



**MINISTRY OF TRANSPORT
THE REPUBLIC OF TAJIKISTAN**

**PROJECT IMPLEMENTATION UNIT
FOR ROAD REHABILITATION**

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

TAJIKISTAN: DANGARA – GULISTON ROAD

Environmental and Social Management Plan (ESMP)

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Consultancy

KOCKS
INGENIEURE

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Abbreviations

ADB	Asian Development Bank
BMP	Biodiversity Management Plan
BoQ	Bill of Quantities
CESMP	Construction and Social Management Plan
CLO	Community Liaison Officer
dBA	Decibel
DCMP	Design Change and Management Procedure
EA	Executive Agency
EBRD	European Bank for Reconstruction and Development
EHSS	Environmental, Health and Safety Safeguards
EMP	Environmental Management Plan
E&S	environmental and social
ESAP	Environmental and Social Action Plan
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESP	Environmental and Social Policy
EU	European Union
GoT	Government of Tajikistan
GRM	Grievance Redress Mechanism
H&S	Health and Safety
HSMP	Health and Safety Management Plan
IEE	Initial Environmental Examination
LARP	Land Acquisition and Resettlement Plan
MoF	Ministry of Finance
MoT	Ministry of Transport
MSMP	Material and Spoils Management Plan
NOC	no objection certificate
PBF	Protection biodiversity framework
PIURR	Project Implementation Unit for Road Rehabilitation
PPE	personal protective equipment
PR	Performance Requirement
SEP	Stakeholder Engagement Plan
SMP	Sewage Management Plan
TMP	Tree Management Plan
WHO	World Health Organisation
WMP	Waste Management Plan
WQMP	Water Quality Management Plan

1 Introduction

This is the Environmental and Social Management Plan (ESMP) for the reconstruction and widening from 2 to 4 lanes of the Dangara-Guliston road. The project road is part of the Bokhtar-Okmazor-Dangara-Guliston road, which is an important highway of international importance in Tajikistan.

This ESMP supplements the Environmental Management Plan (EMP) which was prepared within scope of work of the Initial Environmental Examination (IEE), prepared for the Asian Development Bank (ADB).

The two documents Environmental Management Plan (EMP) and this Environmental and Social Plan (ESMP) should be read jointly and cover the mitigation measures to avoid, mitigate or compensate the adverse environmental and social impacts which may occur in the implementation of the project.

2 Responsible Entities for ESMP Implementation

All implementation arrangements made under the Project are in detail described in the IEE in the chapter VII “Environmental Management Plan”, in the subchapter “Implementation Arrangements” and therefore are not repeated here. The following table provides a synopsis.

NO	ENTITY	ROLE AND RESPONSIBILITY
1	GoT	Overall responsibility for implementation of the Project.
2	ADB	Financier. Financing and Supervising the Project Implementation.
3	EBRD	Financier. Financing and Supervising the Project Implementation.
4	MoF (Ministry of Finance)	Responsible government body for coordination with ADB and other donors for foreign assistance.
5	MoT (Ministry of Transport)	Executing Agency
6	PIURR	Implementation Agency. Responsible for the overall implementation of the environmental mitigation, management and monitoring measures and requirements specified in this IEE.
7	State Ecological Review Committee	Permitting Agency. Responsible for the issue of Environmental Permits.
8	CSC (Construction Supervision Consultant)	Assigned Supervision Consultant. Construction Supervision and Monitoring.

9	Contractor	Assigned Contractor. Construction of Project.
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Table 1 -Implementation Arrangements (Synopsis)

2.1 EBRD and ADB (jointly The Financiers)

The EBRD and ADB are financing but not directly developing the Project. Responsibility is therefore based to the Project Owner, although reports will be required to be submitted to the Financiers on the status of the ESAP, resolution of grievances and EHSS performance of the project.

2.2 Ministry of Transport (MOT)

The MOT will have ultimate responsibility for the project and will oversee the implementation of the Financiers project requirements during construction and operation, overseeing the contractor, subcontractors and other involved third parties through its Project Implementation Unit for Roads Rehabilitation.

2.3 Project Implementation Unit for Road Reconstruction

The MOT has established a project implementation unit for road reconstruction (PIURR) to assist the MoT in implementing the Project in compliance with the Financiers Environmental and Social safeguards policies .

The PIURR will be responsible for ensuring the implementation of all national and international environmental, health, safety and social policies, guidelines and performance requirements of both the Republic of Tajikistan and the Financiers .

The PIURR will be responsible for the overall implementation of the mitigation measures and requirements, specified within the disclosure package for the Project, and implementing the Environmental and Social Management System (ESMS). They will be required to oversee the implementation of the Contractors CESMP, which will be developed by the contractor to ensure they fulfil all the identified environmental, health, safety and social requirements under the loan agreement for the Project. The PIURR is responsible for ensuring that roles and responsibilities are clearly identified and allocated for environmental, health, safety and social (including gender), both within the PIURR itself and within the contractors' arrangements, including sub-contractors and contracted organisations.

In relation to land acquisition and resettlement, the PIURR will be responsible for the full implementation of the Land Acquisition and Resettlement Plan (LARP) and its addendum, the Livelihood Restoration Plan, following approval by the EBRD and the Government of Tajikistan. In addition, the PIURR will be responsible for the implementation and conformance of the grievance redress mechanism (GRM) to ensure that all grievances and/or objections (if any raised

by the local community and/or workers) are received, acknowledged and addressed as per the grievance procedure presented in the Stakeholder Engagement Plan (SEP) and LARP.

The PIURR shall appoint a Community Liaison Officer (CLO) to manage consultations and implement the developed SEP. The PIU will be responsible for reviewing the license, permit and agreement documentation prepared by the Contractor.

2.4 Construction Supervision Consultant

The Supervising Engineer will be responsible for supervising the Contractor to ensure that recommendations and requirements, as set out in this ESMP and other documentation are applied. They will be responsible for continuous monitoring of the processes and activities undertaken by the Contractor, and specifying measures to be implemented by the Contractor, to address any areas of non-compliance. This requirement will be included in Tender Documents.

The CSC will take over the responsibilities for the implementation of the environmental mitigation measures and monitoring measures during construction phase. The CSC will report to PIURR on a regular basis. The CSC must have the following safeguard experts in his team:

- ⇒ Environmental Expert
- ⇒ Social and Resettlement Expert
- ⇒ Ecological and Biodiversity Expert

2.5 Contractor

The Contractor will be responsible for construction of the Project and implementing the construction phase measures in the EMP of the IEE and this ESMP including the Preparation and timely provision of the required Site Specific Management Plans.

The Contractor will be responsible for submission of relevant reports to the CSC and/or PIURR. These include the preparation and provision of the environmental and social monitoring reports as stipulated in the EMP and the ESMP.

The Contractor will be responsible for appointing technical specialists to ensure environmental and social mitigation is implemented correctly, in line with best practice and national and international requirements. Specialists include:

The Contractor will be responsible for preparing the license, permit and agreement documentation.

3 Environmental and Social Management System

For the Dangara-Guliston road reconstruction Project the relevant organizational entity for the project implementation and environmental and social management is the PIURR, as Project implementation authority. Within the PIURR the Project's Environmental and Social Management System rests with the Environmental and Social Officers.

PIURR will be responsible for the overall implementation of the environmental mitigation, management and monitoring measures and requirements specified in the Environmental and Social Management Plans prepared for this Project. They will be required to oversee implementation of the SSEMPs developed by the contractor to ensure it fulfils all identified environmental, health, safety and social requirements under the loan agreement for the Project.

PIURR is responsible for ensuring roles and responsibilities are clearly identified and allocated for environmental, health, safety and social, gender, both within PIURR itself, within the contractors' arrangements and for the handover to operations.

The organisation structure for the PIURR safeguard team is shown in the below Organigram.

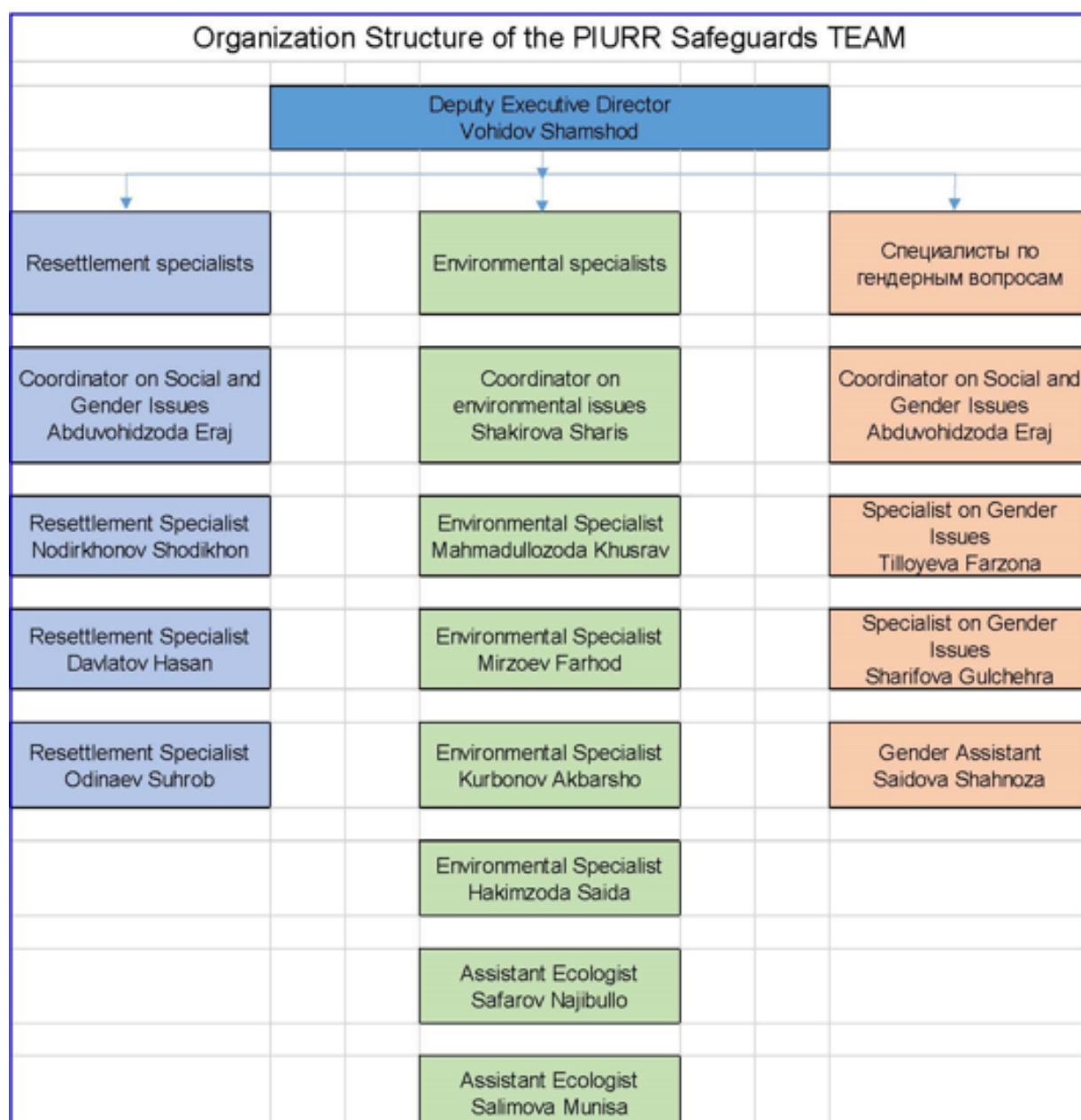


Figure 1 - Organization Structure of the PIURR Safeguard Team

Functional responsibilities of the PIURR safeguard experts and their main duty is to coordinate the implementation of environmental, social and gender issues. That is, supporting the consultants in reporting, harmonization, submission to ADB, etc..

The organisation structure for the CSC safeguard team is shown in the below Organigram.

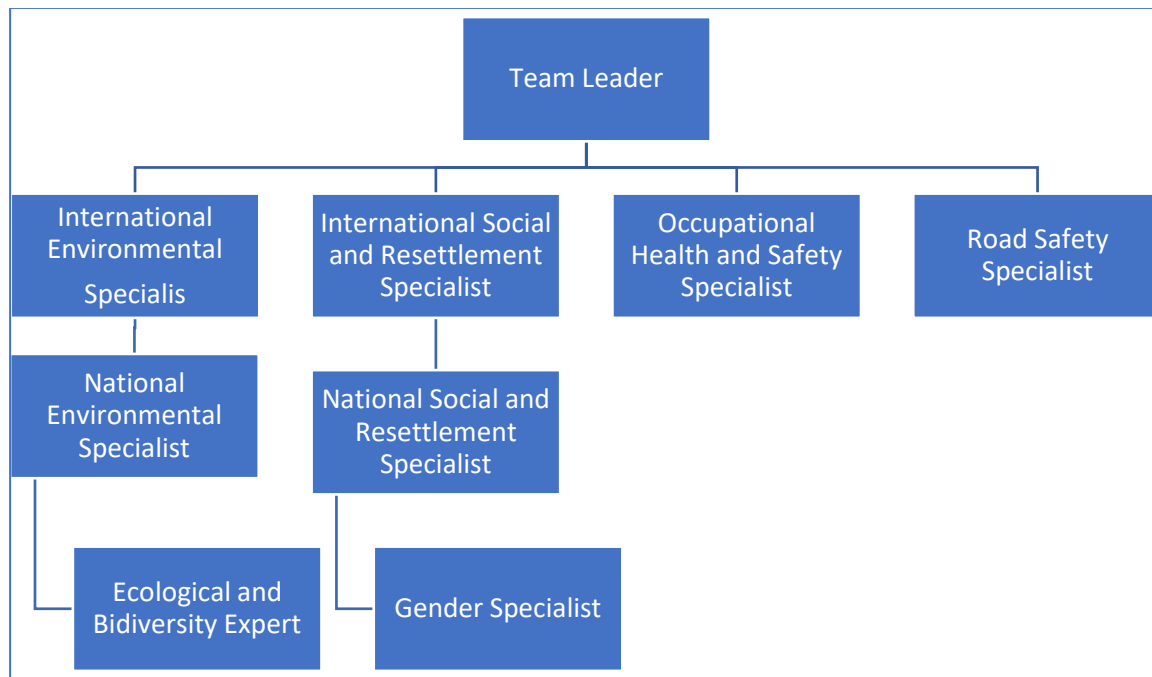


Figure 2, Organisation structure for CSC Safeguard Team

The selection of CSC for the project via the International Competitive Bidding is in process now and therefore the names of the specialists to be involved are not known yet. Ecological and Biodiversity Expert should be a competent ornithologist.

The key Environmental and Social covenants are set out in the EMP and this ESMP which are part of the bidding documents during the Contractor selection process, for inclusion in the Contractor ESMS.

The Contractor will be responsible for implementing an ESMS that is in line with International Standards and Financier requirements.

The Contractor will be required to appoint appropriately qualified specialists with the following expertise, to ensure that the ESMS is implemented to the required standards:

- **Environmental Specialist**- responsible for ensuring that mitigation is implemented as per this ESMP. He/she will be suitably competent, have a knowledge of ecological issues, and have a strong understanding of environmental best practice. And undertaking day-to-day environmental tasks and inspection as required for the Project and prepare the Environmental and Social Monitoring Reports as prescribed by the Contract.
- **Health and Safety Coordinator**- responsible for undertaking health and safety tasks as set out in the Contract and ESMP and undertaking, health and safety management tasks as required for the Project and regular HSE audits and weekly inspections.
- **Social and Land acquisition and Resettlement Specialist** - participates in the Grievance Redress Committee and communicates with the communities about any issues arising during the Project implementation.
- **Biodiversity Specialist**- responsible for the implementation of the Biodiversity Management Plan (BMP). The BMP is attached as annex 7 to this ESMP. The various tasks described in the BMP are seasonally restricted. Therefore, the biodiversity specialist

must not be deployed full-time but must be assigned on basis of a 50% part time job. The biodiversity specialist of the contractor must closely work together with the environmental specialist.

- **Gender Specialist**-responsible for the day-to-day coordination and implementation of the Gender Action Plan. With regard to contents and issues the Gender Action Plan is related to also to the tasks of the social expert. Therefore, provided that the assigned social and land acquisition expert offers relevant experience, there is no need to include an additional gender expert in the contractor's safeguard team.
- A flowchart on communication and management of the environmental issues is presented below:

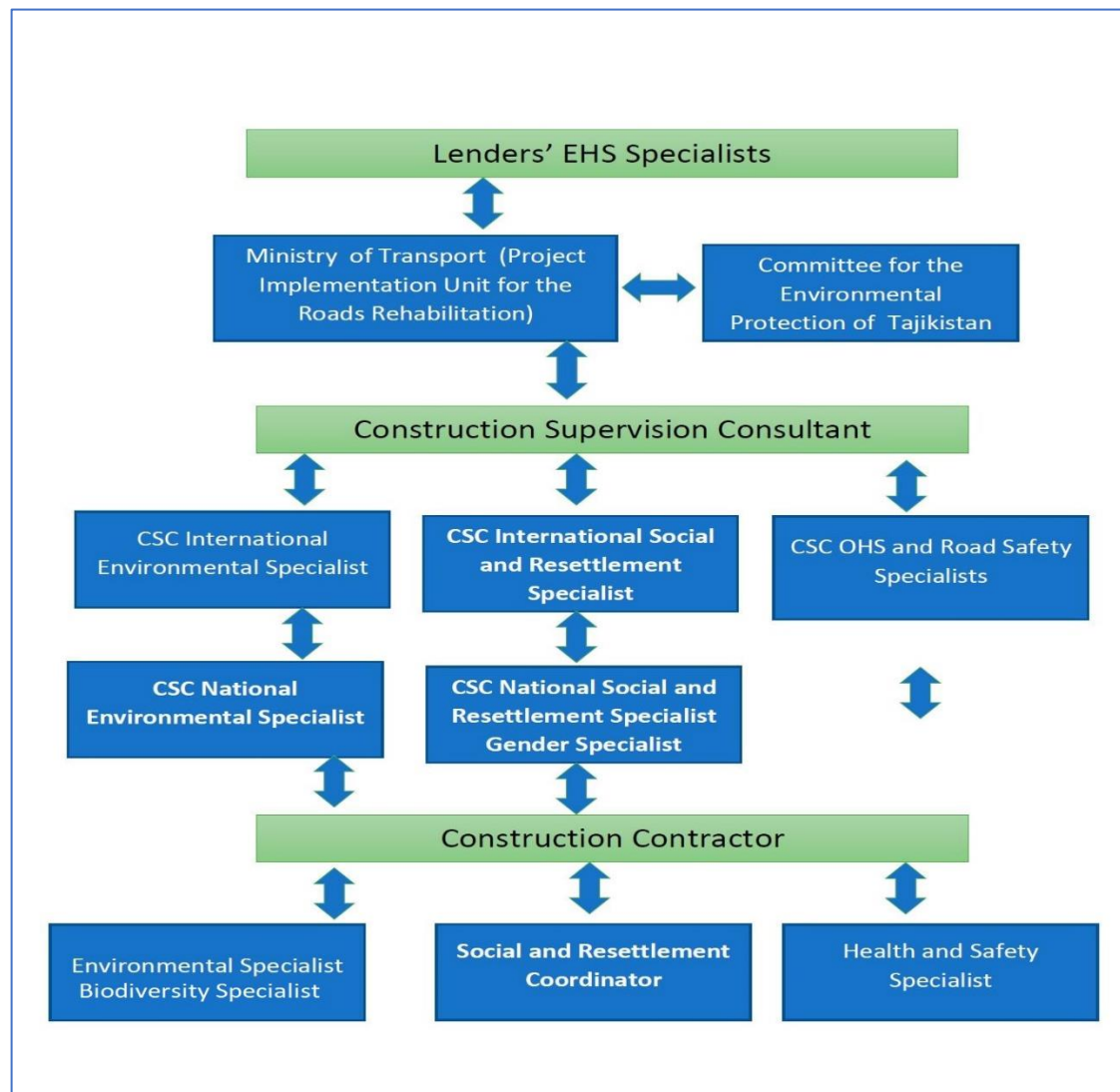


Figure 3, Flowchart for the communication, reporting and management of E&S issues of the project

I would recommend you add here a flow chart on how the communication, reporting and escalation of E&S issues will be done

4 Monitoring and Reporting

The monitoring and reporting is in detail described in the chapter “Environmental Management Plan” of the IEE under the headline “Monitoring and Reporting”.

Environmental and Social Management Plan

Table 2 -- Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
DETAILED DESIGN PHASE – PRE-CONSTRUCTION PHASE					
Exceedance of Noise Standards during operation of the new road due to increased vehicle fleet. e	Health impacts due to increased noise levels	<p>Modelling of the air quality and noise based on the traffic forecast has been undertaken and results will be disclosed within Supplementary Report.</p> <p>In order to comply with the EBRD PR 3 the applied legal noise standards must be met. This is achieved by the provision of Stone Mastic Asphalt (SMA) as surface layer over the whole Project Road, which provides a noise reduction of 3 dB as compared to normal asphalt. This requirements is reflected in the project Technical Specifications.</p>	Contractor	CSC, PIURR	Legal noise standards are met. Tajik standards apply with nighttime defined as 22:00 – 07:00 in line with IFC EHS General Guidelines.
Road alignment alongside habitats of the Central Asian Tortoise (Testudo horsfieldii) and other small animals.	Disruption of habitats and risk of roadkill.	<p>Provision of sufficiently dimensioned culverts which allows the safe crossing of the road within the relevant sections.</p> <p>Provision of guidance facilities for tortoises and other small animals with prefabricated concrete L-shaped guiding elements. The length of the guiding structure is 100 m to each side of the respective culvert. Selected curbstones are already in the design.</p> <p>The guiding structures are implemented at the 14 culverts in the hilly areas which were identified as the key ones for the relevant species. The following culverts must be provided with guiding elements: Culvert Number 61, 63, 64, 66, 69, 75, 76, 79, 90, 82, 106, 111, 114 and 115.</p>	Design Consultant	CSC	Safe crossing of road by tortoises and small animals. Minimization of road kills.
Project road traversing alongside valuable biodiversity features	Risk of loss of biodiversity and living	Measures according to the Biodiversity Management Plan in annex 7.	Contractor	CSC's Ecological Expert. PIURR	No net loss of PBFs.

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
and possible Priority Biodiversity Features (PBFs).	natural resources.				The BMP is attached as annex 7 to the ESMP.
Development of a Contractor Construction Environmental and Social Management Plan (CESMP).	Environmental impacts due to lack of CESMP	<p>The Contractor must prepare a Construction Environmental and Social Management Plan (CESMP), which must be aligned with the overarching MOT PIURR ESMS and the Contractors ESMS. The CESMP will be submitted to the Supervising Engineer and PIU for approval at least 30 days before taking possession of any work site. No access to the site will be allowed until the CESMP is approved by the Supervising Engineer and the PIURR. New topic specific or site specific ESMPs may also need to be developed by the Contractor during the construction phase. These new plans will also need to be approved by the Supervising Engineer and the PIU.</p> <p>The CESMP will include a Design Change and Management Procedure (DCMP). Any changes that occur to the project following the completion of the ESIA and development of the ESMP will require review by the Supervising Engineer and PIURR. The DCMP will record the changes that have been considered and will set out a screening methodology in line with best practice and will outline any changes required to the environmental and social mitigation. The DCMP will include the provision for public disclosure for any material changes. As part of the CESMP, the Contractor will need to liaise with the contractors of any adjacent construction projects (with the support of the PIURR, if required), to reduce the potential for cumulative effects. Key consideration should be</p>	Contractor	CSC, PIURR	<p>CSEMP submit-ted and approved by CSC, PIURR and no-objection provided by Financiers</p> <p>The CSEMP including its subplans SSEMP must be submitted by the contractor for approval to the CSC and PIURR before the commencement of civil works. It will also be shared with EBRD for no objection. Works will not be allowed to commence prior to approval of CSEMP.</p>

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
		made in relation to borrow pits, depot areas, noise and air quality.			
Development of sub-plans as part of the Contractor's SSESMP		<p>Prior to construction start and as part of SSESMP, the Contractor shall prepare the following sub-plans in line with the EBRD requirements and national legislation:</p> <ul style="list-style-type: none"> • Material and Spoils Management and Disposal Plan • Waste Management Plan • Land Management and Reinstatement, Including Topsoil Management • Water quality management plan • Sewage management plan • Biodiversity Management Plan (included in annex 7 of this ESMP) • Air quality management plan • Noise and vibration management plan • Asphalt Plant and Borrow pit/Quarry Management plan • Traffic management plan (detailed outline in annex 6 of this ESMP) • Emergency response plan (detailed outline in annex 5 of this ESMP) • Construction camp management plan • Health and Safety Management Plan (detailed outline in annex 4 of this ESMP) • Chance finds procedure • Post-construction plan 	Contractor	CSC, PIURR	SSEMP to be approved by CSC, PIURR and Financiers' no objection EBRD

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
7.1 Materials and Spoils Management Plan (MSMP)	Worker's health and risk of soil / water pollution in and around equipment maintenance and fuel storage areas.	<p>Material and Spoils Management and Disposal Plan (MSMP)</p> <p>The MSMP will set out the procedures for the delivery, logistics, storage and use for all construction materials used during construction. The plan will also include the cut and fill balance, the quantities of material that is intended for reuse on embankments or other fill material and the quantity of materials for recycling, particularly old asphalt.</p> <p>It also The MSMP details measures for construction material management and storage in order to avoid environmental pollution and any safety hazards to workers and nearby communities. Identification and designation of special storage sites, e.g., for bitumen barrels, prefabricated concrete elements (e.g. culverts) and metallic structures.</p> <p>Details for considering in the MSMP are provided in the 4.1.</p>	Contractor	CSC, PIURR	MWMP to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection
7.2 Waste Management Plan		The WMP covers the provision of garbage bins, regular collection and disposal of garbage and waste in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tires, etc.) consistent with appropriate regulations. Management of asbestos waste must be done in line with EU directives requirements and the EBRD briefing note speaking of working safely around existing asbestos pipes and from a work related management perspective as well as with ADB's Good Practice Guidance Note for the Management and Control of Asbestos.	Contractor with support of PIURR	CSC, PIURR	WMP to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
		Details for considering in the WMP are provided in the chapter 4.2.			
7.3 Land Management and Reinstatement, Including Topsoil Management	<p>Potential safety hazards due to non rehabilitated construction site and borrow areas.</p> <p>Loss of topsoil due to erosion if not professionally managed.</p>	<p>This subplan in detail must describe the measures for ensuring that camp site and associated facilities such as borrow areas are left clean and without any landscape deformation and safety hazards (e.g. steep slopes).</p> <p>In addition, it includes the management, removal, temporary storage, erosion protection and reuse of the valuable resource “topsoil”</p>	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers’ no objection
7.4 Water Quality Management Plan	Frisk of water pollution and waste of water if no water quality management plan is in place.	Water quality management plan which must include site specific protection measures for ground and surface water inclusive water quality monitoring at rivers, creeks and irrigation channels crossed by the Project Road. Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bounded and provided with impermeable lining to contain spillage and prevent soil and water contamination	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers’ no objection
7.5 Sewage Management Plan	Risk of soil and water pollution if no SMP is in place.	Sewage Management Plan including provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
					by CSC, PIURR and Financiers' no objection
7.7 Air quality management plan	Risk of air pollution and risk to human health.	(Air quality management plan must include air quality monitoring at sensitive receptors including asphalt plant, aggregate crusher and concrete plan. Monitoring results need to be incorporated in construction site environmental monitoring reports. Air quality management plan will include schedule for spraying on hauling and access roads to construction site and details of the equipment to be used. Details are provided in chapter 7.7	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection
7.8 Noise and Vibration Management plan	Risk for threatening human health in case of exceeding noise standards. Potential damage to building structures due to vibration impacts.	Measures are described in chapter 7.8	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection
7.9 Asphalt Plant, Aggregate Crusher and Borrow Pit/Quarry Management plan	Threat to human health if facilities such as asphalt and crusher plant are implemented	Measures are described in chapter 7.9.	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
	to close to human settlements. Potential disfigurement of landscape if borrow areas are not rehabilitated.				
7.10 Traffic management plan	Traffic safety risks if not TMP is in place.	Measures are described in chapter 7.10.	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection
7.11 Emergency Response Plan	Risk to human lives and health if no ERP is in place.	Emergency response plan (in case of spills, accidents, fires and the like) in plants (i.e. asphalt plants), workers' camps, workshop area, work sites, etc	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financier's no objection
7.12 Construction Camp (layout and management plan)	Potential soil and water pollution.	Site location, surface area required and layout of the work camp. The layout plan will also contain details of the proposed measures to address adverse environmental impacts resulting from its installation. It will also include health and safety considerations and measures for workers, i.e. emergency routes, fire safety, security, etc.).	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection
7.13 Health and Safety Management Plan	Health and safety risks to workers and adjacent communities if	HSMP is in detail described in the chapter 7.13.	Contractor	CSC, PIURR	Subplan of the CESMP, to be submitted together with the CSEMP and approved by CSC, PIURR and Financiers' no objection

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
	HSMP is not in place.				
7.14 Chance Find Procedure	Potential damage to archaeological artefacts due to construction activities, particularly earthworks.	In the event of the unexpected discovery of archaeological objects during construction operations, the contractor will immediately inform the CSC who will notify the Institute of Archaeology / Ministry of Culture and PIURR for further instructions. In this case the construction works at the localized site would be stopped until Institute of Archaeology give clearance for the continuation of the operations. Works will resume only after appropriate measures have been taken as requested by the Institute of Ministry of Culture and confirmation has been received that works may continue.	Contractor	PIURR with support of CSC and Archaeological Institute.	No damage to archaeological artefacts.
7.15 Post-Construction Plan / Closure of construction sites	Potential impacts to landscape aesthetics occur if the camp site and construction associated facilities such as borrow areas are not properly cleaned and restored in the course of construction closure. Possible impacts which may arise are	After completion of construction works the contractor will execute all works necessary to restore the sites to their original state (removal and proper disposal of all materials, wastes, installations, surface modeling if necessary, spreading and leveling of stored topsoil). After completion of construction and rehabilitation works, and after the use of borrow pits, the landscape will be restored to a standard that is of equal quality to its original condition. Rehabilitation measures may not be necessary for borrow areas still in operation after road works have finished.	Contractor	PIURR with support of CSC	Provision of photo-evidence in case of non-compliances. Documentation of non-compliances and remediation measures in SAEMR post construction audit report..

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
	the disfigurement of landscape due to improper disposal of surplus material, spoils of waste (construction debris, metallic scrap etc.) if not properly disposed of.				
Permitting Requirements	Illegal construction activities because of lack of Permit	Obtain all required consents, permits, clearances, no objection certificate (NOC), etc. Time target: Ensure they have been acquired or authorized before works commencement.	Contractor	CSC, PIURR	All required permits obtained and officially approved.
Complaints/grievances	Compensation claims	Establishment of grievance redress mechanism (GRM) as a channel for complaints and issues relating to the construction period of the Project. The GRM for this Project is in detail described in the chapter “Grievance Redress Mechanism” of the IEE.	EA thru PIURR	PIURR	Grievance boxes in place. Grievance Log in place. Documentation in SASMR.
OPERATION PHASE					
Exceedance of Noise Standards during operation of the new road due to increased vehicle fleet.	Health impacts due to increased noise levels	In order to comply with the EBRD PR 3 the applied legal noise standards must be met. This is achieved by the provision of Stone Mastic Asphalt (SMA) as surface layer over the whole	PIURR	CEP	Legal noise standards are met

Environmental and Social Management Plan

ACTIVITY / LOCATION	POTENTIAL IMPACT	MITIGATION MEASURES	INSTITUTIONAL RESPONSIBILITY		PERFORMANCE INDICATOR
			IMPLEMENT	MONITOR	
		Project Road, which provides a noise reduction of 3 dB as compared to normal asphalt. Noise monitoring will be undertaken by PIU during operation phase to inform in case there are any exceedance of the noise levels and additional active or passive measures will be undertaken to reduce if required.			
Increase in traffic after the Project completion	Worsening of the road safety	Conducting of the regular road safety audits	MOT	Traffic police	Reducing of the number of traffic accidents
	Kills of the reptilian and other wild animals on the road	Regular monitoring of mortality rates for reptilians and other surveys if required	MOT	CEP	Reducing the mortality rates of animals crossing the road to the pre-project state

5 Environmental Management Plans and Procedures

In order to assess, control and continuously improve the overall environmental and social performance of the Project, PIURR will establish an Environmental and Social Management System specifically for the Dangara-Guliston Road Project.

EBRD ESP requires the preparation of the project specific ESMPs as provided in PR 1(20), PR 2 (23), PR 3(5), PR 4(6, 37), PR 6 (16,19), PR 8 (12, 14, 15)

Managements programs and plans that will be developed by the Contractor must comply with EBRD ESP and approved by CSC and PIURR prior to commencing construction and implemented throughout the construction phase include the following.

- 1) Contractor Construction Environmental and Social Management Plan (CESMP) (PR 1(20))
- 2) Material and Spoils Management and Disposal Plan (PR 3)
- 3) Waste Management Plan (PR 3)
- 4) Land Management and Reinstatement, Including Topsoil Management (PR 3)
- 5) Water Quality Management Plan (PR 3)
- 6) Sewage Management Plan (PR 3)
- 7) Hazardous waste management plan (PR 3)
- 8) Biodiversity Management Plan (PR 6 (16, 19) / Included in annex 7 of this ESMP
- 9) Air quality management plan (PR 3)
- 10) Noise and vibration management plan (PR 3)
- 11) Asphalt Plant and Borrow pit/Quarry Management plan (PR 3)
- 12) Traffic management plan (PR 4 (30, 31) / Outline in annex 6 of this ESMP
- 13) Emergency response plan (PR4 (37) / Outline in annex 5 of this ESMP
- 14) Construction Camp (layout and management plan) (PR 2(19)
- 15) Health and Safety Management Plan / Outline in annex 4 of this ESMP
- 16) Chance finds procedure (PR 8 (12,15))
- 17) Labour Management Plan (PR 2) / Outline in annex 1 of this ESMP
- 18) Accommodations Management Plan (PR 2) / Outline in annex 2 of this ESMP
- 19) Post-construction plan (PR 3)

The Biodiversity, Noise, Labour, Accommodation, H&S and Traffic Management Plans require Financiers' No Objection in addition to SC's approval.

Guidance for the contractor on developing these plans is provided in the following regarding the accommodation plan and labour management plan a framework management plan is provided in annex 1 and 2:

The documents are also based on the requirements under ESP PR2 and EBRD/IFC guidelines on the labour accommodations¹ hence serve as part of PR2 requirements.

6 Contractor Construction Environmental and Social Management Plan (CESMP)

The Construction Environmental and Social Management Plan (C-ESMP) or Plans will identify all Environmental and Social (E&S) impacts specific and relevant to the Works and shall provide information explaining how the identified impacts will be managed by the Contractor. The C-ESMP shall include details of the Contractor's E&S management system, including the Contractor's plans to manage and monitor E&S impacts associated with all construction work under its control (including its subcontractors' work).

The CESMP shall be based on the outcomes of the IEE and the ESIA supplementary report describes the impacts of the Works and proposes mitigation measures that are developed further in the CESMP.

In addition to the management plans listed in the chapter 3 the CESMPs will include the following.

- ⇒ Contractor E&S Policy/Statement
- ⇒ Legal and other Requirements
- ⇒ Contractor Environmental and Social Organizational Chart including Roles and Responsibilities
- ⇒ Monitoring, reporting, inspections, audits, incidents and non-conformances
- ⇒ Description of Contractor management process and Management of change process
- ⇒ Stakeholder engagement
- ⇒ Local Content (local procurement and local employment, including training)
- ⇒ Responsibility of the Contractor to meet national migration legislation in case migrant workers are hired

6.1 Material and Spoil Management and Disposal Plan (MSMP)

The MSMP will set out the procedures for the delivery, logistics, storage and use for all construction materials used during construction.

The plan will include the cut and fill balance and the quantities of the suitable material, that passed the laboratory tests and in accordance with Specifications will be reused on embankments or other fill material and unsuitable material that will need to be disposed at disposal areas. Technical standards for the material used in the Project are defined in the project specifications.

¹ https://www.ebrd.com/downloads/about/sustainability/Workers_accommodation.pdf

The excavated materials will be checked against these requirements before deciding the highest grade of reuse in the new permanent works, or disposal if found to be completely unsuitable for reuse.

According to the detailed design and the Bill of Quantity (BoQ) the volume of 3 504 815 m³ needs to be provided for embankment fill and the volume of 5 585 402 m³ is excavated cut material.

Most of the required fill material needs to be sourced from quarries. In order to use resources efficiently all cut material suitable for reuse must be used as embankment fill or other fill material in the Project. The surplus soil resulting from cut sections needs to be transported to suitable disposal sites. Contractor will be encouraged to reuse/recycle material where feasible.

6.1.1 Disposal sites;

The proposed disposal sites are shown in Annex 6 of the IEE “Identified Areas for Surplus Material Disposal”. Currently the selected locations for disposal of excess soil have not yet been agreed with the local authorities, but the most suitable locations have been selected and as a rule before the start of construction works the Contractor will necessarily agree these locations with the local authorities.

The contractor is free in selecting suitable disposal sites but must stick to the following rules:

- ⇒ No agricultural area or river floodplain will be selected as disposal site. Minimum distance to any watercourses must be at least 100 m. This need to be added in the spoil management plan.
- ⇒ Disposal sites will be preferably on barren land without any wooden vegetation.
- ⇒ After the closure of disposal sites, they will be stabilized where required;
- ⇒ No Biodiversity sensitive area will be selected as disposal site, and disposal sites will be located at least 200m from these areas.

6.1.2 Recycling of old asphalt

For purpose of spoil reduction, construction materials will be recycled. Recycled material from the existing pavement and special recycling techniques will be used in the reconstruction of the new pavement layers. The cost effectiveness of reconstruction measures could be enhanced greatly by the application of recycled pavement materials. Recycling options include hot mix recycling (HMR) with/without new materials and cold mixing recycling with/without new materials.

Recycled material must be used to the largest extent feasible to reduce the volume of spoils that needs to be disposed of.

6.2 Waste Management Plan

The Contractor is responsible for managing all waste generated during the construction works in a manner which does not pose a threat to human health and the environment. All waste shall be

managed in accordance with the following “waste hierarchy”, with priority given to the waste management measure closest to the top of the hierarchy: Prevention; Minimisation; Re-use; Re-cycle; Treatment; Disposal; Waste Management must be according to the national legislation.

Contractors used for the disposal of waste and the waste disposal sites must be reputable, legitimate enterprises, licenced by the relevant regulatory authorities, and operating to acceptable standards.

The WMP must include the following measures to ensure the use of hazardous substance and materials is (where practicable) avoided or justifiably minimised. Where avoidance is not possible, appropriate risk management measure will need to be implemented.

The WMMP must include a method statement for asbestos disposal. No asbestos materials will be used in the construction of the Dangara-Guliston road Project. There is however the possibility that asbestos may be encountered during site preparation, particularly as existing buildings may need to be demolished and also when replacing old culverts. Management of asbestos waste must be done according to the EU Directive on the protection of workers from the risks related to exposure to asbestos at work, EBRD PR4 and to ADB's Good Practice Guidance Note for the Management and Control of Asbestos.

Location of waste storage area with description of appropriate waste storage facilities including:

- ⇒ Predicted volumes
- ⇒ Special handling instructions;
- ⇒ Type of disposal for each waste category (reuse, recycling, disposal at landfill, incineration etc.)
- ⇒ licensed transportation contractor;
- ⇒ licensed final recipient of the waste

Waste shall be categorized according to the following definitions and/or the European Waste Catalogue:

Non-hazardous solid waste generated at construction and decommissioning sites includes excess fill materials from grading and excavation activities, scrap wood and metals, and small concrete spills. Other non-hazardous solid wastes include office, kitchen, and dormitory wastes when these types of operations are part of construction project activities.

Hazardous solid waste includes contaminated soils, which could potentially be encountered on-site due to previous land use activities, or small amounts of machinery maintenance materials, such as oily rags, used oil filters, and used oil, as well as spill cleanup materials from oil and fuel spills.

Hazardous liquid waste includes effluents and waste material containing "free liquids" (e.g. used cutting oil or wastewater mixed with oil after cleaning machinery).

In line with Waste Management Plan the Contractor shall establish and maintains a waste register, which is at the disposal of the Engineer. This register will record all waste management operations: production, collection, transport, treatment. It will be available as of the Contractors mobilisation to any site.

The following aspects are documented in this register:

- a. Type of waste, using the nomenclature specified above and/or in the European Waste Catalogue;
- b. Waste quantities;
- c. Name and address of the third party waste management facilities receiving waste or parties taking possession of the substances no longer considered as waste;
- d. Name and address of waste transport Contractors;
- e. Planned waste treatment

CONTRACTOR shall segregate non-hazardous and hazardous wastes and each individual waste stream as required to allow it to be managed separately. Prior to commencement of construction Contractor shall provide a sufficient number of waste segregation and management areas at strategic points around the Project area and in accordance with the type of activity planned, numbers of personnel and predicted wastes and volumes. Personnel should be trained on requirements in regards to waste stream separation and handling in appropriate language.

All waste containers shall be appropriate in terms of volume, composition, shape, and opening for the material that is being stored. Containers shall be covered and stored on impermeable/bunded area as required and depending on the nature of the waste stream and its final destination and the need for litter, dust and vermin control and prevention of water ingress. All containers shall be appropriately labelled.

Waste storage areas shall be (i) located at a distance of over 100m from any natural sensitive area and over 500m from any socioeconomic sensitive area (school, market, healthcare centre, water abstraction well or catchment area); (ii) protected from moving machinery and vehicles, but easy to access for regular collection; (iii) protected from the possibility of landslides; (iv) located on a flat impervious surface to prevent infiltration; (v) under cover for non-inert waste; (vi) stored in containers of the appropriate size, tightness and level of resistance depending on the danger and phase (solid, liquid, gas) of the waste; (vii) Liquid wastes storage is equipped with secondary retention with a volume at least 110% of the largest container; (viii) hazardous waste stored in a fenced secure area, pursuant to practices approved by the Engineer..

Waste shall be collected and removed from its point of generation and/or temporary storage on a frequency appropriate to its nature; frequency and volume of generation; and its treatment method. As a minimum the removal frequency shall ensure:

- ⇒ No overflow from containers.

- ⇒ No unpleasant odour or emissions which are dangerous for human health.
- ⇒ No proliferation of insects, rodents, dogs or other animals which are harmful or dangerous for human health or who predate small mammals and birds.
- ⇒ Regular cleaning of containers and surfaces on which they are located. and potential to cause harm to human health (including via attraction of vermin and odour) and the environment.

Unless otherwise specified in the Contract or instructed by the Engineer, waste incineration is prohibited on site.

All third party waste management contractors and facilities shall at a minimum be certified in accordance with national legislation including for the specific types of Contractor waste they will manage.

The use of third party waste management services is subject to obtaining copies or relevant national certifications, entries to national registers of waste carriers and disposal facilities or documented prior audit of the treatment, storage and recycling facilities by the Contractor a copy of relevant certificates/register entries or the audit shall be provided to the Engineer.

The contractor shall implement a documented system of waste transfer to implement the duty of care principle and ensure waste is managed in accordance with the CESMP and these E&S requirements.

6.3 Land Management and Reinstatement, Including Topsoil Management

In non-agricultural areas early re-seeding of the reinstated ground shall be undertaken, where reasonably practicable and considering the season, immediately after reinstatement, to help reestablish and stabilise soil structure.

For purpose of erosion protection fast growing vegetation, e.g. grass species, will be sown for stabilizing the barren soil.

In agricultural areas the reinstatement shall include preparation of the land for onward use by the landowner as agreed with the landowner and confirmed by the CSC, as a minimum to include: restore the land to its pre-construction topography, including any drainage features and tined to remove compaction.

Topsoil that needs to be removed must be reused to cover areas where excess materials will be dumped and on road embankments. Temporary storage areas for topsoil must be protected against erosion either by fast growing vegetation (e.g. grasses) or erosion matting. Areas for temporary storage of topsoil can be parallel to the road, within the construction corridor. The temporary storage site for topsoil must be approved by CSC.

The following must be adhered to:

- ⇒ Unwanted materials from topsoil such as roots of trees, rubble and waste will be removed prior to stockpiling.

- ⇒ To ensure stability, soil stacks shall not be higher than 2m, with a slope gradient of less than 25%. Soil stacks must be placed and managed to avoid erosion and soil washing off the pile. Drainage trenches must be established to divert surface water runoff from the site.
- ⇒ Soil compaction must be minimised by strictly keeping to temporary roads, construction camp / construction area boundaries.
- ⇒ Embankments and slopes with disturbed vegetation must be replanted immediately after the construction/disturbance stops
- ⇒ The Contractor will confine operation of heavy equipment within the area of works to avoid soil compaction and damage to privately owned land. If private lands are disturbed, the contractor must promptly inform the owner and agree on the ways to remedy the situation.

6.4 Water Quality Management Plan (WQMP)

The Project area is very dry and the only natural river in the Project area is the Tairsu River. Therefore water quality management is an essential issue, also in order to avoid competition with local communities for water resources.

