accumulation on site, considering that it is prohibited to store hazardous waste in the Company's site or any other site for more than two months from the date of production.
- 36) Information on the types and quantities of produced waste shall be included in the Company's environmental reports.
- 37) The Company shall store the project's hazardous waste produced in the construction and operation phases in an equipped warehouse meeting the Authority's specifications of hazardous waste storage sites. The Company shall also apply for a hazardous waste management permit, considering that no hazardous waste shall be disposed of or transported without the required prior approvals of the Authority.
- 38) The Company shall contact the Authority's Environmental Inspection, Control and Permits Department to register hazardous chemicals used in the project and acquire the licenses of import and use.
- 39) The Company shall store chemical material in warehouses or tanks meeting the highest safety and security standards and procedures indicated in the material safety data sheet (MSDS) of each material in accordance with the relevant laws and regulations set by the Authority and the Public Authority for Civil Defence and Ambulances.
- 40) The Company shall acquire a hazardous chemicals storage and transport permit from the Public Authority of Civil Defence and Ambulances and provide the Authority with a copy during the validity period of the current permit.



- 41) The Company shall provide the Authority's Environmental Affairs Department with an annual report by the end of December showing the quality and quantity of hazardous chemicals purchased and used in the project's units and facilities in accordance with the information provided on the dedicated form.
- 42) The Company shall submit the applications for environmental permits to the Environmental Inspection, Control and Permits Department.
- 43) The Company shall not use ozone depleting chlorofluorocarbons, halons, carbon tetrachloride, methyl chloroform and methyl bromide listed in Annex (a-b-f) and groups 2 and 3 of Annex (c), Attachment 1 of the ozone depleting substances (ODS) management and control list and shall comply with the Montreal protocol as amended in this regard.
- 44) The Company shall not use hydrochlorofluorocarbons (HCFCs) in any new manufacturing and production processes or the expansion of ongoing production processes and shall comply with the ODS phase-out timetable of Montreal Protocol as amended.
- 45) If the Company is performing maintenance work on equipment containing ODS, it has to ensure that the maintenance is performed by qualified and trained technicians taking into consideration the obligation to recover and reuse this type of gas.
- 46) The Company shall not use products containing ODS in new construction and expansion works.
- 47) The Company shall discharge greenhouse gases produced by the project's operations in accordance with the estimates submitted to the Authority. If such estimates were exceeded, the Environmental Affairs Department shall be notified.
- 48) The Company shall use suitable means and techniques to improve power efficiency and minimize power consumption in as much as possible in the project's units and facilities.
- 49) The Company shall use renewable power sources applications whenever possible such as solar cell panels and solar water heaters to provide hot water in the project's facilities and units.
- 50) The Company shall adopt energy conservation techniques such as energy-saving lamps in the project's facilities and units.
- 51) The Company shall provide the Authority's Environment Affairs Department with a periodic report on the Company's compliance with the Authority's aforementioned requirements in accordance with the requirements of the climate affairs information and data form in the periodic environmental reports submitted to the Authority.
- 52) The Company shall include all the requirements listed in this permit in the terms of contracts offered to contracts participating in the implementation of this project.
- 53) This permit shall only be valid for the determined period. The project shall be subject to environmental monitoring in light of which this permit may strictly be renewed if the Company complied with all the requirements listed herein.



- 54) Should the Company fail to complete the environmental requirements listed herein during the permit's validity period, it shall submit a renewal application to the Authority.
- 55) The Company shall complete the implemented of the environmental requirements listed herein and the environmental requirements listed in the environmental approval no. (18103/س/م/2015) issued by the Ministry of Environment and Climate Affairs and shall submit an application with the required documents to the Authority's Environmental Inspection, Control and Permits Department to acquire a final environmental permit. The required documents include a detailed and photographic report on the Company's implementation of the environmental requirements listed herein and photographs showing the project's units, facilities, warehouses, raw material, waste and loading and discharge locations.

The preliminary environmental permit shall be deemed cancelled in the following cases:

- a- If the Company failed to comply with the environmental requirements listed herein during the permit's validity period.
- b- If the Company failed to provide the documents, information or clarifications required by the Authority's competent departments regarding the project.
- c- If the company carried out an expansion or moved the project to an unauthorized location in this preliminary permit without the Authority's approval.
- d- If this preliminary environmental permit was assigned to another person or party without the Authority's approval.

**4** – The Applicable laws and implementing regulations of the Law on Conservation of the Environment and Prevention of Pollution issued by virtue of Royal Decree no. 114/2001 and the regulations of the Special Economic Zone Authority in Duqm shall be fully complied with at all times. The Company shall not commit environmental violations subject to legal accountability.

**5** – The Company shall notify us if the project's implementation continues in the construction phase in accordance with the relevant environmental requirements. An application for the final environmental permit to operate the project shall be submitted after ensuring the compliance with the requirements listed herein.

**6** – This permit has been issued by virtue of the project assignment to Serka Taahhut Insaat Company to deliver Package 2 project of Duqm port. The Company shall comply with any amendments on the special permits of Phase 2. 7 – for inquiries and comments, kindly contact 25217777 or [suliman.almasoudi@duqm.gov.com](mailto:suliman.almasoudi@duqm.gov.com).

Best of luck in implementing your project in an eco-friendly way

Approved by: Sulieman Said Mohammed Al Masoudi

Acting Head of Environmental Inspection, Control and Permits Department

Issued on: 23/1/2017 AD

Translator's Note:

- ***All pages are indorsed with the stamp of the Department of Environmental Affairs – Special Economic Zone Authority in Duqm.***
- ***All pages are indorsed with a signature.***



## 7.19. Appendix J: Archaeological Chance Find Procedure

These procedures were developed in accordance with the Omani regulations and the World Bank Guidelines - OP 4.11 (Physical and Cultural Resources) of July 2006.

