Non-Technical Summary – Sub-project 1

IP 3 - Construction of Roads, Buildings and Infrastructure at the Commercial Pre-gate, Gates and Inspection Zone of Port of Duqm

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ACRONYMS

BAT	Best Available Technique
BAT BREF	Best Available Technique Reference
CEMP	Construction Environment Management Plan
DGEA	Directorate General of Environmental Affairs
EIPPCB	European Integrated Pollution Prevention and Control Bureau
GHG	Green House Gases
IP3	Infrastructure Package 3
MD	Ministerial Decision
MECA	Ministry of Environment and Climate Affairs
NAAQS	National Ambient Air Quality Standards
NTS	Nontechnical Summary
O3	Ozone
PDC	Port of Duqm Company
PEIA	Preliminary Environment Impact Assessment
RD	Royal Decree
ROP	Royal Oman Police
SEZ	Special Economic Zone
SEZAD	Special Economic Zone Authority Duqm
SEZD	Special Economic Zone Duqm
STP	Sewage Treatment Plant
UGCC	United Gulf Construction Company
USEPA	United States Environment Protection Agency

1 INTRODUCTION

With a land area of 2,000 km2 and 70 km of coastline along the Arabian Sea, the Duqm Special Economic Zone (SEZ) is the largest in the Middle East and North Africa region and ranks among the largest in the world. The Duqm SEZ is a model of an integrated economic development composed of zones: a sea port, industrial area, new town, fishing harbour, tourist zone, a logistics centre and an education and training zone, all of which are supported by a multimodal transport system that connects it with nearby regions (e.g., the Arabian Gulf countries, Middle East, East Africa and Southeast Asia). The Port of Duqm is seen as a catalyst for the development of the Al Wusta region, in particularly, the Special Economic Zone at Duqm. The Port and the dry docks are being developed to increase cargo transhipments, ship repairs, manufacturing industry and tourism.

The Special Economic Zone is administered, regulated and developed by the Duqm Special Economic Zone Authority (SEZAD), a financially and administratively independent government entity. SEZAD was established as per the provision of the Royal Decree (RD) 119/2011 and is responsible for the management, regulation, and development of all economic activity in the SEZD.

1.1 PROJECT BACKGROUND – INFRASTRUCTURE PACKAGE 3

The Port of Duqm is seen as a catalyst for the development of the Al Wusta region, in particularly, the Special Economic Zone at Duqm. The Port and the dry docks are being developed to increase cargo trans-shipments, ship repairs, manufacturing industry and tourism.

The commercial berths in the Port of Duqm, spanning a total 2.2 km in length, have been constructed earlier. This Project is to provide the existing commercial berths with 8 km of access roads, utilities, buildings (gate houses and booths, Pass Office, Electrical Service, customs, inspections, ammunition, clinic etc.) and infrastructure works such as potable water and sewer network, pump stations, electrical and telecommunications, fencing and gates, etc. The completion of this project will enable cargoes to pass through the Port and improve the efficiency of transport which will make the Duqm Special Economic Zone more attractive. The summary of the IP3 project is as follows :

PROJECT	CONTRACT NO	CONTRACTOR	ORIGINAL PROJECT EXECUTION PROGRAMME	EXPECTED DATE OF COMPLETION
Construction of Roads, Infrastructure & Buildings at the Commercial Pre-gate, Gates and Inspection Zone, Port of Duqm	IP3 - Contract C50/ 2015	M/s United Gulf Construction Co. WLL	36 months	Q4 2019

1.2 REGULATORY CONTEXT AND STANDARDS

1.2.1 Omani Legislation and Guidance

The IP3 project is located within the SEZD. While the SEZAD is the responsible authority for the Duqm SEZ, the Project was implemented in compliance with the "Guidelines on Environmental Impact Assessment" issued by the Omani Directorate General of Environmental Affairs (DGEA) at the Ministry of Environment and Climate Affairs (MECA).