During construction phase water quality in surface waters crossed by and nearby the Project road must be monitored as stipulated in the monitoring plan of the IEE.

Water quality management plan which must include site specific protection measures for ground and surface water inclusive water quality monitoring at Tairsun river, creeks and irrigation channels crossed by the Project Road.

Water monitoring will be conducted on a quarterly basis. To assess exceedances, the measured value for each parameter will be compared with the strictest standards, including the National, WHO, and EU standards. The samples will be taken upstream and downstream of water body crossing the project road.

Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located at least 200m away from watercourses. Such facilities will be bounded and provided with impermeable lining to contain spillage and prevent soil and water contamination. In order to avoid competition for water resources with local communities the contractor must conduct a review and audit of all water sources along the route prior to commencement of works. The contractor must liaise with the communities on the use of water in the Project. Water resources used by the local communities will be maintained at all times, including rapid provision of alternative temporary supplies in the event of disruption to usual supply.

The use of mineral resources, including groundwater, is regulated under the Mineral Resources Law. Tajikgeology provides permission for special water use, provided that the applicant installs

its own water supply (borehole, etc.). The contractor needs to agree to water use with the local water supply company and other stakeholders.

The WQMP Plan must include calculations for the water demand for construction including water required for:

- ⇒ Construction (e.g. concrete mixing);
- ⇒ Dust suppression;
- ⇒ Cleaning equipment;
- ⇒ Potable water for construction workers; and
- ⇒ Use in construction camps (if these will be used).
- ⇒ The plan must include measures to minimise water usage in the first instance, and also opportunities for reuse of water where possible.

6.5 Sewage Management Plan

The contractor's Sewage Management Plan shall identify and address effluent discharges including but not limited to sewage, water used for pressure testing; site run-off; concrete washout water; water ponding in excavations any other waste waters produced on site and shall include an identification of all potential effluent sources, potential composition, treatment techniques and discharge points.

No effluent can be discharged by the Contractor, or the Contractor's activities, into watercourses or soils without prior treatment and without monitoring of the treatment's performance to guarantee acceptable effluent quality as per applicable national requirements. The basis for the regulations of management of sewage and wastewater is the established Maximal Allowed Concentrations of pollutants in the water. Tajikistan didn't issue specific uniform discharge standards for the sewage and wastewater; however, the potential polluters should apply for Discharge Permit and prepare the Discharge Project including mitigation measures and calculations justifying that the proposed discharges will not lead to the exceeding of the pollutants content above maximal allowed concentrations (MAC) in the receiving water body.

The Water Code regulates sets the requirements for the control of wastewater and sewage to prevent the contamination of water resources.

In accordance with the Chapter 25.4 the number of substances and microorganisms contained in wastewater discharges into water bodies should not exceed the established MAC for permissible impact on water bodies. The article 74.1 states that discharge of the sewage and other types of wastewaters can be conducted upon the obtaining of the special water use permit.

EU guidelines on water quality and sewage are the Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture and the Directive 91/271/EEC on Urban Wastewater Treatment. The two directives are not triggered by the Project.

Effluent from batching activities and cleaning of concrete trucks shall be collected in settlement ponds and treated in line with national legislation. Treatment technique and its effectiveness will be subject to approval by the CSC in advance, to allow mobilization of the appropriate treatment equipment.

All areas with generators, hydrocarbon storage tanks, refuelling stations, workshops, parking areas and garages shall have impervious surfaces with secondary containment and shall be drained and equipped with an oil/water separator. Secondary containment shall be inspected and maintained on a regular basis to ensure the containment functions effectively. Separators shall be inspected on a daily basis.

Contractor shall provide, install and maintain welfare facilities including sewage collection/treatment. Facilities shall be sufficient for the number of personnel. All sanitary wastewaters shall be subject to collection and treatment to achieve acceptable effluent quality as per applicable national requirements on or off site.

Sewage sludge shall be managed as a hazardous waste in accordance with these E&S requirements. Effluent discharge and flow rates into natural water bodies or soil will be managed to control erosion/sediment loading/flooding risks.

6.6 Biodiversity Management Plan

Additional investigations regarding the EBRD PR 6 identified species out of 6 higher taxonomic groups (birds, reptiles, mammals, insects, fungi and flowering plants) as PBF. The most relevant in terms of impacts and mitigation measures are the birds and reptiles which are briefly discussed in the following.

The identified impacts and mitigation measures must be incorporated in the Biodiversity Management Plan and the Design, if required. The Biodiversity Management Plan is attached as annex 7.

6.6.1 *Birds identified as Priority Biodiversity Features*

Besides the birds breeding habitats, particularly loess cliffs, already identified in the IEE, the following additional impacts and mitigation measures which must be factored into the ESMP were identified:

For the Saker falcon and the Egyptian vulture possible impacts at construction stage were identified, particularly nesting habitat disturbance.

Mitigation: The BMP in annex 7 describes the developed measures for the identified biodiversity features.

6.6.2 Reptiles

Possible PBFs are the Tajikistan even fingered Gecko (*Alsophylax tadjikiensis*) and the Tajikistan toad head Agama (*Phrynocephalus sogdianus*). Additional surveys are undertaken across summer months. Most probably the 2 species are excluded from PBF.

Tortoise were found during the survey. They are active in spring (already dormant in the summer); widely present in the hilly areas – the second half of the road – purple line in the following figure:

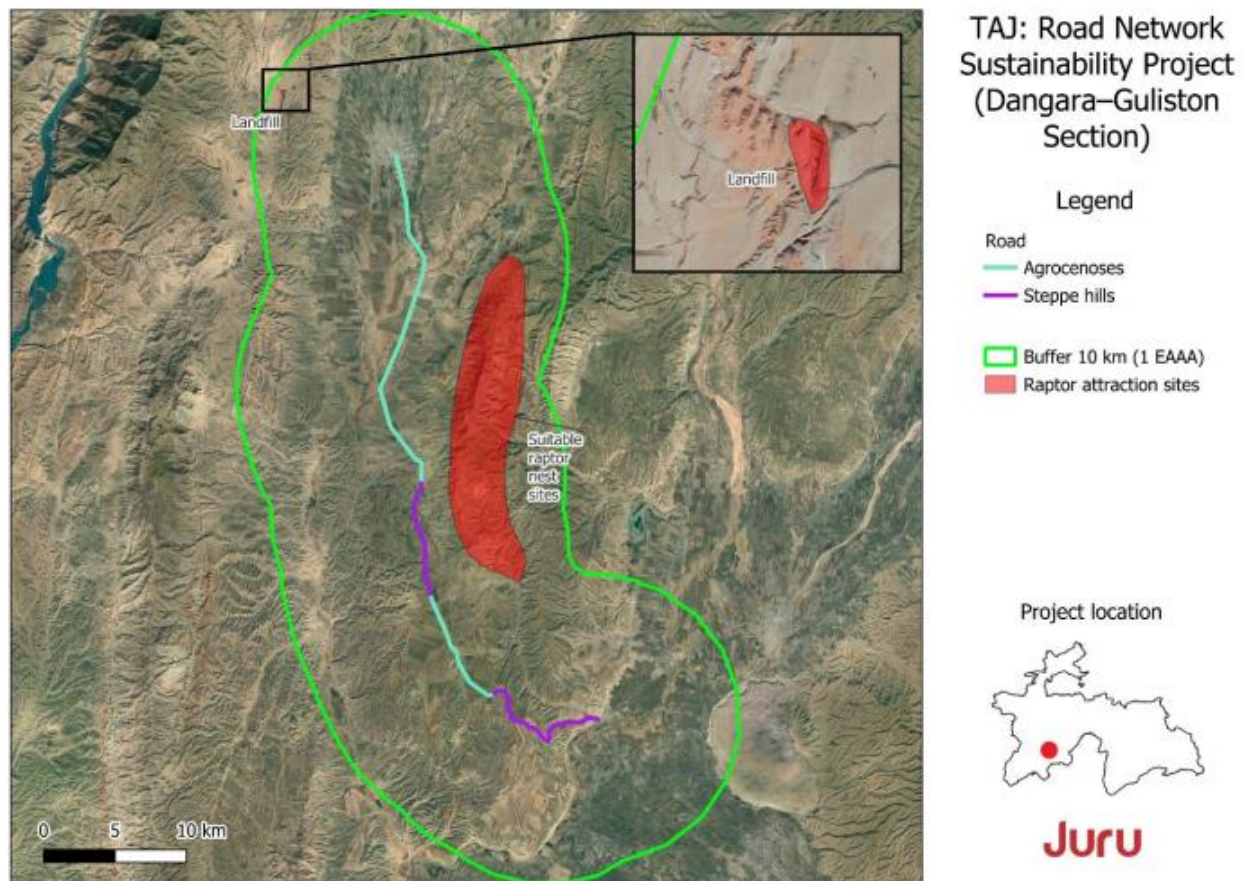


Figure 4 - Road sections of higher Biodiversity (purple line)

The developed mitigation measures are provided in the BMP in annex 7.

6.7 Air quality management plan

The Air Quality Management Plan shall provide details of mitigation measures, specific location and schedule where such measures shall be implemented to minimise air quality impacts due to emissions to sensitive receptors due to the presence of the camp, construction works, sourcing and transport of construction materials, and other project-related activities.

Measures include, but are not limited to:

- ⇒ Accesses and construction sites should be kept moist to reduce dust formation. Water sprays to be implemented during drilling and excavation activities. It is recommended that water spraying is undertaken a minimum of three times per day;
- ⇒ During dry weather conditions, water spraying will be increased, and hygroscopic additives will be used in water sprays to increase ground moisture and reduce the spread of dry matter and dust from the construction surface.
- ⇒ Dust-generating activities to be slowed down or ceased on days of strong wind.
- ⇒ In windy and dry conditions, earth stockpiles to be moistened to prevent the distribution of dust particles.
- ⇒ As soon as a surface is no longer in use or is finished it should be vegetated to prevent dust emissions.
- ⇒ Particular care should be paid to watering after vegetation'
- ⇒ The surface should be moistened during loading and unloading of aggregates in trucks.
- ⇒ Intense spraying should be carefully monitored to avoid land erosion.
- ⇒ dumpers carrying dusty materials to be covered with tarpaulin cloth.
- ⇒ Work areas should be large enough to allow storage of the excavated material, access of trucks and truck loading operations.
- ⇒ Ensure all machinery and vehicles are maintained to minimise exhaust emissions. Vehicles and equipment that emit smoke shall be removed from the project, if they can't be fixed.
- ⇒ Implement a regular vehicle maintenance and repair program, utilising the manufacturer recommended engine maintenance programs.
- ⇒ Undertake immediate repairs of any malfunctioning vehicles and equipment.
- ⇒ Use construction equipment and vehicles that meet national emission standard and give priority to fuel efficient machinery.
- ⇒ Wherever possible, use electrically powered equipment rather than gas or diesel-powered equipment.
- ⇒ Ensure that all diesel and petrol machinery used, is equipped with catalytic convertors.
- ⇒ Position any stationary emission sources (e.g., portable diesel generators, compressors, etc.) as far as is practical from sensitive receptors and ensure the air emissions do not breach local standards.
- ⇒ Locate support facilities and spoil disposal sites so to reduce vehicle trip numbers and distance, and therefore emissions – as far as feasible.
- ⇒ All trucks used for transporting materials to and from the site will be covered with canvas tarpaulins.

During construction phase instrumental air quality monitoring must be conducted as stipulated in the monitoring plan of the IEE. The water measurements will be carried out on a quarterly basis and results must be documented in the environmental monitoring reports.

Air quality monitoring must be undertaken for the following parameters TSP, CO, NO, NO₂; SO₂, PM 10 and PM 2.5 at the identified 9 sensitive receptors shown in the monitoring plan of the IEE

and the below figures 1 and table 2. Additional measurements must be undertaken at the asphalt plant, the concrete plant and the aggregate crusher.

The measurements must be compared against the National, EU and WHO standards.

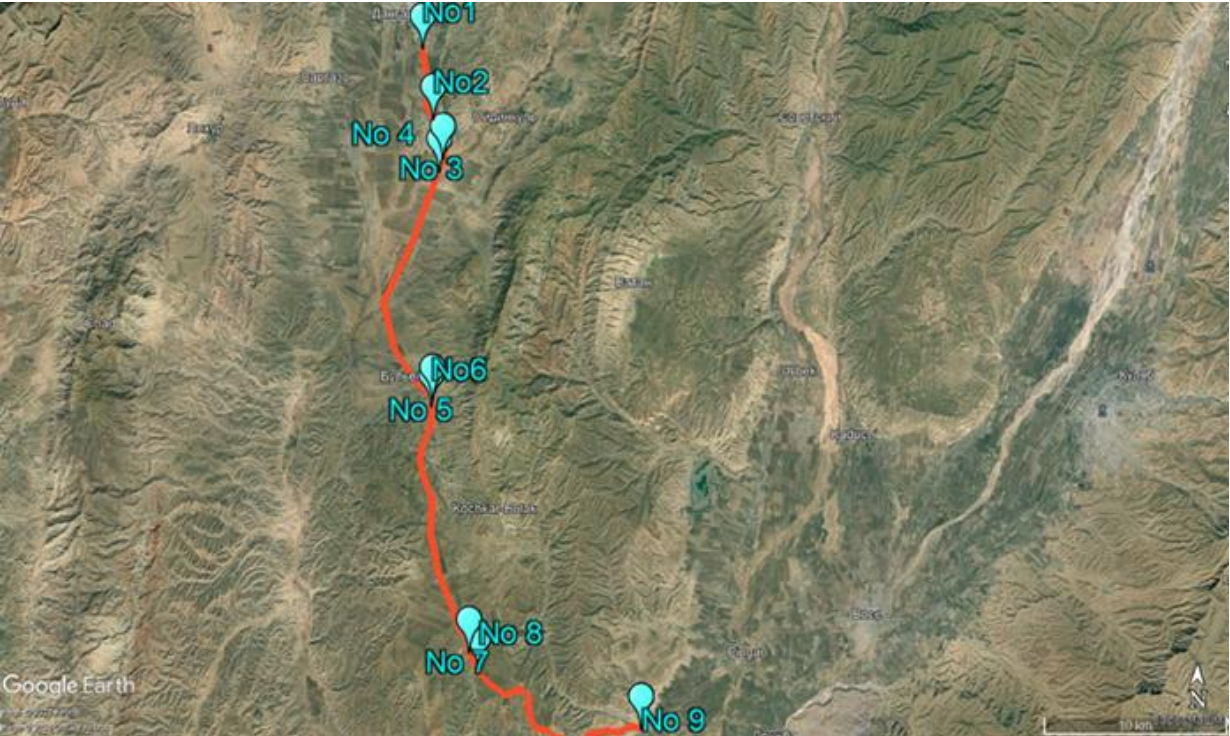
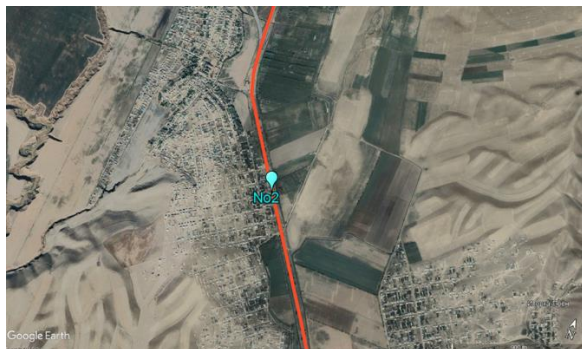


Figure 5 - Sensitive Receptors for Air Quality Measurements

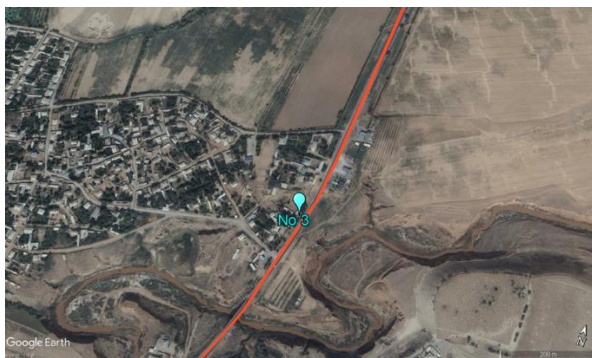
Table 3 -Sensitive Receptors for Air Quality Measurements

SENSITIVE RECEPTORS AT WHICH INSTRUMENTAL MEASUREMENTS FOR AIR QUALITY AND VIBRATION WERE UNDERTAKEN IN APRIL 2024	
Location of Monitoring Point 1st Km 0+000, “Aziz” dining room. Interchange of the Bokhtar-Dangara highway.	

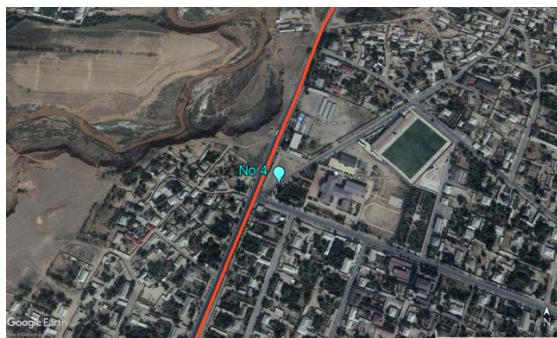
SENSITIVE RECEPTORS AT WHICH INSTRUMENTAL MEASUREMENTS FOR AIR QUALITY AND VIBRATION WERE UNDERTAKEN IN APRIL 2024



Monitoring Point No. 2. Village I. Sharipov. Near a residential building



Monitoring Point No. 3. Khurramzamin village, near residential buildings



Monitoring Point No. 4. Khurramzamin village near school No. 8



Monitoring point No. 5 (Residential buildings in the village of Bulyoni Poyon)

SENSITIVE RECEPTORS AT WHICH INSTRUMENTAL MEASUREMENTS FOR AIR QUALITY AND VIBRATION WERE UNDERTAKEN IN APRIL 2024



Monitoring Point No. 6 (Bulyoni Poyon, School No. 84)



Monitoring Point No. 7 (Bakhoriston village)



Monitoring point No. 8 (Shukhrater village, 300 m from the traffic police post)



Monitoring Point No. 9. Market square at the end of the project road (At the intersection with the Guliston-Farkhor road).

Table below presents air parameters measures compared with local, EU and WHO thresholds

Table 4, The comparison of the measured values for air pollutants with national, EU, WHO thresholds

Parameters Measured	CO mg/m ³	NO mg/m ³	NO ₂ mg/m ³	SO ₂	NH ₃	CH ₄	PM10 mg/m ³	PM2,5 mg/m ³
National Average per day	3	0,06	0,04	0,05	0,05		0,06	0,035
National Maximal (one time)	5	0	0,085	0,5	0,2	50	0,3	0,16
WHO Guidelines	-		1 hour 0.2	10 min 0.5			0.05	0.025
EU Standards ²	10 8 hours		0.2 1hour	0,350 1 hour			0,050 1 day/av.	0,025 1 year/av
Location No								
1	0,55	0,047	0,063	0,005	0,014	0,12	0,054	0,029
2	0,24	0,008	0,018	0	0,011	1,32	0,011	0,005
3	0,43	0,035	0,042	0	0,003	1,05	0,020	0,013
4	0,37	0,010	0,027	0	0,011	1,27	0,022	0,017
5	0,25	0,007	0,027	0,001	0,007	1,24	0,023	0,020
6	0,22	0	0,013	0	0,005	0	0,030	0,027
7	0,17	0,011	0,016	0,001	0,015	1,33	0,029	0,026
8	0,35	0	0,012	0	0,014	1,11	0,033	0,029
9	0,69	0,014	0,021	0	0,001	1,24	0,063	0,049

6.8 Noise and Vibration Management plan

During construction phase instrumental monitoring on noise and vibration must be conducted as stipulated in the monitoring plan of the IEE.

Noise and vibration monitoring must be undertaken at the identified 9 sensitive receptors shown in the monitoring plan of the IEE and in above figure 1 and table 3. Additional measurements on noise must be undertaken at the asphalt plant, the concrete plant and the aggregate crusher. The measurements must be compared against the National, EU and WHO standards.

The Noise and Vibration Management Plan (NVMP) must specify the need to undertake condition surveys no later than 28 days before the commencement of construction works. The Contractor shall identify areas for monitoring of noise, vibration and air quality based on the pre-construction survey and other indicators such as third-party complaints received. It is expected that the measurements will be conducted once per month and reported quarterly.

² https://environment.ec.europa.eu/topics/air/air-quality/eu-air-quality-standards_en

Vibration baseline measurements within the settlements traversed by the Project Road have been conducted in April 2024. No exceedances of legal standards occurred. For the preservation of evidence, the contractor will document the condition of houses close to the road. Photographs of all building structures within a 50 m corridor, 25 m to both sides of the road axes, will be taken as a protection for possible complaints regarding damages in house walls etc. This is part of the contract. The 50 m corridor was chosen based by consideration of the stipulations in the “Transportation and Construction Vibration, Guidance Manual, CALTRANS, September 2013”.

For protection special construction techniques will be applied in areas where buildings and structures are located directly near the road. Such actions may include, alternative construction methods such as: (i) decrease of vibration emission from the particular equipment item; (ii) substitution of the particular equipment item at such location by other equipment capable of variable vibration control; (iii) use of smaller equipment; (iv) compaction without vibration rollers; (v) decreasing the thickness of material layers below the maximum thickness permissible under the specification; (vi) building wave barriers (trench or ditch) where appropriate; (vii) change the pavement type for example from flexible to rigid pavement, (viii) any other method of Contractor's choice that may be used while ensuring compliance with the specification for the material that is being compacted.

The laboratory of the analytical control of the Committee for Environmental Protection (CEP) is responsible for monitoring the noise and vibration levels of the operational roads. They conduct regular inspections of the main roads as part of their monitoring program. If the noise and vibration levels exceed the threshold values, the Regional Department of the Road Maintenance Authority will be alerted. If the appropriate measures to control noise and vibration are not taken in a timely manner, CEP will impose sanctions.

6.9 Asphalt Plant, Aggregate Crusher and Borrow Pit/Quarry Management plan

No site for asphalt plant and aggregate crusher have been identified yet. For asphalt plant implementation the contractor must obey the following:

- ⇒ To ensure minimal impacts on settlements and productive land, the asphalt plants and aggregate crushers must be located downwind of settlements at a distance of 1,000 m or more.
- ⇒ To protect identified biodiversity sensitive areas the priority search area for location of asphalt plant, aggregate crusher and concrete plant must be outside the natural steppe hills area which are located between chainage km 22+000 to km 31+500 and chainage km 38+500 to km 49+000 (purple line in the map in figure 2 of the Biodiversity Management Plan). The distance to identified biodiversity features (map in figure 1 on the Biodiversity Management Plan) must be 200 m in order to avoid impacts due to haulage activity and soil compaction.

- ⇒ Bitumen will not be allowed to enter either running or dry streambeds nor must it be disposed of in ditches or small waste disposal sites prepared by the contractor. Bitumen storage and mixing areas must be protected against spills and all contaminated soil must be properly handled. Storage areas should be lined with impermeable layer to mitigate impacts of potential spills. As a minimum, these areas must be designed so, that any spills can be immediately contained and cleaned up.
- ⇒ The contractor must have provisions for spill and fire protection equipment and will submit an emergency response plan (in case of spills, accidents, fires and the like) prior to operation of the plant, and asphalt plants will not be located close to plantations and productive land.
- ⇒ Bitumen storage and mixing areas will be protected against spills and all contaminated soil will be properly handled according to legal environmental requirements. Such storage areas will be contained so that any spills can be immediately contained and cleaned up.
- ⇒ Prior to commencing operation of the asphalt plant, the contractor must receive all relevant permissions and the site selection for the asphalt plant and aggregate crusher must be approved by CSC.
- ⇒ Both, asphalt plant and aggregate crusher are sources of emission of noise and air pollutants. Therefore, regular monitoring measurements will be conducted at these facilities on air quality and noise.
- ⇒ The hauling traffic should be carried out only between 7:00 am and 22:00 pm.
- ⇒ Used machinery needs to be in good technical condition and properly maintained, so that no leakages of oil or any other pollutants occur.

There are no soil reserves of pebble material for the preparation of asphalt concrete, concrete mixtures, gravel-sand mixtures for the base of pavement closer than 20 km. It is possible to use deposits of pebble material from the Yakhsu River from the Gar-Gara quarry, deposits from the Surkhob River. When performing engineering and geological work at the sites “Reconstruction of the highway at the Guliston-Kulyab section”, “Reconstruction and rehabilitation of the Khulbuk-Temurmaliq-Kangurt highway”, open pits were surveyed that can be used on the Dangara-Guliston highway project.

Additional 5 soil resources (4 to 8) are described in the IEE which provide loamy type of soil. These 5 extraction sites can only be used for embankment fill.

The impacts related to establishment of borrow pits are largely dependent on the need for opening new pits. All proposed extraction sites for aggregates are river beds.

Impacts from river extraction activities refer to changes of riverbed morphology and increased erosion. The proposed borrow areas #1, #2, #3 are already operating and therefore environmental impacts concerning potential disfigurement of landscape, vegetation losses and damage to access roads are kept to a minimum because no new borrow site is opened.

In case a new borrow area is opened by the contractor the restoration of the area also needs to be incorporated.

6.10 Traffic management plan³

Prior to commencing construction operations, the contractor must submit a traffic management plan to local traffic authorities and provide information to the public about the scope and schedule of construction activities and expected disruptions and access restrictions. The TMP is for ensuring traffic safety and avoiding congestion to the degree technically possible during construction phase.

The Contractor shall identify, evaluate and monitor the potential traffic and road safety risks to workers and project-affected communities throughout the project life-cycle. The Contractor will develop and implement as appropriate a Traffic Management Plan to address the traffic safety risks. Where mobile work equipment is operated on public roads and other forms of infrastructure, the Contractor will prevent the occurrence of incidents and injuries to workers communities by introducing necessary traffic management arrangements. Wherever possible the routes for transporting construction materials should be selected away of sensitive areas including settlements. If it is not possible the hauling traffic should be carried out only between 7:00 am and 22:00 pm

Traffic Management Plan refers to traffic safety inside and outside the site. It also must inform the route selection for transporting construction materials and also transport regimes with time restrictions if required.

6.11 Emergency response plan⁴

The Contractor shall develop necessary emergency plans and procedures which will allow them to prepare to and respond to incidents, accidents and emergency situations in a manner appropriate to the operational risks related to the project. Any sub-site (e.g. asphalt plant, accommodation camps, workshop areas, etc.) shall have their own dedicated emergency plans. The ERP shall however inform the key principles and the standards that shall be applied.

Where necessary, the Contractor will assist and cooperate with the relevant authorities, emergency services and the affected communities in their preparations to respond effectively to emergency situations. If local authorities or responders have little or no capacity to respond effectively, the Contractor shall play an active role in preparing for and responding to emergencies associated with the project, and will provide adequate evidence to demonstrate capacity to respond to reasonably predictable incidents, either directly or indirectly.

³ An outline of the TMP is provided as an annex to the ESMP

⁴ An outline of the Emergency Response Plan is provided as an annex to the ESMP

6.12 Construction Camp (layout and management plan)

Construction camp management plan in reference to World Bank Group's Workers' Accommodation: Processes and Standards. The plan will include layout of the work camp and details of the proposed measures to address adverse environmental impacts resulting from its installation.

The contractor is free in selecting a suitable site for the construction camp. The construction camp layout and management plan will include layout of the work camp and details of the proposed measures to address adverse environmental impacts resulting from its installation.

To minimize negative environmental impacts due to the camp activities, the following mitigation measures must be developed and will be implemented during the construction phase:

- ⇒ Camp must be delineated by a fence.
- ⇒ The camp area must be secured and guarded
- ⇒ The camp area will be properly gravelled to avoid any mud;
- ⇒ Local road inspections and cleaning will be carried out;
- ⇒ All roads and access roads will be watered by sprinkler trucks during dry weather three times a day (morning at 9 o'clock, afternoon at 12 o'clock and evening at 6 o'clock) or as needed according to the local conditions;
- ⇒ Common waste (domestic) will be transported from the camp's periodically by subcontracted company or regional/local administration (as required) and will be disposed and utilized in accordance with Tajikistan legislation. All subcontractor details will be sent to the Engineer for review and consent.
- ⇒ Weekly waste inspections must be made outside the camp fence;
- ⇒ It will be strictly prohibited to create an additional noise within residential and other sensitive areas (e.g. use of horns);
- ⇒ Regular Noise and vibration control will be carried out by subcontracted national licenced Laboratory. All subcontractor details must be sent to the Engineer for review and consent;
- ⇒ Maximum noise levels at the camp boundary must not exceed 70 dBA and this limit will be strictly followed;
- ⇒ Local communities and organization must be informed of the construction schedule and any noisy activities on a regular basis via workshops and other liaison.

The campsite must be supplied with potable water on a daily basis. Daily consumption needs of domestic water for camp territory must be acquired from regional supplier to fill water tanks at camp site from where it can be pumped to camp distribution system. The location of the water tanks must be shown in the camp layout plan.

Wastewater from toilets, showers, kitchen and domestic areas must be discharged to a central or decentral sewage system according to the agreement with responsible authority.

6.13 Health and Safety Management Plan

As a minimum The Occupational and Community Health and Safety Plan will include the following sections or discrete plans covering the following areas, risks and impacts:

- ⇒ Contractor's H&S Policy/Statement
- ⇒ Legal and other Requirements
- ⇒ Contractor's Health and Safety Organizational Chart
- ⇒ Roles and Responsibilities
- ⇒ Information and Training
- ⇒ Communication
- ⇒ Monitoring, inspections, audits, and non-conformances
- ⇒ Accident and Incident Investigation and Reporting
- ⇒ Description of Contractor management process and Management of change process
- ⇒ Arrangements for Controlling Significant Risks associated with the Work including but not limited to:
 - ⇒ Working at Heights;
 - ⇒ Lifting Operations;
 - ⇒ Ground disturbance and excavations;
 - ⇒ Working with and around live electrical conductors
 - ⇒ Security management – including interaction with local communities
 - ⇒ Workers Accommodation
 - ⇒ Emergency Arrangements and Emergency Response
 - ⇒ First Aid

In the following most relevant aspects are described in more detail for inclusion in the Contractor's Health and Safety Plan.

Personal Protective Equipment

The Contractor shall provide, at no cost to its workers, Personal Protective Equipment (PPE) to control residual risks. The PPE shall be suitable for the relevant hazards workers are exposed to and replaced at no cost to the worker, when it becomes damaged or worn. As a minimum, PPE shall be protective toe cap safety footwear, head protection and an item of high visibility clothing.

Workers Welfare Accommodation

The Contractor shall provide a suitable seating area for workers to use during breaks. This area shall be clean, located where food will not become contaminated and provide reasonable thermal comfort during high and low temperatures. The Contractor shall also provide adequate access to toilets and wash basins for their workers.

Contractor's Personnel

The Contractor shall ensure that all personnel employed to carry out work are competent and fit to carry out the work they are employed to do. All Contractor personnel shall receive a site safety, environmental and social induction before they start work which should identify the hazards, the risk to their health and safety and the control measures that shall be implemented; potential environmental and social impacts and mitigations. Any worker who fails to cooperate with the Contractor or fails to take reasonably care of themselves or others and placing them at risk of injury or ill health, shall be removed from the Site.

First Aid

Prior to the start of work the Contractor shall carry out a first aid needs assessment to determine the provisions necessary to preserve life and provide immediate first aid to a casualty. The assessment shall consider the degree of hazards, potential risks and the number of employees at the Site. In addition consideration shall be made to risks created in the course of work in particular hot works causing burns and hazardous liquids splashing into the face. The Contractor shall ensure competent first aid trained personnel are available in convenient locations on site to ensure prompt response to administer immediate first aid.

Working at Heights

The Contractor shall introduce a procedure that requires all working at heights to be avoided where possible. Where working at heights cannot be avoided, the Contractor shall assess all working at heights to satisfy themselves that suitable fall prevention measures are in place before any work activity commences. Where the risk of a fall may still exist, the Contractor shall introduce measures to mitigate a fall, in the event of one occurring. The Contractor shall undertake periodical monitoring of the working platforms and fall prevention measures to ensure they remain adequate and in a good working order.

Ground Disturbance and Excavations

The Contractor shall ensure all ground disturbance and excavation activities are to be carried out under a safe system of work which includes a comprehensive assessment of the risks by a competent person, regardless of depth, to ensure it is safe and adequately supported. Entry into any excavation by any person is to be avoided where possible. Where entry cannot be avoided, robust engineering methods shall be used to support excavations to prevent any worker being trapped or suffering injury or ill health. At no point shall any worker enter an unsupported excavation.

Live Electrical Services

The Contractor is to familiarise themselves with all electrical services within the designated Site, this shall include all above and below ground services. All live conductors are to be securely covered and be inaccessible to unauthorised personnel. Where there is a risk of contact, either by a worker or any operated equipment, the Contractor shall arrange for the service to be temporary isolated or rerouted prior to the start of work. At any time no worker or third party shall be exposed to any live conductors unless they are authorised and competent to work on or around these services.

Movement of Vehicles and Mobile Work Equipment

The Contractor shall minimise the movement of traffic and mobile work equipment and continually assess the on and off site effects. Where possible, one way systems shall be introduced to avoid vehicles coming into contact with each other. Reversing of vehicles and mobile work equipment shall be avoided on site, where this is not possible an effective system must be in place to control reversing so there is no risk of injury or damage to property. All moving vehicles and mobile work equipment on the Site shall have a fitted flashing amber warning beacon which must be in use while in operation. The Contractor shall ensure any vehicles or mobile work equipment entering the Site shall be checked and confirmed suitable for site conditions with specialist consideration to lights, brakes, steering, mirrors and restraints/seatbelts. Fitted restraints/seatbelts shall be worn at all time when the vehicles or mobile plant is in operation.

Confined Space Working

The Contractor shall identify all areas which are, or could become a confined space, and prevent entry into these areas. If no method of working is possible without entry, the Contractor shall carry out a risk assessment and introduce a system of work to eliminate or control hazards and foreseeable risks and prevent a risk of injury or ill health to workers. At all times the Contractor shall ensure that the worker entering the confined space is provided with, as a minimum, uncontaminated breathable air, a method to detect unhealthy and flammable atmospheres, clear access to and egress from the confined space and emergency arrangements to remove the worker if self-rescue is not possible.

6.14 Chance Find Procedure

Chance Find Procedure is described in the EMP of the IEE.

6.15 Post-Construction Plan

After construction completion and before handing over the site the contractor will execute all works necessary to restore the sites to their original state (removal and proper disposal of all materials, wastes, installations, surface modeling if necessary, spreading and leveling of stored topsoil). After completion of construction and rehabilitation works, and after the use of borrow pits, the landscape will be restored to a standard that is of equal quality to its original condition. Rehabilitation measures may not be necessary for borrow areas still in operation after road works have finished.

Annex 1 - Labour and Working Conditions Management Plan

Ministry of Transport of Tajikistan
Project Implementation Unit for the Roads Rehabilitation

TAJ: Road Network Sustainability Project Dangara-Guliston Road Labour and Working Conditions Management Plan

July 2024

Abbreviations

CSC	Construction Supervision Consultant
EBRD	European Bank for Reconstruction and Development
ESP	Environmental and Social Policy
CRC	Grievance Redress Committee
GIP	Good International Practices
GRM	Grievance Redress Mechanism
ILO	International Labour Organization
PIURR	Project Implementation Unit for Roads Rehabilitation
PR	Performance Requirement

1. Introduction

1.1 Overview

This Plan describes the requirements for the Contractor and all sub-contractors in regard to labour and working conditions applicable during the implementation of the Dangara- Guliston road rehabilitation project (the Project). It aims to ensure the management and control of activities that may pose labour-related risks. This Plan sets out potential impacts and consequences and describes how they will be mitigated. Employer (PIURR) will require contractors, or other intermediaries procuring labour, to apply comparable standards.

EBRD ESP (PR 2) requires a proper management of the human resources involved into the EBRD funded project, considering the workforce is a valuable asset. It includes the protection of workers' rights, compliance with national labour and employment laws and any collective agreements to which the Employer is a party.

EBRD ESP PR2 requires that the Contractor provides equal working conditions to all workers engaged in project works regardless if they are hired by Contractor, sub-contractors, or intermediaries.

Based on the provisions of this Plan the awarded Contractor is obliged to prepare the project specific Labour Management Plan and secure approval of SCS, Client, and Financiers, before the commencement of the Construction works.

1.2 Objectives

In accordance with PR 2 the Contractor in implementation of the EBRD projects is obliged to:

- respect and protect the fundamental principles and rights of workers;
- ensure fair treatment, non-discrimination, and equal opportunities of workers in accordance with the decent work agenda;
- establish, maintain and improve a sound worker management relationship;
- ensure compliance with national labour and employment laws and any collective agreements to which the client is a party;
- protect women and men at work, including vulnerable workers such as young workers, persons with
- disabilities, migrant workers and refugees, workers engaged by third parties, and workers in the client's supply chain;
- prevent the use of forced labour and child labour (as defined by the International Labour Organisation (ILO)); and
- ensure that accessible and effective means to raise and address workplace concerns are available to workers.

1.3 Scope

This Plan describes the requirements and expectations in terms of compliance, reporting, roles, supervision and training with respect to labour and working conditions. The management of worker's accommodation is covered in the separate document "Accommodation Management Plan". It covers all activities of the project implementation. This Plan is expected to be adopted and applicable to contractors, responsible for the project implementation. The preparation of the Plan is based on the recommendations provided in Toolkit for EBRD clients issued to facilitate ensuring with the EBRD PR-2.

2. Legal Requirements and Standards

Various laws, policies, systems, standards, and international good practice codes apply to implementing this Plan. The following sections outline such requirements.

2.1 Labour legislation of Tajikistan

Labor Code of the Republic of Tajikistan- No 1329 enacted on 23 July 2016, last amended in 2022: The Code regulates labor and other relations and is directly aimed at the protection of the rights and freedoms of the parties in labor relations, securing minimal guarantees of labor rights and freedoms. The Labor Code prohibits forced labor, discrimination in employment and sets the minimum age at which a child can be employed as well as the conditions under which children can work.

The Code also establishes rules for minimum wages, leave, overtime, and has provisions for pregnant women and caretakers for children. There must be a “labor protection service” if there are more than 50 employees.

In accordance with the Code the foreign citizenships living in Tajikistan need to have a resident card to apply for a work in the country.

Law of the Republic of Tajikistan ‘On the Legal Status of Foreign Nationals and Stateless Persons in the Republic of Tajikistan’ (Law of the Republic of Tajikistan No. 1525 of 17.05.2018), clause 7 (<https://migration.tj/55555-2/>):

The labour activity of foreign citizens and stateless persons shall be regulated in accordance with the legislation of the Republic of Tajikistan. Foreign citizens and stateless persons who have arrived in the Republic of Tajikistan for temporary residence may engage in certain labour activities, provided that this corresponds to the purposes of their entry into the Republic of Tajikistan.

Foreign citizens and stateless persons have equal rights and obligations with citizens of the Republic of Tajikistan in labour relations. Foreign citizens and stateless persons may work in the Republic of Tajikistan on the basis of a permit issued by authorised state bodies. The rules for issuing work permits to foreign citizens and stateless persons working in the Republic of Tajikistan and the sample of the permit document shall be approved by the Government of the Republic of Tajikistan.

Labor activity of foreign citizens in the Republic of Tajikistan is carried out on the basis of permits issued by the authorized state body for migration of the Ministry of Internal Affairs of the Republic of Tajikistan. (Law of the Republic of Tajikistan dated 26.03.09, No. 500).

The Law of the Republic of Tajikistan No. 1968 of 22 June 2023 «**On the authorisation system**» (https://online.zakon.kz/Document/?doc_id=38940970) describes all the steps for obtaining permission for work.

Foreign citizens traveling to Tajikistan for work must obtain a work visa (M). To obtain a work visa, a petition from the inviting organization or a citizen of the Republic of Tajikistan for a visa is required, indicating the purpose of entry and duration of stay in Tajikistan, a copy of the employment or civil law contract (agreement) for the performance of work (provision of services). When an individual applies for a work visa, a foreign citizen additionally requires notification from the internal affairs agencies at the place of performance of work (provision of services).

In brief, the worker must be registered with several legal organisations such as the Ministry of Foreign Affairs, the Ministry of Interior Affairs, and finally obtain a work permit from the IMMIGRATION SERVICE of the Ministry of Labour, Immigration and Employment.

Law of the Republic of Tajikistan "On Trade Unions"; Adopted on August 2, 2011: This law regulates the legal basis for trade unions, including their rights and guarantees, as well as the relationships between trade unions, state authorities, employers, public associations, individuals, and legal entities.

Law of the Republic of Tajikistan "On Employment Promotion" Adopted on August 1, 2003 Amended 17.05. 2018 (No 1526. Regulates employment relations and establishes the legal, socio-economic and organizational foundations of state policy in relation to employment of the population. Guarantees the implementation of the constitutional rights of citizens of the Republic of Tajikistan to work and social protection from unemployment in a market economy.

Law of the Republic of Tajikistan "On Equality and Elimination of All Forms of Discrimination" Adopted on September 13, 2022. The Law aims to promote equality and eliminate all forms of discrimination in the country. The law applies to all individuals, organizations, and government bodies, and covers a wide range of areas including employment, education, and access to services. The law requires government bodies and employers to take affirmative action to promote equality and eliminate discrimination in their policies and practices.

Law of the Republic of Tajikistan "On State Social Insurance" Adopted on December 13, 1997 as amended No. 244 of 5 March 2007; The law establishes a mandatory state social insurance system, which requires employers to contribute a percentage of their employees' wages to the social insurance fund. The social insurance fund is used to provide benefits to workers and their families in case of certain events, such as illness, disability, or death.

The law sets out the following types of benefits:

Sickness benefits: This includes payments to workers who are unable to work due to illness or injury.

Disability benefits: This includes payments to workers who are permanently unable to work due to disability.

Surviving dependents' benefits: This includes payments to the surviving dependents of workers who die as a result of a work-related injury or illness.

Maternity benefits: This includes payments to women who are unable to work due to pregnancy and childbirth.

Law of the Republic of Tajikistan "On insurance and state pensions". Adopted on January 12, 2010: The law establishes a mandatory state pension system, which requires all citizens to make contributions to the state pension and insurance fund. The state pension fund is used to provide benefits to citizens in case of certain events, such as retirement or death.

The Law on Occupational Safety in the Republic of Tajikistan; Adopted by the Governmental Resolution on April 30, 2009 as amended in August 2012: Establishes the legal basis of regulation of relations between employers and employees in the sphere of occupational safety. Cancels the previous Law on Occupational Safety of 1991.

The Law outlines the measures and procedures to ensure the safety and health of workers in the workplace. It covers aspects such as workplace design, equipment and machinery safety, risk assessment, employee training and education, emergency preparedness and response, and reporting and investigating accidents. The law aims to prevent occupational injuries, illnesses, and fatalities by promoting safe and healthy working conditions in the country. The Law also covers the construction activities in Tajikistan.

Other Tajikistan legislation that could apply to occupational health and safety during project-related activities is listed below:

Decree of the Government of the Republic of Tajikistan on the procedure for conducting a medical and social examination in Tajikistan dated April 26, 2022 No. 177. The purpose of the examination is to determine the ability to work, temporary and long-term disability, the group of disability and its causes, the duration of disability, and to determine the need for re-examination. The medical and social examination is conducted taking into account the overall assessment of

the person's health, based on the analysis of clinical, functional, household, social, professional, labor and mental indicators of the person being examined. The results of the examination are used to determine the need for medical treatment, rehabilitation, or disability status.

- Decree of the Government of the Republic of Tajikistan **on part-time work and hourly wages of employees of enterprises of the Republic of Tajikistan**. It regulates the conditions of part-time work and hourly wages for employees of enterprises in the country. This legal act sets the guidelines for determining the terms and conditions of part-time employment, as well as the hourly wages for employees who work part-time. It outlines the rights and responsibilities of both the employer and employee in this type of work arrangement.
- Decree of the Government of the Republic of Tajikistan on the conditions for the payment of benefits **for temporary disability, pregnancy and childbirth and family benefits**. This legal act sets the guidelines and requirements for the payment of these benefits to eligible individuals in the country.
- Decree of the Presidium of the Council of the Trade Union Federation of the Republic of Tajikistan and Gosgortekhnadzor of Tajikistan dated February 9, 1993, No. 2412 establishes **regulations for investigating and registering workplace accidents in the country**. It outlines the reporting, investigation, and documentation procedures, as well as the responsibilities of employers, employees, and government agencies in maintaining occupational safety.
- Decree of the Council of Ministers of Tajikistan on compensation by enterprises and government organizations of damage caused to employees by occupational accidents or diseases or any other work-related impairment of health of March 20, 1994, No. 134 (with amendments and additions of April 17, 1998, NO.118, and March 11, 2000, NO.103)
- Decree of the Government of the Republic of Tajikistan on the list of hazardous production facilities, workshops and trades where the workers are entitled to a short working day and extra annual leave of December 31, 2002. NO.521.
- Law of the Republic of Tajikistan **on Road Traffic** dated May 17, 2018 No. 1533 regulates the use of roads, traffic safety, and the rights and responsibilities of road users in Tajikistan. It covers the rules for operating vehicles, road signs and signals, and the procedures for granting and revoking driver's licenses. The law also establishes the responsibilities of government agencies and local authorities for maintaining and improving the road network, and for ensuring the safety of road users.