These procedures are included as standard provisions in construction contracts to ensure the protection of cultural heritage.

A clause for "Protection of Archaeological and Historical Sites" will be added to all bidding documents for the works contract which explains the steps to follow whenever new archaeological remains, antiquity or any other object of cultural or archaeological importance are encountered during construction.

Cultural heritage in this context would include archaeological, historical and/or sacred sites or materials, including graves.

### Protection of Archaeological and Historical Sites

Excavation in sites of known archaeological interest should be avoided. Where this is unavoidable, prior discussions must be held with the Directorate of Antiquities in order to undertake pre-construction excavation or assign an archaeologist to log discoveries as construction proceeds. Where historical remains, antiquity or any other object of cultural or archaeological importance are unexpectedly discovered during construction in an area not previously known for its archaeological interest, the following procedures should be applied:

- a) Stop construction activities.
- b) Delineate the discovered site area.
- c) Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.
- d) Notify the responsible foreman/archaeologist. Who in turn should notify the responsible authorities, the General Directorate of Antiquities and local authorities  
(within less than 24 hours).
- e) Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out.
- f) An evaluation of the finding will be performed by the General Directorate of Antiquities. The significance and importance of the findings will be assessed according to various criteria relevant to cultural heritage including aesthetic, historic, scientific or research, social and economic values.
- g) Decision on how to handle the finding will be reached based on the above assessment and could include changes in the project layout (in case of finding an irrevocable remain of cultural or archaeological importance), conservation, preservation, restoration or salvage.
- h) Implementation of the authority decision concerning the management of the finding.



- i) Construction work could resume only when permission is given from the General Directorate of Antiquities after the decision concerning the safeguard of the heritage is fully executed.

In case of delay incurred in direct relation to Archeological findings not stipulated in the contract (and affecting the overall schedule of works), the sub-contractor may apply for an extension of time.

However the contractor will not be entitled for any kind of compensation or claim other than what is directly related to the execution of the archeological findings works and protections.



## **7.20. Appendix K: Environmental, Occupational Safety & Health (OHS) Policy of Serka MSF**

### **Policy of Serka MSF (Sourced from the HSE Manual, Revision 3, May 2017)**

Serka-MSF JV recognizes its moral and legal responsibility to provide and maintain a safe and healthy work environment for its workers, Subcontractors, customers and visitors. This commitment extends to ensuring that Serka-MSF JV operations do not place the local community at risk of injury, illness or property damage.

### **Objectives**

To ensure a healthy and safe working environment Serka-MSF JV will identify and control hazards as a proactive approach, in particular Serka-MSF JV will;

- Provide and maintain safe plant, equipment and systems of work;
- Provide written procedures and instructions to ensure safe systems of work;
- Ensure compliance with legislative requirements and current industry standards;
- Provide information, instructions, training and supervision to workers, contractors and customers to ensure their safety;
- Provide support and assistance to employees;

### **Responsibilities and Accountabilities**

Each Management Officer is accountable for implementing this policy in his or her area of responsibility. This will be measured via their annual performance reviews. Management is responsible for;

- The provisions and maintenance of the workplace in a safe and healthy condition;
- Involvement in the development, promotion and implementation of health and safety policies and procedures;
- Training workers in the safe performance of their assigned tasks;
- The provision of resources to meet the health and safety commitments.

### **Workers are to;**

- Follow all health and safety policies and procedures;
- Report all known or observed hazards to their immediate supervisor or manager.

### **Application of the Policy**

This policy is applicable to Serka -MSF JV in all its operations and functions including those situations where workers are required to work off site.

### **Consultation**

The organization is committed to consultation and cooperation between management and workers. The management will consult with elected worker representatives and workers on any workplace change that will affect the health and safety





of any of its workers. The effectiveness of this policy can only be achieved by active involvement of all staff members.

## 7.21. Appendix L: Approval of CEMP for IP2 by Haskoning UK



هاتف: ٢٤٦٠٢٠١٦ / ٢٤٦٠٢٠٧٦ فاكس: ٢٤٦٠٢٠٩٨  
ص.ب: ٢٣٨، الرمز البريدي: ١١٢، سلطنة عمان

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Ref: 3H6503/B32/L087/2017

March, 8, 2017

Mr. Baburhan GÜRSES  
Project Manager  
M/s SERKA TAAHHUT INSAAT A.S. & MSF JV,  
P.O. Box 174, P.C. 102, Muscat  
Sultanate of Oman.

Project: Port of Duqm Contract C66/2016 - Construction of Roads, Infrastructure and Building at the Commercial Terminal and Operational Zone Areas - Tender 16/2013 - (IP2)

Subject: Construction Environmental Management Plan-IP2

Dear Sir,

We are in receipt of your letter IP2-L-0052 dated 12.02.2017 regarding submittal of your revised CEMP. We have reviewed your submission and return herewith the same with status Approved.

We confirm that SEZAD Environment Department have also approved this document.

You are reminded that the following items need your urgent follow up:

- Engage Environmental Protection Officer
- Provide all necessary monitoring equipment.
- Submit detailed monthly reports as per the CEMP, MECA and SEZAD requirements.

This is for your information and action.