Omani environmental law has two main legal instruments, viz., Royal Decrees (RDs) and Ministerial Decisions (MDs). Typically, an RD provides a general framework relating to a particular area in need of statutory control, while MDs provide specific regulation using the framework provided in the RD. Where Omani environmental regulations and standards were not available, acceptable international environmental regulations and standards has been referenced. Additionally, the applicable Best Available Technique (BAT) Reference (BREF)

documents published by the European Integrated Pollution Prevention and Control Bureau (EIPPCB) has been referred.

The IP3 Project will work within with the range of applicable legislation in Oman

1.3 Environmental & Social Context

Royal Haskoning and Khatib and Alami (RHKA) were commissioned by SEZAD for Port macro planning, grading roads and infrastructure as well as Port facilities micro planning and design of building including the Infrastructure Package 3. A Preliminary Environmental Impact Assessment (PEIA) was conducted by RHKA in 2015 and initial permit issued from SEZAD in 2016. United Gulf Construction Company (UGCC) was awarded the construction of the project in 2016 by SEZAD.

The PEIA provides a broad, high-level information on the construction and operation methods and activities for the development of the Project and existing sources of data and information have been used to inform the baseline environment; no project-specific surveys have been undertaken. No stakeholder consultation was conducted as part of the PEIA report.

The Project's progress stalled in mid-2018 to accommodate a request received from the Royal Oman Police (ROP) to change the structural design of the main entrance gate due to security concerns and to avoid traffic congestion when the area's population increases.

A Construction Environment Management Plan was prepared by UGCC in 2016 and approval for the same received from SEZAD based on which monitoring reports ae being submitted to SEZAD periodically.

SEZAD Corporate Social Responsibility (CSR) section of the Partnership and Development Department (PDD), provides access for communities to provide any grievance (written and in person) through the Grievance Mechanism (GM) form. The GM form is available on SEZAD website at https://www.duqm.gov.om/sezad/csr/grievance-form.

The ways grievance can be registered are as follows-

1. **Via Phone** - The Partnership & Development Department (PDD) can be contacted between the hours of operation (8am – 3 pm) Sunday to Wednesday on 24507216.
2. **Via Official Letter** - The Official letter can be directed to the Manager of the Partnership and Development Department and can be dropped of either directly to any one of our offices in DUQM or Muscat
3. **Via Email** - An Email can be sent to the Partnership & Development Department to CSR@duqm.gov.om
4. **Website Portal** - 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 though https://www.duqm.gov.om/sezad/csr/grievance-form

All Grievance issues are handled by the Partnership and Development Department (CSR Section). In the event the department is unable to assist or respond, it will be raised to the Deputy CEO of SEZAD where responses will be answered within a 7 days from the date of the letter/ grievance received, however can change depending on the complexity of the grievance.

1.4 Documentation

The environmental reports available for IP3 project are as follows

1. Preliminary Environmental Impact Assessment Study (PEIA). Commercial, Governmental Berths and Pre-Gate and Inspection Zone, K&A Consultants S.A.E, March 2015.

2. Construction Environmental Management Plan (CEMP). Construction of Roads, Infrastructure and Buildings at the Commercial Pre-Gate, Gates and Inspection Zone –IP3. Contract C50/2015, Five Oceans Environmental Services, Feb 2017.

All the reports mentioned above are available with SEZAD Environment Regulatory Department and can be accessed on email request to ERD Manager Mr.Ahmed Harib Al Balushi at EMIPS @duqm.gov.om.

1.5 The Purpose And Content Of Non-Technical Summary (NTS)

This NTS provides an overview, in layman's terms, of the main environmental and social findings from the ESIA of the Project. This current Section introduces the Project and the legal, environmental and social context. The following Section 2 presents a summary of baseline conditions. The specifications of the Project are presented in more detail in Section 3 and the methodology for impact assessment with reference to ESMPs have been summarised in Section 4 for the Project's construction phase, while Section 5 provides the findings and conclusions of the PEIA.