The Law of the Republic of Tajikistan on Fire Safety dated July 21, 1994, NO.995 outlines the measures and regulations aimed at preventing and mitigating fires, as well as protecting people, property, and the environment from the harmful effects of fires. The law sets out the responsibilities of government agencies, local authorities, and citizens in ensuring fire safety, and establishes the procedures for fire prevention, fire-fighting, and fire evacuation. It also defines the requirements for fire safety in buildings, industrial enterprises, and other facilities, and the procedures for conducting fire safety inspections and investigations.

The procedure for conducting a technical investigation of accidents, incidents, and cases of loss of civil explosives was established on April 7, 2014 by the Service for State Supervision of Safe Operations in Industry and Mining Supervision under the government of the Republic of Tajikistan. The procedure is outlined in document No. 10.

Tajikistan has ratified a number of core labor standards of the International Labor Organization (ILO):

- ILO Convention No. 87 on Freedom of Association and Protection of the Right to Organize
- ILO Convention No. 98 on the Right to Organize and Collective Bargaining

- ILO Convention No. 29 on Forced Labor
- ILO Convention No. 111 on Discrimination in Employment and Occupation
- ILO Convention No. 100 on Equal Remuneration
- ILO Convention No. 138 on Minimum Age for Admission to Employment
- ILO Convention No. 182 on the Worst Forms of Child Labor
- ILO Convention No. 155 on Occupational Safety and Health.

2.2 EBRD requirements to the Labour Management

The Performance Requirement 2 (PR-2) of the EBRD Environmental and Social Policy sets the minimum considerations which the Employer and the Contractor must take into account when procuring works. The principles are as follows:

Human Resources Policy

The contractor will adopt and/or maintain written human resources policies and management systems or procedures appropriate to its size and workforce setting out its approach to managing the workforce in accordance with the requirements of this PR and national law. These policies and procedures will be understandable, accessible, and communicated to workers, and in the main language(s) spoken by the workforce.

Working Relationships

The Contractor will provide workers with written contracts at the beginning of the working relationship and when any material changes to terms or conditions of employment occur, describing the employment relationship with the client. The contract will set out their rights under national labour and employment law and any applicable collective agreements with respect to working conditions and terms of employment (including their entitlement to wages, hours of work and rest periods, overtime arrangements and overtime compensation), and any benefits (such as leave for illness, maternity/paternity, or holiday). Any material changes will be documented and communicated to the workers. This information will be understandable and accessible to workers, and available in the main language(s) spoken by the workforce. Human resources management systems will ensure up-to-date employment records are kept that respect the rights of workers to privacy and data protection.

Child Labor

The contractor will comply with all relevant national laws or international labour standards regarding employment of minors, whichever provide a higher degree of protection for the child. Young people below the age of 18 years will be identified by the contractor and will not be employed in hazardous work. All work of persons under the age of 18 shall be subject to an appropriate risk assessment prior to the work commencing and regular monitoring of health, working conditions, and hours of work.

The contractor will not employ forced labour, which consists of work or service not voluntarily performed that is exacted from an individual under threat of force or penalty, including through abusive and fraudulent recruitment practices. This includes involuntary or compulsory labour, such as indentured labour, involuntary prison labour, bonded labour or similar labour-contracting arrangements, or trafficking in persons.

Non –discrimination and Equal opportunities

Projects should comply with relevant requirements on nondiscrimination related to employment. In particular, with reference to the project, the contractor will:

Contractor will be committed to ensuring that all of its employment relationships are based on the principle of non-discrimination and equal opportunity:

- make employment decisions fairly and objectively and not on the basis of personal characteristics, including gender, age, race, nationality, language, social origin, property or official status, attitude to religion, convictions, membership of public associations or

other circumstances not related to employees' qualifications and the results of their work.

- Put in place measures to ensure that we do not discriminate in any aspect of the employment relationship, including recruitment and hiring, job assignment, compensation (including wages and benefits), working conditions and terms of employment, including reasonable adaptation of the workplace related to disabilities, access to training, promotion, termination of employment or retirement, and discipline.
- Provide equal pay to men and women for work of equal value.
- Provide equal pay and benefits for local and migrant workers performing the same job.
- Put in place measures to prevent and address any form of violence and harassment, bullying, intimidation and/or exploitation including any form of gender based violence (GBV).

The following measures will not be considered discrimination: special measures of protection or assistance to remedy past discriminatory actions; promote local employment opportunities; or selection for a particular job based on the inherent requirements of the job, which are in accordance with national law.

Gender-based violence and harassment (GBVH)

- The contractor will not accept or tolerate any form of GBVH and are committed to GBVH prevention and response. The contractor shall understand GBVH to refer to any harmful acts perpetrated against a person's will that are based on socially ascribed gender differences. This includes acts that inflict physical, mental or sexual harm or suffering, threats of such acts, as well as coercion and other deprivation of liberty.
- To prevent and respond to GBVH, we expect all workers to report GBVH, to treat all people with respect, to participate in GBVH training, to read company policies on GBVH and to respect confidentiality.
- We have put in place measures to prevent and address any form of violence or harassment, including any form of GBVH, as well as training for all staff and contractors and an effective and confidential grievance mechanism for reporting complaints of GBVH.

Worker's Organizations:

The contractor will inform workers that they have the right to elect workers' representatives, form or join workers' organisations of their choosing and engage in collective bargaining, in accordance with national law. The contractor will not discriminate or retaliate against workers who act as representatives, participate, or seek to participate, in such organisations or in collective bargaining, and will not interfere in the formation or functioning of workers' organisations. The contractor will engage with such workers' representatives or organisations in accordance with national law and provide them with information needed for meaningful negotiation in a timely manner.

Wages, Benefits and Conditions of Work

Wages, benefits and conditions of work offered (including hours of work) will, overall, be at least comparable to those offered by equivalent employers in the country/ region and sector. Overtime work will be voluntary and will be performed and compensated in accordance with national laws. Where the contractor is a party to a collective bargaining agreement or is otherwise bound by it, such agreement will be respected. Where such agreements do not exist, or do not address working conditions and terms of employment, the contractor will provide reasonable working conditions and terms of employment that are consistent with national law.

The client will identify migrant workers and ensure that they are engaged on substantially equivalent terms and conditions to non- migrant workers carrying out the same work.

Collective Dismissal

Prior to implementing any collective dismissals in connection with the project, the contractor will carry out an analysis of alternatives to the planned workforce reduction. If the analysis does not identify viable alternatives, the client will develop and implement a collective dismissals plan to assess, reduce and mitigate the adverse impacts of the workforce reduction on workers, in accordance with national law and GIP and based on the principles of nondiscrimination and consultation. The selection process will be transparent, based on fair, objective, consistently applied criteria, and subject to an effective grievance mechanism.

The contractor will comply with all legal and collectively-agreed requirements relating to collective dismissal, including notification of public authorities, and provision of information to, and consultation with, workers and their organisations. The final collective dismissals plan will reflect the outcomes of consultations with workers and their organisations. All outstanding back pay and social security benefits and pension contributions and benefits will be paid: (i) to the workers on or before termination of the working relationship; (ii) where appropriate, for the benefit of the workers; or (iii) in accordance with a timeline agreed through a collective agreement. Where payments are made for the benefit of workers, workers will be provided with evidence of such payments.

Grievance Mechanism for Workers

EBRD ESP requires the creation of a separate grievance redress mechanism (GRM) specifically for addressing complaints related to workers employed by construction contractors (PR2.21). Such grievances may include salary size and unpaid overtime, delays with payments, improper living accommodations, lack of clean drinking water and sanitation facilities, and absence of medical care and other issues.

Grievance Redress Committee (GRC) will be established to deal with labor grievances, including members who are directly and indirectly associated with the construction work. The GRC will include the Engineer from the PIURR who is in charge at the worksite, resident engineer of the CSC, a worker's representative, and the contractor's representative. The GRC will designate an official to receive the complaints and ensure the complainant does not lose his job and is not forced to withdraw the complaint before the formal hearing.

To ensure impartiality and transparency, hearings on complaints will be held in a non-threatening environment and will remain open to all other workers on the site. The GRC will record the (i) details of the complaints; (ii) reasons that led to acceptance or rejection of the individual cases, as well as the number of accepted and rejected cases; and (iii) decisions agreed with the complainants. The PIURR will keep records of all resolved and unresolved complaints and summarize in the Quarterly Project Progress Reports and Semi-annual Environmental and Social Monitoring Report to be submitted to EBRD. The records shall be made available for review as and when asked for by EBRD and other interested entities/persons

The Employer will provide an effective grievance mechanism for workers (and their organisations, where they exist) to raise workplace concerns. The contractor will inform the workers of the grievance mechanism at the time of hiring and make it easily accessible to them. The mechanism will involve an appropriate level of management and address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned, without any retribution. The mechanism will include provisions for confidential complaints, and those requiring special protection measures such as reports of gender-based violence. The mechanism will not prevent access to other judicial or administrative remedies that might be available under law or through existing arbitration or mediation procedures, nor will it substitute for grievance mechanisms provided through workers' organisations or collective agreements.

Non-Employee Workers

EBRD PR2.22 - 23 specifies the following requirements applied to the management of labour risks in contractor and subcontractor workforces:

For non-employee workers to be engaged through contractors or other intermediaries, the client will use reasonable efforts prior to contracting to: (i) assess the past performance of these contractors or intermediaries with regard to employment and occupational health and safety, to

establish their current capacity to implement the requirements of this PR and PR 4; and (ii) require that they apply the requirements stated in paragraphs 7-19 and 21 of this PR and paragraphs 11-15 of PR 4. 23. The client will identify risks associated with the recruitment, engagement, and demobilisation of project workers by third parties and establish commensurate policies and procedures for managing and monitoring the performance of third party employers in relation to the project and requirements of this PR. In addition, the client will use reasonable efforts to incorporate these requirements in contractual agreements with such third party employers and where relevant, will develop and implement a contractor management plan. In the case of subcontracting, the client will use reasonable efforts to cause third parties to include equivalent requirements in their contractual agreements with their subcontractors.

The contractor will ensure that non-employee workers have access to an effective grievance mechanism that meets the requirements of this PR. In cases where the third party is not able to provide a grievance mechanism, the client will provide an effective grievance mechanism to serve workers engaged by the third party.

Vulnerable workers

Young workers, persons with disabilities, migrant workers and refugees, workers engaged by third parties, and workers in the client's supply chain will be considered as vulnerable works. Where a contractor uses agencies to recruit vulnerable workers, the contractor ensures that these agencies are reputable and legitimate. Complete transparency on all fees paid to the agencies to be required by the contractor and subject to auditing by PIURR.

The contractor should aim to contract directly with their workers and not use third party agencies. This means that workers will be paid by the contractor directly and not through an agency. However, where this is not possible, the contractor is to inform PIURR in writing of the deviation and the reasons for this and provide evidence that agencies have been audited.

The contractor ensures that all workers have written contracts of employment signed by both parties that cover all the terms and conditions of employment. Each party to the contract shall have an original copy. Contracts will be drafted in the relevant language and the contractor will ensure that the worker understands the terms and conditions of employment.

The contractor is to provide Contracts of Employment with terms and conditions, as a minimum, complying with legislation of the Republic of Tajikistan. The terms and conditions should be equal to, or better than, similar work in similar industries in the region.

Workplace conditions of employment and tools for vulnerable workers doing similar work will not be substantially different. Where these cannot be avoided, they must be documented and the contractor will communicate these instances to PIURR with a plan to mitigate potential conflict that may arise.

Status of the vulnerable workers will be included in the regular reporting and audit will be conducted to inspect activities of all intermediary agents.

3. Roles and Responsibilities in the Labour Management

The key parties involved in the project implementation are: (i) Employer - Project Implementation Unit for the Roads Rehabilitation (PIURR) of the Ministry of Transport of Tajikistan (MoT); Construction Supervision Consultant - the engineering company hired by the PIURR through an international bidding process to provide supervision services in the project implementation and assistance to PIURR; and (iii) Contractor - the construction company hired for direct project implementation. The roles and responsibilities of the parties in labor management issues are presented below:

3.1 The Employer (PIURR of MoT)

The PIURR will be responsible for ensuring the compliance with and implementation of all national and international labour health, safety and social policies, guidelines and performance requirements of both the Republic of Tajikistan and EBRD involved in the Project alignment.

The PIURR will be responsible for the overall implementation of the mitigation measures and requirements specified within this Labour Management plan. The PIURR are responsible for ensuring roles and responsibilities are clearly identified and allocated for Labour Management in Compliance with relevant legislation of Tajikistan and Labour Requirements of EBRD/

The PIURR will be responsible for the implementation and conformance of the grievance redress mechanism (GRM) to ensure that all grievances and/or objections (if any raised by the local community and/or workers) are received, acknowledged and addressed as per the established grievance procedure.

3.2 The supervision consultant

The supervision consultant (SC) will be responsible for ensuring that relevant project facilities and activities follow the labour requirements of the EBRD. The SC will ensure that they have defined expertise within their team to ensure that project labour standards are adequately implemented and monitored.

The main responsibilities of the SC as regards labour rights are to:

- Ensure the inclusion of the labour management plan of a contractor management plan (CMP) in the bidding documents as needed and assess the bid proposals on labour and health and safety safeguards during contract bids
- Provide support to contractor in carrying out a labour risk assessment and developing a labour management plan or labour management plan of a CMP.
- Ensure that all national legislation on labour and health and safety, EBRD Performance Requirement 2 (PR2) and any other relevant standards identified by the EBRD or PIURR are complied with in respect of any direct or indirect employees
- Ensure that subcontractors are required to comply with all national legislation on labour and health and safety, EBRD PR2 and any other relevant standards identified by the EBRD or PIURR, such as through the inclusion of relevant PR2 provisions in agreements signed between contractors and subcontractors
- Ensure the effective development and implementation of systems to monitor compliance with the labour management plan/relevant labour and health and safety standards and initiate corrective action where necessary
- Update the labour management plan of the CMP as required and prepare [quarterly/semi-annual] labour monitoring reports in accordance with PIURR and the EBRD PR2 requirements.
- Conduct labour audits of the entire workforce on the project site as well as capacity building of the Contractor to manage labour risks during construction works

3.3 Contractor

Contractor is responsible for implementing – and reporting on – the labour standards outlined in their contract with the client. Contractor should ensure that these labour standards are met for workers on site. To do this, contractors must:

- Establish systems to monitor their own employment practices and the practices of any appointed subcontractors.
- Monitor the OHS and labour compliance with OHS and PR 2 indicators integrated into a single reporting framework that could form the basis of regular reports.

The following job descriptions are examples of the type of roles that will apply during the production phase. As the needs of the Project change over time, some roles may be replaced by others that are more appropriate to the Project's needs at the time.

a) The Contractor's Project Compliance Manager

The requirements of this Plan will be implemented by the Compliance Manager who reports directly to the Project Manager of the Contractor. The Human Resources Manager, who also reports directly to the Project Manager, will own the Plan from an OIMS functional perspective. Site managers are responsible for contractor management in relation to this Plan on a day-to-day basis.

The Compliance Manager will be responsible for:

- Coordinating the activities described herein necessary for successful management
- Confirming that training programs meet the minimum requirements established in this Plan
- Ensuring the effectiveness of this Plan
- Providing active leadership in the inclusion of socioeconomic considerations in the environmental business planning process, including setting plan strategies and objectives
- Communicating improvement objectives and targets in accordance with the guidance provided in this Plan
- Approving specific socioeconomic objectives identified as part of environmental business planning
- Reviewing performance trends on a regular basis and stewarding performance against objectives and targets
- Monitoring and stewarding completion of budgeted socioeconomic opportunity initiatives
- Ensuring adequate resources are available to meet objectives of the Plan

b) Human Resource Manager

The Human Resource Manager will be responsible for managing and implementing employment policies, guidelines and procedures, including equal opportunity employment. Their role ensures compliance Tajikistan's labour laws and requirements for local recruitment and reporting. Other key responsibilities include the management of:

- Industrial relations
- Workplace grievance program
- Working hours expectations
- Remuneration and payroll
- Privacy management
- Contractor Human Resources management
- Workforce demobilization

The Human Resource Manager will support the Compliance Manager with:

- Periodic review of Project and key contractor compliance with this Plan
- Assessment of the Project and contractors' compliance with requirements of this Plan
- Reporting of non-conformances and improvement opportunities
- Periodic review of the effectiveness of this Plan and recommendations for improvements
- Expert advice and consultation to contractors with regard to labour and working conditions, supply chain management, industrial relations and other key enablers to ensure a stable work environment
- Periodic review of grievances regarding working conditions to trends, issues or other systemic issues that may require additional corrective measures

c) Operations Manager

The Operations Manager will support the Compliance Manager with:

- Management of the camps through the Camps Manager

4. Risks and Mitigation of Impacts

Mitigation measures are defined on the basis of labour regulations and together with other relevant industry good practice and risk assessments appropriate to the road construction activities.

The contractor(s) are required to implement and comply with the following mitigations as appropriate to their scope of work in order to avoid, minimize and control impacts and risks with regard to labour and working conditions.

Table below presents a summary of the potential risks and impacts related to labour and working conditions, together with mitigation measures to avoid, eliminate or reduce associated impacts. It also describes the monitoring required to assess the performance of these measures.

Environmental and Social Management Plan*Table 5. Risks and Impacts Mitigation*

Issue	Impact/Risks	Mitigation Measures	Monitoring	Responsibility
Recruitment and selection – how workers enter the organization.	Community tensions due to Perception of unfair recruitment and selection practices.	Human Resources policy and/or procedure that covers recruitment and selection processes including at least: <ul style="list-style-type: none"> • Selection criteria of each position • Method of recruitment • Places of recruitment Maximise work opportunities for local citizens and recruit in accordance with the geographic priorities determined by the production organisation Enhance local employees' skills base through training and development programs	Quarterly	Contractor
Conditions of employment – what people earn/benefits.	Perceptions that wages, salaries and benefits are poor or that foreigners are treated better and receive better conditions of employment that can lead to work stoppages, absenteeism, sit-ins, sabotage.	The contractor ensures that all workers have written contracts of employment signed by both parties that cover all the terms and conditions of employment. Each party to the contract shall have an original copy. Contracts will be drafted in the relevant language and the contractor will ensure that the worker understands the terms and conditions of employment. The contractor also insures: <ul style="list-style-type: none"> • Equal pay for equal work • Wage surveys will be conducted to assess local conditions and averages in the sector • Process for pay increases • Work bands and parallel pay scales • An effective employee complaints/grievance process. 	Quarterly	Contractor
Labour relations– cultural diversity.	Conflict arises between different cultures resulting in tension, which could lead to violence and work stoppages Foreign workers feel threatened and leave, resulting in skills gap	A code of conduct to cover: <ul style="list-style-type: none"> • Respect for different cultures • Acknowledgement of cultural differences in respect to diet, religious ceremonies and so forth • Non-discrimination and equal opportunity • Harassment, types and consequences 	Monthly	Contractor

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Issue	Impact/Risks	Mitigation Measures	Monitoring	Responsibility
		<ul style="list-style-type: none"> Community “do’s and don’ts” 		
Labour relations conflict handling.	<p>Workers feel aggrieved and don’t know how to vent their grievances</p> <ul style="list-style-type: none"> Workers are not sure of the labour rules and regulations, 	<p>. Human Resources policy and/or procedure that contains at least:</p> <ul style="list-style-type: none"> A worker grievance procedure A disciplinary procedure Workplace rules and regulations A demobilization procedure Industrial action handling protocols <p>Workers to be informed of these procedures during induction training.</p> <p>Supervisors to undergo training on all these procedures.</p> <p>Female grievance officers (‘confidants’) are made available to female members of the workforce.</p>	Monthly	Contractor
Project retrenchment effects	Increased unemployment in the surrounding communities. Family and community impacts generated through loss of work by community/ family members	<p>Comprehensive retrenchment procedure and strategy, which includes:</p> <ul style="list-style-type: none"> Timing and number of workers to be retrenched – a staggered approach A communications strategy to minimise misinformation and rumours Alignment with community development activities Complaints/grievance process to facilitate employee and contractor dispute resolution relating to retrenchment Personal viability training Engagement and consultation of relevant stakeholders, including families of retrenched workers Consistent application of retrenchment packages to minimise the risk of inequitable treatment 	Monthly	Contractor

5. Monitoring

Processes for monitoring, assessment and audit will be developed to:

- Document the implementation and effectiveness of management and mitigation measures
- Assess actual impacts against predicted impacts
- Demonstrate compliance with applicable legal and other requirements

Monitoring will be undertaken for both direct hires and contract workers. PIURR will undertake both desktop and field-based inspection programs to confirm that specified mitigation measures are being implemented effectively and achieving the intended outcomes (see Table1: Risks and impact mitigation).

5.1 Assessment

The contractor will undertake periodic assessments to determine the degree to which the commitments outlined in this Plan are being met. This will include camp inspections and monitoring of grievances. The assessments will be undertaken by suitably qualified personnel. Assessment findings will be prioritized and closed in a timely manner.

5.2 Audits

The PIURR may, at its discretion, audit any contractors or suppliers to determine their compliance with this Plan. The contractor may also, at its discretion, undertake audits of other third party facilities and providers, as relevant to the Environmental and Social Management Plan.

EBRD and PIURR may hire independent auditors or to conduct periodic monitoring reviews of the Project, largely based on the HSE controls set out in the Environmental and Social Management Plan. The audit will be also required for the inspection of all intermediary agents.

5.3 Performance Indicators

Performance indicators are used to measure and track performance against the effectiveness of mitigation and control measures described in this Plan. Indicators can be divided into two groups: leading indicators and lagging indicators. Leading indicators predict actions to be taken to prevent a risk from escalating - such as complaints from workers about, for example, the quality of camp food. An example of a lagging indicator would be a work stoppage over camp conditions. General performance indicators may also be relevant, such as training and awareness numbers. Performance indicators must be measurable against a specified target. The performance indicators outlined in Table below applies to this Plan:

Table 6. Performance Indicators for Labour and working conditions

Performance Indicator	Measurement	Target/benchmarks	Reporting frequency
Grievances received	Type and number	Closed or adequately responded to within 30 days	Monthly
Disciplinary cases	Type and number	Reduction in disciplinary breaches	Monthly
Lost hours due to strike or any other actions	Type and number	Downward trend	Monthly
Food or lodging complaints	Type and number	Reduction and/or downward trend	Monthly

Performance indicators should be carefully recorded and graphed where relevant for remedial action to reduce potential risks. They will form a key component of monthly reporting to Employer.

5.4 Non-conformance and corrective action

Non-conformances identified as part of assessment and audit activities described will be registered and tracked the same way as non-conformances under the Environmental and Social Management System.

6. Reporting requirements

The information on the Accommodation status will be included in the Monthly Progress Reports and HSE reports prepared by the Contractor and submitted to the Supervision Consultant (SC). SC provides this information to the Employer in the Monthly and Quarterly Progress Reports. SC will inspect all housing facilities on quarterly basis following the score based checklist included in this AMP (Annex 1). The Quarterly Reports will be submitted to EBRD.

The relevant sections will be included in the Semi-annual Environmental and Social Monitoring Reports prepared every six months by the CS for the PIURR and further submitting to the EBRD.

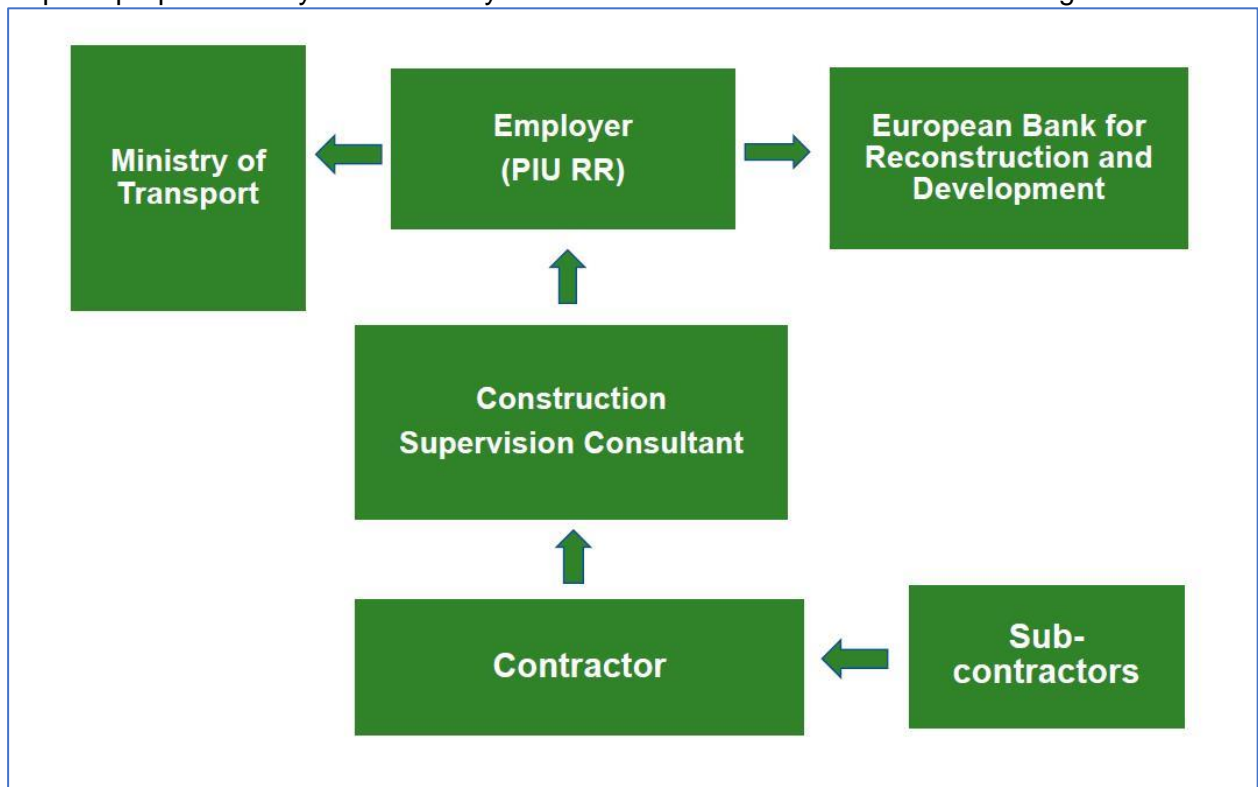


Figure 6. The Project Reporting Line in Project Management

The labour and working conditions aspects contained in this Plan will be covered in monthly progress reports prepared by the Contractor, including:

- Grievances lodged by type and number, illustrated with graphs. Open grievances by type and number
- Disciplinary action by type and number, including graphs
- Induction training numbers, queries and comments
- Issues raised by workers' committees and action taken
- Workforce numbers by local and foreign workers - actual against planned
- Actual demobilisation numbers against planned targets. Incidents around demobilisation
- Industrial relations incidents - stoppages go slows, threats, damage to property, violence
- Lost hours by category
- Absenteeism, sick leave and late arrivals

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The information will be presented in tabular form, with the usage of the following forms:

1) Contract and Project Details

Company Name:	
Company Address:	
Location:	
Company representatives responsible for human resources and occupational health and safety	
Names:	
Titles:	
Contact details:	
Telephone:	
Mobile	
E-mail:	

Project Information:

Information	Response
Location of the Project	
Expected peak construction phase	Please provide date and expected workforce

Sub-contractor's Information

Information	Response
Names of all subcontractors and labour intermediaries used on project	Please list all subcontractors and labour intermediaries being used on the project, their activities and the number of workers they employ
No. of staff responsible for subcontractor engagement	Please name and provide job titles and responsibilities
Labour and OHS policies covering subcontracted workers	Please attach an evidence
Copy of contractual clauses used in contracts with subcontractors related to labour and health and safety	

2) Workforce Information

Worker Information	Male	Female	Total
No of permanent employees			
No. of temporary employees			
No. of subcontractor workers			
No. of workers provided by private agencies/labour brokers in reporting period			
No. of day/casual workers employed in reporting period			
No. of workers from local communities			
No. of foreign national workers			
No. of skilled workers			
No. of unskilled workers			
No. of workers from other regions within the country			
No. of workers below the age of 18			

Human Resource Management:

Reporting Indicator	Response
No. of HR personnel employed	Please name and provide job title

Environmental and Social Management Plan

Human resources policy/policies	Please attach as evidence
List of labour management plans and procedures in place	Please attach as evidence
Hours worked per worker/week	

Grievance Related Indicators:

Reporting Indicator	Response
No. of grievances raised by workers in reporting period	
Summary of types of grievance raised by workers and how they have been resolved	Please provide details of these complaints and how they have been resolved
No. of complaints related to gender-based violence and harassment	Please provide details of the complaints and how the complaints have been resolved. (DO NOT share information about the victim)
No. of reported instances of delayed or unpaid wages	Please provide details of these complaints and how they have been resolved
No. of reported instances of excessive hours/overtime	Please provide details of these complaints and how they have been resolved
No. of reported instances of unpaid overtime premiums	Please provide details of these complaints and how they have been resolved
No. of reported instances of poor quality housing and sanitary facilities/amenities	Please provide details of these complaints and how they have been resolved
Percentage of grievances resolved	
Percentage of grievances resolved to the satisfaction of the worker	

OHS Management

Reporting Indicator	Response
List of hazardous jobs on the site	Please list and describe hazards for each
Please list and describe hazards for each hazardous job	Please list
Procedures in place on chemical storage and handling	Please attach as evidence
Procedures in place to ensure safe personal protective equipment (PPE)	Please attach as evidence
Procedures in place for risk assessment	Please attach as evidence
No. of fatal accidents	
No. of first aid cases	
No. of qualified health and safety managers	
No. of sick days	
No. of OHS inductions/training sessions	
No. of “toolbox talks” (regular, short presentations to the workforce on a single aspect of health and safety)	Please list topics
No. of OHS Inspections	

7. Training and awareness

Before the development of a training and awareness program, a needs analysis will be conducted. The needs analysis will be based on requirements of this Plan. It involves a basic assessment of the knowledge and skills of the people involved in training implementation. Regardless of the

Environmental and Social Management Plan

outcome of the needs analysis, the training and awareness program will cover, at a minimum, the areas outlined in Table

Table 7. Tentative schedule of the trainings

Subject	Provided by	Timing	Frequency
Mitigation measures including all procedures	Supervisors and senior camp management Personnel who will be involved in training, reporting or monitoring	Prior to commencement of work	Once prior to commencement of work
Workplace induction including: • Payslips • Disciplinary and grievance procedures • Cultural awareness • Code of conduct	All workers	Prior to commencement of work	Annually
Camp induction including: • Rules and regulations • Code of conduct • Camp committee system • Camp food complaints system • Interaction with communities • Health, safety and security	All camp residents	Prior to commencement of work	Annually
Monitoring	Personnel who will be conducting monitoring events	Before monitoring commences	Annually
Reporting and performance indicators	Personnel who will be compiling reports relating to labour and working conditions	Before reporting commences	Annually
Human rights awareness	Senior Management, Supervisors, security personnel (staff and contracted)	Prior to commencement of work	As required by changes in training materials or awareness topics

8. References

1. EBRD Environmental and Social Policy. April 2019.
2. Toolkit for EBRD clients EBRD Performance Requirement 2: Labour and working conditions. December 2023.

Annex 2 - Worker Accommodation Plan for Construction Phase

Ministry of Transport of Tajikistan
Project Implementation unit for the Roads Rehabilitation

Worker Accommodation Plan for Construction Phase

July 2024

Abbreviations

CSC	Construction Supervision Consultant
EBRD	European Bank for Reconstruction and Development
ESMP	Environmental and Social Management Plan
IFC	International Financial Corporation
GBV	Gender Based Violence
GIP	Good International Practices
PIURR	Project Implementation Unit for the Roads Rehabilitation
PR	Performance Requirement
RoW	Right of Way

1. Introduction

1.1 Purpose of this document

This plan details the specifications for worker accommodation when employed on Dangara – Guliston road construction project. It includes specifications for the design and management of worker accommodation to which contractors (and any subcontractors) need to comply when housing their workforce.

The purpose is to offer the Construction Contractor of the project the general and specific guidance for ensuring that the contractor will be able to protect the workers' rights, health, safety and security during the project implementation period.

This plan is based on the guidance note by the worker's accommodation issued by IFC and EBRD⁵ as required under EBRD ESP PR2 and forms part of the Project ESMP and Bidding documentation.

The plan specifies the roles and responsibilities of PIURR as the Project Employer and contractors and includes guidelines on monitoring the plan.

The project workers who are not residing nearby to go home after ending of working day are planned to be accommodated in the temporarily Construction Camp during project implementation period.

The camp location and layout will be identified by the contractor and local government subject to the CSC and PIURR approval. However, the selection should consider (i) the availability of sufficient area for workers' accommodations, parking areas for machinery, and stores and workshops, (ii) access to communication and local markets, and (iii) an appropriate distance from the residential areas and other sensitive locations.

In accordance with EBRD, where a client provides accommodation for project workers, the client will put in place and implement policies governing the quality and management of the accommodation and provision of services. The accommodation services will be provided in accordance with Good International Practices (GIP) and in a manner consistent with the principles of non-discrimination and equal opportunity, including safeguards against sexual harassment and other forms of GBV. Workers' freedom of movement to and from the employer-provided accommodation shall not be unreasonably restricted.

Any subcontractor engaged by a contractor should also be required to follow the standards and procedures set out in this plan, Contractors should also clearly communicate and explain these requirements to subcontractors. The contractor is required to do this in Russian and/Tajik languages in a manner that is understood by all.

1.2 Scope of the Plan

This plan applies to accommodation provided by employers to their workers that are working on Dangara-Gulistan Road Construction Project. This includes accommodation provided to PIURR employees and the employees of appointed contractors and subcontractors. This applies to any permanent, temporary or mobile camps of all sizes. The list of accommodation provided to

⁵ <https://www.ifc.org/content/dam/ifc/doc/mgrt/workers-accommodation.pdf>

workers on Gulistan-Dangara Road Construction Project will be regularly updated and reviewed by the PIURR.

2. Applied worker accommodation Standards

Accommodation provided on projects will comply with the requirements of EBRD Performance Requirement 2 (PR2) and EBRD guidance on worker accommodation and will meet the standards set out in national legislation.

The worker accommodation inspection checklist takes into account the above EBRD standards and all relevant national standards set out below. See the checklist in Annex 1.

2.1 EBRD Provisions on worker accommodations

EBRD PR2.19 states that “where a client provides accommodation for project workers, the PIURR will put in place and implement policies governing the quality and management of the accommodation and provision of services. The accommodation services will be provided in accordance with GIP and in a manner consistent with the principles of non-discrimination and equal opportunity, including safeguards against sexual harassment and other forms of gender based violence. Workers’ freedom of movement to and from the employer-provided accommodation shall not be unreasonably restricted.

In addition, relevant PR4 standards on specific issues must be taken into account. These are:

- PR4.18, which states: “The client will assess project-related gender based violence risks of sexual harassment, sexual exploitation and abuse to project-affected persons and communities. Where appropriate, the client will adopt specific measures to prevent and address these risks, including the provision of confidential channels for reporting incidents and providing support.”
- PR4.19, which states: “The client will incorporate health and safety considerations into the design, construction, commissioning, operation, maintenance and decommissioning of the structural elements or components of the project in accordance with GIP taking into consideration health and safety risks to third parties and project-affected communities. Structural elements will be designed and constructed by qualified professionals. Third-party life and fire safety audits will be undertaken for all new public buildings and their major refurbishment, prior to their commissioning or use.”
- PR4.34-35, which state: “The client will take measures to avoid or minimise transmission of communicable diseases that may be associated with the influx of temporary and/or permanent project workers” and “The client will take measures to avoid or minimise transmission of communicable diseases and prevent gender based risks that may be associated with the influx of temporary and/or permanent project labour.”
- PR4.39-40, which state: “The client will identify and assess project security threats to workers and project-affected communities. Where risks have been identified, adequate security management arrangements will be implemented in accordance with GIP to manage these risk” and “When the client retains employees or contractors to provide security to safeguard its personnel and property, it will assess risks posed by these security arrangements to those within and outside the project site. In making such arrangements, the client will be guided by the principle of proportionality, GIP, and applicable laws in terms of hiring, rules of conduct, training, equipping and monitoring the conduct of such personnel. The client will not sanction any use of force except when

used for preventive and defensive purposes in proportion to the nature and extent of the threat.”

2.2 EBRD Guidance on worker accommodation

The EBRD and International Finance Corporation’s (IFC) good practice guide on worker accommodation provides detailed minimum standards that worker accommodation should meet. This covers:

- general living facilities
- room/dormitory facilities
- sanitary and toilet facilities
- canteen, cooking and laundry facilities
- standards for nutrition and food safety
- medical facilities
- leisure, social and telecommunications facilities
- managing workers’ accommodation
- management and staff
- charging fees for accommodation and services
- health and safety on site
- security of workers’ accommodation
- workers’ rights, and rules and regulations on
- workers’ accommodation
- consultation and grievance mechanisms
- management of community relations

2.3 National Legal Provisions on worker accommodations

Tajikistan has not issued specific requirements for temporary construction camps; however, it has enacted numerous laws and regulations to ensure proper sanitary working conditions and protect workers’ rights to a healthy environment.

In the design of the temporarily villages the Russian standards for the design and construction of the temporary camps for the Construction of the Transport Infrastructure–BCH-199-84 can be used.

However, construction camps must adhere to various regulations regarding security, safety, fire protection and sanitation standards.

3. Implementing the Plan

PIURR and its awarded contractors and subcontractors are responsible for ensuring that accommodation on Dangara-Guliston road construction project meets the standards set out in this accommodation plan.

3.1 Responsibility

3.1.1 Employer (PIURR of MoT) will:

- specify the expected housing and management standards detailed in this plan and include the same standards in relevant contracts with contractors
- implement reporting mechanisms with contractors and ensure contractors send regular reports on the application of and compliance with the standards detailed in this plan

- monitor the implementation of the standards detailed in this plan at accommodation sites operated by contractors
- review the worker accommodation plan annually and make necessary amendments.

3.1.2 Construction Supervision Consultant

- provide the assistance to Employer in ensuring the Compliance of the accommodation management with the EBRD requirements.
- Supervise and monitor Contractor's activities regarding the staff accommodations
- Conduct the Accommodation Audits. The SC will undertake 2 labour audits during the construction phase: first audit – when the main workforce mobilizes to the site, and second audit – during the peak of construction

3.1.3 The Contractor:

Contractor will ensure that accommodation provided by contractor and its subcontractors complies with the standards set out in this plan. Any new accommodation sites will be reported to PIURR as part of regular reporting.

Contractor will clearly communicate the standards in this plan to subcontractors. [Contractor] will also monitor the compliance of subcontractors with the plan by including the obligation of compliance and the rights to inspection and audit in its contracts and agreements with subcontractors. Contractor is responsible for undertaking inspections of any camps operated by its subcontractors and for ensuring that subcontractors submit self-inspection reports in accordance with the checklist set out in this plan.

Camp managers

On camps, the contractor will ensure that there are camp managers in place who:

- are responsible for overseeing staff working within the camp, including catering and laundry personnel
- have overall accountability for food hygiene and housekeeping standards
- have responsibility for fire safety and meeting fire safety standards in this plan
- are suitably qualified and experienced, with overall authority and responsibility for managing all aspects of each worker accommodation camp
- are competent and able to implement the standards set out in this plan
- have the authority to ensure compliance with the requirements set out under this plan
- are responsible for carrying out/assisting with regular audits to monitor compliance with the standards set forth in this plan.

Workers

On camps, workers that live in the accommodation will:

- maintain clean and hygienic conditions in their rooms • not prepare or cook food in the bedrooms
- smoke only in designated smoking areas
- monitor the actions of any visitor they bring to the camp
- behave respectfully to other workers and camp staff
- sign in and out of the camp when leaving and returning.

3.2 Management of Plan

3.2.1 Planning for accommodation

When planning to build workers' accommodation, CSC in cooperation with PIURR and the contractor will:

- assess the need for new workers' accommodation if project work is to be carried out by workers who are not living in neighbouring communities and will require separate worker accommodation
- ensure that there is no or insufficient housing available in neighbouring communities for the workers that will work on the project.
- strongly discourage the use of old shipping or train containers as temporary housing facilities; where such containers are used, ensure they meet the detailed requirements set out in Annex 1
- assess the impact of workers' accommodation on surrounding communities
- assess and manage the construction of workers' accommodation and its potential impacts on surrounding communities. CSC in cooperation with PIURR and the contractor must identify impacts on, among other things, health and safety, disturbance issues arising from construction, including traffic (dust, noise and vibration), any displacement of existing local communities, use of security, and risks of gender based violence as a result of the labour influx associated with worker accommodation.

4. Risk and Impact Management

Table 1 presents a summary of the potential risks and impacts related to the camp management, together with mitigation measures to avoid, eliminate or reduce associated impacts. Table 2 indicated the monitoring activities required to assess the performance of these measures.

Environmental and Social Management Plan*Table 1. The main risks and Mitigation Measures*

Issue	Impact/Risks	Mitigation Measures	Monitoring	Responsibility
Worker accommodation building specifications (camps).	Accommodation is considered sub-standard which leads to discontent amongst the residents and concerns about perceived health risks. As result Workers have low morale and perceive the contractor to not care about their welfare, which in turn affects motivation and productivity	Build camps to the minimum camp specifications for production accommodation. In the event of new construction, the following Construction phase plans will be applied as necessary: • Minimum Health Requirements for Project Execution • Minimum Camp Specifications for Operations Accommodation • Health Plan • Emergency Response Plan • Security Management Plan	Quarterly	Contractor
Camp management practices.	Residents do not live in harmony and the potential foconflict rises. Residents do not know how to complain or make a grievance.	Implement an induction program to be attended by all residents that covers at least the following: • Camp rules and regulations • Code of conduct • Camp grievance mechanism • Camp disciplinary procedure • Complaints system for food, dining, housekeeping and maintenance • Camp committee system • Community relations cultural awareness • Health, safety and security	Prior to appointment	Contractor
	Conflict arises between different cultures resulting in tension, which could lead to violence and work stoppages Foreign workers feel threatened and leave, resulting in skills gap	A code of conduct to cover: • Respect for different cultures • Acknowledgement of cultural differences in respect to diet, religious ceremonies and so forth • Non-discrimination and equal opportunity • Harassment, types and consequences • Community “do’s and don’ts”/ Undertake room allocations in an open and transparent manner using only employment seniority as a criterion. Keep separate but equal male and female accommodation	Monthly	Contractor
		Implement a mechanism for dialogue with camp residents on key issues such as food, dining,	Monthly	Contractor

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Issue	Impact/Risks	Mitigation Measures	Monitoring	Responsibility
		housekeeping, recreational activities and camp rules and regulations. Implement appropriate levels of safety and security practices and ensure that only residents are allowed in the accommodation – as well as day workers such as cleaning and maintenance staff. Strict ingress and egress control is required to ensure the security of the residents, particularly women.		
Food and dining	Food is not culturally appropriate • Queues are long • The dining experience is a frustrating one leading to incidents in the dining hall between workers and kitchen staff	Provide food that will ensure a balanced diet, is culturally appropriate and has been approved by a qualified nutritionist. Provide safe, potable water at all work sites, accommodation, dining and recreation areas. Provide the opportunity for feedback on food and dining by a comments or complaints system that is easy for residents to use, as well as via regular meetings with worker nominated representatives. Complaints must be trended and tracked for remedial action. Ensure that dining halls have adequate seating, condiments, cutlery and crockery, serving areas and catering staff so that the dining experience is an efficient and pleasant one. Dining times to be communicated to all residents and to fit in with work requirements. Ensure that kitchen staff comply with all Tajikistan's health regulations. Meet all the health, hygiene and food safety requirements described in the Minimum Health Specification Guidelines.	Monthly	Contractor
Maintenance.	Equipment breaks down affecting accommodation standards. Worker health, safety and general welfare are affected, which in turn could affect the motivation and productivity of workers.	Provide an efficient system for routine and preventive maintenance. Ensure that there are enough spare parts available for all critical equipment.	Monthly	Contractor

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Issue	Impact/Risks	Mitigation Measures	Monitoring	Responsibility
Laundry	Workers have to wear dirty Personal Protective Equipment (PPE) or have to be issued with extra PPE. Workers do not wear the appropriate PPE or wear dirty PPE, which may affect their health and safety.	Ensure workers are provided with sufficient quantities of PPE. Provide a laundry system with a 24-hour turnaround time available at least three times a week. Clean sanitary facilities daily to ensure health and hygiene standards are met. Issue camp residents with soap and towels. Ensure all sanitary facilities have paper towels/hand blowers, toilet paper and soap for hand washing.	Monthly	Contractor
Housekeeping.	The general appearance of the camp deteriorates making camp life unpleasant.	Ensure that camp grounds and common areas are routinely cleaned and organised with appropriate signage in place, and that grounds are maintained (e.g., grassed areas are regularly mown). Establish easily accessible, designated smoking areas which are clearly highlighted and regularly cleaned.	Monthly	Contractor
Recreation	Workers spend most of their time in the camps and could become disenchanted and bored. They may want to leave the camps and go into the local towns and villages in search of recreation. Tensions arise from the local communities as workers impact their activities in search of recreation. An increase in alcohol consumption and prostitution could result due to the influx of workers into local communities.	Provide appropriate recreational facilities and activities. These should be discussed with the camp residents committee. Ensure that equipment and facilities are kept clean and well maintained.	Monthly	Contractor
Spiritual /Religion.	The religious needs of the workers are not met	Provide appropriate places of worship where residents express a need for this in accordance with cultural sensitivities, and assess transport arrangements on a case-by-case basis.	Monthly	Contractor
Security	Inconsistent and aggressive behaviour of security personnel towards workers can result in tensions and conflict in the workplace and a perception of human rights abuses.	Ensure that camp security personnel meet at least the following requirements: • Have not been implicated in past abuses • Are trained in appropriate conduct towards workers and community members including:	Monthly	Contractor

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Issue	Impact/Risks	Mitigation Measures	Monitoring	Responsibility
		Exercising constraint and caution and understand how force may be used Respecting human rights Behaving consistently Knowing and abiding by applicable laws Fostering good community relations through their interaction and behavior towards the workforce and communities		
Community relationships	Communities are negatively impacted by camp activities: noise, waste, traffic, lighting and so forth. This may result in negative actions towards camp operations such as road closures and the prevention of workers or suppliers from entering the worksite	Implement control measures to avoid and minimise the impacts of camp and living conditions on communities. Limit foreign worker interaction with communities and provide cultural sensitivity awareness training to facilitate appropriate interaction with communities.	Quarterly	Contractor

Monitoring

Accommodation facilities will be subject to regular monitoring in line with Section 3.3 of this plan. Monitoring will be conducted both by the CSC, PIURR and the contractor. PIURR will undertake a full detailed inspection of each accommodation site of the Dangara-Guliston road Project on the Quarterly basis. The inspection will be led by the CSC or PIURR be carried out against the checklist in Annex 7.1. Contractor will ensure that the designated camp manager is available to participate in each inspection. Contractor is responsible for the regular monitoring and upkeep of accommodation facilities. Such monitoring will cover, at a minimum:

- water supply facilities
- sewage and waste disposal systems
- transportation facilities
- use of security management arrangements and
- impact on workers' freedom of movement
- sanitation and washing facilities
- basic medical services
- firefighting, fire detection and emergency response
- health and hygiene facilities
- food safety in canteens
- relations with surrounding communities, including
- risks of gender-based violence relating to labour influx
- pest control
- environmental surroundings of the camp, including treated sanitary wastewater
- maintenance of buildings.