Yours sincerely,




Cc: Eng. Saleh Al-Hashmi - (SEZAD)  
Eng. Qasim Al-Marhoobi - (SEZAD)  
Eng. Ismail Bazyan - (RHKA)  
Eng. Cameron Smith - (RHKA)

## 7.22. Appendix M: Arabic Version of the Executive Summary of the PEIA

### ملخص تنفيذي

#### خطة التطوير المقترحة

تعمل حكومة السلطنة ممثلة في هيئة المنطقة الاقتصادية الخاصة بالدقم على تطوير ميناء الدقم الجديد من خلال تزويده بمنشآت وخدمات حديثة لاستقبال السفن التجارية والعسكرية وسفن خفر السواحل، ويحتل الميناء موقعا استراتيجيا في الجزء الجنوبي الشرقي من السلطنة، على بعد 450 كم من العاصمة مسقط. وتقوم شركة ميناء الدقم ش.م.ع التي تم تأسيسها بعقد شراكة مناصفة بين حكومة السلطنة وتحالف ميناء إنتويرب بإدارة الميناء. ومن المقرر أن يضم ميناء الدقم مجموعة متنوعة من النشاطات (بعضها قائم حاليا) تتمحور بشكل رئيسي في النشاطات المرتبطة بالعمليات التشغيلية لمنطقة الحوض الجاف (إصلاح السفن وصيانتها)، والرصيف التجاري (محطة حاوية، محطة للمواد السائبة والجافة، ومحطة متعددة الأغراض)، والمرسى الحكومي، ومحطة للعبارات السريعة، وأرصفة للمواد السائبة ومناطق تخزين مختلفة وبوابات ومكاتب ومنشآت عامة للميناء وغيرها.

ومن المقرر بناء الميناء على مراحل، خصصت الحزمة الأولى منها لتطوير وتشغيل المناطق الملاحية داخل وخارج الميناء والرصيف التجاري في منطقة كاسرات الأمواج (رصيف متعدد الاستعمالات وحاوية ومحطات للمواد السائبة)، والأرصفة الحكومية، ومحطة للعبارات السريعة، ورصيف المرسى، ومنطقة تخزين للمواد الجافة وما يتعلق بالميناء من بنى تحتية أرضية داعمة (مثل البوابات والمدخل، والمباني، والمكاتب، والمنشآت العامة وغيرها).

أما الحزمة الثانية فستشمل تطوير وتشغيل رصيف المواد السائبة ومنطقة التخزين في منطقة كاسرات الأمواج (Lee Breakwater) وسيتم تخصيص الحزمة الثالثة لرفع عمليات تصدير المعادن، أما المرحلة الرابعة فستبدء مع اكتمال تشغيل الرصيف التجاري كمحطة حاويات.

#### حزم البنى التحتية المقترحة

تتعلق مشاركة شركة كية آند آية للاستشارات ش م م في هذا المشروع، في تخطيط الميناء (التخطيط الكلي) وتمهيد الطرق والبنى التحتية و تخطيط منشآت الميناء (التخطيط الجزئي) وتصميم المباني. وتشتمل الدراسة المبدئية المقدمة للتأثيرات البيئية المحتملة تقديم خدمات بنى تحتية معينة لتطوير الجزء الأول من الرصيف التجاري من خلال الحزم

الثلاث ( IP2,IP3, IP4 ) الموضحة أدناه:

- الحزمة (IP2): إنشاء وصيانة الطرق والبنى التحتية والمباني في المحطة التجارية و مناطق العمليات التشغيلية بميناء الدقم.
- الحزمة (IP3) : إنشاء وصيانة الطرق والبنى التحتية والمباني في المنطقة التجارية و ( commercial ) pre-gate والبوابات ومنطقة التفتيش بميناء الدقم .
- الحزمة (IP4) : إنشاء وصيانة الطرق والبنى التحتية وأعمال المباني في منطقة المرسى الحكومي بميناء الدقم .

ومن المتوقع مبدئياً أن تتطلب حزم التطوير لمراحل الإنشاء بين 900 إلى 1000 موظف وعامل فني وإداري من المهرة و غير المهرة, أما المدة الزمنية لاستكمال كل حزمة فمن المتوقع أن تصل إلى 30 شهراً وتصل إلى 365 يوماً مع مدة الانتقال والصيانة .

#### مسوغات تقييم التأثيرات البيئية

يعتبر المرسوم السلطاني رقم 114 / 2001 الخاص بـ" قانون حماية البيئة ومكافحة التلوث" بمثابة القانون البيئي الرئيسي في السلطنة و يرجع إليه كقاعدة قانونية في التخلص من الملوثات بصورة تساهم في التقليل من أضرارها بالبيئة. وتضع وزارة الشؤون البيئية و موارد المياه MECA دليلاً للمشاريع التي تتطلب دراسة التأثيرات البيئية من 8 مجموعات وتأتي "المشاريع البحرية والساحلية" ضمن المجموعة 6 من القائمة باعتبار ميناء الدقم ميناءً تجارياً.

#### أهداف الدراسة المبدئية للتأثيرات البيئية:

يكن الهدف الرئيسي من تقييم التأثيرات البيئية المبدئية في تقديم المعلومات اللازمة حول النتائج و التأثيرات البيئية المبدئية للمشروع لدعم مشروع تقييم التأثيرات البيئية التالي المقرر دراسته من قبل المقاول. حيث ستتيح الموافقة البيئية المبدئية للمشروع الصادرة من وزارة الشؤون البيئية و موارد المياه للمقاول الفرصة لبدء الأعمال الإنشائية بالموقع . وفضلاً عن ذلك, سيرغب صانعو القرار في التأكد من تحقيق المشاريع المقترحة للنتائج المذكورة .