This Summary serves as an overarching disclosure document to disclose the Environmental and Social findings from the PEIA study. It is important to note that this NTS does not, and is not intended to, convey all of the information relating to the aspects and impacts of the Project. Its intention is to present key information, describe the main findings and conclusions, enabling the reader to understand the significant environmental and social effects of the Project without needing to refer to the detailed assessments.

2 PROJECT DESCRIPTION

2.1 PROJECT COMPONENTS

IP3 is being constructed to provide the existing commercial berths in the Port of Duqm (span a total of 2.2km in length) with 8km of access roads, utilities, buildings and infrastructure works, such as potable water and sewer network, pump stations, electrical and telecommunications, fencing and gates.

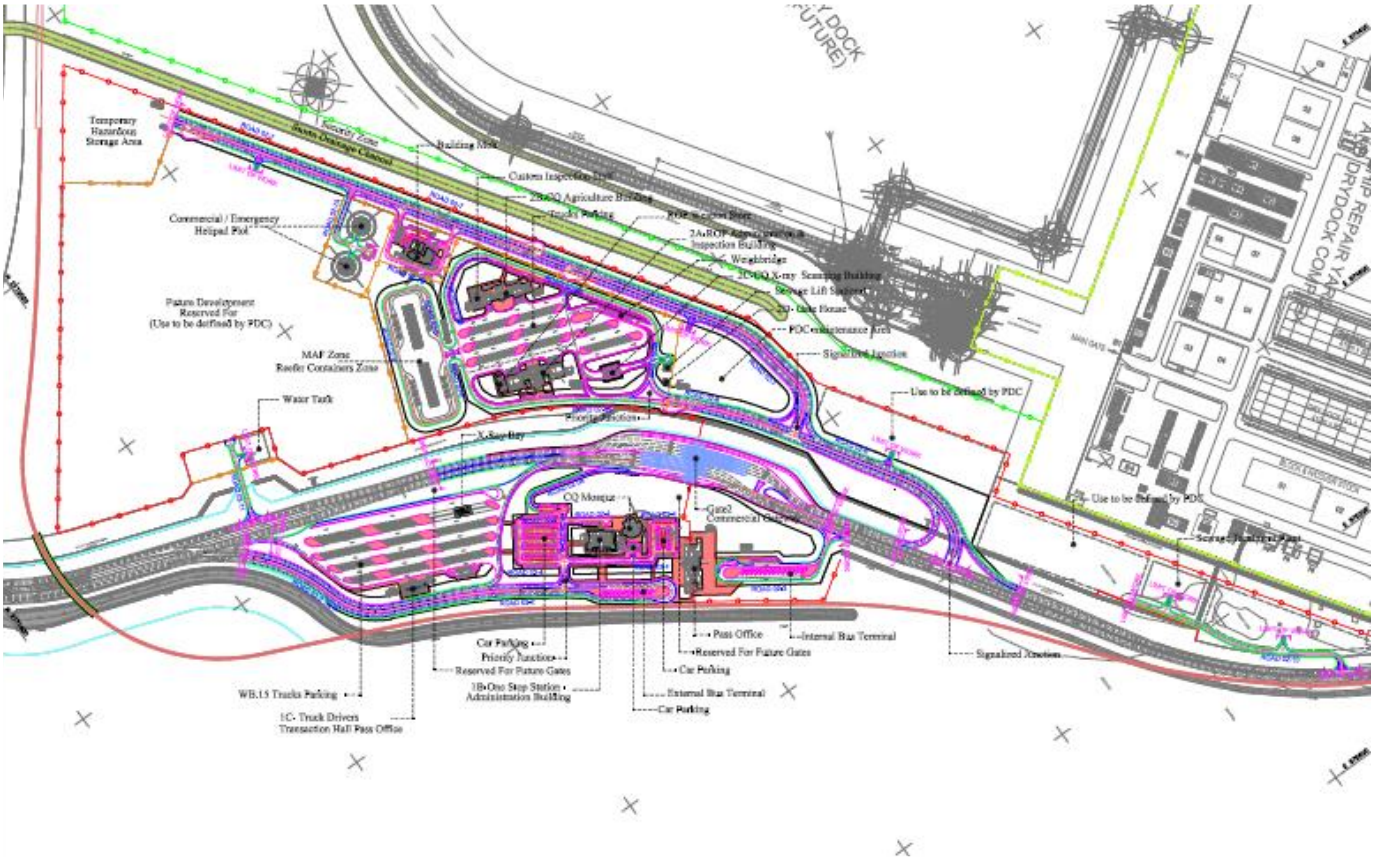

Figure 1: LAYOUT OF THE COMMERCIAL PRE-GATE, GATES AND INSPECTION ZONE CONSTRUCTION PROJECT

The Project scope of work includes, but it is not limited to, the construction, installation, testing and commissioning of:

- Roads and paving works,
  - Construction of 8.00 km of access roads including junctions.
  - Construction of all internal roads as access to buildings and parking areas.
  - Installation of traffic signals, loop detectors, ducting and cabling, controllers and power supply.
  - Construction of two Helipads with an approximate area of 2,200 m2.
  - Earthworks, ground improvement, laying of the pavement structure for both asphalt and concrete pavement, road furniture, traffic control and traffic signals etc.
- Infrastructure works
  - Potable water network
  - Firefighting network

- Storm water drainage
- Sewerage network and sewage treatment plant
- Pump stations
- Electrical works including transformers, 11KV ring main unit, and LV panels etc.
- Telecommunications
- Street, yard and high mast lighting
- Fencing of approximately 8.4 km and gate works

- Building works
  - Gate houses and booths
  - One Stop Station and Transaction Building
  - Pass Office Building
  - Mosque
  - Electrical Service Buildings
  - General buildings
  - Fire fighting water tanks
  - Customs and Inspection Building