The following table sets out the minimum frequency and coverage of monitoring that contractor must undertake:

The EBRD, Employer, and CSC may inspect the worker accommodation on Dangara-Guliston project at any time to ensure the standards set forth in the plan are being met.

Table 2. The proposed schedule for the monitoring activities

Frequency of monitoring	Activities
Daily	Housekeeping in all toilets Washroom and shower/Bath areas
Weekly	Inspection of kitchens, food preparation and restaurant areas Housekeeping and worker conditions in all accommodation and recreational areas Inspection of campgrounds for stagnant water, rubbish accumulation and general care and maintenance
Monthly	Inspection of medical inventories Inspection of fire systems and evacuation alarms Check-up of pest eradication systems
Quarterly	Detailed inspection of the all housing facilities
Annually	Inspection of electrical system and fittings
After the mobilization in the peak of construction activities	Audits of the Accommodations by CSC

4.1 Corrective actions

Where issues of non-compliance are identified in the inspection, the contractor is obliged to remedy these within an agreed timeframe. Timeframes for the resolution and frequency of monitoring will be based on the severity of risk. Risk is determined based on the percentage of non-compliance identified.

4.3.1 Reporting:

Reporting requirements relating to the issues linked to Labour accommodation will be in line with the EHS Reporting system accepted for the project as prescribed by IEE/ESAP.

Planning and monitoring records should be maintained by the CSC and PIURR. Periodic reports will be prepared by safeguards team of the CSC and submitted to the EBRD as required. Records will be maintained internally and made available to the EBRD or its representatives.

The information on the Accommodation status will be included in the Monthly Progress Reports and HSE reports of the Contractor and submitted to the Supervision Consultant (SC). SC provides this information to the Employer in the Monthly and Quarterly Progress Reports. SC will inspect all housing facilities on quarterly basis following the score based checklist included in this AMP (Annex 1).

The relevant sections will be included in the Semi-annual Environmental and Social Monitoring Reports prepared every six months by the CS for the PIURR and further submitting to the EBRD.

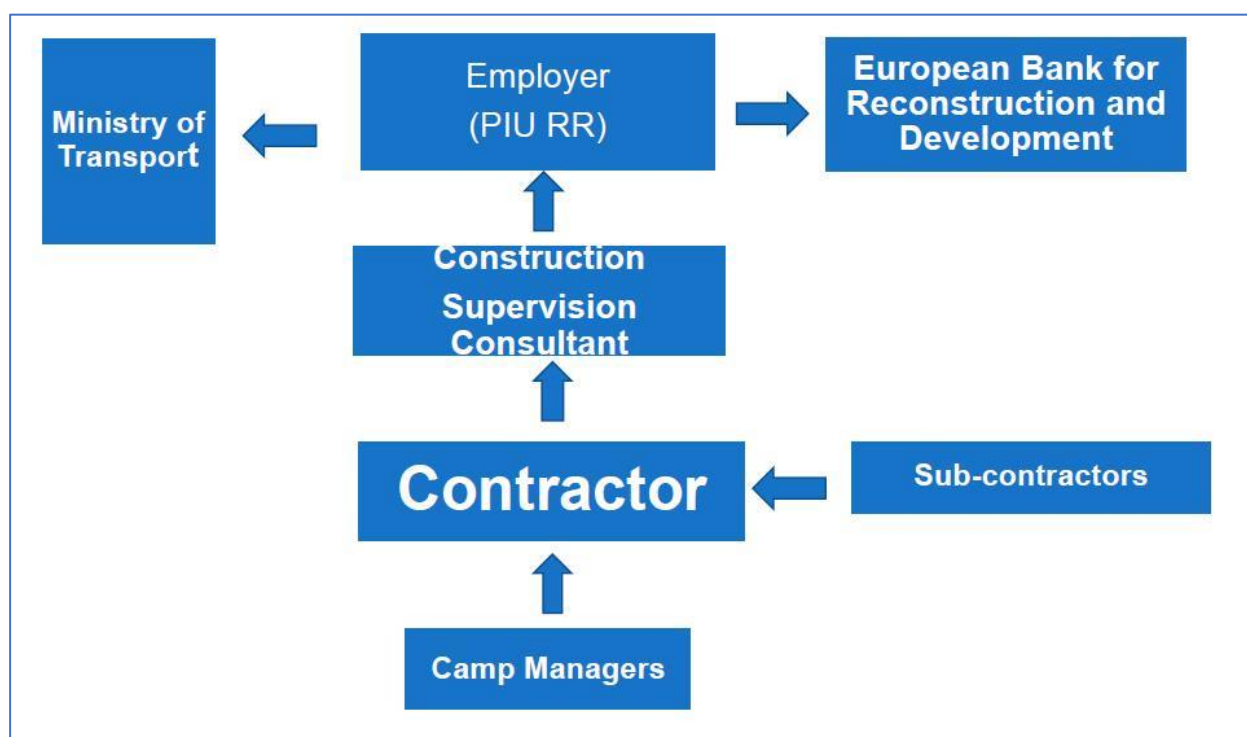


Figure 7. The reporting diagram for Accommodation Management

The collected information will be presented in tabular form, with the usage of the following templates:

3) List of the accommodation sites

No	Name	Location	No of workers	No of rooms	Provider	Contact details

4) For every accommodation site the following workforce data will be provided

Worker Information	Male	Female	Total
No of permanent employees			

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Worker Information	Male	Female	Total
No. of temporary employees			
No. of subcontractor workers			
No. of workers provided by private agencies/labour brokers in reporting period			
No. of day/casual workers employed in reporting period			
No. of workers from local communities			
No. of foreign national workers			
No. of skilled workers			
No. of unskilled workers			
No. of workers from other regions within the country			
No. of workers below the age of 18			

The following camps information also should be included into the report;

No	Reporting Indicator	Response
1	No. of camp managers employed	Names
2	No. of workers on site living in employer-provided accommodation	
3	How many workers are living in each room and how much space is there per worker?	Please list all rooms, the numbers of workers in them, and m2 per worker in these rooms
4	How many workers are there per toilet in the accommodation site?	
5	How many showers are there per worker in the accommodation?	
6	No. of grievances received on worker accommodation	Please also provide details of the complaints how the complaints have been resolved
7	Procedures in place for monitoring worker accommodation site Please attach	Please attach as evidence
8	Number of worker accommodation sites that are critical risk	Please use the worker accommodation inspection form to help determine whether the accommodation site is a critical risk. Also attach the inspection form here if the inspection has been carried out.

4.3.2 Trainings:

Contractor is also responsible for ensuring that workers receive an adequate induction at the worker accommodation site. The induction will be in Russian or Tajik language in a manner that is understood by all. This induction should cover, at a minimum:

- the emergency evacuation procedure for the accommodation
- how to obtain medical care when at the accommodation
- the roles and responsibilities of key personnel at the accommodation
- the facility management and health and safety rules and requirements relating to the accommodation.
- an explanation or summary of workers' rights and protections under law and the types of breaches a worker may experience and are entitled to report
- the use of the support mechanisms outlined in this plan
- the contractor's policies and procedures relating to the accommodation.

4.2 The minimum requirements for the project accommodation

The area requirement for construction camps will depend upon the workforce deployed and the type and quantity of machinery mobilized. For example, the camp may include rock crushing plant and concrete batching facilities. In view of the area required, it will not be possible to locate camp sites within the RoW. The contractors will have to temporarily acquire land on lease from landowners. The construction camp will also have facilities for site offices, workshop and storage yard, and other related facilities including fuel storage.

The camp should have autonomous water supply, sanitation with the use of septic tanks, food and recreation facilities. Direct draining of wastewater into surface waters is prohibited. All wastewater from the latrines, kitchens and bathrooms will be collected to the septic tanks installed in the locations approved by PIURR, the CSC and local sanitary authorities. The sides and bottom of the septic tank will be lined by concrete to prevent the contamination of aquifer. After the filling to the designed level, the content of the septic tanks will be pumped to the vacuum truck through the opening in the side wall equipped with the removable lid. Afterwards, the content will be transported for disposal to the site agreed with the local environmental and sanitary authorities.

The entire construction camp must be surrounded by fence and have restricted access to ensure security. Currently locations for labor camps and workshops are not identified.

As far as possible, floors walls, ceilings and equipment should be constructed to minimize health risks. The accommodations must be kept free of rats, mice, insects and vermin. In areas where mosquitoes are prevalent, workers must be provided netting. Measures should be taken to prevent the spread of diseases.

IFC and EBRD guidance note also refers to International Labour Organization (ILO) Recommendation¹ 115 on the accommodation for providing of the workers accommodation. Housing should ensure “structural safety and reasonable levels of decency, hygiene and comfort”. The following conditions are expected to be ensured:

The undertaking should ensure the following:

- a) a separate bed for each worker;
- b) adequate headroom, providing full and free movement, of not less than 203 centimetres;
- c) the minimum inside dimensions of a sleeping space should be at least 198 centimetres by 80 centimetres;
- d) beds should not be arranged in tiers of more than two;
- e) bedding materials should be reasonably comfortable;
- f) bedding and bedframe materials should be designed to deter vermin;
- g) separate accommodation of the sexes;
- h) adequate natural light during the daytime and adequate artificial light;
- i) a reading lamp for each bed;
- j) adequate ventilation to ensure sufficient movement of air in all conditions of weather and climate;
- k) heating where appropriate;
- l) adequate supply of safe potable water;
- m) adequate sanitary facilities (see below);
- n) adequate drainage;

¹ Workers' Housing Recommendation, 1961 (No.115). paragraph 19. The section entitled “Suggestions concerning methods of application,” Part I, paragraph 5, encourages “equality of treatment between migrant workers and national workers”. Therefore, this guidance applies equally to migrant workers and national workers.

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- o) adequate furniture for each worker to secure his or her belongings, such as a ventilated clothes locker which can be locked by the occupant to ensure privacy;
- p) common dining rooms, canteens or mess rooms, located away from the sleeping areas;
- q) appropriately situated and furnished laundry facilities;
- r) reasonable access to telephone or other modes of communications, with any charges for the use of these services being reasonable in amount;

Annex 3 - Accommodation Inspection Checklist

CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
General living facilities	<p>Living facilities are located to avoid flooding and other natural hazards.</p> <p>Where possible, living facilities are located within a reasonable distance of the worksite.</p> <p>Transport from the living facilities to the worksite is safe and free.</p> <p>The living facilities are built with adequate materials, kept in good repair, and kept clean and free from rubbish and other refuse.</p>			
Drainage water heating and waste	<p>The building site is adequately drained to avoid the accumulation of stagnant water.</p> <p>For facilities located in cold weather zones, the temperature is kept at a level of around 20 degrees Celsius, notwithstanding the need for adequate ventilation.</p> <p>For facilities located in hot weather zones, adequate ventilation and/or air conditioning systems are provided.</p> <p>Both natural and artificial lighting are provided and maintained in living facilities. It is best practice that the window area represent not less than 5 per cent to 10 per cent of the floor area. Emergency lighting is provided.</p> <p>Workers have access to electricity in the worker accommodation facilities.</p> <p>Access to an adequate and convenient supply of free potable water is always available to workers. Depending on climate, weather conditions and accommodation standards, 80 litres to 180 litres per person per day are available.</p> <p>All tanks used for the storage of drinking water are constructed and covered to prevent water stored therein from becoming polluted or contaminated.</p> <p>Drinking-water quality is monitored regularly.</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>Specific containers for rubbish collection are provided and emptied on a regular basis. Standards range from providing an adequate number of rubbish containers to providing leak proof, non-absorbent, rust and corrosion-resistant containers protected from insects and rodents. In addition, it is best practice to locate rubbish containers 30 metres from each shelter on a wooden, metal or concrete stand. Such containers must be emptied at regular intervals (to be determined based on temperatures and volumes generated) to avoid unpleasant odours associated with decaying organic materials.</p> <p>Pest extermination, vector control and disinfection are carried out throughout the living facilities, in compliance with local requirements and/or good practice. Where warranted, pest and vector monitoring should be performed on a regular basis</p>			
Room/Dormitory facilities	<p>Rooms/dormitories are kept in good condition.</p> <p>Rooms/dormitories are aired and cleaned at regular intervals.</p> <p>Rooms/dormitories are built with easily cleanable flooring material.</p> <p>Sanitary facilities are located within the same buildings and provided separately for men and women.</p> <p>Density standards are expressed either in terms of minimal volume per resident or of minimal floor space. Good international practice (GIP) is 10 to 12.5 cubic metres (volume) or 4 to 5.5 square metres (surface).</p> <p>A minimum ceiling height of 2.10 metres is provided.</p> <p>In collective rooms, which are minimized, in order to provide workers with some privacy, only a reasonable number of workers are allowed to share the same room. Standards range from two to eight workers.</p> <p>Doors and windows should be lockable and provided with mosquito screens where conditions warrant.</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>There should be mobile partitions or curtains to ensure privacy.</p> <p>Every resident is provided with adequate furniture such as a table, a chair, a mirror and a bedside light.</p> <p>Separate sleeping areas are provided for men and women, except in family accommodation.</p>			
Bed arrangements/ storage facilities	<p>A separate bed is provided for each worker. The practice of “hot-bedding” (rotational sharing of beds) must be avoided.</p> <p>There is a minimum space between beds of 1 metre.</p> <p>Double deck bunks are not advisable for fire safety and hygiene reasons and their use is to be minimized. Where they are used, there must be enough clear space between the lower and upper bunk of the bed. GIP is 0.7 to 1.10 metres.</p> <p>Triple-deck bunks are prohibited.</p> <p>Each worker is provided with a comfortable mattress, pillow, cover and clean bedding.</p> <p>Bed linen is washed frequently and applied with repellents and disinfectants on a weekly basis.</p> <p>Facilities for the storage of personal belongings for workers are provided. Standards vary from providing an individual cupboard for each worker to providing 475 litre big lockers and 1 metre of shelf unit.</p> <p>Separate storage for work boots and other personal protection equipment, as well as drying/airing areas may need to be provided, depending on conditions.</p>			
Sanitary and toilet facilities	<p>Sanitary and toilet facilities are constructed of materials that are easily cleanable.</p> <p>Sanitary and toilet facilities are cleaned frequently and kept in working condition. Sanitary and toilet facilities are designed to provide workers with adequate privacy, including floor-to-ceiling partitions and lockable doors.</p> <p>Sanitary and toilet facilities are not shared between men and women, except in family accommodation.</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>An adequate number of toilets is provided to workers.</p> <p>Standards range from 1 unit per 15 persons to 1 unit per 6 persons. For urinals, the usual standards are 1 unit to 15 persons.</p> <p>Toilet facilities are conveniently located and easily accessible. Standards range from 30 to 60 metres from rooms/dormitories. Toilet rooms will be located so as to be accessible without any individual passing through any sleeping room. In addition, all toilet rooms should be well lit, have good ventilation or external windows, have sufficient handwashing basins and be conveniently located. Toilets and other sanitary facilities should be (“must be” in cold climates) in the same building as rooms and dormitories.</p> <p>Shower/bathroom flooring is made of anti-slip hard washable materials.</p> <p>An adequate number of handwashing facilities is provided to workers. Standards range from 1 unit for each 15 persons to 1 unit per 6 workers. And washing facilities should consist of a tap and a basin, soap and hygienic means of drying hands.</p> <p>An adequate number of shower/bathroom facilities is provided to workers. Standards range from 1 unit per 15 persons to 1 unit per 6 persons.</p> <p>Showers/bathrooms are conveniently located.</p> <p>Shower/bathroom facilities are provided with an adequate supply of cold and hot running water.</p>			
Fire safety	<p>A clear fire management plan is in place, including risk identification and escalation procedures.</p> <p>Smoke detectors are fitted in bedrooms and communal areas.</p> <p>Manually operated fire alarms are located across the accommodation site. Fire exits are clearly marked and illuminated and easily accessible from all locations.</p> <p>Floor plans and emergency escape routes are clearly marked on signs across the accommodation.</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	An appropriate number and type of fire extinguishers are provided within the accommodation.			
	Fire detection systems are set up across the accommodation facilities.			
Canteen, cooking and laundry	Canteen, cooking and laundry facilities are built in adequate and easy-to-clean materials.			
	Canteen, cooking and laundry facilities are kept in a clean and sanitary condition.			
	If workers can cook their own meals, kitchen spaces are provided, separate from sleeping areas.			
	Adequate facilities for washing and drying clothes are provided. Standards range from providing sinks or tubs with hot and cold water, cleaning soap and drying lines to providing washing machines and dryers.			
	When work clothes are used in contact with dangerous substance (for example, application of pesticide), special laundry facilities (washing machines) should be provided.			
	Canteens have a reasonable amount of space per worker. Standards range from 1 square metre to 1.5 square metres.			
	Canteens are adequately furnished. Standards range from providing tables, benches, individual drinking cups and plates to providing special drinking fountains.			
	Places for food preparation are designed to permit good food hygiene practices, including protection against contamination between and during food preparation.			
	Kitchens are provided with facilities to maintain adequate personal hygiene, including a sufficient number of washbasins designated for cleaning hands with clean, running water and materials for hygienic drying.			
	Wall surfaces adjacent to cooking areas are made of fire-resistant materials. Food preparation tables are also equipped with a smooth, durable, washable surface. To enable easy cleaning, it is good practice that stoves are not sealed against a wall, benches and fixtures are not built into the			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>floor, and all cupboards and other fixtures and all walls and ceilings have a smooth, durable, washable surface.</p> <p>All kitchen floors, ceiling and wall surfaces adjacent to or above food preparation and cooking areas are built using durable, non-absorbent, easily cleanable, non-toxic materials.</p> <p>Adequate facilities for the cleaning, disinfecting and storage of cooking utensils and equipment are provided.</p> <p>Food waste and other refuse is to be adequately deposited in sealable containers and removed from the kitchen frequently to avoid accumulation.</p>			
Nutrition/food safety	<p>The World Health Organization's (WHO) five keys to safer food, or an equivalent process, are implemented.</p> <p>Food provided to workers contains an appropriate level of nutritional value and takes into account religious/cultural backgrounds; different choices of food are served if workers have different cultural/religious backgrounds.</p> <p>Food is prepared by cooks. It is also best practice that meals be planned by a trained nutritionist.</p>			
Medical facilities	<p>A number of first-aid kits are available, adequate for the number of residents.</p> <p>First-aid kits are adequately stocked. Where possible, a 24/7 first aid service/facility is available.</p> <p>An adequate number of staff/workers is trained to provide first aid.</p> <p>Emergency services and ambulances should have full access to the accommodation site.</p> <p>Where possible and depending on the medical infrastructures existing in the community, other medical facilities are provided at an easily accessible location and included in the accommodation area (health centres, nurse's rooms, dental care, minor surgery).</p>			
Leisure, social and telecommunications facilities	<p>Basic collective social/rest spaces are provided to workers. Standards range from providing workers with multi-purpose halls to providing designated areas for radio, TV and cinema.</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>Recreational facilities are provided. Standards range from providing exercise equipment to providing a library, swimming pool, tennis courts, table tennis and educational facilities.</p> <p>Workers are provided with dedicated places for religious observance if the context warrants. Workers have access to public phones at affordable/public prices (that is, not inflated).</p> <p>Internet facilities can also be provided, particularly where large numbers of expatriates/third-country nationals are accommodated.</p>			
Management and staff	<p>There are management plans and policies in place, especially in the field of health and safety (with emergency responses), security, workers' rights and relationships with the communities.</p> <p>An appointed person with adequate background and experience is in charge of managing the workers' accommodation.</p> <p>If contractors are being used, there are clear contractual management responsibilities and monitoring and reporting requirements.</p> <p>Depending on the size of the accommodation, there is a sufficient number of staff in charge of cleaning, cooking and of general maintenance.</p> <p>Such staff are recruited from the local communities.</p> <p>Staff have received basic health and safety training</p> <p>Persons in charge of the kitchen are trained in nutrition and food handling and adequately supervised.</p> <p>When fees are charged, workers are provided with clear information and a detailed description of all payments made, such as rent, deposit and other fees.</p>			
Fees for accommodation and services	When company housing is considered part of workers' wages, it is best practice that workers are provided with an employment contract clearly specifying housing arrangements and regulations, in particular,			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>rules concerning payments and fees, facilities and services offered, and rules of notice.</p> <p>When fees are charged, the renting arrangements are fair and do not cost the worker more than a small proportion of income and never include a speculative profit.</p> <p>Food and other services are free or reasonably priced, never above the local market price. The provision of accommodation or other services by employers as payment for work is prohibited.</p> <p>Workers living in worker accommodation are provided with social welfare services.</p> <p>Workers have the right to a weekly shower.</p>			
On site health and safety	<p>Health and safety management plans, including electrical, mechanical, structural and food safety have been carefully designed and are implemented.</p> <p>The person in charge of managing the accommodation has a specific duty to report to the health authorities the outbreak of any contagious diseases, food poisoning and other important casualties.</p> <p>An adequate number of staff/workers is trained to provide first aid.</p> <p>Guidance on the detrimental effects of the abuse of alcohol and drugs and other potentially harmful substances, and the risk of and concerns relating to HIV/AIDS and of other health risk-related activities, is provided to workers. It is best practice to develop a clear policy on this issue.</p> <p>Workers have access to adequate preventive measures such as contraception (condoms, in particular).</p> <p>Workers have easy access to medical facilities and medical staff. Where possible, female doctors/nurses should be made available for female workers.</p> <p>Emergency plans on health and fire safety are prepared. Depending on the local context, additional emergency plans are prepared as needed to handle specific</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	occurrences (earthquakes, floods, tornadoes).			
Security of worker's accommodations	<p>A security plan including clear measures to protect workers against theft and attack is implemented.</p> <p>A security plan including clear policies on the use of force has been carefully designed and is implemented.</p> <p>Security staff have been checked to ensure that they have not been implicated in any previous crimes or abuses. Where appropriate, security staff from both genders are recruited.</p> <p>Security staff have a clear mandate and have received clear instruction on their duties and responsibilities, in particular, their duty not to harass, intimidate, discipline or discriminate against workers.</p> <p>Security staff have received adequate training in dealing with domestic violence and the use of force.</p> <p>Security staff have a good understanding of the importance of respecting workers' rights and the rights of the communities.</p> <p>Body searches are only allowed in specific circumstances and are performed by specially trained security staff using the least intrusive means possible. Pat-down searches on female workers can only be performed by female security staff.</p> <p>Security staff adopt appropriate conduct towards workers and communities. Where possible, an adequate transport system to surrounding communities is provided. It is good practice to provide workers with free transportation to and from local communities.</p> <p>Withholding workers' ID papers is prohibited.</p> <p>Freedom of association is expressly respected. Provisions restricting workers' rights on site should take into account the direct and indirect effects on workers' freedom of association. It is best practice to give trade union representatives access to workers on the accommodation site.</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>Workers' gender and religious, cultural and social backgrounds are respected. In particular, workers should be provided with the possibility of celebrating religious and cultural holidays and observances.</p> <p>Workers are made aware of their rights and obligations and are provided with a copy of the internal workers' accommodation rules, procedures and sanction mechanisms in a language or through a medium they understand.</p> <p>Housing regulations, including those relating to the allocation of housing, should be non-discriminatory. Any justifiable discriminatory rules – for example, male dormitories – should be strictly limited to rules that are necessary to ensure the smooth running of the worker camp and to maintain a good relationship with the surrounding communities.</p> <p>Where possible, visitor access should be allowed.</p> <p>Decisions should be made on whether to prohibit alcohol, tobacco and third-party access to the camp and the relevant rules should be clearly communicated to residents and workers.</p> <p>A fair and non-discriminatory procedure exists to implement disciplinary procedures, including the right of workers to defend themselves (see also next section).</p>			
Consultation and grievance mechanisms	<p>Mechanisms for workers' consultation have been designed and implemented. It is best practice to set up a review committee that includes representatives elected by workers.</p> <p>Processes and mechanisms for workers to articulate their grievances are provided to workers.</p> <p>Workers subjected to disciplinary proceedings arising from behaviour on the accommodation site should have access to a fair and transparent hearing, with the possibility to contest decisions and refer the dispute to independent arbitration or relevant public authorities.</p> <p>Where conflicts between workers or between workers and staff break out,</p>			

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CATEGORY	BENCHMARK	YES/NO NA	IF YES SCORE 1	COMMENTS
	<p>workers have the possibility to easily access a fair conflict resolution mechanism.</p> <p>Where more serious offences occur, including serious physical or mental abuse, there are mechanisms to ensure full cooperation with the relevant police authority (where adequate).</p>			
Management of community relations	<p>Community relations plans addressing issues around community development, community needs, community health and safety – including gender-based violence – and community social and cultural cohesion have been designed and implemented.</p> <p>Community relations plans include the setting up of a liaison mechanism, allowing a constant exchange of information and consultation with local communities in order to identify and respond quickly to any problems and maintain good working relationships.</p> <p>A senior manager is in charge of implementing the community relations management plan and liaising with the community.</p> <p>The impacts of workers' accommodation on local communities are periodically reviewed, mitigated or enhanced.</p> <p>Community representatives are provided with an easy means of voicing their opinions and lodging complaints.</p> <p>There is a transparent and efficient process for dealing with community grievances, in accordance with PR1/PR10.26</p>			

Annex- 4 Health and Safety Plan

1 PURPOSE

The purpose of this document is to define the management system of the Dangara-Guliston road Project that ensures the implementation of health, safety and environmental controls.

This is the top-level document, controlling implementation of HSE management system at project level, and shall be considered as a framework document. The Contractor will be expected to develop their own Health and Safety Management Plan.

Subsidiary procedures, programs, management processes, work instructions and records may be developed to support the implementation of a Health and Safety Management Plan.

The purpose of the HSE Management System is:

- ⇒ To manage the risks arising from hazards at work.
- ⇒ To establish and maintain procedures for identification and reduction of health, safety and environmental risks at work;
- ⇒ To establish consistent methods for managing occupational health and safety;
- ⇒ To implement HSE policy of conducting the project in a responsible manner, free from uncontrollable hazards; to respect and look after the health and safety of all employees and workers, customers, suppliers and community neighbours; and to comply with all applicable health and safety laws and regulations of where we conduct our business;

2 SCOPE

This Plan covers the definition of the principles of health, safety and environmental management, the components of the HSE Management System, resources to implement the HSE Management System, the System monitoring and improvement. This HSE Management Plan applies for the activities executed by the contractor.

3 HSE commitment through leadership

Responsibility for HSE shall lie with the line management. Senior management shall demonstrate a personal commitment to HSE management. The commitment to HSE shall be evident at all levels of the organization and the company culture shall ensure a proactive attitude to HSE issues. Responsibility for HSE shall be stated explicitly in the project manager's job description.

4 DEFINITIONS

Company – The entity assigned for construction of the Project. This means the contractor and in addition all involved subcontractors.

Project – Dangara – Guliston road reconstruction and widening from two to four lanes.

HSE – Health, Safety and Environment

Environment – Surroundings in which a company operates, including air, water, land, natural sources, flora, fauna, humans, and their interrelation.

Continual Improvement – The process of enhancing the HSE management system, in order to achieve improvement in overall HSE performance consistent with company's health, safety and environmental policy.

HSE Performance – The measurable results of company's management of its HSE aspects and risks.

HSE Objective – Overall HSE goal, consistent with health, safety and environmental policy and environmental policy, that company sets itself to achieve.

HSE Target – Detailed performance requirement applicable to the company or parts thereof, that arises from the HSE objectives and that needs to be set and met in order to achieve those objectives.

Internal Audit – Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which HSE Management System audit criteria set by the company are fulfilled.

Nonconformity – Non-fulfilment of a requirement.

Unsafe Act: An event where behaviour of an employee or subcontractor employee is contrary to accepted safe work practices and introduces a risk of injury to the other employees, subcontractor employees or members of the public.

Unsafe Condition: An event where the workplace or equipment condition does not comply with the accepted safety standards and introduces a risk of injury to the other employees, subcontractor employees or members of the public.

Preventive Action – Action to eliminate the cause of potential nonconformity.

Supervisor – on-site engineer responsible for team of workers, responsible for task/job performance in compliance with the HSEQ Management system.

5 REFERENCES

- ⇒ Local legislation and regulations
- ⇒ Project requirements/specifications
- ⇒ ISO 45001:2018 Occupational health and safety management systems
- ⇒ ISO 14001 Environmental Management System Specification and Guidance for Use
- ⇒ EU Safety standards

6 MANAGEMENT SYSTEM REQUIREMENTS

6.1 INTRODUCTION

The incorporation of the HSE Management into all aspects of the company's activities is fundamental requirement of good management practice. Control of HSE hazards/risks protects the assets of the company from damage – its personnel, property and equipment, and business reputation. Any harm to any of these assets may affect significantly the performance of the company.

6.2 OBJECTIVES AND TARGETS

The health and safety of the Contractor's personnel, subcontractors and other persons present in the project, and members of the public is the most important consideration in all construction activities. The goals of the HSP are:

- ⇒ No one gets hurt.

- ⇒ Health and safety work place for our personnel, subcontractors, visitors and others who may be affected by our activities.
- ⇒ Promote a positive HSE culture.

We will achieve the goals through:

- ⇒ Proactive management of the risks associated with the Construction's workforce and facilities.
- ⇒ Safe and healthy manner of project performance as a result of an effective HSE management system integrated into company operation that will lead to excellence and sustainability.
- ⇒ The HSE Management System must be implemented and managed as a continuous improvement cycle and requires the leadership and active participation of every level of management.
- ⇒ Environmental protection, and the minimization of environmental impacts of any kind, is an integral consideration in all company's activities.

Performance Indicators are defined to support the measurement of health, safety and environmental performance and the associated achievement of objectives and targets. These indicators are a numerical measurement of performance that provides a means of measuring the progress towards, and achievement of, a target or objective

Performance Indicators are set to support specified objectives and targets and shall be revised at intervals not exceeding one year.

The indicators shall be calculated from actual performance data at intervals not exceeding 1 month. Progress with respect to Performance Indicators shall be reviewed at Management Reviews.

Additional communication of progress and review of Performance Indicators shall be carried out at Health and safety Committee meetings and internal Departmental Health, safety and environmental Meetings, where appropriate.

Factual evidence that Performance Indicators use verifiable input data and have been correctly calculated shall be audited at intervals not exceeding 1 year.

6.3 HSE POLICY

Contractor HSE policies are public commitment to excellence in the field of HSE performance through effective Planning, Implementation, Performance Measurement and Feedback with the aim of achieving the corporate HSE goals and continual improvement.

People are the most valuable asset. It is therefore the HSE policy of Contractor to:

Do all that is reasonably practicable to ensure a safe and healthy environment for all who work for project, or who may be affected by project activities and to comply with all relevant local legislations, and so far, as reasonably practicable, with applicable OSHA, EC, IFC, EIB and ISO standards.

HSE have the priority whenever there is the potential for conflict between HSE, productivity, cost or schedule. Implement a philosophy of pro-active HSE management with a focus on hazard identification and risk assessment with the intent of elimination, mitigation or control of deficiencies as the most effective method of loss control. To embed Safety Leadership and Accountability through gaining the commitment of all managers and supervision at all levels within the organization, on and off the job. Ensure that all employees, suppliers, sub-contractors involved in contract understand the importance of both quality, occupational health, safety, security and the protection of the environment in their work

6.4 NATURE OF THE PROJECT

6.4.1 PROJECT DESCRIPTION AND LOCATION

The Project involves the reconstruction and widening from 2 to 4 lanes of the Dangara-Guliston road.

The length of the Project road is as follows:

6.4.2 PRINCIPLE ORGANIZATIONS INVOLVED IN THE PROJECT

Involvement	Name	Business Address	Tel (Office)	Fax (Office)
Owner				
Owner's Consultant				
Contractor				
Sub-contractor Civil works				

HSE Violations Reporting system

1. General safety hazards (which can be rectified immediately on site):

The safety engineer finds the violations, inform the site supervisor to correct (or directly tell the on- site foreman to correct).

2. General safety hazards (which requires time to rectify):

The safety engineer finds the violations, inform the HSE manager, HSE manager issues a rectification notice to the site supervisor, then the safety engineer monitor the on-site rectification works.

Note: For those who fail to carry out rectification or rectifications are not corrected within the defined time, HSE office will issue a penalty notice and inform the related manager.

3. Major safety hazards (the work needs to be stopped immediately, and the rectification plan needs to be discussed):

Safety engineer finds such violations, inform HSE manager, HSE manager will inform project manager, then suspend construction works, site meeting will be held to discuss solutions, rectification work will be carried out.

6.5 PLANING

6.5.1 DEVELOPMENT OF SAFE WORK METHOD

A systematic examination of a task is required to prepare a safe work method (Method statement).

- **Analyse the Task**

All work activities must be assessed. Work needs to be broken down into individual activities so that hazards - conditions or actions - at each stage can be identified. For routine and repetitive activities (work that is carried out many times where the hazards and risk are the same), a previous method statement may be applied again. This is called a generic method statement. Where the work is new, more

complicated or unusual then a specific method statement will need to be produced. Non-routine tasks for example are:

- ⇒ cleaning and maintenance
- ⇒ emergency breakdowns
- ⇒ new equipment installation
- ⇒ subcontractor's activities
- ⇒ complicated lifts
- ⇒ simultaneous activities
- ⇒ demolition activities, etc.

All components of the work should be included in the analysis as follows:

- ⇒ **Organization:** Who is the decision maker – Engineer, Foreman, Supervisor? Who is the operator? Who is the rigger, flagman, watchman, stand-by person, etc.
- ⇒ **Team:** Who is involved? Competence, information, training, instruction, supervision, particular disabilities, general public, other persons, etc.
- ⇒ **Materials** involved: the load's weight, shape, phase, etc.; hazardous substances SDS, materials handling, mechanical or manual, health hazards.
- ⇒ **Equipment & Plant:** What is used? Is it suitable? Is there an instruction for safe use? Design, ergonomic factors, maintenance, guarding arrangements, isolation, certification, periodical controls reports, etc.
- ⇒ **Environment:** Lighting, heating, noise, vibration, ventilation, welfare facilities, etc. Condition of floors, seating access to, egress from, means of escape, layout, working space etc.

- **Assess the risks**

Prepare a risk assessment. It is explained in item 6.5.2.

- **Implement the System**

The system, once planned and set down in writing should be implemented on site. The managers, supervisors and workers are given written manuals or procedures and they must read them.

Instruction, training, signs, and supervision must be provided and followed at the work place.

The system may require certain work equipment, PPE, and other hardware to be provided. This will need to be obtained, provided and documented.

- **Monitor the System**

Is the system working? Management should not wait for an accident to tell them. Can the system be improved?

Inspections, audits, team discussions etc. are proactive (or active) methods of monitoring a system of work.

6.5.2 HAZARD IDENTIFICATION AND RISK ASSESSMENT, ENVIRONMENTAL ASPECTS

The most important aspect of the HSE management of the project is the identification of hazards related to health and safety and environmental aspects, the understanding and evaluation of the hazards and assessment to establish the magnitude of the risks to the project assets (personnel, equipment, environment, etc.) and to the others who may be affected by our activities. This process then leads to the identification of the control measures required to protect company personnel and other parties from harm during construction activities.

“Risk assessment” is the key tool that is used to facilitate the controls to avoid, minimize or otherwise mitigate significant health and safety and environmental risks. From the carrying out of risk assessments, the important issues that must be managed are identified, and appropriate control measures are selected and implemented.

The employer at each workplace has a general duty to ensure the safety and health of workers in every aspect related to work. The purpose of carrying out a risk assessment is to enable the employer to effectively take the measures necessary for the safety and health protection of workers.

These measures include:

- ⇒ prevention of occupational risks;
- ⇒ provision of information to workers;
- ⇒ provision of training to workers;
- ⇒ organization and means to implement the necessary measures.

A summary of the General Principles of Prevention:

1. Avoiding risks.
2. Evaluating the risks, which cannot be avoided.
3. Combating the risks at source.
4. Adapting the work to the individual, especially as regards:
 - The design of workplaces
 - The choice of work equipment
 - The choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work-rate and to reducing their effect on health.
5. Adapting to technical progress.
6. Replacing the dangerous by the non-dangerous or less dangerous.
7. Developing a coherent overall prevention policy, which covers:

- Technology
 - Organisation of work
 - Working conditions
 - Social relationships
 - The influence of factors relating to the working environment.
- 8. Giving collective protective measures priority over individual protective measures
- 9. Giving appropriate instructions to employees.
- ***Risk assessment steps and methodology***

Risk Assessment involves five steps:

1. Look for and identify the hazards
2. Decide who might be harmed and in what circumstances
3. Evaluate the risks arising from the hazards and decide whether the existing precautions are adequate or more should be done
4. Record the significant findings (Risk assessment form)
5. Review the assessment if there is a significant change or evidence that the original assessment was inadequate

STEP 1 LOOK FOR AND IDENTIFY THE HAZARD(S)

Given that a hazard is something with the potential to cause harm and accepting that the elimination or adequate control of hazards is a more pro-active way of reducing injuries than simply investigating accidents, the process of active risk management starts with the finding and identification of hazards as the first step.

Hazards may be:

- ⇒ Biological e.g. HIV virus, legionella, hepatitis virus.
- ⇒ Chemical e.g. acid alkali, asbestos, thinner
- ⇒ Ergonomic e.g. physical stress.
- ⇒ Physical e.g. machinery, electricity, heat, noise, gravity.
- ⇒ Psychological e.g. stress, shock anxiety.

STEP 2 DECIDING WHO MIGHT BE HARMED AND HOW

In making an overall assessment of 'risk', it is necessary to take account of the likelihood of harmful circumstances happening and the severity of the injury that might result.

All groups of employees and others who might be affected must be considered, for example:

- ⇒ Young persons
- ⇒ New or inexperienced workers

- ⇒ Lone workers
- ⇒ Disabled persons

STEP 3 EVALUATE THE RISKS ARISING FROM THE HAZARDS AND DECIDE WHETHER THE EXISTING PRECAUTIONS ARE ADEQUATE OR MORE SHOULD BE DONE

The primary purpose of risk assessment is to enable decisions to be made on the need for action and on the priority of action, for example a hazard assessed as high risk will require immediate action whereas a low or negligible risk can be given a less pressing timescale for action. This is based on the "reasonably practicable" principle.

Risk assessment requires an evaluation of two principal factors:

- ⇒ Likelihood - a subjective or objective evaluation of the probability of occurrence
 - ⇒ Severity - how bad could be the consequence if something went wrong
- Risk Assessment Factor

Multiply the Severity number by the Likelihood number to arrive at the risk factor for each hazard. This produces a number on a scale of 1 to 25. These numbers provide an indication of priority and the extent of the risk, the higher the number the greater the priority and risk and therefore the more resources which may be needed to control the risk.

Likelihood Severity	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25
Risk Factor: 1-3			No additional action required		
Risk Factor: 4 – 9 practicable			Reduce risk if reasonably		

Risk Factor: 10 – 25	Risk must be reduced if work is to proceed
<u>Likelihood</u>	<u>Severity</u>
1 – Very unlikely	1- Insignificant
2 – Possible	2 - Minor
3 – Likely	3 - Major
4 – Probable fatality	4 - Incapacitating/possible
5 – Almost certain	5 - Multiple fatalities

Hierarchy of Control

In planning to control hazards the following steps must be followed in the order in which they are listed. A combination of the following may be necessary in many cases. The following 'controls' must be considered in order of priority.

- ⇒ 1st Eliminate the hazard - the very best thing to do - if possible 2nd Reduce the hazard
- ⇒ 3rd Isolate the hazard
- ⇒ 4th Control the extent of exposure/contact with the hazard(s)
- ⇒ 5th Personal Protective Equipment (PPE) - as a last resort and only if totally effective 6th Discipline

STEP 4 RECORD THE SIGNIFICANT FINDINGS

The risk assessment shall be recorded. The format is given in the attachment. The risk assessment shall be signed by the HSE Specialist, Responsible for the jobs Engineer, and the occupational doctor.

STEP 5 REVIEW AND ASSESS

The risk assessments shall be reviewed and revised

- ⇒ Once a year
- ⇒ If there is reason to suspect that it is no longer valid; or
- ⇒ If there has been a significant change in the matters to which it relates
- ⇒ Evidence of injuries, ill health or near misses
- ⇒ Changes in the work place
- ⇒ Increased work rate
- ⇒ New process or plant
- ⇒ New equipment
- ⇒ New competence of the people carrying the work
- ⇒ New legal requirements

- ⇒ New information about the hazard

Environmental aspects are evaluated in order to:

- ⇒ Identify potential environmental impacts, risks and/or liabilities
- ⇒ Determine the significant environmental impacts, risks and/or liabilities
- ⇒ Plan appropriate controls to mitigate the environmental impacts, risks and/or liabilities
- ⇒ Establish inspection, monitoring and management arrangements for implemented controls

The environmental aspects evaluation applies a process of:

- ⇒ Identification of aspects to be considered (emissions and discharges, raw materials delivery, handling and storage, handling and disposal, leaks, spills, etc.)
- ⇒ Identification of the environmental media affected by each aspect (air, soil, water)
- ⇒ Identification of the obligatory conditions related to each aspect (official consents, permits or approvals, applicable law and regulations, standards and requirements)
- ⇒ Determination of the existing level of control integrated into base design and engineering
- ⇒ Evaluation of environmental impacts, risks and/or liabilities based on frequency and severity of consequences of impact
- ⇒ Determination of overall score for environmental aspects, through which “significant” aspects are identified
- ⇒ For significant aspects, identification of appropriate control measures to be implemented
- ⇒ Recording of the environmental aspect evaluation and its findings

Control measures are applied to significant environmental aspects according to the hierarchy:

- ⇒ Elimination by design and engineering
- ⇒ Substitution by alternatives
- ⇒ Isolation or containment
- ⇒ Administrative or procedural control of work activities or personnel
- ⇒ Warning systems
- ⇒ Personal protection

The evaluation of environmental aspects is reviewed at intervals not exceeding 1 year.

Environmental Management Plan details the practices, procedures and plans for the effective management of environmental impact during the design, construction and maintenance of the project.

6.5.3 EXISTING STRUCTURES AND INTERFACES

Interfaces with High Risk activities and neighbouring trades need to be controlled in the terms of HSE. Communications will be established with the neighbouring businesses. Interface meetings will be organized for planning of Construction activities that may affect the neighbouring business or vice versa. Interface Emergency and Crisis Management Procedures will be developed and communicated.

6.5.4 TEMPORARY STRUCTURES

Project laydown and Storage Areas will be organized in accordance with the provisions of the relevant regulation and Clients requirements. Consideration will be given to one-way traffic flow organization where applicable; reversing areas will be provided; safe distance for loading-unloading activities, etc.

Temporary project accommodation will be organised in a way that will prevent unauthorized access to the project site, unwanted excessive traffic of light vehicles and pedestrians. Temporary accommodations will comply with the legislative requirements for electrical, hygiene, ergonomics, etc.