### مصادر المعلومات:

يجري العمل في المشروع منذ سنوات عدة و تتوفر البيانات و التقارير السابقة لإعداد تقرير تقييم مبدئي للتأثيرات البيئية. و من الوثائق الرئيسية: البيان البيئي لإنشاء تصميم الميناء الأصلي الصادر في 2007, وساحة إصلاح السفن و مجمع الحوض الجاف بالدقم الصادر في 2010 و تقييم التأثير البيئي لمرحلة التشغيل توسعة 2012 بميناء الدقم, تقرير فحص نطاق البيئة العماني . حيث تم جمع البيانات و التقارير من المعنيين أثناء القيام بالدراسة. خلال المرحلة التالية من دراسة التأثيرات البيئية للمشروع , يوصى بتحديث قياسات التلوث بالضوضاء وجودة الهواء المحيط.

### المنهجية العامة:

لضرورة انجاز الدراسة المبدئية للتأثيرات البيئية خلال 6 أسابيع, بدأت الاستشارات العاجلة من خلال عدد من الاجتماعات تم عقدها في ديسمبر 2014 و تضمنت تقنيات الدراسة المبدئية تحديد تأثير التدخل (التأثير الفردي) , التأثيرات التراكمية , تصنيف التأثير باستخدام تقنيات النمذجة ( مثل تأثيرات الضوضاء و الإنبعثات).

### نتائج الدراسة المبدئية لتقييم التأثيرات البيئية

#### النتائج الاقتصادية – الاجتماعية

من النتائج الإيجابية للمشروع توفير الفرص الوظيفية للقوى العاملة الوطنية والوافدة. حيث تتوفر الفرص الوظيفية للمهرة و غير المهرة في المهن المتعلقة بالسفن و المعدات. و سيسهم المشروع بصورة غير مباشرة في دعم الاقتصاد الوطني من خلال انفاق الأفراد في المنطقة (فرص الإنفاق المباشر) و الفرص المرتبطة بالأعمال و الصناعات في المنطقة مثل ( تأجير السفن و المساكن) مع فتح الفرصة كلما اتحت للأفراد من المجتمع المحلي ومنطقة الدقم. و من المقرر أن يوفر موقع المشروع الآف الوظائف بشكل عام, تخدم المنشآت الجديدة بشكل مباشر و الآلاف من الوظائف الأخرى غير المباشرة المرتبطة بالميناء والنشاطات الصناعية . عليه, من الأهمية صقل الموظفين الجديد بالبرامج التدريبية لضمان نقل المهارات والتقنيات إلى السوق المحلي. و ستسهم الزيادة في الفرص الوظيفية في دفع عجلة الاقتصاد المحلي في البلاد. هناك تأثير طفيف للأعمال الإنشائية والتشغيلية على الثروات السمكية إلى حين الانتهاء من إنشاء ميناء الصيد الجديد .

### مياه الصرف ( مخلفات المياه )

إنتاج فائض المياه الصرف الناتج من عمليات الإنشاء يقتصر على موظفي المقاول والكادر البشري، ولأن الكادر البشري للحزم الثلاث للمشروع يقدر بين 900 إلى 1000 فرد. فيتوقع أن تصل كمية المياه العادمة الناتجة إلى أقل من 100 متر مكعب في اليوم وتقدر كمية الحمأة الجافة بـ 0.1 طن/ في اليوم .

ومن المقرر معالجة المياه العادمة الناتجة من الأعمال الإنشائية من خلال وحدة صغيرة لمعالجة المياه العادمة وهي مشابهة للوحدة المستخدمة لمعالجة مياه الصرف للأعمال الإنشائية حالياً كما هو موضح في الشكل التالي ( المقاول، ستراباك). وعلى المقاول الموكل أولاً دراسة إمكانية إرسال الحمأة غير المعالجة من خلال مكثف إلى محطة الدقم لمعالجة مياه الصرف مؤقتاً خلال فترة الإنشاءات من خلال اتفاقية .

في حال تعذر ذلك، يمكن معالجة الحمأة المتولدة من خلال مكثف الحمأة والتجفيف الهوائي باستخدام ساحات التجفيف وتحويلها إلى سمد. وتتوفر في الأسواق الآت ميكانيكية لمعالجة الحمأة في المراحل الأولية من عملية التجفيف. ويجب أن تكون ساحات التجفيف باتجاه الريح وبعيدا عن التجمعات السكنية بمسافة 0.2 كم أو من خلال مقترحات معالجة أخرى.

سيتم معالجة مياه الصرف الناتجة من عمليات التشغيل من خلال محطة ضخ مياه الصرف و محطة معالجة مياه الصرف الصحي في الحزمة الثانية والثالثة. وسيتم معالجة مخلفات المجاري السائلة إلى مستويات مقبولة لإعادة استخدامها في محطة الصرف الخاصة بالمنشأة بحيث لا يكون لها تمثل أي خطر بيئي. يتم عادة ابقاء مياه صرف السفن بداخلها ولكن في حال تقدم العميل بطلب معالجة مياه الصرف فيتم معالجتها في محطة المعالجة بالموقع. ويعاد تدوير المخلفات السائلة المعالجة للأغراض الزراعية والتشجير. ومن الممارسات المعمول بها قيام محطة معالجة مياه الصرف بمعالجة مياه الصرف و الحمأة الرطبة المفرغة والمنقولة لمعالجتها في محطة الدقم لمعالجة مياه الصرف. و لا يمكن الاعتماد على هذه الممارسة في المستقبل لعدم امكانية المحطة معالجة كميات أكبر من الحمأة. ويمكن للمحطة استقبال الحمأة المجففة فقط وقد أثبتت هذه القضية من قبل قسم البيئة بالهيئة مسبقاً. لذا يوصى بمعالجة الحمأة من خلال مكثف الحمأة و تجفيفها من خلال فرن الحرق أو ساحات التجفيف، هناك مقترحات أخرى لمعالجة الحمأة وإعادة تدويرها و التخلص منها. يجدر بالذكر انه يمكن استخدام الحمأة المعالجة في تحسين مواصفات التربة لتصميم المناظر

و زيادة البساط الأخضر بما ينسجم مع اللائحة الصادرة بالقرار الوزاري رقم 93/ 17.