  - MAF Inspection Building
  - Clinic
  - Staff Building
  - Ammunition Building

Following award of project and commencement of construction activity in 2015, some changes were made in the initial design, as per end user Royal Oman Police (ROP) requirement in 2018, as highlighted below.

- Full Segregation between incoming and outgoing traffic.
- Separate ROP Inspection Facilities for both Traffic Directions
- Maintain smooth Circulation Towards/From the Terminals
- Provide Smooth Security Gates (Before/After) Inspection Zone.
- Consider Minimum Impact on the current Construction Progress.
- Provide Signalized Access to the public zone for PDC cars.

All construction activity has been carried out in line with the approved PEIA and CEMP developed by the Contractor as well as applicable Omani laws and regulations.

3 BASELINE CONDITION

3.1 INTRODUCTION

As mentioned earlier, the Port of Duqm will provide facilities for commercial navy and coastguard vessel together with ship repair facilities and berth for strategic traffic. The construction of the port itself commenced in 2007. Since the IP3 is being constructed on a reclaimed area, secondary data from previous studies were used during the PEIA preparation.

3.1.1 Climate and Meteorology

The IP3 Project is located on the eastern coast of Oman. The climate of Duqm is mainly influenced by the summer and winter monsoons. While the winter winds are relatively gentle, the summer winds are quite vigorous especially during the month of June & July. The historical records for ambient air temperatures at Duqm Port show that the lowest temperatures occur in January and steadily increase to a peak in May. From June with the arrival of the summer monsoon, the temperatures begin a steady decline until December. The mean relative humidity is approximately 64% in most months.

Rainfall in Duqm area is low, with the region classified as between arid and hyper arid. However, high intensity storms, capable of producing significant run-off and recharge, occur infrequently at irregular times of the year. Historical rainfall records, for 1983 to 2010, at Duqm Port show that the month of August has the maximum amount of rainfall and September has the lowest mean rainfall.