6.5.5 HSE REGULATORY COMPLIANCE

The Contractor as committed in its HSE Policy, shall comply at all times with the local applicable health, safety and environmental law and regulations, as set down in legislation and official consents, permits and approvals for the projects.

Management of health, safety and environmental regulatory compliance comprises:

- ⇒ Register of Health, safety and environmental Regulations: A Register of Health, safety and environmental regulations relevant to Construction is maintained up-to-date for reference. The sources of information on health, safety and environmental regulations and means of access to copies of regulations and other legal instruments are identified and available as required.
- ⇒ Regulatory Reviews of Health, safety and environmental Regulatory Changes: Changes to health, safety and environmental regulations are monitored via access to a proprietary legislation information service. Changes to health, safety and environmental regulations relevant to the Project are investigated and reviewed every 3 months (4 times per year). Compliance requirements of new or amended regulations are identified. The Register of Health, safety and environmental Regulations is updated and re-issued after each regulatory change review.
- ⇒ Inspections, Walk-downs and Audits: Control and implementation of health, safety and environmental management is inspected and checked by:
 - Shift Walk-downs (every shift)
 - Health and Safety and Environmental Inspections (weekly)
 - Project Management Walk-downs (monthly)
 - Internal HSE Audits (annually)

These activities provide oversight and independent assurance of the implementation, effectiveness and regulatory compliance of the health and safety controls adopted at the project.

- ⇒ Regulatory Reporting: Health, safety and environmental measurements and monitoring results and other aspects of safety performance are reported to regulatory authorities in accordance with local legislation and official consents, permits and approvals for the project.

6.5.6 OCCUPATIONAL HEALTH

Occupational health services must be provided free-of-charge to personnel in relation to health risks and effects that may be associated with employment and work activities. In addition, a healthy lifestyle of personnel is encouraged and supported wherever practicable.

Occupational health is managed by:

- ⇒ Medical Examinations and Tests: These medical procedures are carried out at intervals during employment of personnel: pre-employment medicals, periodical checks, return- to-work tests after injury/illness. The medicals are designed to assess and ensure that individuals are fit-for-work as required by their job positions.
- ⇒ Occupational Health Database: This database is the key tool for planning, managing and recording occupational health services and the participation of personnel. The database contains records of medical examinations and tests on personnel, together with a schedule for renewals, re-examinations and repeat procedures. Records related to occupational health are kept confidential in accordance with Human Resources policies.
- ⇒ These management activities are coordinated to provide a framework for occupational health comprising establishing baseline fitness-for-work, ongoing monitoring of occupational illness or effects, and final evaluation on departure from employment (if appropriate).
- ⇒ The provision of occupational health services are reviewed, revised and updated at intervals not exceeding one year.

6.6 IMPLEMENTATION

6.6.1 STRUCTURE AND RESPONSIBILITIES

The organizational framework for the management and execution of project activities is illustrated by the organization chart provided in item 6.4.2.

Responsible Person	Primary Responsibilities
PROJECT MANAGER	<ul style="list-style-type: none"> ⇒ Health, safety and environmental policy Setting of objectives and targets ⇒ Company-level allocation of human and financial resources Company-level organisational arrangements ⇒ Regulatory compliance ⇒ Review and audit of project-level performance
CONSTRUCTION MANAGER	<ul style="list-style-type: none"> ⇒ Leadership of project personnel ⇒ Project-level achievement of objectives and targets Project-level allocation of human and financial resources Project-level organisational arrangements ⇒ Project-level regulatory compliance Implementation of management system Compliance of Project personnel ⇒ Health, safety and environmental performance Reporting of Project performance to Project Manager
LINE MANAGERS	<ul style="list-style-type: none"> ⇒ Leadership of Group personnel under their responsibility ⇒ Implementation of management system for their Group personnel ⇒ Compliance of their Group personnel Supervision of their Group subcontractors
CIVIL TECHNICIAN	<ul style="list-style-type: none"> ⇒ Implementation of management system
FOREMAN	<ul style="list-style-type: none"> ⇒ Ensure that workers use or wear the equipment, protective devices or clothing that are required to be used or worn ⇒ Ensure that workers work in the manner and with the protective devices, measures and procedures required ⇒ Provide orientation for new crew members Conduct pre-job toolboxes ⇒ Inspect safety equipment weekly ⇒ Inspect tools and equipment at least weekly and ensure that they are properly maintained ⇒ Review safety aspects of each task with crew Conduct accident investigations ⇒ Report safety problems to senior management Ensure housekeeping is

Environmental and Social Management Plan

Responsible Person	Primary Responsibilities
	<p>done at least daily</p> <p>⇒ Review SDSs with crew before using hazardous materials</p>
HSE MANAGER	<p>⇒ Definition, planning and maintenance of management system Co-ordination of implementation of management system Monitoring of achievement of objectives and targets Monitoring of health, safety and environmental performance Monitoring of compliance of project personnel</p> <p>⇒ Monitoring of compliance of subcontractors Monitoring of regulatory compliance Tracking of regulatory change</p> <p>⇒ Monitoring of compliance with the standards Technical direction and advice to management Technical direction and advice to project personnel</p> <p>⇒ Preparation, organization and delivery of safety training Preparation of health, safety and environmental reports Preparation of regulatory reports</p> <p>⇒ Investigation of health, safety and environmental accidents</p>
H&S Officer(s)	<p>⇒ The HSE manager shall have 2 HSE officers in his team. Their roles and responsibilities are the following:</p> <p>⇒ Conduct of regular health and safety trainings</p> <p>⇒ Regular check of Personnel Protection Equipment of workers</p> <p>⇒ Regular workplace and workplace safety inspections</p> <p>⇒ Regular check of cleaning works and good housekeeping</p>
OCCUPATIONAL DOCTOR	<p>⇒ Give first aid treatment to the personnel of the contractor. Periodical health control of the workers. Giving ergonomics, hygiene and first aid trainings.</p>
EMPLOYEE REPRESENTATIVE	<p>⇒ To communicate the concerns of the workers to the management</p> <p>⇒ To represent the employees' request to the relevant Line Managers.</p>

Responsible Persons may delegate and/or designate specific tasks to any other person only where such persons are competent and have sufficient authority to carry out the task(s).

The mandatory responsibilities of all personnel with respect to health, safety and environmental management are:

- ⇒ All personnel shall ensure the safe job execution over the entire project, minimizing impacts on the environment and acting in a socially-responsible manner at all times.
- ⇒ All personnel shall place the health, safety and environmental of project personnel, any other persons present on-site (subcontractors, visitors and any other parties) and members of the general public as the most important consideration in all activities.
- ⇒ All personnel shall ensure that environmental protection, and the minimization of environmental impacts of any kind, is an integral consideration in all activities. Environmental impacts shall be avoided wherever possible, and those that are unavoidable shall be managed and minimized to be as low as reasonably practicable.
- ⇒ Whilst the Project Manager shall be ultimately responsible for project performance with respect to health, safety and environmental management, including construction performance and the conduct of personnel, line managers and supervisors shall be similarly responsible as Employer as per XXX legislation for the performance of their own duties and those of their direct-reporting personnel.
- ⇒ All personnel shall be responsible for:
 - Ensuring the health and safety of himself/herself and all others affected by his/her work activities
 - Protecting the environment from harm associated with his/her work activities
 - Conducting his/her work activities in a socially-responsible manner
 - Preserving natural resources and assets, with avoidance of unnecessary consumption and waste
- ⇒ All personnel shall comply with the systems of work that are designed and implemented to protect the health and safety of personnel. Such systems of work include instruction, information and training; operating and maintenance instructions; safety procedures; work equipment and tools; personal protective equipment; emergency response systems; working conditions and personnel welfare.

In addition, specific roles and responsibilities related to health, safety and environmental management are assigned to personnel, where appropriate, in relevant health and safety procedures and instructions and are part of the Job descriptions.

Site general rules are given in the attachment.

6.6.2 COMPETENCE AND TRAINING

Competency of the individual person is determined by the combination of:

- ⇒ Knowledge, including academic, vocational and other official qualifications

- ⇒ Experience doing similar work or job-tasks
- ⇒ Training

A person is deemed competent if his/her education, experience and training is sufficient for satisfactory performance of work tasks with a thorough understanding of its health and safety hazards and risks, and with work carried out in full compliance with health, safety and environmental requirements.

Training comprises:

- ⇒ Information on conditions at the job-site, work activity (e.g. Method Statement), health, safety and environmental hazards and other relevant considerations related to the job
- ⇒ Instructions on how to carry out work, including use of work equipment, working procedures, health, safety and environmental precautions and other relevant directions
- ⇒ Classroom and theoretical training
- ⇒ “On-the-job” demonstrations, apprenticeships, trials/exercises and drills

Training of personnel is managed by Training matrix. This provides the foundation for the training of personnel, by defining the training requirements for each job role/position. The training subjects considered are presented in a training matrix.

Personnel shall be provided with training as defined by the Training Plan free-of-charge and, wherever practicable, during normal working hours.

All persons are required to participate in training in accordance with the annual Training Plan.

Line Managers and supervisors who will be involved in planning, monitoring, supervising or performing works in the project shall have completed formal HSE training regardless of their level in the organisation. Training programmes and norms for HSE training shall be defined for managers/supervisors at all levels. All training shall be documented.

Line managers/supervisors of personnel are responsible for ensuring members of their Department or directly reporting to them to attend training in accordance with the annual Training Plan.

The attendance records shall be signed as accurate and true by the trainer.

Trainers used to provide training shall be competent with respect to training subject, application of training subject at the Project and presentation of training. Competency of a trainer is determined by the combination of his/her knowledge, experience of providing training and training as a trainer.

Training shall be supported by suitable training materials such as presentations, slides, photographs and videos to document the information and instructions delivered by the training. Where appropriate training notes shall be provided to trainees.

Where it is required to assess the achievement of competency through the training event an examination (written or verbal, or both) shall be carried out. Tests and examinations shall be defined with a clear, transparent marking system to assess achievements and a pre-determined, measurable “pass mark”.

Trainees shall complete such tests and examinations as individuals and without help or other support from the trainer or other trainees.

Training certificates shall be issued as an evidence of the achieved competency.

Training database shall be kept. The database contains records of training events and attendance by personnel, together with a schedule for renewals, refresher training and re-examinations. Records related to training are kept confidential in accordance with Human Resources policies.

Training Plan is reviewed, revised and updated every calendar year to provide the basis for training for the forthcoming year.

6.6.3 COMMUNICATION

The objective of internal communication is to achieve a consistent level of understanding of HSE management issues, and promote teamwork and a positive safety culture in the project. A key part of this is the proactive communication between management and personnel so that HSE hazards/risks are identified and mitigated.

All personnel receive appropriate information and instructions to enable them to carry out their duties.

Health, safety and environmental performance information is shared with all personnel to encourage development of knowledge, ownership and participation in health, safety and environmental management activities.

Information and instructions are provided to personnel by:

- ⇒ Procedures associated with the management system – all such information and instructions are in a form and language that makes them readily understandable and capable of implementation by personnel
- ⇒ Participation in meetings:
 - Department Health, Safety and Environment Meetings (weekly)
 - Health and Safety Committee Meetings (monthly)
 - Project Manager Briefings (monthly)
 - “All-hands” meetings and other group forums (as appropriate)
 - Display of information and notices:
 - Health, Safety and Environmental Policy in administration building and site offices
 - Health, safety and environmental information on staff notice-boards
 - Posters and signs

Information and instructions are made available in the employees’ language.

Personnel are able to make representations regarding health and safety or environmental matters via:

- ⇒ Department Health, Safety and Environment Meetings (weekly) – this is the formal mechanism for personnel to make representations regarding health, safety and environment

management within his/her department, receive feedback on performance, discuss any issues and make any observations or complaints.

- ⇒ Health and Safety Committee (monthly) – this is the formal mechanism for personnel to make representations regarding health, safety and environment management related to the project, receive feedback on performance, discuss any issues and make any observations or complaints.
- ⇒ Personal communications with HSE Manager to obtain technical information or instructions, or to make personal representations regarding any health and safety or environmental issue.
- ⇒ Personal communications with line supervisors and managers to obtain management information or instructions, or to make personal representations regarding any health and safety or environmental issue.
- ⇒ Personal communication with the Employees Representative.

6.6.4 SUBCONTRACTORS MANAGEMENT

Subcontractors are employed or engaged to provide a range of services and support functions:

- ⇒ Person employed by Contract – individual persons appointed under contract to carry out jobs or work activities and who directly report through the project management structure.
- ⇒ Subcontractor Companies – companies appointed under contract to provide services and whose personnel report through their own company management structure.

Subcontractors shall be managed and controlled by:

- ⇒ Procurement of services and selection of Subcontractor Companies: Health, safety and environmental performance of Subcontract Companies shall be reviewed as part of the tendering process and prior to award of any contract. The review includes the historical track record for similar contracts, competency of personnel, management systems, certifications and accreditations and regulatory compliance of the subcontractor and the effectiveness of activities controls that would apply to the contract.
- ⇒ Application of management system and project procedures to subcontractors: All work activities carried out by Subcontractor Companies or persons employed by Contracts shall be governed by the project management system and associated procedures. Compliance with the project management system and procedures is enforced as a condition of contract.
- ⇒ Provision of pre-information to subcontractors: Subcontractor Companies shall be informed of the requirements of the project management system in advance so as to ensure suitable and sufficient preparedness for activities control of their work assignments and services.
- ⇒ Responsibility of subcontractors for compliance: Subcontractor Companies shall be held responsible for the compliance of their

personnel with the requirements of the management system and procedures, and for providing their personnel with the means to ensure compliance, e.g. information, instruction, training, work equipment, personal protective equipment, etc.

- ⇒ Supervision of subcontractors: A supervisor is appointed for each Subcontractor Company or person employed by Contract from the Department responsible for managing the contract. This supervisor has responsibility for oversight of the subcontractor and ensuring that work activities comply with health, safety and environmental requirements.

These management activities are coordinated to provide a framework for control of subcontractors from pre-tender through appointment to carrying out of the contract works.

To support compliance, subcontractors shall be issued with Subcontractor instructions that summarize the key management system requirements and procedures.

6.6.5 EMERGENCY PREPAREDNESS AND RESPONSE

Emergency preparedness and response is managed by Emergency Preparedness and Response Plan. This plan identifies the detailed precautions and arrangements in place for managing emergencies, and how they are maintained in readiness. The plan is supplemented by specific procedures for different types of emergency – fire and explosion, injury to persons, rescue from confined space, rescue from height and spillage or escape of hazardous substances, avalanche, soil/rocks collapsing, and water flooding.

Emergency preparedness and response arrangements and planning are tested by emergency drills at intervals not exceeding 6 months.

Emergency Preparedness and Response Plan are reviewed at intervals not exceeding one year.

6.6.6 WELFARE

Adequate welfare facilities must be provided for personnel in the project in line with contractual requirements and local regulations. The main contractor in the project has a responsibility to ensure that all persons working in the project are meeting the legal requirements.

Welfare facilities should be planned to reflect the site size, the nature of the work and the amount of people who would be using the facilities. It should also be adequately maintained and cleaned with consideration given to the following:

- ⇒ Sanitary Conveniences
- ⇒ Adequately cleaned ventilated and lit;
- ⇒ Adequate provisions made for different sexes.
- ⇒ Washing Facilities
- ⇒ Provided in appropriate locations (i.e. immediate vicinity of Sanitary Conveniences / changing rooms);
- ⇒ Running hot and cold water;
- ⇒ Soap or other suitable means of cleaning;
- ⇒ Towels or other suitable means of drying.

- ⇒ Drinking Water
- ⇒ Conspicuously mark with appropriate signs where necessary for Health reasons;
- ⇒ Provision of drinking vessels or other suitable method of drinking.
- ⇒ Areas for Changing and Storing Clothes
- ⇒ Facilities for drying clothes
- ⇒ Adequate provisions made for different sexes
- ⇒ Rest Areas
- ⇒ Provide one or more adequately spaced rest rooms;
- ⇒ Ensure there are suitable arrangements to protect non-smokers from tobacco smoke;
- ⇒ Where necessary ensure provisions are made for pregnant;
- ⇒ Provision of means for boiling water, preparing and eating food.
- ⇒ Heating / Air Conditioning
- ⇒ Use properly maintained electrical equipment;
- ⇒ Provision of adequate ventilation for cookers.

6.7 CHECK AND CORECTIVE ACTIONS

6.7.1 INSPECTINS, WALKDOWNS, AUDITS AND OBSERVATION CARDS

The control and implementation of health and safety and environmental management is checked by a series of planned inspections, walk-downs and audits. These activities provide oversight and independent assurance of the implementation, effectiveness and regulatory compliance of the health and safety and environmental controls adopted at the project.

Planned inspections, walk-downs and audits are supplemented by additional checks when required – for example, reviews as part of corrective actions following accidents/incidents, oversight of special or high risk work activities, and reviews of project conditions in response to regulatory changes.

The planned inspections, walk-downs and audits are:

TYPE OF INSPECTION, WALK-DOWN OR AUDIT	SCOPE OF INSPECTION, WALK-DOWN OR AUDIT	FREQUENCY	RESPONSIBLE PERSONS	RECORDS ⁽¹⁾
Shift Walk-downs	Method statement Risk assessment Control measures compliance Work equipment and tools Workers readiness and awareness Housekeeping Permit To Work	Every shift	Supervisor of each Group with respect to the areas under the Groups' responsibility	Area/Job-site Checklist Workplace inspection
Health and Safety and Environmental Inspections	Hazard/risk controls Pre-task planning and arrangements Job Safety Analyses / Risk	Daily	HSE Engineers	Area/Job-site Checklists Workplace inspection

Environmental and Social Management Plan

TYPE OF INSPECTION, WALK-DOWN OR AUDIT	SCOPE OF INSPECTION, WALK-DOWN OR AUDIT	FREQUENCY	RESPONSIBLE PERSONS	RECORDS ⁽¹⁾
	Assessments (JSA/RA) Work equipment and tools Worker acts and behaviour			Work Activity Checklists (Visual inspection of Harness, Slings, Scaffolding)
Management Walk-downs	Hazard/risk controls Pre-task planning and arrangements Job Safety Analyses / Risk Assessments (JSA/RA) Work equipment and tools Worker acts and behaviour	Monthly	Project Manager Site Manager Department Head – Health and Safety and Environment Department Line Managers	Minutes of walk-down
Environmental Monitoring Quality Assurance Audits	Dust monitoring Industrial effluent, domestic wastewater and stormwater monitoring Environmental noise monitoring Solid waste disposal Groundwater monitoring Soil monitoring	3-monthly	Environmental Engineer	Environmental Monitoring Quality Assurance Checklists
Internal Audits	Hazard/risk controls Compliance with ISO 14001 Compliance with OHSAS 18001	Annual	ISO Internal Auditors (trained personnel nominated as ISO Internal Auditors)	ISO 14001 / OHSAS 18001 Internal Audit Checklists ISO 14001 / OHSAS 18001 Internal Audit Report
Client and Third Party	Compliance control			Audit Report Safety Notice

Records may be supplemented by field notes hard copies or electronically used to facilitate execution of the inspection, walk-down or audit.

The checklists provide the mechanism (scoring/rating system) for evaluating the subject and judging whether the application of health and safety and environmental controls is satisfactory.

The results of inspections, walk-downs and audits are compiled into an electronic database. The database may be sorted, filtered or grouped by any of the data fields for statistical analysis, performance review and reporting.

All personnel may report observations related to health and safety or environmental management at any time via:

- ⇒ Verbal communication to line Supervisors/Managers or HSE Manager
- ⇒ Completion in writing of Observation Form.

On receipt of verbal communication of an observation, line Supervisors/Managers or HSE Manager complete a written Observation Form to record the notification.

Alternatively, completed Observation Form may be returned by personnel directly to line Supervisors/Managers, or the HSE Manager. Line Supervisors/Managers forward all Observation Form, in turn, to the HSE Manager.

Observation Form may be carried by personnel and also are provided at HSE Office for personnel to use.

Observation Form are reviewed by the HSE Manager and actions determined depending on the observation.

6.7.2 ACCIDENT NOTIFICATION, INVESTIGATION AND REPORTING

Accidents may involve fatalities or injuries to personnel, environmental releases or damage, or property damage (including by fire or explosion).

Accidents are managed by:

- ⇒ Notification: Any witness to an accident/incident may make a verbal communication or complete a written form that is submitted to line Supervisor, line Manager or HSE Manager. Where the original notification is verbal, a form is completed as soon as possible by the line Supervisor, line Manager, HSE Manager.
- ⇒ Investigation: Accidents/incidents are subject to initial classification of seriousness, upon which a level of investigation is determined (accident/incident severity matrix). The accident investigations establish the facts of the accident, causes (direct, contributing factors and root) and corrective actions.
- ⇒ Reporting: All accidents/incidents conditions are recorded in an Accident/incident Database. Accidents/incidents investigations are also documented by an Accident/incident Investigation Report.
- ⇒ Distribution: Accident/incident notifications and reports are distributed according to the seriousness assigned to the accident. The process of notification and reporting comprises distribution within company and also to management via on-line accident/incident reporting.
- ⇒ Safety Alert will be issued and displayed. Lesson learned meetings and will be carried out.

- ***Classifications of Accidents and Near misses***

TYPE	CATEGORY
Personal injury/illness	<ul style="list-style-type: none"> ⇒ Fatality ⇒ Lost time injury ⇒ Medical treatment ⇒ Restricted duty ⇒ First aid
No personal injury/illness	<ul style="list-style-type: none"> ⇒ Near miss ⇒ Property damage (including vehicle damage) ⇒ Environment accident/incident

• **Category definitions**

- ⇒ Fatality - Where a person, as a result of an accident at work, has suffered an injury or illness which is a cause of his/her death within one year of the date of that accident whether or not the accident had been previously reported.
- ⇒ Lost Time Injury - An injury or illness resulting from work activities and has prevented a person from carrying out work for a period of 3 days, excluding the day of the injury.
- ⇒ Medical Treatment - Injuries involving medical treatment other than those stated above (e.g. a person cuts his hand and goes to hospital receives treatment and returns to work the same day or the following day).
- ⇒ Restricted duty - An Injury where the injured person is prevented from doing the routine functions of their normal job for a period of at least one full day, excluding the day of the injury.
- ⇒ First Aid Injury - an accident such as a cut or graze etc. where first aid was administered at site but no further action was necessary and the injured person resumed work on usual duties.
- ⇒ Near Misses - any event that could have but did not result in personal injury or property damage.
- ⇒ Environmental Accident/Incident - Any of the following, which is of sufficient magnitude that it is necessary to declare the incident to the local authorities:
 - oil, petrol or diesel spillage or leakage;
 - any leakage or spillage of hazardous substances;
 - uncontrolled disposal or spillage of waste material;
 - damage to protected species (both flora and fauna)
- ⇒ Property Damage - Any incident that results in loss or damage to property or material - collision, mechanical damage, fire, explosion, electrical overload, overheating, over-use, spill or release of chemicals or other substances, other.

- **Immediate response to Accidents**

In the event of an accident and near miss personnel shall notify immediately Emergency Call Center. The designated operator for Call Center shall then organize and facilitate immediate response to the accident and mobilize emergency services, as required, in accordance with the Emergency Preparedness and Response Procedure and related procedures.

If an accident occurs:

1. Stop work
2. Verbally inform the designated Responsible Person
3. Make accident scene safe
4. Do not put yourself in danger.
5. If you are trained provide first aid and medical evacuation of any injured persons
6. Stop, mitigate and control any releases associated with the accident
7. Preserve the accident scene and secure from unauthorized access

- **Notification of accidents**

Initial Notification of Accidents

As soon as reasonably practicable, managers shall be notified for an accident occurred. The Call Center Operator shall notify the HSE Manager. HSE Manager or designated by him person shall complete the Accident/incident Report notification part. To confirm validity of the accident immediately upon receipt of an accident notification, where it is appropriate, confirmatory or further evidence of the accident may be obtained in order to determine validity.

Notification of Site Management

Line supervisors/managers, HSE Manager shall inform the Site Management, any other relevant responsible managers of all accident notifications.

Accident notifications shall be:

⇒ Fatality	Immediate
⇒ Lost Time Injury	Immediate
⇒ Restricted duty/transferred duty	24 hours
⇒ First aid days	3 working days
⇒ All other accidents days	3 working days

As soon as reasonably practicable, a copy of completed Accident/incident Report shall be provided to the Site Manager and any other relevant responsible managers.

- **Accident Investigation**

If the validity of the accident is NOT confirmed, the accident shall be recorded on Accident/incident Report Form as not validated with a reason for this decision.

If the validity of the accident is confirmed, the accident investigation shall be carried out and recorded on Accident/incident Report Form within 3 working days of any accident occurring.

The person (s) who will take part in the investigation will be determined in accordance with the severity of the accidents.

	SEVERITY CLASSIFICATION			
TYPE	LOW	MEDIUM	HIGH	VERY HIGH
Accident investigation by:	<ul style="list-style-type: none"> Contractor HSE Engineer and person's Supervisor of the company involved in the incident 	<ul style="list-style-type: none"> Contractor HSE Manager and the Construction Engineer who supervises the involved company HSE Manager and affected person's Supervisor of the company involved 	<ul style="list-style-type: none"> Contractor Site Manager, HSE Manager and Responsible Engineer; Site Manager, HSE Manager and Supervisor of the company involved; 	<ul style="list-style-type: none"> Contractor Project Manager, Site Manager, HSE Manager and Responsible Engineer; Project Manager, Site Manager, HSE Manager and Supervisor of the company involved; 3rd party
Personal injury/illness	First aid	Medical treatment	Lost Time Injury (Temporary Disability) Restricted duty	Fatality Lost Time Injury (Permanent Disability)

*Near misses that could result in one of the personal injury or property damage category are investigated.

- Contents of Accident/incident Report Form**

The format of the Accident Form is illustrated in the attachment.

- Detailed Accident Investigation**

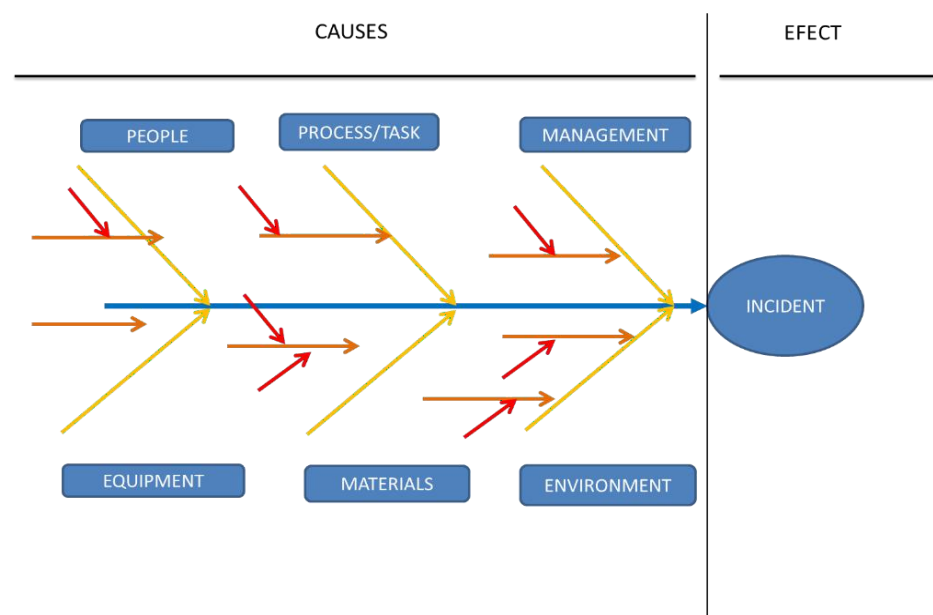
Incidents that were assessed as cases with medium or high severity consequences shall be subject to detailed investigation. References to any separate Accident Investigation Report and supplementary documents together with a summary of the root cause analysis and corrective actions shall be given. Any separate accident investigation and supplementary documents shall be attached to the Accident/incident Report Form.

The outcome of the detailed accident investigation shall be the determination of corrective actions. The completion of these corrective actions shall be made prior to final close of the accident investigation.

The detailed accident investigation shall be carried out and recorded on Accident/investigation Report Form within 15 working days of any accident occurring. It will consists the following

- ⇒ Summary of factual information
- ⇒ Summary of findings of analysis of factual information
- ⇒ Witness statements/interview notes
- ⇒ Supporting information – photographs, plans, diagrams, etc
- ⇒ Reference list of applicable documents and procedures
- ⇒ Action plan for implementation of corrective and preventative actions

Factual information shall be collected using a checklist. Root cause analysis should be used.



Factual information on accidents shall be obtained, wherever practicable, related to the:

- ⇒ Date of accident
- ⇒ Time of accident
- ⇒ Description of accident
- ⇒ Photographs, diagrams, etc of accident scene and relevant aspects of accident
- ⇒ Location of accident and map/site plan
- ⇒ Timeline of accident and emergency response and chain-of-events
- ⇒ Emergency response to accident, including provision of first aid to injured persons
- ⇒ Communication to, and response of, emergency services – police, fire service, ambulance/hospital, other relevant parties
- ⇒ Work activity and working conditions at time of accident
- ⇒ Workplace conditions at time of accident

- ⇒ Condition of persons involved at time of accident – tiredness, health and well-being, stress, influence by alcohol, medicines or drugs, etc
- ⇒ Type of harm – personal injury, environmental release, fire or property damage (or a combination)
- ⇒ Injuries to injured persons – type, severity, mode of injury (impact, laceration, burn, etc)
- ⇒ Property damage to plant or equipment – type, severity, etc
- ⇒ Releases of hazardous substances – to air, surface water, groundwater or soil
- ⇒ Roles of involved persons – direct, indirect, supervisory, emergency response, witness
- ⇒ Details of persons involved – names, positions/occupations, qualifications, experience, time employed/worked at project site and company
- ⇒ Organizations involved – names, roles in work activity
- ⇒ Method statements and risk assessment for work activity
- ⇒ Safe system of work governing work activity, including Work Orders, permits-to-work, other approvals, etc
- ⇒ Procedures and work instructions issued to persons involved
- ⇒ Training of persons involved – site induction, job-specific training, safety training
- ⇒ General status of site operations at time of accident
- ⇒ Context of work activity with other site operations
- ⇒ Past experience of similar work activity being carried out
- ⇒ Past experience of involved persons with respect to work activity
- ⇒ Plant, systems equipment and/or tools involved
- ⇒ Hazardous materials or substances involved
- ⇒ Personal protective equipment in use
- ⇒ Weather conditions, visibility/lighting, temperature, noise and other temporal factors

- **Cooperation of Personnel**

All persons shall cooperate fully with accident investigations

All persons shall provide information or make witness statements as part of accident investigations as soon as practicable upon request.

- **Preservation of Scene of Accidents**

Scenes of accidents shall be preserved intact and unchanged pending completion of an accident investigation.

Plant, systems, equipment and tools involved in accidents shall be impounded and removed from use pending completion of the accident investigation.

Interference with scenes of accidents or plant, systems, equipment and tools involved in accidents by deliberate acts or omissions is prohibited.

- ***Review and Approval of Accident Investigations***

Corrective and preventative actions shall be reviewed and approved by a responsible manager with respect to:

- ⇒ Approval that actions are appropriate to resolve causes of accident
- ⇒ Approval of responsible persons and due date for completion of actions
- ⇒ Approval of resources to implement actions
- ⇒ Approval that actions have been completed

Final accident reports shall be reviewed and approved by the HSE Manager and Site Manager. Lessons learnt will be shared within the all companies involved in the project.

- ***Record-keeping***

Accident notifications and investigations shall be documented in writing by the Accident/investigation Report Form together with relevant additional reports and supporting documents. These documents shall be retained as records of the accidents and completion of corrective actions.

Completed Accident/incident Report Forms, additional reports and supporting documents, and the Accidents /incident Database, shall be retained until the end of the project.

6.7.3 NON-CONFORMITIES, UNSAFE ACTS AND UNSAFE CONDITIONS

Non-conformances with the requirements, unsafe acts and unsafe conditions may be identified as relevant to one or more of the findings from any of:

- ⇒ Observations
- ⇒ Inspections, walk-downs and audits
- ⇒ Accident investigation reports
- ⇒ Site Safety Notice
- ⇒ Emergency drills
- ⇒ Departmental Health, Safety and Environment meetings
- ⇒ Health and Safety Committee meetings
- ⇒ Feedback from meetings with personnel, subcontractors and other parties
- ⇒ General communications from personnel
- ⇒ External communications and complaints from third parties
- ⇒ Performance reviews
- ⇒ Health, Safety and Environmental Management System Reviews
- ⇒ Audits

6.7.4 CHANGE MANAGEMENT

Substantial modifications or other changes that may have a significant effect on health and safety or environmental management require formal review and approval via a change management process.

The key changes that may represent substantial modifications are:

- ⇒ Installation of new equipment
- ⇒ Replacement of equipment by a different type or using a different process for the same function
- ⇒ Removal of existing equipment
- ⇒ Change to installation or maintenance practices, procedures or philosophies
- ⇒ Change to management structures or organizational arrangements
- ⇒ Change to staffing or shift systems

These types of changes may directly impact on the hazards/risks, exposure of personnel to hazards/risks, capability of health, safety and environmental management or control to be implemented, and/or the capability to respond to incidents and emergencies.

6.7.5 HSE INCENTIVE PROGRAM

An incentive program shall be developed for the site in accordance with Site EHS Merit and Demerit Schemes. The programs increase awareness and help to improve the HSE culture.

6.7.6 DISCIPLINARY PROCEDURE

The disciplinary procedure is an essential part of the HSE policy for all employees, including direct hire employees, contract hires, technical field advisors and all commissioning and Contractor personnel, associated with this construction project are required to follow health and safety and environmental policies and procedures. This policy provides reasonable guidelines to enforce disciplinary action. This policy will be implemented by means of the HSE Disciplinary Procedure under which HSE Violation Notice will be issued.

Workers will be provided with the required training and information, or re-training to maintain their knowledge.

The HSE officer has the right to discharge workers who are observed performing work in an unsafe manner that would endanger either themselves or another worker. Such workers shall be subject to disciplinary action up to and including termination. The Site Manager and HSE Manager will consult with Human Resources to determine the course of action appropriate to the circumstances. Steps to be taken, at a minimum, may include the following depending on the severity of the actions:

- ⇒ Verbal Warning: As the first step in correcting unacceptable behaviour, the employee's immediate supervisor/foreman will review the pertinent facts with the worker. They will consider the severity of the problem and the worker's past performance. A verbal warning will be issued to the worker, which will be documented by the supervisor and copies distributed to the worker's personnel file and to the Site HSE Manager.

- ⇒ Written Warning: If the unacceptable performance continues, the next step shall be a written warning. The written warning shall clearly state the policy that was violated and the steps the worker must take if it is to be corrected. A probation period shall be part of the written warning. A written warning requires the relevant company HSE Expert/Engineer and supervisor to ensure that the worker has satisfactorily completed a minimum re-training session related to the HSE policy violated. This training must be completed within the probationary period. Documentation, with copies forwarded to the HSE office shall be maintained in the worker's personnel file. At the completion of the probationary period, the employee's supervisor will meet with the worker to determine if the worker has achieved the required level of performance.
- ⇒ Suspension and/or Termination: The worker may be suspended without pay for a period of 1-3 days if improvement in safety performance is not apparent, or if the worker has violated another HSE policy during the probationary period.
- ⇒ Zero tolerance: immediate dismissal will be applied for high risk violations

Examples of conditions for termination:

- ⇒ Wilful Misconduct - a wilful disregard for the safety and well-being of themselves or others including company property.
- ⇒ Repeat Violations – Repetitive violations are subject to termination
- ⇒ Serious Violations of Policy – Any violation of Fall Protection, Drug/Alcohol/Smoking Policies, and acts or threats of violence and theft are examples of grounds for immediate dismissal.
- ⇒ Disciplinary Responsibility of Contractors:

All costs of correction shall be borne by the Sub-contractor deemed responsible. If more than one Sub-contractor is deemed responsible, the HSE and Site Manager's decision of responsibility shall be final.

The Sub-contractor shall not be relieved of liability and/or obligation local regulations, nor HSE Plan. The HSE Manager may recommend withholding payment of any sums due to Sub-contractors, for failure to comply with the Project Specific HSE Plan's policies and procedures. The HSE Site Manager shall issue a written warning, 24-hour notice in this regard requiring immediate response by the Sub- contractor.

6.7.7 DOCUMENT CONTROL SYSTEM AND RECORD KEEPING

Documents and records are kept in a centralized Document Control System.

The Document Control System implements a standardized means of referencing with unique identification numbers, file storage and control of access and distribution for all documents and records associated with the project performance.

Health, safety and environment-related documents and records have specific reference numbers within the structure of the Document Control System. The referencing system for these documents and records is described in the Quality Management Plan.

6.8 REVIEW

6.8.1 PERFORMANCE REVIEW

The health, safety and environmental performance of the project are reviewed to assess the effectiveness of health, safety and environmental controls.

Each review comprises an appraisal of project performance with respect to:

- ⇒ Compliance with corporate requirements:
- ⇒ Company's policy
- ⇒ Standards and procedures
- ⇒ Objectives and targets
- ⇒ Progress towards achieving objectives and targets
- ⇒ Health and safety statistics
- ⇒ Sickness absence statistics
- ⇒ Occupational health statistics
- ⇒ Environmental performance statistics
- ⇒ Findings and lessons learned from project experience:
- ⇒ Observations
- ⇒ Site Safety Notice
- ⇒ Inspection, walk-down and audit findings
- ⇒ Accidents/incidents
- ⇒ External communications and complaints
- ⇒ Consultations with personnel (including formal meetings, informal communications and other means)
- ⇒ Action items related to the above
- ⇒ Changes to health, safety and environmental regulations
- ⇒ Substantial planned changes in the project and associated effects on health, safety and environmental management

In addition, one of the performance reviews each year is expanded to provide the forum for Management Review of Health, Safety and Environmental Management System. This review includes additional items:

- ⇒ Follow-up actions from previous Management Review
- ⇒ Setting of annual or other objectives and targets

The reviews are carried out by:

- ⇒ Project Manager
- ⇒ HSE Manager
- ⇒ Line Managers

Each performance review is carried out at a 6-monthly Health, Safety and Environmental Performance Review Meeting. To facilitate performance reviews a 6-monthly Health, Safety and Environmental Performance Report is prepared for consideration at each review. The report is used as the agenda for the

review meeting. The outcome of each review is documented by the meeting minutes.

6.8.2 MANAGEMENT REVIEW OF HSE MANAGEMENT SYSTEM

The health, safety and environmental management system is reviewed to assess its effectiveness and fitness-for-purpose in ensuring appropriate health, safety and environmental controls are adopted at the project in accordance with international best practice and ISO 14001 / OHSAS 18001.

The management review is facilitated by one of the 6-monthly Health, Safety and Environmental Performance Review Meetings, and the outcome of the management review is documented in the applicable meeting minutes.

The Management Review of the Health, Safety and Environmental Management System is carried out at intervals not exceeding one year.

6.8.3 REVIEW AND UPDATING OF HSE MANAGEMENT SYSTEM PLAN

The health, safety and environmental management system is reviewed to assess its effectiveness and fitness-for-purpose at intervals not exceeding one year at Management Review of Health, Safety and Environmental Management System.

After each review, changes to the management system are made and the Plan and associated documents and procedures are revised and updated as required.

6.9 CONTINUOUS IMPROVEMENT

The framework for continuous improvement and “learning from experience” utilizes processes established within the management system for collection of information, review and dissemination of findings:

- ⇒ Setting and tracking of objectives and targets:
 - Performance Indicators
 - Continuous improvement program
 - Collection of information from experience of construction and maintenance:
 - Accidents/incidents
 - Observations
 - Inspections, walk-downs and audits
 - Emergency drills
 - Feedback from meetings with personnel, subcontractors and other parties
 - General communications from personnel
 - Complaints from third parties.
- ⇒ Review of lessons learned and improvement opportunities:
 - Accident investigations
 - Near-miss/unsafe conditions investigations
 - Non-conformance investigations
 - Meetings with personnel, subcontractors and other parties

- Project Performance Reviews
- ISO 14001 / OHSAS 18001 internal audits
- Health, Safety and Environmental Management System Reviews
- Corporate audits
- ⇒ Sharing of lessons learned within the following entities:
 - Department Health and Safety and Environment Meetings
 - Health and Safety Committee Meetings
 - Health, Safety and Environmental Performance Review Meetings
 - Project Manager Briefings
 - “All-hands” meetings and other group forums as appropriate

The continuous improvement cycle acts to encourage positive improvement actions to be identified from any events that may occur (eg incidents, non-compliances, etc), and from observations of existing project operations.

Continuous improvement findings and proposals are reviewed at intervals not exceeding 3 months at Project Performance Reviews.

7 PROJECT SPECIFIC HEALTH AND SAFETY RULES AND IMPLEMENTATION

7.2 GENERAL HSE RULES

All employees working under the Contractor shall be provided with a Site safety rules instruction which covers general health and safety rules for the project (see the attachment). Visitors to the project shall be given adequate information on HSE requirements applicable to the project. Visitors' instruction form is given in the attachment.

7.3 PROJECT ACCESS/EGRESS CONTROL

The access and egress to the project is controlled by a procedure which defines the structure of formal process for entering and working in the project, ensuring that proper requirements are met for personnel and equipment. This procedure ensures that all personnel in the project assigned with a task meets these requirements before starting work.

The access to the mobilisation and Contractor Construction work activities areas (offices, dormitories, plants and hazardous areas) will be controlled by the Construction Company.

The set of documents that must be prepared by the Contractor resources department for each employee before he/she starts work at site are following:

1. ID (official) copy
2. Registration on Social Insurance and Social Security
3. Medical Fitness Certificate (Medical report)
4. Occupational Training Certificate
5. Induction Training Records
6. PPE Handover Records
7. Personal Contract
8. Driving Licences for drivers

9. Operator Certificates for operators
10. Notification to Police or gendarmerie
11. Certified First aiders (minimum 1 for 10 personnel)
12. Fire Fighters (numbers will be decided by Site HSE Personnel)
13. Notification to Regional Authority for Night Shift Workers (where applicable)

If the Health Report states that the person are fit to the work that they will be assigned for in the project. Mandatory Personal protective equipment (PPE) to the new employee shall be provided. Later the additional PPE that are required for specific jobs shall be submitted to the employee in accordance with the specific risk assessment for the job.

After that the new employee shall attend the site induction training. Induction training shall be delivered only by the HSE department.

Upon successful completion of the procedure, Company issues site pass cards.

Site pass cards are personal, not transferable and holders are obliged to show it at any check by the Contractor. If stolen or lost must be reported. If borrowed, then both the borrower and the Financier will not again be allowed to enter on site.

Required documents for vehicles are:

1. Vehicle Registration Documents
2. Insurance for Vehicle
3. Driving Licence of the Driver

Required documents for scaffolding are:

1. Certificate for each scaffolding member: Pipe, clamp, base plate, etc.
Scaffolding materials: EN12810, EN12811 and EN12812 Couplings: EN74
2. Ladders: EN131
3. Mobile towers: EN1004
4. Suspended working platforms: EN1808
5. Manufacturer Manual (Guidelines for method of installation)
6. Erection plan & Static calculation for the cases when the Manufacturer's Manual does not cover the scaffolding shape erection.

Required documents for electrical equipment and generators:

1. TSE or CE Certificate for the equipment
2. Manufacturer Manual including technical specification
3. Copy of the Last Maintenance Record

Documents required for electrical panels:

1. EN or CE Certificate for Cabin and Components in (Switches, RCD's, etc.)
2. Single Line Diagram (30 mA RCD shall be in diagram)
3. Power Calculation
4. IP Confirmation for Cabin (Min. IP55)
5. Grounding Report

Documents required for compressors:

1. TSE or CE Certification
2. Manufacturer Manual with Technical Specification
3. Annual Inspection Certificate
4. Copy of Last Maintenance Record

Required documents for pumps:

1. TSE or CE Certification
2. Manufacturer Manual with Technical Specification
3. Copy of Last Maintenance Record

Documents required for lifting equipment:

1. Legal Passport
2. Manufacturer Manual with Technical Specification
3. Load Chart
4. Periodical Inspection Certificate by Authorized Person
5. Insurance Document for Equipment
6. CE declaration of conformity

Documents for machinery (excavator, loader, cylinder, concrete pump, hydraulic breaker, etc.)

1. Legal Passport
2. Insurance Document for Equipment
3. CE declaration of conformity
4. Manufacturer Manual with Technical Specification
5. Periodical Inspection Certificate

7.4 SECURITY

Organization for security of the project shall be implemented in accordance with a specific procedure. The objectives of these security procedures will be designed to ensure:

- ⇒ Members of the public and unauthorised visitors cannot gain access to the project.
- ⇒ A means of accounting for personnel in each area in the event of an emergency.
- ⇒ Unauthorised removal of plant and equipment from the project is prevented.

A suitable fence shall be installed around the project areas (where applicable) with access to and egress from the project via gates under the control of security guards.

Tools and materials shall only be removed from the project on approval of the site management. Vehicles including private cars entering or leaving the project shall be subjected to security searches.

7.5 TRAFFIC MANAGEMENT

Vehicles, machinery, and construction plants engaged in the project shall adhere to the designated traffic routes.