### المخلفات الصلبة

فيما يتعلق بالمخلفات الصلبة غير السامة الناتجة يومياً عن أعمال الإنشاءات والتشغيل فستجمع ويتم التخلص منها في موقع المردم. أما المخلفات الصلبة الأخرى غير الخطرة الناتجة عن مباني المكاتب و المطاعم و المرافق العامة للموظفين العاملين بالموقع و التي تشمل مخلفات الأطعمة و غيرها من المواد العضوية والأوراق و البطاقات ... الخ , فستجمع على فترات منتظمة و توضع في منطقة تخزين وسيطة بالموقع, تنقل بعدها إلى المردم المخصص لردم المخلفات الصلبة خارج إحرامات المشروع. وسيتم إرساء المشروع و تحديد ساحة الردم من قبل الشركة أثناء فترة الانتقال .

### مخلفات الزيوت و المخلفات الكيميائية و الخطرة

تتواجد أجهزة فصل الزيوت عن المياه على طول الرصيف التجاري والحكومي موجهة باتجاه غرفة الترشيح screen chamber وضد اتجاه المضخة pump well. يجب تنظيف أجهزة فصل الزيوت عن الماء بشكل دوري لضمان جودة فصل الزيوت كما يجب. أما مصادر الزيوت الأخرى الناتجة من تسربات ورش العمل وحوادث الانسكاب العرضية أيضا يتم جمعها ومعالجتها و إعادة استخدامها وتخزين بعضها في ( حفرة الزيت) في منطقة تخزين المخلفات الخطرة المؤتة ف مساحة تقدر ب 40000 متر مربع شرقا منطقة حزمة PRE-GATE (IP2).

تنقل الزيوت في المرحلة الأخيرة إلى المردم المؤقت المحدد لمنطقة المشروع. وسيتم معالجة بعض المخلفات الكيميائية وإعادة تدويرها أما المخلفات الكيميائية السامة فستنقل إلى المردم المخصص لمنطقة المشروع . في حال لم يتمكن المقاول من الحصول على موافقة أو اطار عدم ممانعة على استلام المخلفات الخطرة الناتجة من عمليات الإنشاء والتشغيل بميناء الدقم , يجب توفير منشآت معالجة لمعالجة المخلفات السامة أو الحصول على الموافقة من شركة "بيئة" لتوفير مردم للمخلفات الخطرة .

### توقعات الطلب على حركة المرور و المواصلات

من المتوقع نمو الحركة المرورية بفضل أنشطة التخطيط والتطوير المتواصلة في الميناء. وسيظهر نمو الحركة المرورية في حركة المركبات الثقيلة بشكل خاص, حيث يتوقع أن تصل الحركة المرورية للمركبات

الثقيلة إلى 60 % بينما تقدر الحركة المرورية للمركبات الخفيفة إلى 40 % في مناطق الطرق المقترحة. ويتوقع أن يصل متوسط حجم حركة المرور اليومية في الطرق المقترحة في العام 2040 إلى 12397 لميناء الدقم. وضمن أسوأ السيناريوهات يتوقع أن تشكل الأرصفة التجارية نسبة 100% من الإزدحام المروري (262 مركبة خلال ساعات الذروة في كل اتجاه و 20 منها ناتجة عن الرصيف التجاري )  $347 * 20 \% =$

69 مركبة في ساعات الذروة في كل اتجاه.)

### التأثيرات التراكمية للضوضاء والذبذبة

نشرت إدارة الطرق السريعة الفيدرالية بالولايات المتحدة، مكتب البيئة الانسانية و الطبيعية دليل ضوضاء حركة المرور ( TNM 2.5, 2003) وهو دليل إلكتروني لتوقع حجم الضوضاء في الطرق السريعة، وتم تطبيق الدليل لتحليل حجم الضوضاء أثناء الحزم الثلاث ( IP2, IP3, IP4 ) لشبكات الطرق . وكان ملخص تأثيرات الضوضاء للحزم الثلاث في أقصى مراحل الإزدحام المتوقعة في العام 2040 بسرعة 60 كم في الساعة كالتالي :

- المرسى التجاري, IP2 ( 6.64 و 9.57 و 2.53 ) ( L 10 , DB ) على بعد , 20 , و 50 و 100 متر تباعاً.
- الرصيف التجاري , IP3 (في أسوأ السيناريوهات) : 61.68 و 56 ( L 10 , DB ) على بعد 20 و 50 و 100 متر تباعاً,
- المرسى الحكومي IP4 8.57 و 9.51 و 6.47 ( L 10 , DB ) لمسافة 20 و 50 و 100 متر تباعاً.

أظهرت نتائج تأثيرات الضوضاء التراكمية التالي :

- يقدر مستوى الضوضاء من عمليات التشغيل بأقل من 50 ديسبل في حدود مخطط كل حزمة منها أثناء التشغيل.
- تأثير الضوضاء هو أمر طفيف في بعض منشآت التشغيل ولا يؤثر على المستقبلين. يمكن حماية العاملين المعرضين للتأثر المباشر لضوضاء المعدات والآلات من خلال استخدام سماعات الحماية



من الضوضاء وفقاً للقانون المعمول به في السلطنة.