3.1.2 Soil Quality

In most of Oman the effective rainfall is very limited and soils are very dry most of the time. Soil formation is therefore very slow and weak. The General Soil Map prepared by the Ministry of Agriculture and Fisheries and Food and Agriculture Organization of the United Nations identifies the Project area is mostly composed of tidal flats, with poor soil unsuitable for agriculture.

The soil is mainly comprised of Quaternary sub-recent to recent Sabkha deposits which are highly saline making it unsuitable for agriculture. Past analysis of soil in the region has found no evidence of hydrocarbon contamination without any evidence of industrial contamination. The beach area consist of sand and recent coastal dunes.

3.1.3 Hydrology

As per the hydrology study conducted for the Port area, there are seven surface water catchment areas around the port of Duqm. The design of storm drainage network for Duqm Port was based on 1 in 50year floods but has been updated to provide safety against 1 in 500-year flood events. The drainage network as part of Port development will collect storm water run-off and discharge to sea. Of the two discharges proposed, one will be located west to the Lee Breakwater and the other will drain to the Port basin.

Groundwater in the area is saline and unfit for human consumption.

3.1.4 Ambient Air Quality

Ambient air quality studies undertaken for the region found that parameters are within the United States Environment Protection Agency (USEPA) National Ambient Air Quality Standards (NAAQS), excluding O_3 at one location, where the ozone level is marginally above the USEPA NAAQS limit. Measurements of dust in the area also showed compliance with the USEPA NAAQS.

3.1.5 Noise

From the previous studies conducted in the area, of the noise levels in the study area found levels to be within the limit prescribed in MD 79/94 for industrial areas.

3.1.6 Terrestrial Ecology

The project area is entirely within the existing port. The terrestrial flora in the area consist of halophytes and psammophytes which are adapted to saline substrates and species found on the edge of the Sabkha and coastline. The previous baseline study, maximum avifaunal diversity was observed in the coastal region where over-wintering shore birds dominate the beaches. The most prevalent avifauna in the region is the Siberian Gull and the Caspian Gull, comprising about 95% of the total avifauna on the coast. Following construction of Port of Duqm also, variety of birds species were observed within the port area amongst construction works.

There are no survey reports as part of the IP3 project on the terrestrial ecology. Since the project is being developed in a Port area, the Project is unlikely to have a major impact on the floral conservation and distribution of the region. However, the Ministry through the enactment of Royal Decree on environmental conservation and pollution prevention (RD 114/2001) emphasizes the need to conserve soil and combat desertification (Article 21) and does not allow cutting down or uprooting trees, shrubs or grass until a valid permit is obtained. Considering the overall SEZAD region, the Project area is a small fraction of the overall area and does not pose a risk to any of the plant species as part of the development of the Project.

3.1.7 Marine Ecology

As part of the environmental study carried out as part of port construction, the region experience coastal upwelling's as a result of southwest monsoon. This upwelling influence the marine life in the region making the shallow offshore area from Duqm a highly productive environment for all marine organisms and an important habitat for whales and dolphins. The IP3 project is however expected to have minimal impact on the marine activity as the project do not have any direct influence on the same.

3.1.8 Socio Economic

The Project is located within Duqm Port and the nearest inhabited village is the Say village located on the banks of Wadi Say and village of Shuwayr. The name Say village is often used in synonym with Duqm Town and is the administrative headquarters of Duqm Wilayat. Majority of the population within the Al Wusta region lives in the coastal zone in small towns or villages.

The Governorate is divided into four Wilayats, viz., Mahout, Al Jazer, Duqm and Haima (in the order of the population number). The local people rely heavily on fishing for its income. However, a number of Government-planned initiatives for industrial and tourism developments in Al Wusta are expected to supplant the traditional reliance on agriculture and fisheries. There are no fishermen community located within the port boundary at present.