A scheme on traffic management showing road and pedestrian routes including road crossing points for pedestrians, road signage and access to work areas is represented in TMP

7.6 VEHICLES and HEAVY MACHINERY RULES

All vehicles in the project will be registered and issued with a vehicle pass/registration cart.

All vehicles unless authorised to be in the project shall be parked at the designated areas. Motor vehicles and other mobile equipment shall not be parked adjacent to fire hydrants, firefighting equipment, building exits, walkways, etc. In order to reduce the risk of parking accidents, vehicles are to be reverse parked.

The speed limit is max 30kph and must be adhered to at all times. Speed limit signs shall be installed along the project roads and the project's access road.

Where the vehicle traffic passes in vicinity of public the speed limit shall be reduced to 10km/h.

All heavy goods vehicles, vehicles with closed sides, high sided vehicles and other vehicles including operator driven plant with restricted rear vision shall where reasonably practicable be fitted with both visual and audible warning devices for reversing. Where a vehicle is not fitted with visual and audible warning, reversing may be permitted to take place in the presence of a nominated observer (flagman, banksman).

No personnel shall be allowed to outrig from work vehicles on side or top of the vehicles in any manner. Mobile working equipment, firefighting and ambulance cars must not be used for transportation of personnel other than those uses for which the equipment is provided.

Operators of heavy machinery and equipment are obliged to inspect them before use on daily bases. Operators shall fill in a checklist and report to his/her line manager for any problems.

Machinery maintenance will be executed only at designated areas where measures will be taken against oil spills.

Machinery will be used only for its purpose. No persons must be lifted in the bucket.

7.7 REFUELLING

A dedicated dispensing truck will be used to transport fuel around the site for the purpose of refilling other equipment, i.e. supplying site generators, fixed plant (cranes) etc.

All filling and dispensing, for storage or use, will be strictly controlled.

- ⇒ These activities will not be conducted in the vicinity of any identified environmentally sensitive receptors.
- ⇒ Refuelling of fixed and mobile plant and vehicles will be carried out in a careful and controlled manner by trained operatives preferably on an a stable and impermeable surface;
- ⇒ A supply of suitable absorbent materials will be available in the vicinity of refuelling points and on board the tanker for use in dealing with minor spillages;
- ⇒ Vehicles will not be left unattended during refuelling. Jamming open of the delivery valves will be strictly prohibited.
- ⇒ Hoses and valves will be regularly checked for signs of wear or damage any faulty equipment will be replaced or repaired.

- ⇒ Drivers of refuelling vehicle to ensure hoses and fuel delivery systems are turned off and securely locked when not in use.

Drip trays will be installed to contain leakage from equipment such as generators and pumps, where internal secondary containment measures are not already built into the equipment.

Drip trays will be maintained and kept drained of rainwater at all times. Containers will be fit for purpose, clearly labelled, and in sound condition.

Primary collection of oil drips from equipment items will be into sealed drip trays. Areas that are used to store hydrocarbons will be positively isolated from the drainage system. Where possible the ground will be sloped to a low point to capture any spillages and to ease clean-up with nearby spill kits.

All refuelling crews on the construction sites will have spill clean-up kits with them at all times.

Operators will receive training on the correct safety procedures for any of the following tasks for which they are responsible:

- ⇒ Operating dispensing equipment, and recognising and reporting faults;
- ⇒ Recording tank contents and meter readings;
- ⇒ Using other site equipment, and recognising and reporting faults;
- ⇒ Dealing with potential danger, including the use of firefighting equipment, dealing with leakages and spillages, notifying the emergency services and recording accident damage;
- ⇒ Procedures when delivery of petrol takes place - only people appointed and trained as 'competent persons' under the appropriate Regulations may receive deliveries;
- ⇒ Procedures for dispenser switch-off, tanker parking, tanker and tank dip checks or gauge readings, petroleum certification, and completion of fuel stock control records;
- ⇒ Site opening and closing procedures;
- ⇒ Avoiding skin contact with fuels.

The control procedures mentioned above will be the main discussion points of the fuel handling training.

7.8 BARRICADING, SIGNAGE, AND NOTIFICATIONS

Line managers and supervisors shall be responsible to ensure erection and proper maintenance of barriers or barricading that is required to protect workers, visitors, general public, or to prevent unauthorized access in to designate work areas or exclusion zones.

All barriers or barricading used on the project must be of a suitable material and strength sufficient to perform the task required of it. In other words, flag bunting, red-white tape or similar material is not adequate to prevent a person from falling into an open trench or pit.

All exposed areas where a person could fall and suffer serious injury such as lift shafts, floor openings edges, stairwells, platforms, walkways, excavations etc. shall be adequately barricaded and where necessary, well lit.

Barricades shall also be used to prevent personnel entering an area where risk of injury is high e.g., during overhead work activity or lifting operations etc. Such barricading

must provide clear visual warning and be of contrasting colours. The reason for the barrier shall be attached by means of a signage, tag or label.

Where possible barriers shall be placed at least one metre from the edge of an open trench or excavation.

7.9 HOUSEKEEPING

Line managers and supervisors shall conduct housekeeping inspections of their respective work, storage or lay down areas frequently (minimum twice daily) taking corrective action immediately where necessary.

There shall be areas designated for material storage and the temporary storage of segregated waste. Waste codes shall be clearly displayed.

The following rules for housekeeping shall apply:

- ⇒ All materials, equipment and apparatus shall be stored neatly in their designated areas. For the selection of such areas the main wind direction will be taken into consideration.
- ⇒ All scrap, construction waste and packing material shall be brought to specially designated areas. The disposal shall be organized for the project on a regular basis and within the terms imposed by the relevant local legislation.
- ⇒ The accumulation of waste is prohibited.
- ⇒ Individual work places shall be kept reasonably clean at all times.
- ⇒ Tools, timber and other building materials shall be kept out of the way so not to cause tripping hazards.
- ⇒ Timber with protruding nails and other similar hazardous conditions shall be dealt promptly and removed from the project.
- ⇒ Empty wooden boxes shall to be removed from the working area to the designated dumping area on a regular basis.
- ⇒ Each employee shall leave his or her workplace in a clean and safe state on the completion of the task and at the end of each shift.

7.10 PERSONAL PROTECTIVE EQUIPMENT

Personnel shall be protected from workplace hazards by the use of higher level measures such as elimination, substitution, engineering controls, work practices and administrative controls. When these controls are not feasible or do not provide sufficient protection, an alternative/ supplementary method of protection is to provide personnel and visitors with personal protective equipment (PPE). Properly selected PPE shall be used to support higher-level workplace hazard controls, or as primary controls against hazards where found suitable.

PPE does not eliminate nor change the hazard to make it safer.

Adequate and well maintained PPE shall be provided in accordance with the specific works risk assessment. PPE selection, sufficient training to ensure correct and proper use of such equipment, PPE maintenance and storage, inspection and replacement are explained here below.

All personnel and visitors required to use PPE to prevent exposure to hazards shall be instructed in its proper selection, use and care.

Personal and visitors required to use PPE shall be adequately supervised.

The following PPE is mandatory in the project at all times, failure to comply with the below rules may result in disciplinary action:

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- ⇒ Safety Helmets (TS EN 397 +A1/CE)
- ⇒ Work shoes or boots with toe and sole protection (TS EN ISO 20345 S3)
- ⇒ High Visibility jackets (TS EN ISO 20471)
- ⇒ Glasses (TS 5560 EN 166)/CE)
- ⇒ Long trousers or long sleeve shirt or overalls

Job specific PPE (as per relevant risk assessment) shall be delivered to the employees considering the following rules:

PROTECTION TYPE	ACTIVITY	STANDARD	DETAILS	NOTES
Head protection	Mechanical works	TS EN 397+A1	Industrial safety helmets	
	Electrical works	TS EN 50365 ANSI 20000 V	Electrically insulating helmets for use on low voltage installations	
Eye protection	Mechanical works	TS 5560 EN 166	Marking "1 F"	
	Chemical works	TS 5560 EN 166	Goggles, Frame marking 3 (for use with liquids) and F (low mechanical strength); Lens marking 1F	
		TS 5560 EN 166 + TS EN 1731	Personal eye-protection-Specifications Personal eye protection - Mesh eye and face protectors	
	Welding	TS 6860 EN 175	Personel Protection-Equipment for Eye and Face Protection During Welding and Allied Processes	
		TS EN 166 + TS EN 169	Personal eye-protection - Filters for welding and related techniques - Transmittance requirements and recommended use	
			Marking EN166 1F349, EN169 5 1= Optical clas F= Low energy impact 3= resistance to liquids 4= resistance to dust 9= resistance to molten metal 5= Shade Number	Welder's assistant (shade 1.7) Braze welding (shade 3 to 5) Oxy-cutting (shade 5 to 7) Arc welding (shades greater than 7 require a face shield)
Hand protection	Chemical loading works	TS EN 374	Marking: JKL (hydrocarbon, Inorganic base, inorganic acid); Class 4 (esistance to penetration >120 min)	
	Mechanical works	TS EN 388	Marking: 4222	
	Welding	TS EN 388 + TS EN 407	Marking: EN 388 3123; EN 407 432121	
Respiratory protection	Dust	TS EN 149+A1	Marking: FFP2	Selection shall be based on Examination of working environment (Tests for Dust amount in the working volume).
	Chemicals vapour	TS EN 12942 (Half face masks) TS EN 14387+A1 (Gas filter(s) and combined filter(s))	Marking of the Filters TS EN 14387: ABEKP2 (Brown, Grey, Yellow, Green)	Selection shall be made after carefully reading all SDSs of the chemicals used in the job.
Face protection	Chemical loading	TS 5560 EN 166 + TS	Goggles, Frame marking 3 (for	Selection shall be made

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PROTECTION TYPE	ACTIVITY	STANDARD	DETAILS	NOTES
	works	EN 1731	use with liquids) and F (low mechanical strength); Lens marking 1F or Mesh eye and face protectors	after carefully reading all SDSs of the chemicals used in the job.
	Mechanical	TS EN 1731	Mesh eye and face protectors	
Body protection	Chemical loading works	TS EN 14605+A1 Type 3 or 4	Protective clothing against liquid chemicals - performance requirements for clothing with liquid-tight or spray-tight connections Performance Class: 3	
	Welding	TS EN ISO 11611	Protective clothing for use in welding and allied processes - hoods, over boots and gaiters	
		TS EN ISO 11612		
		TS EN ISO 14116	Protective clothing - Protection against heat and flame - Limited flame spread materials, material assemblies and clothing	
	ATEX zone	TS EN 1149-5	Antistatic	Only applicable in case of explosive atmosphere presence.
		TS EN 11612	Fire retardant	
		TS EN 61482-1-2	Arc Rated, Class 1.	
Footwear	Mechanical	TS EN ISO 20345	S3 or S1P	
	Chemical	TS EN 13832-2 together with TS EN ISO 20345 S1P r S3.	Marking: K (Sodium hydroxide); L (sulphuric acid); R (sodium hypochlorite) Level 3 – 481 to 1440 minutes	

In addition to the above the following will also apply:

Workers involved in hot works such as, welding, burning and grinding will also be required to wear appropriate face, hand, head, hearing and body protection as stipulated in the relevant risk assessment and as per applicable standards. When working with any hazardous substance, or when working with dangerous formation of dust, appropriate protective clothing and respiratory equipment shall be provided and worn in accordance with the risk assessment that apply for this kind of work.

7.10.1 SELECTION OF PPE

PPE shall be selected based on the results of risk assessment and used to provide protection for all personnel on the project against:

- ⇒ Inhalation and respiratory tract hazards
- ⇒ Skin contact hazards
- ⇒ Mechanical injury and hazards
- ⇒ Construction safety hazards
- ⇒ Physical agent hazards
- ⇒ Environmental hazards
- ⇒ Radiological hazards

7.10.2 HEAD PROTECTION

Safety helmet shall be manufactured in accordance with the relevant standards.

All personnel, subcontractors and visitors in areas where there is a possible danger of head injury from impact, or from falling or flying

objects, or from electrical shock and burns, shall be protected by protective helmets.

Maintenance of the safety helmet requires the following:

- ⇒ safety helmets are cleaned regularly
- ⇒ the helmet and all of the components are examined by the person who wears it, at least weekly for dents, cracks, penetrations, other damage and unauthorized alterations
- ⇒ helmets showing any damage to the shell are withdrawn from use and destroyed
- ⇒ helmets subjected to substantial impact without showing signs of damage are withdrawn from service and destroyed
- ⇒ helmets with sound shells but damaged harness components are to have the complete harness and cradle replaced, and
- ⇒ sweat-bands are replaced as required.

Misuse of Safety Helmets

The following practices may be detrimental to safety helmets and affect their integrity or performance:

- ⇒ exposing the helmet to excessive heat and solar radiation, such as in vehicle cabins; where it is unrestrained, the helmet may also become a hazard as a missile under sudden braking or in an accident;
- ⇒ applying insect repellents, paints and similar solvent-based materials to the helmet
- ⇒ altering or modifying the helmet in any way, such as by drilling holes in the shell
- ⇒ using helmets for purposes other than that for which they are designed
- ⇒ cleaning helmets with petroleum solvents or harsh abrasives
- ⇒ placing objects within the helmet while it is being worn, eg cigarette lighters and,
- ⇒ installing replacement components that are not of the same manufacture or type as that of the primary item

Helmet Colour coding system:

- ⇒ White helmet – Managers, Engineers, Supervisors, Visitors. Blue helmet – Foremen, Electricians.
- ⇒ Yellow helmet – Workers
- ⇒ Red helmet – HSE team, Security, Emergence. Green helmet – Housekeeping team
- ⇒ Orange – crane operators, riggers, signallers

7.10.3 EYE AND FACE PROTECTION

Eye and face protection shall be manufactured in accordance with established national or international standards.

All personnel, subcontractors and visitors at work sites are to be protected from hazards causing eye and facial injuries and issued with PPE selected specifically to counter the risk of such injuries within the workplace.

Any eye or face protector that is damaged or has deteriorated in any way is to be withdrawn from service immediately and be replaced with a serviceable item where ongoing protection from the risk is required.

Eye and face protection shall:

- ⇒ Provide adequate protection, including side protection for most tasks.
- ⇒ Be reasonably comfortable.
- ⇒ Fit snugly and do not unduly interfere with movements.
- ⇒ Be durable.
- ⇒ Be capable of being disinfected.
- ⇒ Be easily cleanable.
- ⇒ Be kept clean and in good repair.

Persons requiring corrective lenses shall wear one of the following:

- ⇒ Spectacles whose protective lenses provide the correction.
- ⇒ Goggles that can be properly worn over corrective spectacles.
- ⇒ Goggles that incorporate corrective lenses.

Suitable eye protection is required, but not limited to, machine operations involving flying objects and particles, glass, corrosive liquids, compressed air use, injurious radiation, or a combination thereof.

7.10.4 RESPIRATORY PROTECTION

Protective equipment shall be available to all persons who are exposed to any situation in which there is a possibility of the atmosphere being or becoming deficient in oxygen or containing any harmful substance, whether particle, dust, mist, vapour or gas, including:

- ⇒ Work in containers or vessels where a danger of oxygen deficiency or harmful gases may be present
- ⇒ Grit or abrasive blasting operations
- ⇒ Work with materials creating dusts and vapours.

Respiratory protection shall be manufactured in accordance with established national or international standards.

Identifying the need for respiratory protection comprises knowledge about:

- ⇒ work processes
- ⇒ materials present, their physical form and properties
- ⇒ intermediates or products formed
- ⇒ control measures used to minimize the release of airborne substances into the workplace atmosphere
- ⇒ degree of exposure

Safety data sheets (SDS) shall be obtained from manufacturers for all hazardous substances. SDS provide details on occupational exposure standards which are critical in determining suitable control measures, including the need for respiratory protection. SDS shall be available at the storage place.

The proper type of respirator for the specific hazard involved will be selected in accordance with the manufacturer's instructions.

Factors to be considered:

- ⇒ Contaminant
- ⇒ Task
- ⇒ Operator

7.10.5 HEARING PROTECTION

Hearing protection shall be made available to all employees exposed to noise levels of 85dB(A) or above. The general form of hearing protection shall be earplugs and earmuffs.

Protective devices shall be conformance with standard series industrial hearing protectors or equivalent.

Hearing protection can be:

- ⇒ ear plugs – disposable, reusable, and custom-made models. Also headband mounted and cord attached versions are available. Noise attenuation effectiveness relies on correct fit and obtaining a good seal within the ear canals.
- ⇒ ear muffs – which may be headband-mounted or supplied as attachment items for other PPE including Safety Helmets etc. The effective control of noise energy by these devices varies greatly depending on materials, construction, clamping force and other factors, including fit.

Misuse of Hearing Protectors

- ⇒ failing to maintain the items in a clean condition at all times
- ⇒ stretching the headband of ear muffs by clamping around legs, torsos etc, thereby stretching the headband and reducing clamping efficiency
- ⇒ failing to maintain in good condition the sound-absorbing liners or seals of ear muffs
- ⇒ damaging the noise occluding cups of earmuffs, or exposing the cups to excessive heat and solar radiation,
- ⇒ applying insect repellents, paints and similar solvent-based materials or to otherwise affect the integrity
- ⇒ of the material
- ⇒ installing replacement components that are not of the same manufacture or type as the original.

Maintenance of Hearing Protectors

- ⇒ Earmuffs should have the sealing cushions wiped clean before and after each use to remove dirt and perspiration. Cushion replacement should be considered every 3 months. Reissued

earmuffs are to be thoroughly cleaned and inspected and have new liners and seals fitted before reissue. Earmuffs that show any damage to the cups or headband are to be withdrawn from use and destroyed.

- ⇒ Earplugs, including disposable types, need to be maintained in a hygienic condition and can be washed with soap or household detergent for re-use by the same person. If any doubt exists as to suitability for re-use, the items should be disposed of and new items used.

7.10.6 HANDS AND ARM PROTECTION

Adequate hand protection shall be available for all manual labour. The type of protection worn shall be selected according to the hazard to be protected against. These hazards include but are not limited to:

- ⇒ Impacts, cuts, abrasions and infections
- ⇒ Extreme temperatures
- ⇒ Chemical, toxic, corrosive and other hazardous substances.
- ⇒ Works on live equipment

Hand protection shall conform, where applicable, to a recognised national and international standard.

Hand protective devices shall be regularly inspected and replaced when physically damaged, or contaminated by substances (such as greases, paints, cooling fluids or chemicals), which might impair their effectiveness or safety.

7.10.7 BODY PROTECTION

Specific and adequate body protection shall be supplied for all work activities that present these hazards, including but not limited to:

- ⇒ Working in extremes of temperature, such as firefighting, etc.
- ⇒ Welding, burning, cutting and grinding
- ⇒ Handling or mixing of acids and other toxic, corrosive or hazardous chemicals.
- ⇒ Cleanup and disposal of hazardous waste (chemicals, hydrocarbons, etc.)

Body protective devices shall be manufactured to recognised national or international standards. Restrictions on personal clothing and accessories:

- ⇒ if there is a danger of contact with moving parts of machinery
- ⇒ when working with electrically energized equipment
- ⇒ working in zones classified in accordance with ATEX If the work process presents similar hazards:
- ⇒ the clothing of the worker must fit closely about the body,
- ⇒ dangling neckwear, bracelets, wristwatches, rings or similar articles must not be worn, except for medical alert bracelets which may be worn with transparent bands that hold the bracelets snugly to the skin, and

- ⇒ cranial and facial hair must be confined, or worn at a length which will prevent it from being snagged or caught in the work process

Employees shall wear flame resistant clothing appropriate to the risk if working in areas where they may be exposed to flash fires, molten metal, welding and burning or similar hot work hazards.

High visibility vests shall be worn at all times with exception while welding, or when it present risk for entanglement.

High visibility garments shall be maintained at all times in a clean, serviceable condition and shall be replaced at any time they are defective or become stained or faded to any extent where their high visibility functions is reduced.

7.10.8 FALL ARREST SYSTEM

Fall Arrest Equipment reduces the risk of injuries that can occur when an employee falls from one level to another. If engineering controls are not feasible to prevent the fall, fall arrest equipment shall be used.

Safety harnesses and lifelines shall be provided, worn and properly secured in all work situations where any risk for falling from height presents. The risk shall be assessed and documented in a risk assessment form.

Full body harness shall include double lanyard wherever necessary. Lanyards shall not be longer than

1.5 meters.

Lifelines should be made of steel (min 8mm diameter) or proper synthetic or natural fibres.

Vertical Lifelines and Lanyards which tie-off one employee shall have a minimum strength as described in local legislation or in case of absence of 2200kg equivalent to 22 kN.

All such safety harnesses and lifelines shall be manufactured in conformance to a recognised national or international standards.

Critical components of fall arrest equipment include:

- ⇒ Body harness - The harness must, comfortably but snugly, fit the individual.
- ⇒ Shock Absorbing Lanyards - Shock absorbing lanyards are required with an appropriate length. During fall arrest the rip stitching of the shock-absorbing lanyard absorbs the shock of the fall, drastically reducing forces onto the body and preventing significant injury. Special attention must be given to the stopping distance required by the manufacturer of the lanyard.
- ⇒ Locking snap hooks - All connection hardware (e.g. - snap hooks, carabineers) must have a locking mechanism to prevent roll out from the anchor and sized appropriately to fit with the anchor.
- ⇒ Inspection of fall arrest equipment – The employee will perform a visual inspection of the equipment prior to each use. Thorough inspection shall be carried out by a competent person every 3 months and records shall be kept. Any defective equipment shall be immediately removed from service and replaced. Defective equipment shall be destroyed to prevent accidental use that could

endanger someone's life. Harness inspection defects include but are not limited to: cuts, abrasion, loose threads, tears, stretching and mould.

- ⇒ Hardware inspection - Look for cracks, pitting and any distortion in all hardware components: buckles, D-rings, snap hooks and carabineers, rivets and grommets. Belt buckle grommets get a lot of wear from opening and closing. Snap hooks must lock and close tightly; buckles must function properly.
- ⇒ Cleaning and storage of fall arrest equipment - Follow the equipment manufacturer's cleaning instructions. Fall protection equipment shall be stored where protected from environmental factors, such as heat, light, excessive moisture, oil, chemicals and vapors, and any other damaging factors.

7.10.9 FOOT PROTECTION

At all times footwear must be worn that is suitable for their duties and to protect them from the hazards encountered. Hard soled shoes with toe protection shall be worn at all times.

Persons exposed to particular workplace injury risks are to be issued with safety footwear to protect them from foot injuries and/or to isolate them from energy sources within the workplace.

Safety shoes are required where the potential for foot injury exists from crushing due to falling (or rolling) objects, penetration of sharp objects, or electrical hazards.

Foot protection shall conform, where applicable, to a recognised national and international standard.

7.10.10 REPLACEMENT OF PERSONAL PROTECTIVE EQUIPMENT

- ⇒ Due to normal wear and tear.
- ⇒ Should any specific damage occur which compromises the effectiveness of the equipment.
- ⇒ If item is lost.
- ⇒ Where an item has a specific use-by-date, it should be replaced prior to that date.

7.10.11 ISSUING PERSONAL PROTECTIVE EQUIPMENT

A table shall be prepared for each occupation and the required PPE shall be listed with the relevant standard. The person issued with PPE shall sign against the received PPE.

7.10.12 TRAINING

General information about PPE shall be an integral part of an induction program for new-hired employees and visitors.

Training of new employees for their specific jobs shall cover the hazards and risks identified in a hazard identification and risk assessment process. It should also include:

- ⇒ When and where the PPE is required,
- ⇒ Proper selection of PPE,

- ⇒ Proper use of PPE,
- ⇒ Limitations of the PPE provided,
- ⇒ Proper care, maintenance, storage, and disposal of the PPE.

Ongoing training should be provided to employees as work practices or equipment are up dated or changed.

7.10.13 STORAGE

Personal protective equipment shall be stored in a clean and fully operational condition. Storage arrangements should ensure that the equipment is safe from interference and damage, and is easily accessible when needed. PPE should be checked regularly, both during storage and in use as specified by the manufacturer or supplier, to ensure it is in good condition. Storage shall ensure ongoing and continuous availability of PPE. Purchasing of PPE shall be initiated only after consultation with HSE Manager.

7.11 PERMIT TO WORK SYSTEM

A Permit to Work (PTW) system is a formal written planning and control system used to control certain types of work activities that are recognised as being potentially hazardous and to ensure these works are carried out in accordance with safe work practices.

PTW System shall be implemented in accordance with procedure that specifies the precautions that must be taken, the steps to be followed, and the responsibilities assigned to persons who are involved in work activities under a Permit to Work.

These procedures apply equally to all personnel of the contractor and all subcontractors.

All parties conducting works on the Project shall be briefed on the Permit to Work System and procedures at the project-specific induction.

Preparation

The permit issuing authority is the Responsible for the works Engineer. He/she must study the PTW application and take the necessary steps to ensure that work may proceed safely. She/He may instruct the nominated person to take special precautions during the work and may be specified on the additional documents.

Issue of Permit

The nominated person will bring the permit for registering in the HSE office. The HSE Manager or person appointed by him will sign the permit validating that the necessary additional documents are provided and correspond with the work for which the permit is requested.

A log of each permit issued will be maintained which shows its reference number, performing company, place, short description of the work, starting date, duration, and responsible supervisor.

A unique reference number will be assigned on the PTW form (next number in the log book).

After the registration the Permit Issuing Authority sign the permit. He/she gives it directly to the nominated person and ensures that he/she understands the scope of work, conditions and safety precautions that are specified in the permit. The nominated person signs the permit form.

Performing Authority

The Nominated Person in receipt of the permit must ensure that all persons associated with that work are aware of and understand any restrictions and precautions to be taken and are subject to an appropriate level of supervision.

The PTW must be held in the vicinity of the work being carried out.

When the work is complete, the subcontractors Nominated Person must sign, time and date the permit and return it without delay to the permit issuing authority, who will sign, time and date the permit to close it. The original will be then kept by the HSE Office.

Permits will be issued with duration period not more than 7 days. One new permit is to be issued for each one work to be carried out at site under PTW.

A permit shall be cancelled whenever; a deviation from the conditions upon which the permit was issued, a deviation from the control measures appear. Cancelled permit should be passed to the issuing authority.

Permit to work forms are in the attachment.

7.12 CONTROL OF SUBSTANCES HAZARDOUS FOR HEALTH

Under no circumstances is any product, designated hazardous or otherwise, allowed to be bought or used on the project if the appropriate controls cannot be implemented.

A risk assessment is to be completed prior to the use of all hazardous substances in the project (COSHH Assessment form) Exposure to hazardous substances shall be in accordance with recognised guidelines and shall be kept as low as is reasonably practicable.

Where a less hazardous substance is available, a review will be initiated to determine if this product can be substituted for the less hazardous product.

All relevant information including a current SDS shall be provided to the HSE Manager for inclusion in the project Hazardous Substance Register.

Purchase/supply department shall be informed about the requirement to deliver only approved by the project management and HSE manager substances. Purchase/supply department shall not accept any substance without an SDS in the language required by the local legislation and the project.

Substances hazardous to health occur in many forms:

1. Dusts
2. Liquids
3. Vapours
4. Gases
5. Mists
6. Fibres
7. Solids
8. Smoke

The health effect of hazardous substances is directly linked to:

- ⇒ the nature of the substances
- ⇒ duration of exposure
- ⇒ quantity exposed to.

7.12.1 ASSESSMENT

Assessment of the risk to health that may arise from exposure to hazardous substances must be undertaken when:

- ⇒ A new substance is used in the workplace that is classified as a substance hazardous to health;
- ⇒ The original assessments state when a review should take place i.e. annually;
- ⇒ There has been a change in the work procedure;
- ⇒ The substance is used for a different task;
- ⇒ The substance used is changed, i.e. manufacturer or concentration;
- ⇒ New guidance or change in the regulation is issued relating to the substance or work activity;
- ⇒ Following any adverse event involving the substance or work activity.

Assessment includes:

- ⇒ Identification of all hazardous materials within the area.
- ⇒ Identifying the level of risk these materials pose. The following shall be considered:
 - The amount of the substance is used;
 - The nature of the hazardous substance;
 - The routes of entry are;
 - The persons at risk of exposure;
 - The substances potential hazards are;
 - The substances potential ill health effects are;
 - Emergency arrangements;
 - Existing precautionary control measures;
 - Further precautionary measure that may be required

If there is no risk to health or the risk is trivial, no more action is needed. If there are health risks then appropriate precautions and control measures shall be taken.

Control measures shall be determined by the level of risk to health and shall take into account:

- ⇒ Elimination and/or use of alternative, less hazardous substances and materials where possible.
- ⇒ Modification of the use or process to eliminate, isolate or reduce exposure.
- ⇒ Elimination and/or reduction of numbers of people exposed to the hazardous substance.
- ⇒ The outcome of any environmental monitoring, as appropriate, which has been undertaken by a competent person
- ⇒ The provision, maintenance and use of any control equipment required.

- ⇒ The use of personal protective equipment (PPE) to reduce or control exposure to hazardous substances/materials. PPE should be regarded as a 'last resort' in providing protection from exposure to substances hazardous to health

7.12.2 PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment shall be provided as a last resort measure following all other control options and shall be regularly inspected with records kept. Staff shall receive instruction and training in the correct usage, storage and maintenance of the personal protective equipment issued to them (refer item 7.8).

Re-useable personal protective clothing must be allocated clean and safe storage space with personnel marking for hygiene reasons. Disposable or single use personal protective clothing should not be reused.

Re-useable personal protective clothing should be kept clean and be inspected as required according to manufacturers' guidelines.

7.12.3 INFORMATION, INSTRUCTION AND TRAINING

Wherever employees are involved in hazardous substances storage, handling or using they must receive information, instruction and training so that they are aware of the following:

- ⇒ The risks to health created by their exposure;
- ⇒ The precautions which should be taken;
- ⇒ Control measures, their purpose and how to use them;
- ⇒ How to use and store all personal protective equipment provided to them;
- ⇒ The results of any exposure monitoring and health surveillance;
- ⇒ The results of environmental monitoring carried out;
- ⇒ Emergency procedures.

7.12.4 HEALTH SURVEILLANCE

For employees regularly using substances that pose a risk to health a health monitoring shall be carried out. Routine surveillance of an individual's health shall be undertaken when it is warranted by the degree of exposure and the nature of the effects. A record shall be kept.

7.12.5 EMERGENCY PROCEDURE

For limiting the extent of health risks and to regain adequate control in the event of leakage, spill or uncontrolled release of any hazardous substances spill kits shall be provided. Emergency response shall be provided in accordance with Emergency Plan. Safety data sheets (SDS) will detail any specific action to be taken for dealing with spillages.

7.12.6 STORAGE

All substances must be stored in securely closed containers specifically designed for the purpose and clearly labeled in order to determine the hazards of the material and how it should be stored. Safety data sheets (SDS) need to be consulted for reactivity data to determine whether substances are incompatible.

The tables below give symbols and their indications of danger, and recommendations for the segregation of hazardous substances according to their hazard classification. Storage Manager shall ensure that all containers of hazardous substances are clearly labeled at all times. It is especially important to label containers that material has been decanted into.

7.12.7 INVENTORY OF CHEMICALS

Up-to-date inventory of hazardous chemicals that can be used to apprise personnel of the dangers in work area is necessary to make safe storage. An accurate inventory is also necessary if emergency responders are to respond effectively to a fire or chemical release in the area.

HSE Engineers coordinate the collection of chemical inventories for the site. Monthly inventory is submitted to HSE Department by subcontractors. Also whenever the maximum amount listed for a particular chemical changes by more than 50 per cent or chemical that was previously not reported is submitted. If a chemical storage area on the site has been cleaned out or a new storage area has started up or moved, this situation is notified immediately.

The monthly review of chemical inventory is a prime opportunity to clean out unwanted chemicals. The inventory of chemicals is made according to their properties which are defined on SDSs.

Features of hazardousness, marking and their symbols are defined at the following chart which materials are defined in “descriptions & abbreviations” part of this procedure.

INTERNATIONAL HAZARD SYMBOLS			
	Danger		Compressed or liquefied gas
	Flammable		Aquatic Toxicity
	Oxidiser		Warning
	Explosive		Sensitizer, carcinogen, mutagen or teratogen
	Corrosive		

7.12.8 LABELLING OF CHEMICALS

All hazardous chemicals are clearly labeled for the benefit of current users, emergency personnel, and future users by responsible person for chemical storage area. Also this person checks that all labels are legible and in good condition. If there is a nonconformity condition for labels, he repairs or replaces damaged or missing labels. All subcontractors are responsible protecting the labels of chemicals.

Manufacturers provide labels with the following information:

- ⇒ contents of the container
- ⇒ physical and health hazard information
- ⇒ name, address, and emergency phone number of the manufacturer or other responsible party

Original manufacturers' labels must not be removed or defaced by anyone. The summary of Safety Data Sheets (SDSs) is taken visibly on working area in project language and the language spoken by the users. All subcontractors are responsible for translating of SDSs.

Also warning signs are put on containers to make their hazard explicit.

7.12.9 SEGREGATION OF INCOMPATIBLE MATERIALS

HSE Engineers check the chemicals using "List of Inventory Chemicals" to define the properties of chemicals. Storage condition is made according to the Chemicals compatibility chart.

Sınıf	1	2	3	4	5	6	8
Kimyasal Gruplarına Göre Kimyasal Sınıflaması							
1. Patlayıcı	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr
2. Basıncılı Gazlar	Birbirinden Ayr	Uzak Tut/Dur	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	İzole Et	Uzak Tut/Dur
2.1. Yanıcı	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur
2.2. Zehirli ve Yanıcı Değil	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur
2.3. Toksik	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur
3. Yanıcı Sıvılar	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur	Birbirinden Ayr	İzole Et	Uzak Tut/Dur
4. Yanıcı Katılar	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr
4.1. Kolayca Tutuşabilen	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr
4.2. Kendiliğinden Tutuşabilen	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Uzak Tut/Dur
4.3. Islakken Tehlikeli	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr
5. Oksitleyici Maddeler	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur	Birbirinden Ayr	Uzak Tut/Dur
5.1. Oksitleyici Maddeler	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur	Birbirinden Ayr	Uzak Tut/Dur
5.2. Organik Peroksit	Birbirinden Ayr	İzole Et	Birbirinden Ayr	İzole Et	Birbirinden Ayr	Birbirinden Ayr	Uzak Tut/Dur
6. Toksik	Birbirinden Ayr	Uzak Tut/Dur	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr
8. Korozif	Birbirinden Ayr	Uzak Tut/Dur	Uzak Tut/Dur	Uzak Tut/Dur	Birbirinden Ayr	Uzak Tut/Dur	Birbirinden Ayr

7.12.10 PROPERTIES OF CHEMICAL STORAGE AREA

Properties of chemical storage area are given below:

- ⇒ Impermeable ground will be provided.
- ⇒ All containers will be labelled with chemical content.
- ⇒ Smoking, drinking, eating and the application of cosmetics will be forbidden in areas where hazardous chemicals are used or stored.
- ⇒ Adequate ventilation will be provided.
- ⇒ All chemicals will be classified according to features of hazardousness.
- ⇒ All SDSs will be stored near relevant chemical.
- ⇒ Necessary fire measures according to the SDS will be available.
- ⇒ All liquid chemical barrel/container should have a pan in front of them to prevent any spillage through ground. Also spill kits will be positioned on the storage area.
- ⇒ Warning signs will be put on the chemical storage area to make visible hazardous condition.

7.13 WORKING AT HEIGHT – MEWPS, SUSPENDED MAN-BASKETS, LADDERS, AND SCAFFOLDING

7.13.1 GENERAL REQUIREMENTS

Line Managers must adhere following hierarchy for managing work at height:

- ⇒ AVOID work at height whenever it is possible.
- ⇒ PREVENT a person from falling a distance liable to cause an injury if work at height is unavoidable. Secure elevated work area using work equipment or other measures to prevent falls.
- ⇒ MINIMISE the distance and consequence of a fall should one occur by providing suitable work equipment or other measures.
- ⇒ The risk from work at height must be assessed and appropriate work equipment selected and used.
- ⇒ Equipment for work at height must be properly inspected and maintained.
- ⇒ Risk from falling objects must be controlled.

In the event of working at height being unavoidable, a suitable and sufficient risk assessment must be completed. This will identify all the necessary control measures.

Risk assessments may be generic, covering the same task on a number of occasions and in a number of locations, but if there are significant changes to the task, location, personnel or the equipment used then a specific assessment must be completed for that task.

When considering the use of a generic risk assessment the following factors must always be taken into account:

- ⇒ the task
- ⇒ equipment used
- ⇒ competency of the personnel

These points must always be relevant to the work being undertaken.

7.13.2 PLANNING WORK AT HEIGHT

Line Managers and Supervisors must not allow work at height to take place if it is safe and reasonably practicable to do it other than at height.

When work at height must take place Managers and Supervisors must ensure that:

- ⇒ All work at height is properly planned and organised including planning for emergencies;
- ⇒ Planning takes account of the risk assessment carried out;
- ⇒ Work at height is appropriately supervised and carried out in as safe a manner as reasonably practicable;
- ⇒ Weather conditions are considered to ensure that they do not jeopardise the health and safety of those involved.

7.13.3 COMPETENCY

Anyone involved in working at height must be competent and appropriately trained, and in good health.

- ⇒ If a person is being trained they must be supervised by a competent person;
- ⇒ Competency and training refers to anyone involved in organization, planning, supervision and the supply/maintenance of equipment in respect of working at height;

Where a risk of falling remains, ensure that those persons working at height are trained in how to avoid falling and how to avoid or minimize any injuries should they fall. Line Managers must ensure that this training takes place and is refreshed as necessary.

7.13.4 SAFE WORK PLACE

The place where work at height is being done and the means of access and egress must be safe and have features to prevent a fall:

- ⇒ shall be stable and of sufficient strength and rigidity for the purpose for which it is intended to be or is being used
- ⇒ shall rest on a stable, sufficiently strong surface
- ⇒ shall be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area having regard to the work to be carried out there
- ⇒ shall possess suitable and sufficient means for preventing a fall
- ⇒ shall possess a surface which has no gap through which a person could fall
- ⇒ through which any material or object could fall and injure a person; or giving rise to other risk of injury to any person, unless measures have been taken to protect persons against such risk
- ⇒ be so constructed and used, and maintained in such condition, as to prevent, so far as is reasonably practicable the risk of slipping or tripping; or any person being caught between it and any adjacent structure
- ⇒ where it has moving parts, be prevented by appropriate devices from moving inadvertently during work at height

7.13.5 WORK EQUIPMENT USED FOR WORK AT HEIGHT

Where work must be carried out at height, Line Managers must ensure that equipment is provided to prevent a fall if this risk is identified.

Collective prevention measures should be given priority over personal protection measures. Equipment must be selected which:

- ⇒ is appropriate for the work and the loading it is planned for
- ⇒ is large enough to allow movement

Considering the work Line Managers shall select suitable equipment for working at height, in particular:

- ⇒ the working conditions and environment (e.g. uneven ground/ limited heights) it is to be used in
- ⇒ any impact the equipment itself may have on the risk to anyone present

- ⇒ the risk of erecting and dismantling equipment
- ⇒ the distance to be negotiated where the equipment is to be used for access/egress
- ⇒ the duration and frequency of use
- ⇒ how many people will be working at height
- ⇒ how easy evacuation/rescue would be in an emergency

Where equipment does not eliminate the risk of falling, the distance and effect of a fall must be minimized.

7.13.6 LADDERS

Ladders are not designed as working platforms. Before using a ladder always it shall be considered whether it is the best and safest means of doing the job. Ladders should only be used for access or to carry out minor or routine work. Only one person should use a ladder at any one time.

If the only means of doing the task is using a ladder take the following precautions:

- ⇒ Choose the right ladder for the task
- ⇒ Ladder parts must be smooth to prevent punctures or cuts or snagging of clothing
- ⇒ Wood ladders must not be painted with a coating that can hide defects
- ⇒ The rungs and steps of metal ladders must be grooved or roughened to minimize slipping
- ⇒ The ladder is angled to minimize the risk of slipping outwards; the ladder needs to be one out for every four up.
- ⇒ The feet of the ladder are on a firm footing and cannot slip
- ⇒ The top of the ladder rests against a solid surface; ladders should not rest on fragile or other insecure materials such as cement sheet, or plastic guttering
- ⇒ The ladder extends 1 m above the landing place where people will get on and off it unless some other adequate handhold is available
- ⇒ Ladder is secured from falling at the bottom and at the top by fixing to a structure
- ⇒ If the ladder cannot be fixed, a second person foots the ladder while it is being used
- ⇒ One man must be on the ladder at same time and must keep three points of contact with the ladder at all times
- ⇒ Place cones or barricading where the ladder encroaches onto a passage or roadway
- ⇒ Never carry materials on the ladder when climbing
- ⇒ Only ladders in good condition to be used. (Not bended, broken)

Stepladders:

- ⇒ All four legs must be on solid, level ground.
- ⇒ The spreaders must be locked fully open.
- ⇒ A stepladder must not be leaned against a wall.
- ⇒ The top two steps and the bucket are not safe to stand on

7.13.7 SCAFFOLDING

- **Scaffold erection**

All scaffolds must:

- ⇒ Be designed, erected, altered and dismantled by competent trained personnel and such work must be directed by a competent supervisor
- ⇒ Never be erected over people or busy areas. This risk must be controlled by scheduling the work during quiet times such as early mornings or alternatively, closing pavements/areas with permission from local authorities
- ⇒ Be placed on a firm and level foundation that is capable of supporting the weight of the scaffold and any other potential loading
- ⇒ Be braced and tied into a permanent structure or otherwise suitably stabilised as per any manufacturers' instructions
- ⇒ Only be sheeted after informing and obtaining guidance from the supplier
- ⇒ Have platforms that are fully boarded and of adequate width for the intended work and access
- ⇒ Consist of scaffold boards that are adequately supported and do not overhang excessively
- ⇒ Be designed to prevent falling materials
- ⇒ Be with platforms of at least 600mm wide
- ⇒ Provide ladders or other safe access onto the work platform;
- ⇒ Suitable edge protection to platforms must be provided where a person could fall a distance liable to cause personal injury.

Scaffolders should always adopt a safe system of work during the erection, altering and dismantling of scaffolds. This will usually include the use of fall arrest equipment.

Scaffolds need to be designed and erected to suit the type of work to be carried out, the site conditions, and the anticipated work load (ie, the number of workers expected to be working on the scaffold, their materials and tools etc.)

Scaffolds up to 24 m height shall be erected in accordance with the manufacturer recommendations. Where it is higher than 25 m and in cases when manufacturer has not supplied erection manual special design with static calculation shall be prepared by a competent person.

The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or

displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks. Scaffolds shall be maintained in safe condition. Scaffolds shall not be altered or moved horizontally while they are in use or occupied.

Any scaffold damaged or weakened from any cause shall be immediately repaired and shall not be used until repairs have been completed.

Scaffolds shall not be loaded in excess of the working load for which they are intended. Employees shall not work on scaffolds during storms or high winds.

Tools, materials, and debris shall not be allowed to accumulate in quantities to cause a hazard.

- ***Tower scaffolds***

Tower scaffolds are quick to erect and can provide safe access but many are involved in accidents due to incorrect operation and use. A wide range of prefabricated towers are available and the manufacturer or supplier should provide an adequate instruction manual detailing advice on the erection sequence and bracing requirements. If the equipment is hired, the hirer should provide this information. If a tower scaffold is to be used:

- ⇒ all manufacturers' instructions for erection, use and dismantling must be adhered
- ⇒ the person erecting the tower should be competent
- ⇒ an instruction manual should be kept with the tower scaffold for reference
- ⇒ the tower must be vertical with the legs supported on firm level ground and wheel brakes on
- ⇒ wheels and outriggers must be locked when the tower scaffold is in position
- ⇒ towers shall not be moved when there is personnel and/or materials on the platform
- ⇒ a safe means of access to and from the work platform must be provided e.g. internal ladders with secure handholds at all landing places
- ⇒ edge protection in the form of guard rails and toe boards to all platforms (including intermediate ones) must be provided
- ⇒ tie the tower rigidly to the structure it is serving or provide additional support if the tower is sheeted; may be exposed to strong winds; is used for grit blasting/water jetting; or where heavy items are lifted up the outside or where the tower base is too small to ensure stability for the height of the platform
- ⇒ in exposed conditions or outside, the height of the working platform should be no more than 3 times the minimum base dimension
- ⇒ for indoor towers on firm level ground, the height of the working platform should be no more than 3.5 times the minimum base dimension

DO NOT:

- ⇒ always check the safe base to height ratio and maximum allowed height in the manufacturer instruction manual
- ⇒ suitable edge protection to platforms must be provided where a person could fall a distance liable to cause personal injury. Guard rails should be at least 910mm high, toe boards at least 150mm high and intermediate guard rails provided to ensure that no unprotected gaps exceed 470mm
- ⇒ use a ladder footed on the working platform
- ⇒ apply horizontal loads
- ⇒ overload the working platform
- ⇒ fix ties to the centre of thin walled aluminium tubes
- ⇒ move the tower by applying force at the platform level
- ⇒ climb up the outside of the tower unless it has been specifically designed for this. Tower scaffolds must be erected by appropriately trained and competent persons only.