- لا يوجد تأثيرات محتملة للضوضاء في بيئات المواقع الأخرى خارج نطاق الحزم الثلاث (IP2, IP3, IP4) بما يشمل المناطق الصناعية القريبة و التجارية و السكنية بسبب أعمال التشغيل.
- لا يوجد تأثير للضوضاء في الحزم الثلاث (IP2, IP3, IP4) أو الرصيف التجاري أو البوابة التجارية أو البوابة أو منطقة التفتيش أو المراسي الحكومية من البيئة المحيطة ( المرفق الوحيد تحت التشغيل هو الحوض الجاف).

#### التأثيرات التراكمية لجودة الهواء و الانبعاثات

إن مصادر تلوث الهواء خلال مرحلة التشغيل للمنشآت المقترحة بالحزم الثلاث (IP2, IP3, IP4) هي الطرق حيث من المتوقع أن يصل تدفق حركة المرور فيها بأكثر من 5000 مركبة في اليوم بالإضافة إلى عدد المضخات ذات السعات الصغيرة. يتم تقدير تأثير النشاطات باستخدام نموذج التشتيت US-AERMOD. ضمت نتائج النموذج تركيزات الهيدروكربون و أكسيد الكربون و أكسيد النيتروجين لمرحلة العام (2040).

#### التأثيرات في البيئة المحيطة

- فيما يختص بتأثير أنشطة الصيانة والإصلاح في الهواء المحيط خارج نطاق الحوض الجاف أو إحرامات ساحة الإصلاح تم تقييم كمية الغبار الناتجة من عمليات النسف والمذيبات العضوية (المتتمثلة في مذيب إكسيلين) المستخدم في طلاء هياكل السفن و ملوثات الهواء العامة من أكوام العادم (أكسيد النيتروجين و وثاني أكسيد الكبريت ودايوكسين ( من محطة فرن الإحراق)
- فيما يتعلق بتأثير ملوثات الهواء العامة اتضح أن الانبعاثات قليلة و لا تشكل أي مخالفة للمقاييس العالمية لجودة الهواء المحيط خارج نطاق الحوض الجافة أو ساحة الإصلاح أما نسب الداويكسين فتعتبر نسباً ضئيلة .
- فيما يتعلق بالغبار , في أسوأ الحالات يتجاوز المعدل المعياري للمواد الجزيئية ب 300 متر خارج نطاق الحوض الجاف مثال: استخدام النسف بمادة النيكس دون اتخاذ تدابير الحد من تأثيرات الرياح.

- لا يوجد أية مقاييس في السلطنة أو على المستوى العالمي للمذيبات العضوية (إكسيلين) في الهواء المحيط، لذا لا توجد قيود أو اشتراطات مخالفة. في المقابل عند مقارنتها بمعايير الدنمارك وولاية اوناريو بكندا، تتجاوز مستويات الإكسيلين مقاييس المستويات الدنماركية لمتوسط التركيزات السنوية على بعد 5.4 كم من المصدر.

#### تأثير الحزم المقترحة

- لا يتوقع وجود أية مصادر لانبعاثات الملوثات في الأماكن التي لا تتوفر فيها أنشطة صناعية في منشآت الحزم الثلاث وهي تقتصر على مضخات صغيرة السعة مع استهلاك ضئيل للوقود. إن المصدر الرئيسي للانبعاثات في الحزم الثلاث خلال التشغيل هي الطرق التي تستقبل أكثر من 5000 مركبة في اليوم ( IP2 و IP3 ) والمرسى والرصيف التجاري).
- فيما يتعلق بتأثير ملوثات الهواء العامة اتضح أن الانبعاثات قليلة و لا تشكل أي مخالفة للمقاييس العالمية لجودة الهواء المحيط خارج نطاق الحوض الجافة أو ساحة الإصلاح أما نسب الدايبوكسين فتعتبر نسباً ضئيلة.
- انبعاثات الغبار و الجسيمات الناتج عن حركة المركبات بالموقع و المصانع المتنقلة سكون طفيفا حين يتم سفلتة الطرق.
- لا يوجد تأثير محتمل للحزم الثلاث على بيئات المواقع الأخرى بما في ذلك المناطق الصناعية و التجارية والسكنية القريبة نتيجة لأعمال التشغيل.

#### التراث الثقافي

يقتصر التأثير على حركة المركبات، وتواجد الأفراد والسياح في منطقة أرض الميناء خارج نطاق الحزم الثلاث. جميع المواقع عرضة للتأثيرات إلى أن يتم تطبيق تدابير الحد منها. غالبا يسمح pre Islamic burial carins في المواقع العامة، مع تزويد الموقع بالحواجز و التنبيهات اللازمة والخ. مع وسائل شرح توضح للزوار أهمية الموقع ومحتواه الثقافي. لم يتم العثور على موقع تراثي ثقافي خلال مرحلة استصلاح الأرض للحزم الثلاث. لذا، فإن التأثير هنا يصنف بأنه طفيف على التراث الثقافي و مواقع المناظر الطبيعية

العامّة .