3.1.9 Cultural Heritage

As the IP3 Project will be established on reclaimed/backfilled land within the existing port it is unlikely the Project will interact with any archaeological resources. No sites were identified during the previous surveys conducted in the area.

4 SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND MANGEMENT PLAN

4.1 INTRODUCTION

The impact identification done as part of the PEIA are summarised below.

4.1.1 Socio-Economic

PEIA has concluded that positive impacts will be achieved from the proposed project in terms of employment of local workforce and migrating workers, for both skilled and unskilled jobs. Further the local economy will be enhanced due to increase in the influx of workers in the area as well as associated business opportunities.

4.1.2 Waste Impact

Major solid and liquid waste generation are expected during the construction phase. Solid waste shall be managed and stored as per relevant regulation and disposed of in approved areas only. During operation phase all waste will be handled in the new landfill which will be operated by be'ah.

Wastewater during construction will be disposed of in Duqm STP through approved third party Contractors whereas wastewater generated during operational phase will be treated in STP located within the port area. The wastewater will be treated to meet the discharge standards specified in Omani regulations.

4.1.3 Ambient Air and Noise

Major air emission including dust and noise are expected during the construction period especially due to movement of vehicles.

The ambient air and noise impact from the IP3 project are expected to be limited as no industrial activities are involved during the operational phase of the project. Dust and particulate matter emission will be less as a result of movement of vehicles on the road where they are paved.

4.1.4 Cultural Heritage

The impact on cultural heritage is limited to vehicle movement in and around the project site. However, since no sites have been identified within the project site, the impact is considered to be minimum.

4.1.5 Soil and Groundwater

The likely impact on soil and groundwater during construction phase could be from the fuel and waste storage area and from plant and equipment holding areas. However, all the storage areas shall be designed as per the required regulation thus ensuring minimum leakage potential and reducing impact on soil or groundwater.

4.1.6 Marine and Terrestrial Ecology

The terrestrial ecology in the area will be impacted during the project phases due to construction and operation of the infrastructure works. The impact can be however classified as minor to moderate as mitigation measures related to light and noise will be considered.

The impact on marine is minor as the construction works are limited to landside work However water-run off from the area or accident spillage can have minor impact on the marine environment if not managed properly.

4.2 ENVIRONMENT MANAGEMENT PLAN (EMP)

A Construction Environmental Management Plan (CEMP) has been prepared by the Contractor and the CEMP presents mitigation measures ensure that negative impacts are reduced to ALARP, and meet relevant Omani

national laws and regulations, and internationally acceptable standards. Monitoring of environmental parameters are carried out and reported to SEZAD periodically to ensure compliance with CEMP and permit requirements.

Through SEZAD Corporate Social Responsibility (CSR) section of the Partnership and Development Department (PDD), SEZAD provides access for communities to provide any grievance (written and in person) through the Grievance Mechanism (GM) form. The GM form is available on SEZAD website at https://www.duqm.gov.om/sezad/csr/grievance-form . Operational phase environmental management will be prepared before operation of the facility to ensure compliance with required Omani/International regulation and international conventions

4.2.1 Construction Environment Management Plan

A CEMP has been prepared by MECA approved Environmental Consultant Five Oceans Environmental Services, for UGCC for the IP3 project, which provide a framework for identifying, addressing and managing the potential environmental impacts associated with project activities on identified sensitive receptors and resources. The CEMP has included the following information to ensure mitigation recommendations are implemented in the project.

- Responsibility of Contractor, Environmental Team with respect to environmental management and monitoring
- Requirements with respect to construction activities and necessary environmental monitoring
- Establishment of events and action plans etc
- Confirm compliance with regulatory and PEIA requirements

Management strategy for the following issues have been included in the CEMP document and is summarized in Table 1

- Reduction of Impact of Excavation and Deposition of fill, levelling and compacting the primary impact being dust generation, loss of terrestrial ecology and use of water for dust suppression;
- Reduction of Impacts of Rock breaking the impact being noise and dust generation;
- Reduction of Impacts of Waste Generation and Disposal;
- Reduction of Impacts of Fuel Storage, Refueling and Chemical Handling;
- Reduction of Impacts of Material and Resource Usage

Further CEMP specifies monitoring and reporting of ambient air, noise and fuel and waste inventory and GHG reporting quarterly to SEZAD and the same are being reported to SEZAD.