When moving a mobile tower scaffold the route must be checked in advance for power lines and overhead obstructions and holes/dips in the ground. The tower must be cleared of all materials and people prior to it being pushed/pulled at its base. Anyone moving a tower scaffold must have received manual handling training and be in possession of a manual handling risk assessment covering the task.

- ***Scaffold inspection***

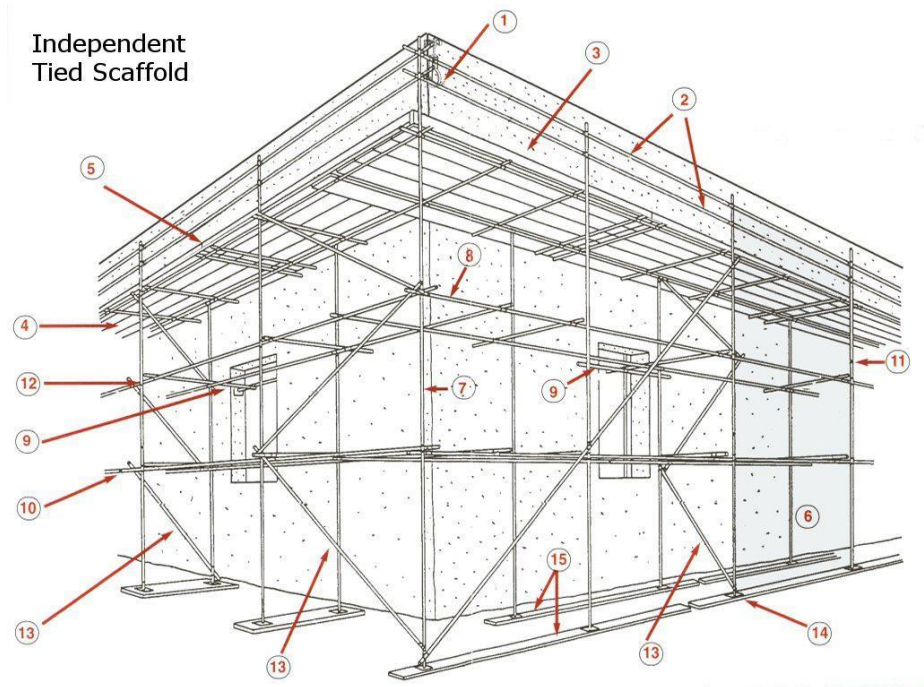
Scaffolds must be inspected by a competent person:

- ⇒ before first use
- ⇒ after substantial alteration
- ⇒ after any event likely to have affected their stability, for example, following strong winds
- ⇒ at regular intervals not exceeding seven days. Any faults found must be put right.

Once erected, a competent person will inspect scaffolds prior to first use. Scaffolds appropriately erected will be attributed at each of its access ways with a Green tag - access allowed without use of full body harness. Whereas scaffolds requiring modification will be attributed with a red tag - forbidden access, put at each of its access ways.

Scaffolds will be then inspected as minimum on a weekly basis or whenever a modification is made and a competent person inspecting the scaffold shall place a signature and date of the inspection on the back of the green tag. Inspection results shall be reported into the scaffold register. Inspections must also be carried out when a scaffold is substantially altered and after any event or incident likely to have affected the stability of the scaffold such as strong winds or being struck. Supervisors before allowing their workers to use someone else's scaffold they must make sure it is safe.

Reel fixing



1. Guardrails
2. Toe boards
3. Close boarded decking
4. Trap end transoms
5. Tarpaulin sheeting
6. Standards
7. Ledgers
8. Physical Ties / anchors
9. Horizontal joints
10. Vertical Joints
11. Load-bearing fittings
12. Bracing
13. Base Plates
14. Sole Plates

7.13.8 MOBILE AND SUSPENDED ACCESS EQUIPMENT

Where work cannot be done from an existing structure and the use of a scaffold working platform is not appropriate, there is a range of mobile access equipment that may be used. Any person using this type of equipment must be trained and competent to operate it and be fully conversant with emergency and evacuation procedures.

Before any work commences that involves mobile and suspended access equipment the following must be in place:

- ⇒ a handover certificate provided by the supplier/installer. It should include details of how to deal with emergencies, operate, check and maintain the equipment and state its safe working load;
- ⇒ any equipment installed, modified and dismantled must be undertaken by a competent specialist;
- ⇒ a current report of thorough examination provided for the equipment;
- ⇒ areas cordoned off to avoid the impact of people with the platform and debris;
- ⇒ safe systems of use in place for when the platform rises and descends to ensure that it does not come into contact with anything/anyone;
- ⇒ any supports are protected from damage/impact;
- ⇒ ensure that the equipment is protected from adverse weather.

At the end of each working day the following checks must be carried out and recorded:

- ⇒ the platform is clear of all materials and tools;
- ⇒ all power is switched off and cables secured and made dead;
- ⇒ the equipment is secured to avoid access to trespassers and vandals;
- ⇒ notices stating that the equipment is out of service and must not be used are to be displayed;
- ⇒ shift reports to be checked for any warnings of malfunctions.

7.13.9 MOBILE ELEVATING WORK PLATFORMS (MEWPS)

Mobile elevating work platforms (MEWPs) can provide excellent safe access to high levels. Anyone using a MEWP must ensure that:

- ⇒ the machine has been inspected and tested within the previous 6 months;
- ⇒ the operator is fully trained and competent;
- ⇒ the work platform is fitted with guard rails, toe boards or other suitable barriers;
- ⇒ it is only used on firm and leveled ground;
- ⇒ the tyres are fully inflated;
- ⇒ outriggers are properly extended and chocked before the platform is raised into position;

- ⇒ emergency procedures are in place should the platform fail in the elevated position;
- ⇒ the MEWP is not operated close to overhead obstructions or power cables;
- ⇒ no any part of the MEWP extends over a traffic route
- ⇒ the MEWP is not moved with the platform in the elevated position;
- ⇒ the person in the basket of the platform wearing a safety harness with a lanyard attached to an approved anchor point inside the basket.
- ⇒ the lanyard just long enough to provide free movement within the confines of the basket to carry out the work safely
- ⇒ At all times when moving, a banksman/ flagman must be present
- ⇒ MEWP working area must be secured and signalized. (Red/white tape/plastic chain, barriers etc.)

Those responsible for the use of MEWPs must assess the risks of people falling from or being thrown from the carrier, or the MEWP overturning and take precautions to eliminate or control these risks. If the risks cannot be eliminated then measures should be put into place to minimise the risk of falling from or with the carrier. If there is still a residual risk of impact or persons falling then the use of fall protection equipment should be considered:

- ⇒ when working adjacent to or in a live highway;
- ⇒ when travelling with the carrier in a raised position where it may strike fixed objects in its path;
- ⇒ when travelling with the carrier in a raised position over uneven ground;
- ⇒ steel erection where the carrier has to move in and around the steelwork.

7.13.10 MAN-BASKET

Suspending a working platform from a crane should be used if suitable method is available. The platform must be designed and tested by a competent person and have a specified Safe Working Load.

All equipment should be selected, installed, thoroughly examined and tested to ensure that it is suitable for its intended use. Only trained workers should use man-baskets. When man-baskets are used the following must be ensured:

- ⇒ cranes used with man-baskets have a power lowering capability and free fall capability is 'locked out';
- ⇒ the SWL on the side of the platform is not exceeded;
- ⇒ the crane has been inspected by the operator each day it is in use;
- ⇒ the crane operator is at the controls at all times the platform is in use when;
- ⇒ a work platform is suspended from a hook;

- ⇒ the person using the platform has discussed the operation of the crane and platform with the crane operator;
- ⇒ there is a direct line of communication (by line of sight, radio or phone) between the two at all times;
- ⇒ the person on the platform is wearing a safety harness with a retractable lanyard secured when the platform is suspended from the hook, the lanyard must be secured to the crane hook block, so that it won't dislodge if the platform becomes unstable);
- ⇒ the lanyard is long enough to provide free movement within the confines of the basket.
- ⇒ there are adequate guard rails and toe boards;
- ⇒ materials cannot fall through or from the basket base;
- ⇒ detailed operating instructions and technical support is available;
- ⇒ the man basket must not be overloaded during use and any loads must be evenly distributed;
- ⇒ safe access into the basket, preferably at ground level;
- ⇒ safe clearance from overhead power lines;
- ⇒ emergency procedures are in place should the operator require rescuing whilst in an elevated position
- ⇒ the basket shall be lifted with four-leg wire sling with capacity 5 times the load. The four-leg sling shall be secured with tie-off to the loadline above the hook block.



7.13.11 FORKLIFT PLATFORMS

Work platforms shall only ever be used on forklift trucks when designed specifically for the purpose and for the specific machine using them. When a forklift will be used to lift a person the following shall be ensured:

- ⇒ The platform is designed and certified as an accessory of the forklift which is in use
- ⇒ the operator holds an appropriate certificate of competency and remains at the controls at all times the platform is in use;
- ⇒ the platform is fitted with guardrails, midrails and toeboards and any gates open inwards and have a spring loaded catch;
- ⇒ there is a guard high and wide enough to protect people from the moving parts of the mast
- ⇒ the tilt lever is locked out or made inoperable wherever possible.

7.13.12 *EDGE PROTECTION*

Wherever a person could fall from height and sustain personal injury, the first line of defence is to provide adequate edge protection. This must meet the minimum legal standards or consist of:

- ⇒ a main guard rail;
- ⇒ a toe board;
- ⇒ an intermediate guard rail or other barrier.

Edge protection must be strong and rigid enough to prevent people from falling and be able to withstand other loads likely to fall on them e.g. stored materials. They must be fixed to a structure for adequate support

7.13.13 *GENERAL ROOF WORK*

The following shall be ensured:

- ⇒ the work method shall be designed to reduce the amount of time you are working at height;
- ⇒ flat roof walkways or roof ladders unless the roof is specifically designed to walk on;
- ⇒ scaffolding the perimeter of the building to provide a perimeter guardrail to the roof area; guardrail shall be able to withstand an impact;
- ⇒ installing a perimeter/edge guardrail system;
- ⇒ installing a false floor under the roof;
- ⇒ using scissor hoists or other elevated work platforms;
- ⇒ using fall arrest systems such as inertia reels and static lines;
- ⇒ the proximity of any overhead power lines.

7.13.14 *WORKING ON OR NEAR TO FRAGILE MATERIAL*

At no time may anyone work on, from or pass over fragile material, unless platforms, coverings or other similar safe means are provided that adequately support and protect the individual. Support platforms must be wide enough according to the work.

Platforms must be long enough to provide adequate support to do the work safely. Precautions are required to prevent people and materials falling from the platform. Edge protection is required.

In such situations fragile materials must be securely covered, or full edge protection provided to the perimeter or along the full length of the fragile material to prevent access to it. Appropriate precautions are to be taken when installing protection. Where it is not reasonably practicable to provide such protection for example, in cases where proximity to the fragile material is irregular or for a short time span, use of safety harnesses may be appropriate.

Designated boundaries can be established that are useful in identifying safe work areas and/or routes to and from them. If these are used:

- ⇒ the boundary does not need to comply with full edge protection standards, but there should be a physical barrier (a painted line or bunting is not acceptable);
- ⇒ all persons should receive appropriate information, instruction and training.

7.13.15 SAFETY HARNESSSES

In situations when it is not practicable to provide the requirements for edge protection and where people may still approach an open edge which they would be liable to fall a distance likely to cause injury, other forms of protection will be required. In some situations a suitably attached harness and temporary horizontal lifeline could allow safe working. The selection, inspection, storage and replacement shall comply with item 7.8 Personal protective equipment.

The following must be considered when using harnesses and temporary horizontal lifelines:

- ⇒ harnesses and lanyards are prone to degradation and daily pre-use checks must be performed;
- ⇒ an energy absorber fitted to the energy-absorbing lanyard can reduce the risk of injury to the user from impact loads should a fall occur;
- ⇒ to minimise the free-fall distance the anchor needs to be kept as high as possible;
- ⇒ emergency procedures must be in place to rescue anyone who does fall;
- ⇒ attachment must take place from a safe position;
- ⇒ the energy-absorbing lanyard should be attached above the wearer where possible;
- ⇒ ensure that there is adequate fall height to allow the system to operate effectively;
- ⇒ if the user needs to move about during operations a double lanyard can be used;
- ⇒ installation of fixing points for harnesses must be supervised by a suitably qualified person;
- ⇒ any person tasked to wear a harness must be trained how to check, wear and adjust it before use and the procedure for connecting themselves to the structure or safety line
- ⇒ each day harnesses and lanyards must be inspected visually before use. They must also be thoroughly examined periodically, at least every six months.

7.13.16 ERECTION OF STRUCTURAL STEEL

Planning when erecting structural steel can often avoid the need to work at height altogether. The following shall be taken in consideration:

- ⇒ connecting as much steel work as possible on the ground or from a working platform;
- ⇒ planning for connections to be at points that are safe and easy to

reach;

- ⇒ planning for safe erection sequence for beams, handrails and gratings;
- ⇒ using remote release shackles and systems on lifting gear;
- ⇒ using elevated work platforms wherever possible, rather than walking on the steel.

7.13.17 FLOOR OPENINGS AND EXCAVATIONS

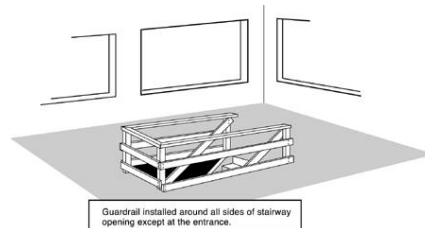
Many associate the requirements for preventing falls to only apply when working at heights above ground level. This is not the only area where a fall can result in injury.

Requirements also relate to falls into openings, excavations and trenches.

It is therefore important that a suitable means of fall prevention is in place when working in or around any opening or excavation where any person can fall from a distance that could result in harm.

This could include:

- ⇒ edge protection;



- ⇒ temporary opening covers fixed in such a way in order to prevent dislocation of the cover; marked with yellow cross and warning "DANGER! OPENING COVER!"
- ⇒ extended shoring to at least 1 metre above the top of the excavation and hard barriers.

7.13.18 FORMWORK

Formworks often involve extensive work at heights. It is temporary work and the risk of a fall is often very high. Therefore, fall prevention needs to be carefully considered and used while installing formwork or precast concrete units. This includes:

- ⇒ erecting guardrails at the top working level before installing the formwork or precast units;
- ⇒ attaching guardrails to all formwork before installation;
- ⇒ constructing formwork which includes purpose-built working platforms and guardrail systems;
- ⇒ using a safety harness and appropriate lanyard attached to a fixed static line or to completed sections of the rebar works provided that the anchorages are adequate;
- ⇒ installing horizontal life lines along the length of the building or formwork at the upper-most level.

7.13.19 WORKER CONSIDERATIONS

Any person requested to work at height will be physically fit and provided with suitable PPE to include non-slip footwear as appropriate, identified via the risk assessment process. Department Managers are responsible for identifying such members of staff within their line management who regularly work at height for occupational health referral Health Advisor prior to undertaking any such works for the first time and at regular intervals thereafter.

Physical fitness and alertness are important in all types of construction work – but especially when working at height.

A person must not work at height if:

- ⇒ is under the influence of alcohol or drugs
- ⇒ feel dizzy or unwell
- ⇒ is taking prescription medicines that can affect the fitness for work at height

Fatigue, stress and emotional upsets can make employees prone to injuries in general – including falls from height.

7.14 LIFTING OPERATIONS

7.14.1 LIFTING EQUIPMENT

- **Definition**

Work equipment used at work for lifting and lowering loads and includes attachments used for anchoring, fixing or supporting the load such as cranes, vacuum lifting cranes, hoists, scissors lifts, fork lift trucks, passenger lifts, mobile elevating work platforms, vehicle inspection platform hoists, vehicle tail lifts, bath hoists, dumb waiters, pallet trucks.

- **Suitability & Stability**

When selecting lifting equipment for a particular task following shall be considered:

- ⇒ its initial integrity;
- ⇒ the place where it will be used;
- ⇒ the purpose for which it will be used;
- ⇒ its strength - the capability of materials and components of the equipment to withstand the loads and forces applied;
- ⇒ its stability - the ability of the equipment to remain fixed in its normal position for use;
- ⇒ its factor of safety against failure under foreseeable failure modes

- **Marking**

All machinery for lifting loads must be marked in a clearly visible manner with the safe working loads. Where the safe working load depends upon the equipment's configuration, this must be clearly identified for each configuration. Alternatively this information must be retained with the equipment. Lifting equipment which is designed

for lifting persons is appropriately and clearly marked to this effect. Lifting equipment which is not designed for lifting persons but which might be so used in error is appropriately and clearly marked to the effect that it is not designed for lifting persons.

- ***Maintenance***

No maintenance shall be carried out on site by unauthorized persons or Subcontractors. Record of maintenance shall be kept by the Technical Department of the contractor, respectively Subcontractors and shall be readily available on request.

- ***Examinations and Inspections***

All lifting equipment shall have a valid third party certificate. It shall be issued after thorough examination:

- ⇒ when the equipment is brought into service for the first time;
- ⇒ where safety depends upon conditions after installation, and before being used for the first time

If it is new equipment that has not been used before, there should be a declaration of conformity which confirms that the equipment has undergone a thorough examination prior to first use.

If the equipment is obtained from another undertaking, as in the case of hired equipment, then a copy of the previous certificate of thorough examination must accompany the equipment.

Thorough Examination Periods:

- ⇒ All lifting equipment must be thoroughly examined at least every 12 months or at a period stated in the project's risk assessment.
- ⇒ In exceptional circumstances when the equipment has been involved in an accident, overload, subject to modification or major repair.

Inspections of lifting equipment:

- ⇒ Pre-use Check
- ⇒ For mobile equipment checks are performed at the gate area before entering the site and are responsibility of the HSE Engineer. Pass card shall be obtained afterwards.

In the case of hired in equipment, this will mean checking the reports of the thorough examination prior to the agreed use of the equipment.

- ***Reports and defects***

The authorized person carrying out the examination or inspection shall make out a report of the examination or inspection. These records must be in writing and shall be contained in a register, or stored electronically by the owner of the equipment. Copies must be kept by the company that hires the equipment. Copies must be submitted to the responsible officer of the HSE Department.

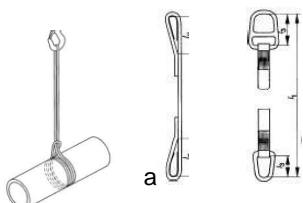
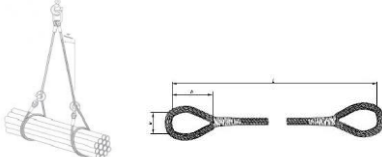
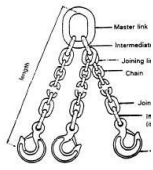


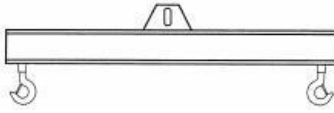
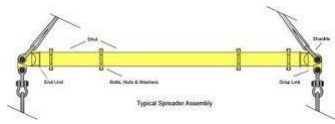
In the event of a defect being identified by the performing authority during the thorough examination that may become a danger to persons the equipment suspended from use.

- **Records keeping**

The records for lifting equipment shall be kept as long as it is in operation. Records must be readily available to those who need to see them.

7.14.2 LIFTING ACCESSORIES

- **Types**

Picture / examples	Designation	Description
	Textile slings and their components	Assembly of one or more sewn webbing components for attaching loads to the hook of a crane or other lifting machine
	Steel wire rope slings and their components	Assembly of one or more steel wire rope legs or an endless sling for attaching loads to the hook of a crane or other lifting machine
	Chain slings and their components	Assembly of one or more chains for attaching loads to the hook of a crane or other lifting machine
	Lifting eyelets Lifting ear	Eyelets intended to be placed on the load by threading or by welding for lifting it
	Lifting anchor	A device intended to be integrated into a structure (e.g. a concrete units, concrete panel) in order to provide an anchorage for lifting the structure
	Lifting beam	Equipment consisting of one or more members equipped with attachment points to facilitate the handling of loads which require support at several points
	Spreader beam	Distribute the load proportionally

- **Marking**

Lifting accessories shall be marked clearly to ensure the safe selection and use. Information about their lifting capability is:

- ⇒ the safe working load (SWL); where SWL depends on configuration or use in assemblies SWL for each configuration or assembly;
- ⇒ Information about any special characteristics and characteristics which might make the use of an accessory for lifting unsuitable in a particular application.

- **Examinations and inspections**

An examination must be carried out:

- ⇒ When the lifting accessories are brought into service for the first time;
- ⇒ Three-month inspection and color-coding;
- ⇒ In exceptional circumstances when the equipment has been involved in an accident, overload or used in aggressive environment.

Inspections of lifting accessories:

- ⇒ Pre-use Check

- **Color-coding system**

This system shall apply for all lifting accessories that are in possession. Color codes will be used for visual identification that the lifting accessory has passed three-monthly inspection. They do not replace the requirement for pre-use check, and they are not intended to replace any other means of identification required by standard. To avoid conflicting colors different color marking shall be used each 3 months. Lifting accessories which are incorrectly color-coded shall be removed from use.

Color	Month
BLUE	XXX
GREEN	XXX
RED	XXX
WHITE	XXX

- **Reports and defects**

The person carrying out the examination or inspection shall make out a check list of the examination or inspection. These records must be in writing and shall be contained in a register, or stored electronically.

In the event of a defect being identified during the thorough examination or inspection the lifting accessory shall be removed from use.

- **Storage**

Lifting accessories must be stored in conditions that do not lead to damage or deterioration and in accordance with the manufacturer's recommendations.

7.14.3 ORGANIZATION OF LIFTING OPERATION

Lifting operations need to be:

- ⇒ properly planned;
- ⇒ appropriately supervised;
- ⇒ carried out in a safe manner

The person planning the operation should have adequate practical and theoretical knowledge and experience of planning such operations.

To ensure that the lifting operation is carried out safely the plan must address:

- ⇒ the risks identified;
- ⇒ the resources required;
- ⇒ the procedures and responsibilities involved

Plan shall ensure that lifting equipment remains safe for the range of lifting operations and it is suitable with regard to:

- ⇒ the load to be lifted:
 - its weight, shape, centre of gravity, availability of lifting points,
 - its travel,
 - frequency of use,
- ⇒ environment of use, proximity hazards
- ⇒ personnel involved:
- ⇒ knowledge,
- ⇒ training,
- ⇒ experience

Routine lift or simple lift: lifting the load below than 10 tonnes with single crane in an area which has no restriction.

Complicated lift: lifting the load 10 tonnes or more with a single crane, lifting the load with two or more cranes, lifting the load in an area which has limitations for the length of the crane, boom height, lifting of a load which centre of gravity is not known.

Planning for routine operations shall be required once but it may need review occasionally to ensure it is still valid (e.g. forklift trucks in a warehouse). Pre-lift checklist shall be filled in.

For complicated lifts a written plan should be prepared. The plan shall include the calculations for load, radius, boom length and the route of the load. Lifting Plan shall be prepared by competent person, and submitted to the responsible officer of the HSE Department for review. On the base of the plan a permit to work will be obtained.

Supervision should be proportionate to the risk and determined by the nature of the work and the competence of the personnel involved.

Lifting operation shall be segregated from other persons on site. All personnel and third parties shall be kept out of any area where they might be struck or crushed by a load or lifting equipment if it swings, shifts or falls. Where practicable, loads should not be carried or suspended over areas occupied by persons. Where this is not practicable, need to establish a safe system of work to minimise the risk to persons who may need to be below the load.

Operators of lifting equipment must be able to see the full path of the load or have a signaller with an appropriate means of communication to guide him/her. Operator shall obey an emergency stop signal at all times, no matter who gives it. The operator shall not leave the operating controls while the load is suspended.

Personnel shall not undertake more than one task at a time.

Taglines shall be used all the times for load to be guided and controlled. Taglines of nonconductive material must be used when lifting operation is close to overhead power lines.

Lifting accessories must be compatible with the load and used in a safe manner. Rigger must give authorization before the equipment is operated.

Lifting equipment should not be used in a manner likely to cause it to overturn.

Where appropriate, the SWL should be reduced to take into account the environment and mode in which it is being used.

To minimize risks from proximity hazards safe distance shall be kept. Safe clearance when lifting operation is in vicinity of overhead power lines shall comply with the legal requirements.

Normal phase-to-phase voltage rating	Minimum distance
750 or more volts, but no more than 150,000 volts	3 metres
Over 150,000 volts, but no more than 250,000 volts	4.5 metres
More than 250,000 volts	6 metres

During lifting operation no one shall stay close or be in contact with the crane or the lifted load.

Where the lifting operation may interfere with the site roads an appropriate traffic management plan shall be developed and all companies on site will be notified at least 12 hours in advance.

When lifting operations need to be controlled by signals, a signal person (signaller) shall be assigned. Signals between the lifting equipment operator and the signaller (sometimes referred to as Banks man or Flagman) shall be discernible – audibly or visually – at all times. When using radio communication, continuous verbal instruction shall be used. The operator shall stop whenever there is no clearly understood signal.

The signaller shall be clearly identified, preferably by distinctive clothing. The agreed signalling systems shall be used by those involved in lifting operations.

Personnel involved in the lifting operation shall not be distracted. The use of mobile phones or other devices unrelated to the lifting operation shall be restricted.

- ***Position and installation***

Lifting equipment shall be positioned or installed to minimize the need to lift loads over people.

Lifting equipment shall be positioned and installed to prevent crushing when it is in its extreme positions.

A load moving along a fixed path, such as a conventional lift or hoist, shall be efficiently protected by a suitable and substantial enclosure to minimize the risk of a person being struck by the equipment or the load.

Lifting equipment with a travelling or slewing motion shall be positioned or installed in a way to prevent trapping points. If it not possible effective measures to prevent access of persons to such trapping points shall be taken.

Hooks and other similar devices used for lifting shall have safety latches fitted or shall be shaped to prevent the accidental displacement of the sling.

Where two or more items of lifting machinery are used they should be installed or positioned so as to prevent the loads and/or parts of the equipment coming into contact with one another.

Lifting equipment must have a stable and level base. The stability and load-bearing capacity of the ground must be sufficient to carry the most severe static and dynamic loads, taking into account such factors as the slewing torques, wind stresses and shock loading, as well as the weight of the lifting equipment and its load.

When assessing the stability of the ground, excavations, culverts, tunnels and shafts as well as adverse weather conditions must be considered.

The operator must check that any ramps, slopes, gates, archways, buildings, trees or overhead power lines do not present an obstacle or danger, and that other vehicle (emergency, service) can gain access without causing a hazard.

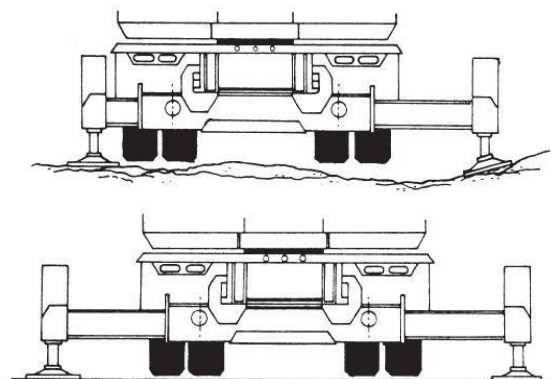
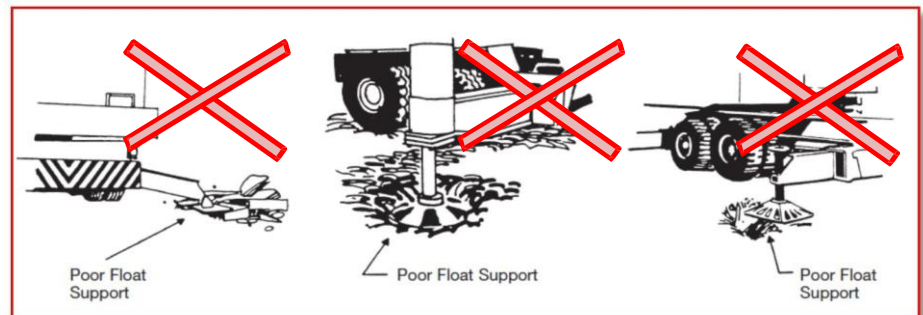
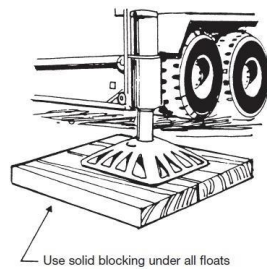
Lifting equipment should be positioned in a way to reduce as reasonably practicable the risk of:

- ⇒ the equipment or load striking a person;
- ⇒ the load drifting or falling freely, or being released unintentionally;
- ⇒ barricading or similar controls must be in place to prevent unauthorized presence in the lifting operation zone

Outriggers

Outriggers must be used for all lifting duties (except where “free on wheels” duties are required). ALL the out riggers must be extended fully or in accordance with the manufacturer load chart. Well-designed blocking or cribbing is needed under the outriggers (outrigger pads) strong enough to prevent crushing, free of defects

and be of sufficient width and length to prevent shifting or toppling under load (see the attached table for calculation).



Where operating on a slight slope cannot be avoided, the operating area should be built up to give a level base. A slope of as little of 1 degree can significantly affect the stability and capacity of the crane, particularly where long jibs are in use.

7.14.4 COMPETENCE

All persons involved in planning/performing lifting and maintaining lifting equipment shall be trained and competent for their role.

Refresher training and periodic assessment is necessary to assure competence. All lifting equipment shall be operated by a certified operator.

7.14.5 LIFTING OF PERSONS

Lifting equipment for lifting persons shall be specifically designed, approved and clearly marked as suitable for personnel lifting and shall:

- ⇒ prevent a person using it being crushed, trapped or struck or

falling from the carrier;

- ⇒ prevent a person using it, while carrying out activities from the carrier, being crushed, trapped or struck or falling from the carrier

Lifting accessories and lifted equipment used for lifting people shall not be used for any other purpose.

Equipment for lifting people shall be fitted with mechanisms for preventing the load from falling. Any free-fall capability shall be positively locked out.

Personnel shall be lifted only when there is full visibility between the equipment operator and signaller, and between signaller and the person being lifted.

A test lift without personnel shall be carried out where there is confined access, potential for snagging or other hazard.

The raising and lowering of people by work equipment which is not specifically designed for the purpose should only be undertaken in exceptional circumstances, when it is not practicable to gain access by less hazardous means. Where it is necessary to use such work equipment all necessary precautions shall be taken to ensure safety, including appropriate supervision.

Only chain or wire slings shall be used. The lifting equipment shall be used at 50% of the maximum capacity of the relevant load chart. The man basket shall be checked thoroughly for defects prior to lifting persons.

The carrier should be fitted with suitable edge protection. Gates and barriers should be in place so that person is not exposed to the risk of falling; they should not open outwards and fitted with a device to prevent them from opening inadvertently.

All floor surfaces on platforms and enclosures must be non-slip.

7.14.6 LIFTING OPERATIONS WHEN USING EXCAVATORS

Excavators and backhoes are designed for rapid earth moving and are not designed for lifting operations as their principle function. When planning a lifting operation firstly it shall be considered whether an excavator is the most appropriate machine, taking into account the type of lift and the duration of the task.

When an excavator will be used for lifting loads it is considered to be lifting equipment and the operation lifting operation. In addition to the safety requirements for lifting equipment and accessories the following shall be met:

- ⇒ Excavator operators must never move the machine or load until they have satisfied themselves that any persons associated with the lift have all moved away from the danger area (trench, excavation), to a position of safety.
- ⇒ Where the hooking device (the point on the machine designed for connection of the load) is not part of the bucket, the bucket should (where possible, and unless the operator instructions specify otherwise) be removed in order to improve visibility and reduce the weight being lifted.

- ⇒ If the bucket is retained, then the weight of both the bucket

and quick-hitch has to be added to the load when determining whether the load is within the rated capacity.

- ⇒ The excavator operator should ensure that the acoustic/visual warning device indicating the load moment is switched on prior to any lifting operation.
- ⇒ Any earth-moving machine designed for object handling should have a rated object handling capacity table available inside the cab. If a rated object handling capacity table is not available then the machine should not be used for object lifting.
- ⇒ An earth-moving machine used for lifting operations must be fitted with a load hooking device. If the load hooking device is a hook then this should have a clip or other device which prevents a sling slipping off the hook.
- ⇒ Excavator operators should be adequately trained and assessed to undertake their roles in lifting operations. This training is additional to the training required for operating the machine as an excavator.

7.14.7 GENERAL REQUIREMENTS

Where a person is required to be present on any part of the lifting equipment, eg for operational, maintenance or inspection purposes, the working place for that activity shall be such as to minimize the risks of accidents arising from slips, trips and falls.

Where operators may be adversely affected by the environment in which they are using the lifting equipment you should provide them with adequate protection.

Full body safety harness shall be worn all the time and with short lanyard shall be attached to the man basket.

Wind speed at which the operation will be suspended is 9m/s (nine meters per second).

7.15 CONFINED SPACE

Confined space is a space or structure that has limited openings for entry and exit and restricted natural ventilation such as, chamber, tank, silo, pit, pipe, sewer, borehole, deep excavation, trench etc. and any open top/open bottom spaces of a depth/height that could restrict natural ventilation or where hazardous gases can build-up and produce a hazardous atmosphere.

Confined spaces in a project shall be identified and properly labelled. Permit to work shall be applied before entry in these confined spaces.

Line Managers and Supervisors shall ensure that no one enters in a confined space alone and without permit to work.

Prior to a permit being issued for a confined space the following information shall be taken into account:

- ⇒ A suitable and sufficient Risk Assessment must be undertaken to identify any hazards, assess the risk and determine precautions to take for the task, the working environment, the suitability of the personnel and the emergency procedures.

- ⇒ The confined space must be isolated from the system
- ⇒ Atmosphere tests must be carried out to determine if the confined space is oxygen deficient and/or contains flammable substances, toxic agents, carbon monoxide and/or harmful physical agents. Any sludge or deposits that might be disturbed by personnel in the confined space must be stirred up before the tests are carried out.
- ⇒ A person to be on standby outside the confined space to ensure that in the event of an accident inside the confined space, this person can call for emergency rescue. Alternatively, constant communication with the persons working in the confined space must be established and monitored by someone not inside the confined space. Consideration must also be given to the tools, plant and equipment being taken into the confined space e.g., if a flammable atmosphere, all electrical equipment/appliances will have to be explosive proof or intrinsically safe, tools will have to be non-metallic and all other sources of ignition prohibited. Smoking shall be prohibited in all confined spaces.
- ⇒ No person is to be allowed to enter a confined space until the atmosphere has been tested and confirmed free of toxic and flammable gasses and has the correct level of oxygen i.e. 21% On no account must oxygen levels exceed 23% or drop below 19.5%.
- ⇒ No person is to be allowed to enter a confined space without emergency rescue procedures being in place and a standby person is on the outside of the confined space.

7.16 EXCAVATIONS

Any hole in the earth including trenches and bore holes are excavations. Prior to Excavation Works the following shall be done:

- ⇒ A survey shall be undertaken to find out if there are any underground services in the area.
- ⇒ A risk assessment shall be conducted. The assessment must take into account the likelihood of underground services (elec. cables, gas/water pipes etc.), hazardous substances, deficient in oxygen, depth of the excavation, the possibility of water ingress, existence or previous excavations/foundations etc. Responsible Engineer for the
- ⇒ relevant activities shall review all risk assessments and method statements that have been produced, prior to work in excavations.
- ⇒ The work must be authorized by the responsible engineer, the engineer must check to ensure that all the requirements of this document and any local requirements have been met. He /she must is responsible to fill in a prestart checklist.
- ⇒ PTW is applied for the cases when the excavation will take place close to public places, public roads, utilities (electrical supply, sewage, cables, pipes, etc.), and where land slide is expected.

7.16.1 GENERAL REQUIREMENTS

A Responsible Engineer shall be assigned for all excavation works.

The work must be authorized by the Responsible Engineer, the Responsible Engineer must check to ensure that all the requirements of this document and any local requirements have been met.

All employees that shall be involved shall receive training on safe work in excavations and trenches and emergency response.

No worker is allowed to be alone in an excavation. At least one other person shall present in immediate vicinity of the area where the work is being performed.

Effective means of communication such as a telephone or two-way radio shall be available to maintain contact and to call for assistance in the case of emergencies.

All employees shall receive proper personal protective equipment.

Only competent persons shall operate the machinery and equipment involved. PTW must be applied for.

Before the initial excavation work starts, existing hazards shall be identified, assessed and documented by Civil Construction Manager, Responsible Engineer and HSE Manager. The assessment shall take into account:

- ⇒ soil type,
- ⇒ nearness of structures and their condition,
- ⇒ traffic,
- ⇒ underground and overhead utilities,
- ⇒ hazardous substances,
- ⇒ depth of the excavation,
- ⇒ the possibility of water ingress,
- ⇒ existence or previous excavations/foundations etc.

The stages of excavation work shall be carried out in accordance with project schedule document. All excavation works shall be executed according to approved drawings.

Prior to commencement of excavating activities, all existing services shall be identified, located, clearly marked.

No water shall be allowed to build-up in an excavation while employees are working in it.

The Responsible Engineer shall ensure that all passages, roads, pedestrians walkways shall be free from obstacle and fall hazards.

Excavations shall not be done below the level of the base of footing of any foundation or retaining wall unless:

- ⇒ underpinning is provided
- ⇒ the excavation is in stable rock
- ⇒ Responsible engineer has approved that the excavation shall not pose a hazard to employees

Excavations under sidewalks are prohibited unless on appropriately designed support system is provided or another effective method is used.

For excavations deeper than 1.5 meters adequate support shall be installed. Excavations deeper than 3 metres require the design of a competent engineer, the company undertaking the excavation shall produce stability calculations indicating the safety factors to be taken i.e.

slope angles, shoring etc. The calculation must be approved by the Responsible Engineer before the work can commence.

7.16.2 WORK IN AND AROUND EXCAVATIONS

- ***Collapse Prevention***

The sides of all excavations shall be prevented from collapse by one of the methods listed below.

- ⇒ Shoring
- ⇒ Shielding
- ⇒ Sloping
- ⇒ Benching

Where the above methods are not applicable a trench box system will be used.

- ***Provision and design of temporary support systems***

The following factors should be considered when deciding upon a system of support for an excavation:

Nature of the ground:

- ⇒ soil or rock type;
- ⇒ presence of any faults or bedding planes in the soil or rock;
- ⇒ made up ground;
- ⇒ moisture content of the soil or rock. Cohesiveness of the soil or rock may change, depending on whether the material is wet or dry; and
- ⇒ height of the face.

Water control:

Water control may involve the relatively simple removal of small amounts of water at the bottom of an excavation by electrically driven sludge pumps or it may involve the use of dewatering systems to control large quantities of water in situations where an excavation is below the level of the ground water table.

Underground services

Proximity of underground services such as electricity, gas, sewer, water mains, drains or telephone cables and other hazards such as fuel lines, soak wells and underground tanks: Enquiries should be made to the appropriate authority in regard to the location of services prior to excavation

Previously dug excavations have a weakening effect on a trench wall if they are in close proximity to the trench face. The hazards of working close to previously disturbed ground are considerably increased when the ground is either very wet or very dry. Under these conditions, it may be necessary to use a steel shield or sheet piling to ensure safe working conditions.

Hazards, natural or artificial

- ⇒ intersecting existing service excavations;

- ⇒ telephone and electricity supply poles;
- ⇒ manholes and other shafts;
- ⇒ bends in an excavation;
- ⇒ leaking water, drainage or sewerage services;
- ⇒ corners created by the joining of pipe systems, ie 'T', 'Y' or 'square junctions'; and
- ⇒ trees.

Static loads

Static loads near an excavation, including:

- ⇒ the excavated material. An excavation in wet clay, three metres deep and one metre
- ⇒ wide, will create a heap weighing approximately six tonnes per linear metre of
- ⇒ excavation. This needs to be considered when designing a support system if the
- ⇒ excavated material is located near the trench;
- ⇒ buildings, including garages, sheds, outbuildings, etc;
- ⇒ concrete slabs for new plant and equipment;
- ⇒ water tanks or towers;
- ⇒ brick or stone walls;
- ⇒ embankments; and
- ⇒ dams.

In case of static loads nearby, additional supports may need to be installed.

Dynamic loads

Dynamic loads near an excavation, such as:

- ⇒ traffic (highway and rail); and
- ⇒ excavation equipment.

Ground vibration

The collapse of a trench may be caused by ground vibration accompanying dynamic loads. Such vibration may come from:

- ⇒ heavy traffic;
- ⇒ rail stock passing close to an excavation;
- ⇒ excavation and compaction machinery;
- ⇒ construction works in the immediate vicinity (for example pile driving);
- ⇒ rock breakers; and
- ⇒ use of explosives.

Before anyone enters an excavation a responsible engineer shall exam the soil and determine the type of protective system that shall be used.

- ***Temporary support system***

For protection of employees when installing support systems the following shall be done:

- ⇒ Securely connection of members of support systems,
- ⇒ Safely installation of support systems,
- ⇒ Members of support systems shall not be overloaded,
- ⇒ Other structural members shall be installed to carry loads imposed on the support system when temporary removal of individual members is necessary.

To avoid possible failure of a protective system:

- ⇒ Materials and equipment used for protective systems shall be kept in good condition.
- ⇒ Materials and equipment are free from damage or defects,
- ⇒ Manufactured materials and equipment are used and maintained in a manner consistent with the recommendations of the manufacturer and in a way that shall prevent employee exposure to hazards,
- ⇒ While in operation, damaged materials and equipment are examined by the Responsible Engineer to determine if they are suitable for continued use. If materials and equipment are not safe for use, they shall be removed from service.

Support system for trench faces shall be used to prevent movement of soil, underground utilities, roadways, and foundations. Shoring or shielding shall be used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical.

All shoring shall be installed from the top down and removed from the bottom up.

Where it is applicable trench box system shall be used. These systems are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect employees from cave-ins and similar incidents. The excavated area between the outside of the trench box and the face of the trench shall be as small as possible. The space between the trench boxes and the excavation side shall be backfilled with suitable material to prevent lateral movement of the box. Shields shall not be subjected to loads exceeding those which the system was designed to withstand.

Trench boxes shall be generally used in open areas, but they also may be used in combination with sloping and benching. The box shall extend at least 0.45 m above the surrounding area if there is sloping toward excavation.

- ***Sloping and benching***

Sloping and benching shall be planned and applied by the Responsible Engineer considering the soil examination, soil mechanics, job to be done, proximity from existing facilities. The safe slope for a face shall depend on the depth of cut, the type of soil, the moisture content and condition of the material in the face and the time that the face will be required to stand.

The location of any underground services near the excavation shall be taken in account for provision of safe slope.

- ***Spoil***

The spoil shall be placed so that it cannot accidentally run, slide, or fall back into the excavation. Safe placement of spoil shall take in consideration:

- ⇒ where pipes have been temporarily positioned on the ground
- ⇒ the placement of manifolds and spears
- ⇒ In the case of wet ground it also includes the location and positioning of discharge pipes associated with dewatering plant;
- ⇒ unusual obstacles or conditions existing, such as buildings, trees, power lines and sloping ground;
- ⇒ distance of excavated material away from the excavation
- ⇒ the need to ensure access and egress are not prevented.

The temporary spoil shall be placed at distance of 0.6 metres from the edge of the trench. If there is a walkway between the trench and the spoil, the heel of the spoil shall be a minimum of 1.0 meter from the edge of the trench. This minimum distance shall be measured from the nearest base of the spoil to the cut of the trench. Spoil pile shall be moved further back for deep trenches.

- ***Ingress and egress***

Access to and exit from the excavation require the following:

- ⇒ Excavations of 1.5 m or more in depth shall be provided with a fixed means of egress.
- ⇒ Spacing between ladders or other means of egress shall be such that a worker shall not have to travel more than 7 m laterally to the nearest means of egress.
- ⇒ Ladders shall be secured and extend a minimum of 1 m above the landing.
- ⇒ Metal ladders shall not be used where electric utilities are present.

- ***Hand excavation***

Excavation by hand shall be performed with care due to possible unknown underground facilities that may be live (power cables, sewage pipes, water supply, etc.). It should only be carried out in depths less than 1.5 metres unless the trench is shored to prevent collapse or the sides made self-supporting by virtue of their slope. At

the time of hand excavation no machinery and equipment shall be working close to the workers.

- **Surface crossing**

Excavations crossing shall be permitted only under the following conditions:

- ⇒ Vehicle crossings shall be designed by and installed under the supervision of a Responsible engineer.
- ⇒ Walkways or bridges shall be provided for foot traffic and shall:
 - have a safety factor of 4;
 - have a minimum clear width of 0.50 m;
 - be fitted with standard rails; and
 - extend a minimum of 0.6 m past the surface edge of the excavation.

- **Loads**

To protect employees from loads or objects falling from lifting or digging equipment:

- ⇒ Employees shall not be permitted to work under raised loads.
- ⇒ Employees shall stand away from equipment that is being loaded or unloaded.
- ⇒ Equipment operators or truck drivers shall stay in their equipment during loading and unloading if the equipment is properly equipped with a cab shield or adequate canopy.