### المناظر العامّة الترفيحية

خلال فترة الأعمال الإنشائية, سيكون الموقع غير مناسب للاستجمام من حيث تواجد الآلات والمعدات الإنسانية وعدم تهيئة حركة المرور على الأرض ومواقع مباني المكاتب. مما سيغير خواص المنطقة من منطقة تتمتع بشواطئ هادنة إلى موقع إنشائي. حيث لن يتمكن محبي الطيور من مشاهدتها في هذا الموقع ( اثناء فترة الإنشاءات), اذ ستهاجر الطيور شمالا مؤقتا إلى مناطق أخرى مثل بحيرة غبة قويرات. يصنف التأثير أثناء فترة التشغيل إلى تأثير إيجابي طفيف إلى متوسط في مواقع الاستجمام . وفقا لتوفر المساحة , يمكن إدراج تطوير مناطق الاستجمام والمناطق السياحية ضمن الخطة لتناسب كافة الفئات .

### التربة والمياه الجوفية

قد تؤدي عمليات التشغيل في الموقع اثناء مرحلة الإنشاء إلى التأثير على التربة و المياه الجوفية أسفل منها.و تكمن التأثيرات المحتملة في التالي:

- تخزين الوقود و مواد التشحيم و محطات الوقود .
- مناطق الصيانة و مناطق تخزين المخلفات.
- مواقع المصانع و المعدات .

التربة في منطقة الدقم غير مناسبة للزراعة وذلك لأن المنطقة مكونة من رواسب صخرية رباعية التركيب بمعنى أنها مالحة ولا تناسب زراعة المحاصيل التجارية. فضلا عن ذلك سيتم استخدام عددا محدودا من المواقع لدعم الأعمال الإنشائية واتخاذ جميع التدابير اللازمة من قبل المقاول لتقليل التسرب إلى التربة أو المياه الجوفية. لذا سيكون التأثير في التربة و المياه الجوفية طفيفا في منشآت الحزم الثلاث ( IP2,IP3, IP4 )

ولا تأثير للأعمال الإنشائية للمواقع خارج نطاق الحزم.

### الجيولوجيا

هناك موقع جيولوجي واحد هو (راس الدقم) بالقرب من الحزم الثلاث ( IP2,IP3, IP4 ) جنوب الرصيف التجاري . تم اتخاذ ما يلزم لحماية الموقع و الاهتمام به أثناء عمليات استصلاح الاراضي للحزم المقترحة.

### دراسة الموارد المائية

لم يتم تضمين قنوات الأودية وإعادة تعيين المسارات في منطقة الميناء ضمن الحزم المقترحة, علما بأن

فيضان الأودية الخارج عن سيطره قد يتسبب في إلحاق أضرار تتراوح بين الخفيفة و المتوسطة بالمواقع الجيولوجية والترية بسبب التآكل. فضلا عن ذلك، من المحتمل أن تؤثر الأودية على شبكة خطوط الطرق

الحالية وأية مخططات تطوير أخرى في منطقة المشروع. لذلك تم تصميم قواعد تصريف هيدروليكية للمياه السطحية للسماح لمياه الأودية بالجريان بسهولة في فترات أوج فيضانها. لذا سيكون للمشروع المقترح تأثير إيجابي رئيسي من ناحية حركة جريان الأودية في منطقة المشروع .

### البيئة الساحلية والاستزراع المائي

يقتصر التأثير على الأعمال الأرضية و يحتمل أن يؤثر جريان المياه السطحية من مواقع التطوير المقترحة في جودة الماء وحوادث الانسكاب العرضية و جريان الملوثات من الأنشطة الساحلية و السفن عند عبور الميناء أو دخولها. تصنف التأثيرات إلى تأثيرات طفيفة في حال تم اتخاذ التدابير اللازمة للحد من التأثيرات ذات العلاقة .

### البيئة البرية والطيور

تعريض الرمال البرية و الرمال الساحلية، والطينية في مواقع المشروع إلى التشويه و الإزالة بسبب أعمال البنى التحتية الأرضية (الطرق، المباني، الخ) و العمليات التشغيلية. لكن تأثير الحزم الثلاث ( IP2, IP3, IP4 ) سيكون ضئيلا في الأعمال الأرضية أما التأثير المحتمل فسيكون في احتمالية نقل الملوثات من مواقع الأعمال الإنسانية و الأعمال التشغيلية بالميناء و تأثير التلوث بالضوضاء و الإنارة .  
تصنف التأثيرات إلى تأثيرات صغرى إلى متوسطة في حال تم وضع و تصميم تدابير الحد من التأثيرات المتعلقة بالتلوث بالضوضاء و الإنارة .

### تقييم تغير المناخ والاستدامة

قد يكون للأعمال الإنسانية و العمليات التشغيلية بعض التأثيرات كما هو موضح ادناه:

- سوء استخدام الطاقة بسبب انبعاثات أكسيد الكربون الخفية.
  - اختيار مصنع تبريد دون استخدام المبردات مما يزيد احتمالية التسبب في الاحتباس الحراري العالمي .
  - استخدام طلاء و مذيبيات تحتوي نسبة عالية من المركبات الطيارة.
  - عدم إكمال عمليات معالجة مياه الصرف و تولد الميثانين نتيجة لذلك .
- تصنف التأثيرات البيئية المحتملة إلى تأثيرات صغرى يمكن للتدابير و التعديلات التقليل من أثارها .



## **7.23. Appendix N: Arabic Version of the Grievance Redress Mechanism of SEZAD**



## آلية درء وجبر المظالم المرعية من قبل هيئة المنطقة الاقتصادية الخاصة

إن غاية هذه الآلية هي تمكين أي شخص داخل منطقة الدقم من: التمكن من تقديم إجراء الشكوى بشكل رسمي أو قانوني أو غير قانوني، والذي يمكن استخدامه من قبل الأفراد والعمال والمجتمعات و/أو منظمات المجتمع المدني التي تأثرت بأنشطة وعمليات تجارية معينة داخل هيئة المنطقة الاقتصادية الخاصة.