Summary of Environmental monitoring conducted for the IP3 project are presented in Table 2

4.2.2 Operational Environmental Management Plan

An operational phase environmental and social management plan will be developed before the operation phase of the IP3 project. The PEIA developed for the project includes a framework OEMP which will be updated before the operation.

Table 1: ENVIRONMENT ACTION PLAN AND MITIGATION STRATEGY DURING CONSTRUCTION PHASE

ACTION	IMPACT	MITIGATION STRATEGY
Reduction of Impacts of Excavation and deposition of fill, levelling and compacting	Dust generation, loss of terrestrial ecology, and usage of sea water for dust suppression	All excavated material will be considered for its suitability for re-use on the site. All material that can be re-used should be.
		Dust suppression using water or soil binders will be implemented to avoid the erosion of soils in the work areas and storage piles
		Heavily used access tracks will be considered for blacktop surfacing and low speed limits for vehicles on unmade surfaces will be enforced, minimising the generation of airborne dust.
		Intake for seawater abstraction pump will have a suitable screen to avoid damage to or from marine life (fish, crabs, seaweed etc.)
		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.
		Wheel washes will be used for vehicles leaving the site where appropriate, to minimise the amount of mud and debris deposited on the roads.
		Vehicles carrying dusty materials will be covered to prevent materials being blown from the vehicles whilst travelling
		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
Reduction of Impacts of Rock Breaking	The environmental impacts of rock breaking include noise and dust generation. Rock breaking also consumes more fuel than normal excavation, and increases wear and tear issues for the plant involved.	All rock-breaking activities will be preceded by a soft start to allow sensitive fauna to move away from the noise source before noise levels reach the operational level
		Avoidance of rock breaking activities out of hours and during weekend and public holidays.
		Workers should not be exposed to noise levels in breach of standards set by MD 80/1994
		Noise monitoring will be conducted periodically to ensure compliance with legislation and if complaints arise.
		All machinery will be regularly maintained and serviced and a record kept of such as maintenance and servicing
Reduction of Impacts of Waste Generation and Disposal	Waste and Hazardous waste will be generated from this project at both the labour camp and the construction site.	Facilities will be established for storage and handling of hazardous construction wastes.
		Hazardous waste storage areas will be laid out to facilitate appropriate segregation of incompatible materials. Regular inspection of hazardous waste storage sites will occur to ensure compliance with guidelines.

ACTION	IMPACT	MITIGATION STRATEGY
	Waste will be temporarily stored on the site the transferred to the designated land fill site	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
		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.
		Hazardous waste containers will be labelled according to MD317/2001. 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
		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 chemical waste stored in that area, whichever is the greatest
		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.
		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
Reduction of Impacts of Fuel Storage, Refuelling and Chemical Handling	Soil contamination due to accidental spills	All fuel tanks and permanent storage areas will be provided with bunds of a capacity equal to 110% of the storage capacity of the largest tank or 25% of all containers, to prevent spilled fuel oils from polluting soils.
		Regular checking of bunds or drip trays will be conducted for maintenance requirements, for instance emptying drip trays.
		Chemicals and chemical substances will be stored according to the Hazardous Chemicals Storage Regulations and storage and transport will be approved by the Civil Defence Administration of the ROP.
		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.
		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.

ACTION	IMPACT	MITIGATION STRATEGY
		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.
		Machinery will be kept in good working order to minimise the risk of leaks and drip trays will be used where necessary.
		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
Reduction of Impacts of Material and Resource Usage	The environmental impact of material use is depletion of natural resources and climate change	Procurement of materials to ensure correct volumes to avoid over ordering or extra deliveries which could result in wastage. Discussions with suppliers to limit unnecessary packaging materials whilst also ensuring transport and delivery of materials does not result in damaged products
		Materials laydown areas to be planned so as to limit damage of materials from collisions with vehicles/construction plant
		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
		Procurement strategy to highlight the use of recycled products (e.g. surface water drainage pipes) where ever possible
		Construction materials reuse area to be set up and well managed to encourage reuse of materials rather than disposal. Clear labelling to be adopted; 'A place for everything and everything in its place'
Reduction of Impacts from Waste Water	Impacts due to spills on soil and groundwater	A strategy for minimising the consumption of water on site will be adopted in order to minimise the production of waste water. This will include an active schedule of preventative maintenance of the water fixtures (leaking toilets, facets etc.). This will also include an awareness campaign amongst workers and labourers on water consumption without compromising adequate health and hygiene requirements.
		Septic tanks and portable toilets shall be regularly inspected and emptied to ensure no overflow or contamination. All areas will be regularly cleaned and maintained
		Tankers and associated pumps and hoses shall be regularly inspected and maintenance schedules upheld throughout the lifetime of the project
		No surface water shall be allowed to enter the sewage system at site. All manhole covers will be designed to keep out rain or flood water, any leaks in the sewerage system at the site will be fixed immediately.

ACTION	IMPACT	MITIGATION STRATEGY
		All Hazardous waste including, but not limited to; engine oils, lubricants and concrete washout will be kept out of the sewerage system at the camp which will be reserved for 'domestic' sewage only. Engine oils and lubricant and concrete waste to be dealt with as Hazardous Waste under Action Plan 3. Concrete washout may be 'treated' on site to become non-hazardous in a designated approved concrete washout facility.

Table 2: ENVIRONMENT ACTION PLAN AND MITIGATION STRATEGY DURING CONSTRUCTION PHASE

RESOURCE	PARAMETERS MONITORED	FREQUENCY OF MONITORING	FREQUENCY OF REPORTING TO SEZAD
Site Environment	Site Activities	Quarterly	Quarterly
Noise	Ambient noise at perimeter dB (A)	Quarterly	
	Occupational noise at operational areas dB (A)	Quarterly	
Ambient Air Quality	Litres of diesel and lubricants/oil used	Monthly	
	Particulates TSP, PM10 and PM2.5	Quarterly	
Emissions to Air	CO, NOx, SOx, HC of emissions of DG Stack (stationary source)	Quarterly	
Waste	Volume of sewage generated at site and moved offsite (m3)	Weekly	
	Solid non-hazardous (Kg or m3 by category)	Weekly	
	Solid and liquid hazardous (Kg or m3 by category)	Weekly	
Chemicals	Quantities of chemicals stored and used onsite.	Daily	
Environmental Incidents	Incident report	As and when Required	

5 FINDINGS AND CONCLUSIONS

The IP3 involves development of commercial quay for the port area and involves construction, commissioning and maintenance of the construction of roads, infrastructure and buildings at the Commercial pre-gate, gates and Inspection Zone areas in Port of Duqm.

IP3 is slated to be developed in an approved and master-planned port area that rely on world-class services of advanced industrial port facilities. Therefore, from an environmental and industrial planning standpoint, various infrastructure and community planning considerations have already been considered during the Duqm Port Area construction.

IP3 will be located with the Duqm port area and there are no communities in and around the project site except for the fish landing area located north west of the Port area and Say village located ~ 6km away. Therefore, there will not be any land acquisition and involuntary resettlement issues involved in the IP3 construction and operational process. The access of locals to the area will be restricted as consequence of operations of the Duqm Port and hence the IP3 Project. The local community could be impacted as a result of influx of migrant labour and accidents. The overall impact on socio economic environment is expected to be highly positive as the project will generate job opportunities for people of Duqm in the long term.