خدمات درء وجبر المظالم المرعية من قبل هيئة المنطقة الاقتصادية الخاصة بالدقم (الخدمات) يضمن التعامل مع خدمات درء وجبر المظالم (خدمات درء وجبر المظالم) من قبل دائرة الشراكة والتنمية (قسم المسؤولية الاجتماعية للشركات) من مراجعة وتوجيه والرد على الشكاوى فوراً خلال الموعد الزمني المحدد من قبل الدائرة داخل المنطقة الاقتصادية الخاصة التابعة لهيئة المنطقة الاقتصادية الخاصة بالدقم.

غاية هذا الإجراء هي تفعيل أهمية تمكين هيئة المنطقة الاقتصادية الخاصة بالدقم من الوصول بشكل أسهل إلى المجتمعات والمساعدة على ضمان صدور قرار بشكل عاجل وأفضل فيما يتعلق بأي مظلمة أو مسائل متعلقة بالخدمة.

تعد خدمات درء وجبر المظالم متاحة للجميع، بالرغم من عدم تعلقها بالأراضي حيث يتم التعامل مع مثل هذه الأمور من قبل وزارة الإسكان، ويتم تقديم المشورة بشأن جميع الاستفسارات التي تم تلقيها فيما يتصل بذلك من أولئك الذين يجرون اتصالاً مع وزارة الإسكان بالإضافة إلى الشخص المختص.

يتوفر هناك عدد من الخيارات للاستفادة من خدمات درء وجبر المظالم:

### • الهاتف:

يمكن الاتصال بدائرة الشراكة والتنمية خلال ساعات العمل (من الساعة 8 صباحاً إلى الساعة 3 مساءً) من الأحد إلى الأربعاء برقم: 24507216.



(ملحوظة: يتوجب متابعة جميع المكالمات الهاتفية المتلقاة بموجب خطاب رسمي بالشكوى ما لم توجيه تعليمات: بأن يتم قيد جميع المكالمات الهاتفية لتأمين بيانات المكالمات المستلمة).

## • خطاب رسمي

يمكن توجيه الخطاب الرسمي إلى مدير دائرة الشراكة والتنمية، ويمكن تسليمه سواء بطريقة مباشرة في أي مكتب من مكاتبنا في الدقم أو مسقط - ويتم مهر أغلب الخطابات المستلمة بختم تاريخ الاستلام ومتابعتها من خلال المكالمات في غضون 24 ساعة لغايات الإقرار باستلام الخطاب. ويرجى العلم إلى أنه يتوجب وضع الأرقام الهاتفية للاتصال بالشخص المعني داخل الخطاب.

## • عبر البريد الإلكتروني

يمكن إرسال رسالة بالبريد الإلكتروني إلى دائرة الشراكة والتنمية على البريد الإلكتروني [CSR@dugm.gov.om](mailto:CSR@dugm.gov.om) ويرجى التأكد من إرفاق نسخة من الخطاب؛ وتعد هذه الخدمة أسرع وأكثر فاعلية ويتم الرد على جميع رسائل البريد الإلكتروني في غضون 24 ساعة من الاستلام.

## بوابة الموقع الإلكتروني للهيئة

يرجى الولوج إلى الموقع التالي: [Duqm.gov.om](http://Duqm.gov.om) ومتابعة علامات التبويب إلى دائرة الشراكة والتنمية (قسم المسؤولية الاجتماعية للشركات)؛ وعند علامة التبويب المتعلقة بالمسؤولية الاجتماعية للشركات، ستحصل على خيارات قليلة؛ أحدها هو إجراء درء وجبر المظالم المرعية من قبل هيئة المنطقة الاقتصادية الخاصة بالدقم والنقر عليها. وعندما تتوجه إلى هذا المكان، يتم تزويدك بالمعلومات عن طريقة تعبئة النموذج ومرات الاستجابة.

جميع المعلومات المتعلقة بإجراء نظام المظالم متاحة بالإضافة إلى النموذج الذي يمكن تعبئته على الإنترنت وإرساله مباشرة إلى دائرة الشراكة والتنمية - وتقدم هذه الخدمة النموذج مباشرة إلى رئيس قسم المسؤولية الاجتماعية للشركات بالإضافة إلى نائب الرئيس التنفيذي.



## أوقات الاستجابة

- يتم الإقرار باستلام جميع الخطابات والنماذج المستوفاة في غضون 24 ساعة.
- يتم تزويد المرسل بجميع الردود على الخطابات في غضون 72 ساعة من الاستلام.
- يتم تقديم الرد في حال استغرق وقتاً أطول من المدة المقدرة في غضون 72 ساعة.
- يتم التعامل مع جميع موضوعات المظالم من قبل دائرة الشراكة والتنمية (قسم المسؤولية الاجتماعية للشركات)؛ وفي حالة تعذر على الدائرة تقديم الدعم أو الرد؛ يتم رفعها إلى نائب الرئيس التنفيذي لهيئة المنطقة الاقتصادية الخاصة بالدقم - وفي هذه الحالة، يتم الاستجابة بصفة عامة في غضون 7 أيام من تاريخ استلام الخطاب/ المظلمة، وبالرغم من ذلك، يمكن أن يتغير هذا الإجراء اعتماداً على مدى تعقّد المظلمة.

دائرة الشراكة والتنمية (قسم المسؤولية الاجتماعية للشركات)