- **Mobile equipment, plants and machinery**

The following steps shall be taken to prevent vehicles from accidentally falling into the excavation:

- ⇒ Barricades shall be installed where necessary.
- ⇒ Hand or mechanical signals shall be used as required.
- ⇒ Stop logs shall be installed if there is a danger of vehicles falling into the excavation.
- ⇒ Soil shall be graded away from the excavation; this shall assist in vehicle control and channelling of run-off water.
- ⇒ Mobile plant operating near ground personnel shall be equipped with a reversing alarm and a revolving light.
- ⇒ Heavy machinery and equipment shall not be closer than 1 meter.
- ⇒ Portable petrol or diesel driven machines that produce fumes hazardous for employees in an excavation shall not be used within areas enclosed to the excavation.
- ⇒ All plants and equipment that is in use shall be:
 - tested, inspected, repaired and maintained in accordance with recommended procedures;

- used only for the purpose it was originally designed;
- equipped with guards over dangerous parts; and
- withdrawn from service if it represents a risk to safety or health

- ***Hazardous atmosphere and confined space***

Employees shall not be permitted to work in hazardous and/or toxic atmospheres. This includes:

- ⇒ Less than 19.5% or more than 23.5% oxygen;
- ⇒ A combustible gas concentration greater than 20% of the lower flammable limit; and
- ⇒ Concentrations of hazardous substances that exceed specified threshold limit values

For all operations involving hazardous atmosphere personal protective equipment and lifesaving equipment, engineering controls, ventilation and respiratory protection shall be provided.

Testing for atmospheric contaminants shall be:

- ⇒ Conducted before employees enter the excavation and should be done regularly to ensure that the excavation remains safe.
- ⇒ The frequency of testing shall be increased if equipment is operating in the excavation.
- ⇒ Testing frequency shall be increased if welding, cutting, or burning is done in the excavation.

Employees required to wear respiratory protection shall be trained, fit-tested, and enrolled in a respiratory protection program. Work in trench that are qualified as confined spaces shall be carried out in compliance with the Permit to work procedure.

Hazardous substances may be present in excavated material where the work is carried out in existing or old industrial areas and landfill sites. Actions shall be taken in accordance with the item 7.10.

- ***Work close to electrical lines***

Cranes and excavation equipment: backhoes, trench diggers, excavators and draglines, shall be operated with extreme care in the vicinity of overhead power lines.

Electricity distribution, overhead power lines where applicable shall be isolated and isolation permit to work shall be kept in possession at the work place during operations.

Where the power lines are live and minimum distance shall be kept as given in the relevant legislation.

A dedicated watchman shall be used. In these circumstances, the following measures shall be implemented:

- ⇒ slow down the normal operating cycle of the equipment to increase the available reaction time for assessing distances;
- ⇒ keep personnel away from the area;

- ⇒ clear instruction to all personnel to stand clear of the equipment and load at all times;
- ⇒ operators to check for the presence of power lines;
- ⇒ dry taglines (tail ropes) made of natural fiber such as hemp, sisal or other non- conductive material shall be used to control the load. Due to their conductive properties, synthetic ropes shall not be used. The tagline needs to be prevented from approaching or being blown into contact with any power line;
- ⇒ mobile equipment should be provided with a steel earthing chain bolted or welded to the carrier chassis and be of sufficient length to allow at least one meter of chain to be in contact with the ground. Earthing chain should not be used when the equipment is operating near the rails of an electric train system.

In the event that mobile plant does contact live power lines, or arcing occurs, the operator should observe the following precautions:

- ⇒ remain inside the cabin;
- ⇒ warn all other personnel to keep away from the item of plant and not to touch any part of the plant, rigging, tail ropes or load;
- ⇒ try, unaided, and without anyone approaching the machine, to move it until clear of the power line;
- ⇒ If the machine cannot be moved away, remain inside the cab. If possible, get someone to inform the electricity distribution authority at once. Take no action until the distribution authority confirm that the conditions are safe;
- ⇒ If it is essential to leave the cabin because electrical contact or arcing has caused a fire or other life-threatening emergency, jump clear as far away from the machine as possible;
- ⇒ Do not touch the machine and the ground at the same time;
- ⇒ When moving away from the machine, shuffle or hop slowly across the affected area. Large steps should be avoided as one foot could be in a higher voltage area and the other in a lower voltage area. Under some circumstances, the voltage difference between the two areas could kill;
- ⇒ Ensure someone remains near the machine at a safe distance, to warn others of the danger of approaching.

- ***Housekeeping***

At the top of the excavation all material, e.g. pipe sections, unused tools, timber, shall be kept at least 1 meter away from the excavation edge.

To prevent slips trips and falls work areas shall be kept free of scrap, debris and any obstacles. Excavations shall be kept dry as possible.

Housekeeping must be performed on daily basis.

- ***Dust nuisance***

In dry conditions, frequent watering may need to be applied to haul roads and work areas to reduce the level of nuisance dust.

- **Damage of Utilities**

In event of breaks in electrical, water or other services personnel shall be evacuated from the excavation. The responsible department shall be notified and remedial actions shall be taken.

- **Barricades & Lighting**

All excavations deeper than 1.2metres must be barricaded. The barriers must be at least 1metre away from the excavation edge. Excavations less than 1.2 metres in depth need not have a rigid barrier as long as they are highlighted with warning tape at a distance of at least 1.5 metres from all edges of the excavation.

Excavations shall be kept open for short terms as far as possible. Warning devices and lighting shall be used and effective at all times including outside working hours and at night.

7.16.3 INSPECTIONS

Responsible Engineer shall perform inspections and shall document them in a form Excavation checklist:

- ⇒ Daily and before the start of each shift;
- ⇒ As dictated by the work being done in the excavation;
- ⇒ After every rainstorm;
- ⇒ After other events that could increase hazards, e.g. windstorm, thaw, earthquake, etc.;
- ⇒ When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur;
- ⇒ When there is a change in the size, location, or placement of the spoil pile.

7.16.4 TRAINING

All personnel required to work in excavations must be given appropriate training, which must include details from the risk assessment.

The level of training shall depend on the complexity of the job but minimum shall cover the following:

- ⇒ The dangers of working in excavations
- ⇒ The preventative measures for safe work in excavations
- ⇒ Hazard spotting
- ⇒ Daily inspections
- ⇒ Emergency procedure Training records shall be retained.

7.16.5 HISTORICAL REMAINING AND SUSPICIOUS MATTERS

In cases when any historical remaining are discovered during excavation works the works shall be suspended and local authorities shall be notified in accordance with the local legislation.

If during excavation works any suspicious matter is discovered the works shall be suspended and the Site Manager shall be notified. Since these may be hazardous substances buried in the soil no one shall approach and touch them. Expert's advice shall be seek for.

7.17 CONTROL OF RADIATION HAZARDS

Radiography examinations in the project shall be executed by a licenced company. This company shall prepare and submit to the Site Manager and HSE manager a procedure for transportation, handling, storage, and use of isotopes in the project as well as organization for emergencies. Radiography examinations shall be carried out under a Permit to work.

7.18 HOT WORKS

Hot work are processes involving the use of open flame or generating heat or sparks including but not limited welding, burning/gas cutting, metal grinding, pre-weld and post-weld heat treatment.

Hot works shall be executed under permit to work. Only qualified, suitably trained and authorised personnel shall carry out welding.

Hot work should not be conducted in the presence of explosive mixtures of flammable gases, vapours, liquids, or dusts or where explosive mixtures could develop inside improperly prepared tanks or equipment. Atmospheric testing and monitoring for combustible gases and vapours should be done before work begins and at regular, predetermined intervals thereafter. Ventilation of the work site, either through local or general exhaust ventilation, should be adequate for the work performed.

Areas where hot work is done shall be properly designated and prepared. Combustible and flammable materials within the work area shall be protected against fire hazards and the operation shall not pose a hazard to others in nearby areas.

All hot work shall have a fire extinguisher readily available. The type of fire extinguisher will be general purpose i.e. suitable for all classes of fire, unless instructed otherwise by the relevant risk assessment. Where reasonably practicable a charged water hose shall also be available.

Welding screens or / and Fire-proof blankets (non-asbestos) shall be used to prevent sparks, molten metal and hot slag from causing fires and or affecting persons working close to or directly below the area of hot works.

Persons likely to be engaged in hot works and persons required for fire watch shall be trained on how to use fire extinguishers.

Hot-work equipment is in good repair and adequately secured.

7.18.1 IDENTIFICATION OF GASES

All gas cylinders must be clearly marked to show what they contain and the hazards associated with their contents. Whenever practical, the marking shall be on the shoulder of the cylinder. Markings, labels, decals, tags, or stencil marks used for the identification of contents shall not be defaced. No marks or numbers stamped into a cylinder shall be changed or obliterated.

7.18.2 REPAIRS AND ALTERATIONS

Cylinders, valves, or safety-relief devices shall not be repaired or altered.

7.18.3 CONNECTIONS

Compressed gas cylinders shall be equipped with a connection suitable for the gas. All manifold connections **MUST** be designed, tested and certified by a competent person, preferably by the compressed gas supplier.

7.18.4 INSPECTIONS

Compressed gas cylinders shall be inspected by the user prior to and during use to determine that cylinders are in a safe condition for use. Inspect for corrosion, valve damage or leaks, evidence of tampering, etc. Never use a flame to detect flammable gas leaks.

7.18.5 PERIODIC TESTING

Most compressed gas cylinders are required to be retested periodically (5 years/10 years). These dates are marked on the cylinder shoulder.

All cylinders shall be equipped with means of connecting a valve protection cap, or with a collar or recess to protect the valve.

Cylinders shall not be used for any other purpose other than for storing and dispensing gases. Cylinders shall not be refilled by anyone other than the owner of the cylinders.

7.18.6 TRAINING

Anyone who examines, handle, fills or uses a gas cylinder should be suitably trained and have the necessary skills to carry out their job safely and they should be aware of the risks associated with the gas cylinder and its contents.

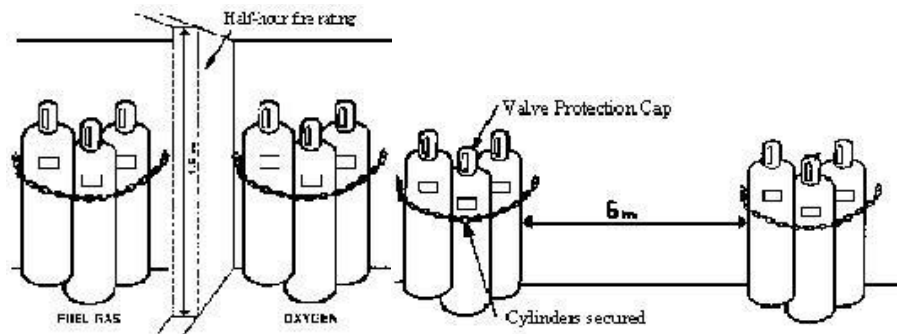
7.18.7 STORAGE

All gas storage areas are clearly marked to identify the hazards associated with the storage facility. The hazards associated with gases will include:

- Flammable
- Toxic/Corrosive
- Inert
- Oxidising

Store cylinders in an upright position (valve end up), Fasten cylinders securely at all times. Keep storage area well ventilated and dry.

Ensure no flammable substances such as oil and volatile liquids are stored in the same area. Separate oxygen cylinders from cylinders containing flammable gasses or other combustible materials by 6m, or by a 1.5m high fire-resistant wall with a rating of at least 30 minutes.



(Figure 1)

(Figure 2)

Store out of direct sunlight and away from other sources of heat as cylinder temperatures must not exceed 50°C. Some cylinders will release their contents through a rupture device at 65°C, however small cylinders without these devices may explode if exposed to elevated temperatures.

Separate empty and full cylinders. Clearly mark the empties with chalk, regulator removed and valve cap replaced.

No smoking in the storage room or near any compressed gas. Remove all sources of ignition from the storage room.

Propane tanks greater than 2.5 kg. in size must be stored out of doors. SDS for the stored gases shall be available in the place of storage.

7.18.8

HANDLING:

Compressed gas cylinders that do not clearly identify its contents by name should not be accepted for use.

Keep the metal cap securely in place to protect the valve whenever the cylinder is not connected for use.

Protect cylinders from damage.

Because of their shape, smooth surface, and weight, cylinders must not be carried by hand. Cylinders are to be moved only with cylinder carts in which the cylinder is securely held by a chain.

When cylinders must be handled by a crane or derrick, carry them in a cradle or on a suitable platform and take extreme care that they are not dropped or bumped. Do not use slings. (see Fig.3)



(Figure. 3)

If necessary, cylinders may be rolled on their bottom edge while in a nearly vertical position, but never dragged.

Keep valve caps in place when cylinders are transported, moved, or not connected for use. Do not use cylinders for rollers, supports, or any purpose other than to contain gas.

Avoid dropping cylinders or allowing them to strike violently against other cylinders. Handle empty cylinders as carefully as full ones; residual pressures can be dangerous. Do not tamper with safety devices in valves or on cylinders.

Never refill a cylinder. This calls for specialized equipment and techniques.

Never mix gasses in a cylinder. The next person who draws from it may unknowingly cause an explosion.

If an outlet valve becomes clogged with ice or frozen, thaw with warm (not boiling) water (if gas is not water reactive), applied only to the valve. Do not use a flame.

7.18.9 *TRANSPORTING*

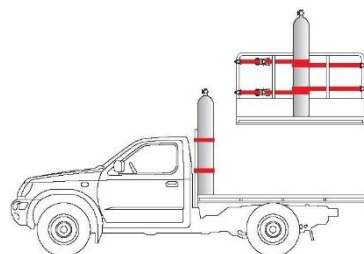
Transport cylinders properly secured and in an upright position. Cylinders and cylinder packs are heavy and need to be properly loaded and secured prior to despatch to prevent them working loose and becoming a hazard to other vehicles sharing the road.

Transport cylinders in an open vehicle. If no other option exists and you must transport the cylinders in a van or car, then ensure that the cylinders have been thoroughly leak checked and ensure the vehicle is well ventilated. No more than 10 kg shall be transported.

Make sure the cylinder storage area of the vehicle is properly ventilated at all times. Windows or sides must be kept partly open to ensure good cross flow of air. Secure the cylinder.

Do not transport cylinders with regulators or equipment attached even if the cylinder valves are closed.

Remove the cylinders from the vehicle immediately upon arrival at the destination. Check cylinders have not been tampered with.



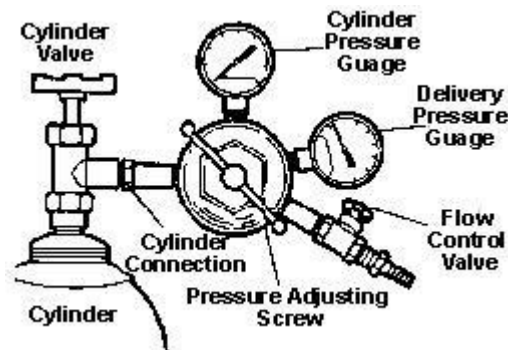
7.18.10 *USE AND OPERATION*

Use cylinders, particularly those containing liquefied gas, in an upright position and secure them firmly with chains or clamps.

Never use cylinders if their contents are not known.

Always wear safety goggles when handling or using compressed gases.

Reduce the pressure of a compressed gas through a manufacturer's specified regulator attached to the cylinder valve. (Figure 4)



(Figure 4)

Ensure that flash back arrestor is installed after the regulating valves and before the torch. For long hoses additional flash back arrestor shall be provided in the middle of the hose.

Ensure the threads on a regulator or union correspond with those on the cylinder valve outlet. Do not force mismatched connections.

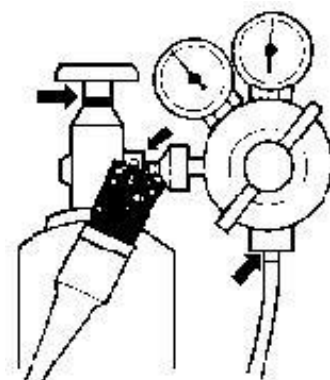
Use regulators and pressure gauges only with gases for which they are designed and intended. Do not use adapters or modify connectors to circumvent this rule.

Open cylinder valves slowly with valve outlet directed away from all personnel.

DO NOT EMPTY A CYLINDER COMPLETELY. This will prevent a flash-back and a possible explosive mixture.

Never use oil or grease on valves or attachments for oxygen cylinders and never handle oxygen cylinders and apparatus with oily hands, gloves, or clothing.

Test cylinders for leaks each time you use them. Use soapy water, approved leak - test solution or detection equipment to check for leaks, never use flame.(Figure 5)



(Figure 5)

- If leaks occur in cylinders of noxious or combustible gases, close the valve and remove the cylinder outdoors or place in fume hood and notify the HSE department.
- Purge oxygen and acetylene lines before lighting.

- When bleeding off flammable gases, use a ground wire on cylinder valves.

Do not use recessed top of the tank cylinders for the storage of tools or other equipment. Never direct compressed air or other gases toward the body.

Exercise care to avoid injury to hands or feet. The use of safety shoes and gloves is highly recommended.

Do not use force to open or close cylinder valves; If there is a problem, notify the HSE department. Use the cylinder valve for turning the gas off, not the regulator valve.

Close the main cylinder valve as soon as it is no longer necessary to have it open. Before you remove the regulator make sure that the cylinder valve is closed.

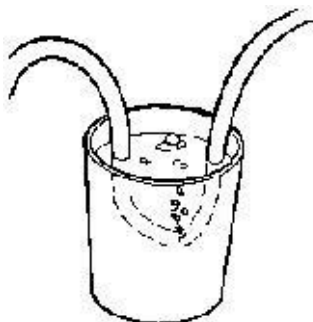
Place a trap between the regulator valve and the reactor vessel to prevent contamination when carrying out chemical reactions using pressurized gas.

Turn off the cylinder valve and then the regulator, when your work is finished. The pressure gauges should be brought back to zero.

7.18.11 HOSES AND CONNECTIONS

Do not use unnecessarily long hoses. If a long hose must be used, make sure it is free from kinks, and away from high traffic areas.

Examine hoses periodically for leaks by submersing sections in water and looking for bubbling. (Figure 6)



(Figure 6)

Repair leaks properly and promptly. Store hoses in a cool place, and protect from hot objects, and sparks. Do not use a single hose having more than one gas passage.

7.19 ELECTRICITY

Supply switchboards are to be robust and weather proof, they are to have a clearly labelled isolating switch and are to incorporate an RCD/ELCB to protect persons who may come into contact with electrical equipment. The switchboards are also to be provided with a door and locking facility and are to be clearly labelled with electricity warning signs.

The voltage of all portable and transportable electrical equipment must be as low as is reasonably practicable. Electrical equipment used in confined spaces shall where

reasonably practicable be 24volt and where not reasonably practicable will not exceed 48volt

Electrical equipment shall be maintained in good safe condition and inspected by the user before each days use.

All portable and transportable electrical equipment shall be connected by means of proper connectors or cable couplers e.g plugs and sockets (minimum rating IP 67). Strip connector blocks covered with insulation tape are not permitted. Note cable entry points to plugs and sockets must have an insulated anchor to hold the cable firmly and relieve the terminals of strain. Terminals should be separated by barriers designed to prevent a broken conductor touching another and connections must be secure so as not to loosen during use.

All distribution boards must be protected by circuit breakers and residual current devices, must be earthed and must have the means of switching off the supply. Work on energized equipment requires a Lock out Tag out permit and the equipment isolated and deenergized except where the equipment has to remain live for the purpose of test. Lock Out Tag Out permit systems will be controlled by a responsible engineer who will be assigned for the project.

All portable and transportable electrical equipment including extension leads shall be in good safe condition, shall be inspected and checked for earth continuity and certificated in good condition prior to being brought in the project. Earth continuity checks, portable and appliance testing must be carried out at intervals not exceeding 3 months. Office equipment such as kitchen appliances etc shall also be tested regularly.

Any motors used during the construction phase shall have the appropriate enclosure, insulation and earthing rating for the area of use.

Extension leads wherever possible shall be routed at high level and not be allowed to trail on the ground.

In the event that underground services are discovered they are to be assumed live and work shall cease until a safe method to proceed has been agreed in writing with the Project management.

Work is not permitted within 9 metres of overhead power lines unless suitable safety measures have been agreed in writing with the Project management.

7.20 USE OF TOOLS AND EQUIPMENT

Work equipment shall comply with the applicable to the project standards. Electrical tools shall be inspected by a competent electrician every month.

Electrical equipment without periodical inspection shall not be allowed to enter in the project.

Electrical equipment shall be visually checked by the warehouse keeper before the equipment be given to a user. If the equipment has any defect it shall be moved to the quarantine zone and shall be sent for inspection to a competent electrician.

Electrical equipment shall be used only by employees who are competent and have received training in accordance with the relevant equipment manufacturer's manual.

No any equipment shall be used without guards. After finishing the work the equipment shall be plugged off the power supply. The equipment power cables shall be organized in a way which shall not present a trip hazard

7.21 FLOOD MANAGEMENT

Flooding occurs frequently in the project watershed and in the project vicinity. Steep slopes, deep gorges, significant areas of exposed rock and impervious surfaces, snowmelt runoff enhanced by warm temperatures and intense precipitation all contribute to major flooding risk for the project and the local environment.

The aim of flood management is to protect homes, businesses and the environment from flooding. Floods happen less often – but when they do occur they tend to be more hazardous.

What factors increase the risk of flooding?

- ⇒ Impermeable rock
- ⇒ Hard dry soil
- ⇒ Very wet soil
- ⇒ Steep slopes
- ⇒ Cutting down trees
- ⇒ Building in the drainage basin
- ⇒ Many tributaries

Flood protection methods:

- ⇒ Dams; hold back flood waters
- ⇒ Reservoirs; store floodwater
- ⇒ Straighten channels; increases speed of flow
- ⇒ Dredging ; makes channel deeper so can hold more water
- ⇒ Levees and embankments ; prevents river from overflowing
- ⇒ Land use zoning
- ⇒ Restricts development to uses unaffected by flooding
- ⇒ Afforestation increases interception etc, reduces run off

Channel straightening;

Flooding may happen downstream instead as flood water is carried there faster. More erosion occurs downstream because the river flows faster. Altering river channels disturbs wildlife habitats. It takes less time to navigate the river because it has been made shorter. Meanders are removed by building artificial cut- throughs. This makes the water flow faster which reduces flooding because water drains downstream more quickly and doesn't build up to a point where the channel can't contain it any more.

Levees;

There's a risk of severe flooding if the levees are breached. They allow the floodplain to be built upon levees are embankments built along rivers. The river can hold more water without overflowing and so it floods less often disadvantages.

Build barriers

Build up the banks with earth or concrete to make embankments to keep water in
Build flood walls to keep water out

Straightening meanders;

This represents a small scale approach to managing rivers. Water in a meander takes longer to clear an area than water in a straight section of a river. A possible solution to flooding in areas where there are many meanders is to straighten them artificially. The river is made to follow a new shorter straight section.

7.22 GEOHAZARD MANAGEMENT

A geohazard is a geological state that may lead to widespread damage or risk. Geohazards are geological and environmental conditions and involve long-term or short-term geological processes. Geohazards can be relatively small features, but they can also attain huge dimensions (e.g., submarine or surface landslide) and affect local and regional socio-economy to a large extent (e.g., tsunamis).

Annex 5 Emergency Response Plan

The actions taken in the initial minutes of an emergency are critical. Prompt action and warnings can save lives, minimize physical damage to structures and property, and allow for better resilience. The Contractor shall develop and implement an emergency plan for protecting employees, contractors, visitors and third parties when impacted by project operation.

1. The purpose of the ERP

It is to facilitate and organize employer and employee/worker actions during workplace emergencies. The ERP shall include a proper employee/worker training (such that employees/workers understand their roles and responsibilities within the plan) and which will result in fewer and less severe employee/workers injuries and less structural damage to the project facilities during emergencies.

2. Developing an Emergency Plan

Developing an emergency plan begins with an understanding of what can happen. This shall include considerations of reviewing project risk assessment and the performance objectives established by the ERP and also determine the following:

- Conditions under which an evacuation would be necessary.
- Conditions under which it may be better to shelter-in-place.
- A clear chain of command and designation of the person in your organization authorized to order an evacuation.
- Specific evacuation procedures, including routes and exits.
- Procedures for assisting visitors and employees to evacuate, particularly those with disabilities or who do not speak the local language.
- Designation of what, if any, employees will remain after the evacuation alarm to shut down critical operations or perform other duties before evacuating.
- A means of accounting for employees/workers after an evacuation.
- Special equipment for employees, including such appropriate respirators and other PPEs.

The following actions shall also be considered while developing the ERP:

- Assess what resources are available for incident stabilization. Consider internal resources and external resources, including public emergency services and contractors.
- Document available resources. Determine whether external resources have the information they would need to handle an emergency. If not, determine what information is required and be sure to document that information in the emergency plan.
- Prepare emergency procedures for foreseeable hazards and threats, for each facility under the project.

The Emergency Response Plan should define the most appropriate protective action for each hazard to ensure the safety of workers and others external stakeholders that might be impacted by any of the project facilities operations or the construction activities.

- Determine how workers will be warned to take protective action.
- Develop protocols and procedures to alert first responders including any public emergency services, trained workers and management.

- Identify and establish means of communications with management and workers/employees during and following an emergency.

3. Some steps for developing the Emergency Response Plan

- Set performance indicators and objectives for the emergency program.
- Review hazard or threat scenarios identified during the risk assessment.
- Assess the availability and capabilities of resources for incident stabilization including people, systems and equipment available within your organization and from external sources.
- Establish communication with public emergency services (e.g., fire, police and emergency medical services) to determine their response time to your site and facilities, knowledge of the project sites and its facilities, and its hazards and their capabilities to stabilize an emergency situation at your project sites.
- Determine if there are any specific regulations pertaining to emergency planning for the project, any specific facility or any other areas to be potentially impacted by the project; include all the applicable regulations and requirements in the plan.
- Develop protective actions for life safety (e.g. evacuation, shelter, lockdown).
- Develop hazard and threat-specific emergency procedures including natural hazards and human-caused events.
- Establish an emergency response team and include clear roles and responsibilities.
- ERP to include an evacuation plan with establishment of the evacuation teams and protocols.
- Include in the ERP as required fire emergency procedure/protocols and train workers.
- Develop a medical intervention plan with the help of an occupational doctor, including determination of needs for each site and facilities of the project, and the required first aid responders.
- Coordinate emergency planning with public emergency services to stabilize incidents involving the hazards at your project sites.
- Train personnel so they can fulfill their roles and responsibilities.
- Facilitate exercises (emergency drills) to practice your plan.
- Review and update the ERP periodically and especially when new hazards and risks have been identified.

Annex 6 Traffic Management Plan

The contents of a traffic management plan should provide detailed information on how all traffic movement will be controlled on and off the site. Below are some points that shall be considered within such a plan. The left-hand side titles could be possible sections within the plan. The control measures should be clear, concise and achievable.

For example – “.....All deliveries will be arranged between 10am and 2pm. Where this is not possible due to operational requirements, the site manager must be consulted and approve such delivery before they attend site. A record of such approval will be made in the daily site log.....”

Topic	Expected contents to demonstrate how they will control
Layout	One way circuit where possible to avoid reversing or turning Layout checked for long vehicle access where required Minimize junctions to avoid vehicle interaction Left in / left out of site to avoid entering / leaving traffic crossing incoming traffic Sight lines from entry and particularly exit to pavement / main roads Positioning of offloading areas relative to carnage – and flat not on inclines Location of washing facility for vehicles Welfare – Access for visiting drivers possible if required Storage area layout in relation to crange & traffic routes
Planning of subsequent Phases	Site pedestrian access – lighting, ground conditions, PPE-free zones Vehicle access – parking, site access, segregation Coordination/Cooperation with the police and Local Authorities
Nominated Persons	Identification of key persons involved in this plan Refresher training – understand requirements of plan Tool box Talk to workers on the contents of the traffic management plan Training of drivers and those offloading loads Who looks after complaints Supervisor/Logistics Coordinator
Other considerations	Possible obstruction from Entry/exit routes Restrictions to access & security, including pets or children with drivers “Sound your horn” points on blind bends Amber flashing lights on vehicles if required Reversing – cameras, bleeper/alarm, lights Vehicle condition checks Double tag-lines Convex mirrors on blind spots Drivers’ rules – PPE, mobile use Information to suppliers sheets – locations and acceptable standards to comply with traffic management plan Stop logs – stopping construction traffic and carry out checks

	<p> Gateman controlling access to sites Protection of temp/permanent works/excavations Maintenance/punctures Trailer checks Traffic Signals or other restrictions Local knowledge Use of seat belts Communication to include not driving and using mobiles phones Main headlights policy – leave them on at all times Lone workers / drivers Daily, weekly inspection of traffic routes and regular grading Identification of overhead obstacles along approach roads to work fronts and on site Cleaning of public highways – road sweeper to carry out cleaning daily and more frequently in residential areas Diverting traffic away from residential areas (Even though it might be longer) The speed limits on and off site – I think 30km is still to fast, this should be reduced to at least 20km/hr preferable 15km/hr </p>
Delivery Vehicles	<p> Direction of approach - signage Holding area and communications with the Deliveries held there Waiting area immediately outside the project or establishment </p>
Public	<p> Pedestrian Control Pavements / Disabled access Vehicle Control Public Service Vehicles / buses Parked Cars Security and Protection of perimeter School times / OAPs / local events </p>
Pedestrian routes on site	<p> Segregation of pedestrians from vehicle routes Pinch points, conflicts and clear identification of crossing points Signage and barriers </p>
Deliveries	<p> Covering/uncovering of wagons/Working at heights unloading vehicles Quality and content checks before unloading – finding out the load is wrong of damage and having to reload it again! Tying & Untying of loads, slinging loads - Working at heights Delivery notes/consignment notes – collection signing etc. </p>
Delivery timings	<p> Early / late to avoid restrictions or nuisance Sequence / criticality Crane Coordination </p>

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Type of delivery/export	Muck-away / import of stone Plant
Loading/unloading area	Site Special welfare / changing facilities for contaminated ground Loading Bay Access platforms for loading unloading and sheeting trucks Avoidance of roll back Hard standing and maintenance of surface Jet wash Wheel wash Arrangements for cleaning of wheel wash Run off, drainage and settlement tanks / interceptors
Signage	At Gate On site Crossing points – signage and road markings with fencing adjacent
Security	During/outside working hours Lighting Locking up
Sketches/Drawings/Plans	Distribution and display of Layouts
Site plant Plan	References to and distribution of Traffic Plan Daily checks on plant Checks on cleanliness and state of repair Documentation & Certification Parking up arrangements Fuelling Points, bunding and location of emergency spill kits Servicing arrangements Punctures Identification of Banksman and responsibilities Approved Routes and restrictions Temporary Tipping areas (management) Checking/revisions of plan

Annex 7 Biodiversity Management Plan

Introduction

This is the Biodiversity Management Plan (BMP) for the Dangara-Guliston road Project which involves the reconstruction and widening from two to four lanes of the 49 km long Project Road.

The BMP is a subplan of the Project ESMP and is attached to this as annex 7.

The conducted field surveys on biodiversity in 2020 and in June 2024 revealed valuable biodiversity features within the Project's area of influence which might be impacted during the Project's construction and operation phase.

Therefore, in order to protect the identified valuable biodiversity features this BMP needs to be duly implemented.

Surveys Conducted

A detailed description of the baseline data collected during the reconnaissance style surveys undertaken by Kocks and Juru in May 2020, October 2020, and June 2024 is provided in the ESIA supplementary report.

a. Identified Biodiversity Features

Identified locations and structures of biodiversity significance along the Dangara-Guliston Road with coordinates are shown in the following table and map.

Tab. 1 Biodiversity Features

No. points on the map	Road Chainage	Geographical coordinates	Note
1.	Km 0	N 38° 53' 157 E 068° 82' 294, altitude 652 m above sea level.	Dangara start point.
2.	Km 4+800	N 38° 05' 048 E 069° 34' 693,	At the exit from Dangara, on both sides there are caragacias and willow thickets where mayflies,

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No. points on the map	Road Chainage	Geographical coordinates	Note
		altitude 631 m above sea level.	field sparrows and Indian sparrows nest.
3.	Km 6+500	N 38° 04' 034 E 069° 35' 248, altitude 635 m above sea level.	A bridge over the Toirsu rivers, where the temple is inhabited.
4.	Km 15+200	N 37° 95' 183 E 069° 32' 555, altitude 582 m above sea level.	The end on both sides is located caragachy and willow thickets starting from the beginning of Dangara.
5.	Km 19+200	N 38° 06' 405 E 069° 31' 608, altitude 628 m above sea level.	A small apricot orchard on the left hand side where a colony of Indian sparrow nests.
6.	Km 23+500	N 37° 88' 349 E 069° 35' 484, altitude 670 m above sea level.	The changing landscape starts on both sides of the hills. At the beginning of the hills 10 m from the road we found a burrow of a Central Asian tortoise.
7.	34+600	N 37° 78' 600 E 069° 38' 402, altitude 719 m above sea level.	The beginning of the village is the habitat of the Central Asian turtle. At the bottom of the village, a temporary pond is formed in winter and spring, where aquatic and near-water wintering birds spend the winter. In the village, mulberry trees are planted along the road, where Indian sparrows nest.
8.	45+100	N 37° 75' 994 E 069° 45' 679, altitude 754 m above sea level.	Habitat of the Central Asian tortoise.
9.	46+500	N 37° 76' 077 E 069° 42' 013, altitude 739 m above sea level.	Nesting sites of Bluethroat, Mayfly, Green and Goldfinch, and Indian Sparrows are located on cliffs along the road for more than 3-4 km.
10.	47+700	N 38° 06' 405 E 069° 31' 608, altitude 628 m above sea level.	Large colony in clay cliffs on both sides. Nesting sites of Bluethroat, Mayfly, Green and Golden-crowned Grouse, Indian Sparrows.

No. points on the map	Road Chainage	Geographical coordinates	Note
11.	49+000	N 37° 74' 404 E 069° 49' 284, altitude 458 m above sea level.	End point at the entrance to Guliston village.

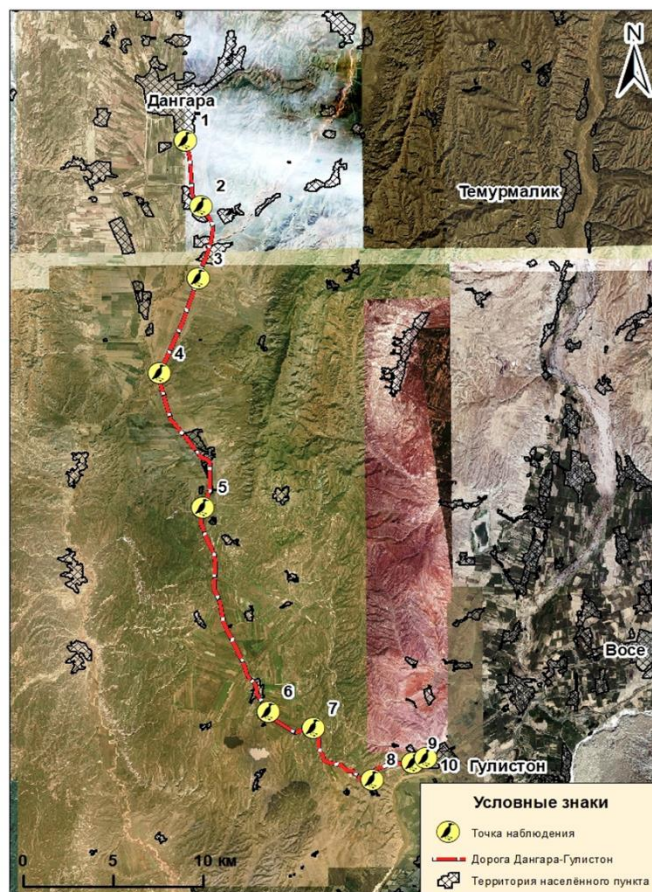


Fig. 1 Map showing Biodiversity Features

b. Species

The survey conducted in June 2024 revealed that within the steppe hills traversed by the Project road (purple line in below map) which ranges between chainage km 22+000 to km 31+500 and chainage km 38+500 to km 49+000, there are potential habitats for rare plant and animal species that are classified as Priority Biodiversity Features (PBF) for the Project, per EBRD PR6 (see ESIA supplementary report) including the Tajikistan Even-fingered Gecko (*Alsophylax tadjikiensis*), Tajikistan Toadhead Agama (*Phrynocephalus sogdianus*) and the Central Asian tortoise (*Testudo horsfieldii*).

Therefore, the priority search area for a suitable camp site location should be outside the steppe hills. In addition, the contractor must assume two exclusion areas for habitat protection which have to be fenced and will be further defined in 2025.

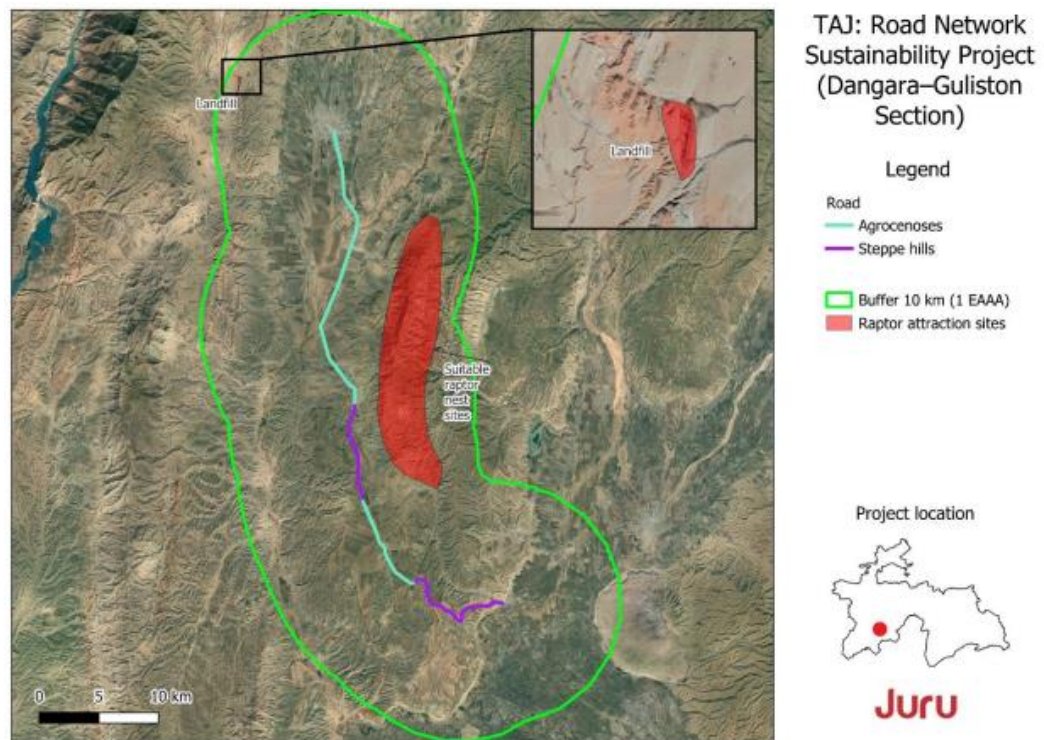


Fig. 2 Main habitats and raptor attraction sites on the project location¹

Mitigation Measures

Design Phase

In order to allow the safe crossing of the Project road and avoid road kills of tortoises and small animals the culverts within the steppe hills (purple line in the above map in figure 2) which are located between chainage km 22+000 to km 31+500 and chainage km 38+500 to km 49+000 are provided with prefabricated concrete L-shaped guiding elements. This refers to the following culvert numbers: Culvert Number 61, 63, 64, 66, 69, 75, 76, 79, 90, 82, 106, 111, 114 and 115. The length of the guiding structure is 100 m to each side of the respective culvert.

Culvert list Dangara-Guliston Road

¹ Source: JURU Consulting Firm, 2024: Gap analysis of Initial Environmental Examination (IEE) and associated documentation for the Dangara-Guliston Road Reconstruction Project

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No. P.P.	No. Culverts	Location, PC	Dimention, m	New rectangular reinforced concrete pipes		Note
				Length without heads, m	Length with head, m	
1	9	28+68.69	1.5x1.5	15	15	
2	10	6+76.26	1.5x1.5	54	54	Bypass road in Dangara
3	11	1+36,391	2.0x2.0	45	45	Dangara-Dushanbe congress
4	13	12+95.01	1.5x1.5	75	81	Estocada road
5	15	37+59.01	1.5x1.5	54	60	
6	17	44+62.264	1.5x1.5	60,4	60,4	
7	18	49+82	1.0x1.0			
8	21	57+21	1.0x1.0			
9	25	65+18	1.0x1.0			
10	26,02	67+08	1.0x1.0			
11	31	92+00.914	1.5x1.5	38	44	
12	33	98+01.44	1.5x1.5	42	48	
13	34	105+17.88	2.0x2.0	36	42	cattle pass
14	35	109+99.49	6.0x4.5	57	57	
15	38	122+51.76	2.0x2.0	60	66	
16	41,1	150+00.016	4.0x3.0	37	37	
17	42	151,67,326	4.0x3.0	45,5	45,5	
18	44	158+45.08	2.0x2.0	48	48	
19	45	167+51.81	1.5x1.5	33	33	
20	50	186+83	1.0x1.0			
21	51	190+19	1.0x1.0			
22	52	197+66.00	1.5x1.5	49	55	
23	53	200+73.88	2.5x2.0	52	58	
24		209+12	4.0x3.0			cattle pass
25		221+80				railway overpass
26	61	225+14.98	2.0x2.0	56	62	
27	63	225+50.00	2.0x2.0	26	32	
28	64	231+63	1.0x1.0			
29	66	241+06.72	4.0x3.0	99	105	cattle pass
30	69	244+86	1.5x1.5			
31	75	279+50.90	4.0x3.0	68	68	cattle pass
32	76	281+0.037	1.5x1.5	87	93	
33	79	290+10.04	1.5x1.5	39	45	
34	90	296+77.60	1.5x1.5	34	40	
35	82	299+60.94	4.0x3.0	59	59	cattle pass
36	90	335+37.127	1.5x1.5	41,245	47,245	
37	94	346+59.905	4.0x3.0	37	40	cattle pass
38	95	348+42.09	1.5x1.5	48	54	

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39	96	349+57	1.0x1.0			
40	97	352+93.18	1.5x1.5	51	51	
41	102	369+41.28	4.0x3.0	45	45	cattle pass
42	103	376+20	1.0x1.0			
43	105	396+18,623	1.5x1.5	108	114	
44	106	417+00.04	1.5x1.5	52	55	
45	111	446+98.45	4.0x3.0	57	57	cattle pass
46	114	449+94.95	1.5x1.5	60	60	
47	115	455+63.339	1.5x1.5	50	53	
48	122	487+89.443	1.5x1.5	42	42	

This involves the installing of guiding structures at 14 culverts, with 100 meters on each side of the entrances. The guiding structures are built by utilizing the 45mm high L-shaped curb stones.

Pre Construction Phase**Fast Track Ecological Survey****Birds**

Prior to construction start a control examination of the Project Road will be conducted for purpose of verification of the identified nesting sites at cliffs in the construction corridor. Nesting sites identified are shown in the table 1 and in the annex 4 of the IEE report (Biodiversity Survey).

This fast-track ecological survey will be conducted by CSC's ornithologist (biodiversity expert).

For the identified nesting sites, the construction schedule needs to be adapted order to avoid bird losses. This means that at the identified bird nesting sites no earthworks at the bird nesting cliffs are allowed during nesting season from 1st of March to 30th of September n .

Fencing and Marking of Habitats of Gecko and Agama

The contractor has to assume two exclusion areas for habitat protection which have to be fenced.

The conducted surveys on biodiversity revealed that the construction corridor provides suitable habitats for the Tajikistan Even-fingered Gecko and the Tajikistan

Toadhead Agama.

In order to protect these species from construction impacts 2 habitat areas of 5 ha size need to be fenced and adequately marked as off-limits for any construction activities and purposes. Exact location of these areas will be identified in Spring/Summer 2025 and communicated to CSC.

Construction Camp Location

The priority search area for a suitable camp site location should be outside the hilly area between chainage km 22+000 to km 31+500 and chainage km 38+500 to km 49+000 which corresponds to the purple line in the map in figure 2.

c. Construction Phase

Construction Timing Restrictions

1. Bird Nesting Sites at Cliffs and Tree Felling

During the bird nesting season which includes the time period from 01st of March to 30th of September no tree felling, and no cutting / excavating of the loess cliffs, identified as bird nesting sites is allowed. Blasting is not foreseen in the Project, but if it was required will need to fall outside the nesting season. .

Tortoise Surveys

Many tortoises were observed during the conducted field surveys. Therefore, to avoid losses during the construction the following measure is to be implemented. Daily survey of the construction site by the contractor's environmental specialist with the assistance of other person(s) assigned by the Contractor if necessary. Particular focus must be laid on structures like ditches and excavations in order to find captured tortoises. Any tortoise captured in a ditch or other structure must be collected and transported to a safe area, at minimum 3 km distant to the construction site.

This must be done from 01st of April to 15th of May, every morning at construction site along entire road except the villages.



Fig. 3 Tortoise at km 14+500, lhs of the Project road, behind a petrol station (Photo taken 08.05.2024)

Training

Regular workforce awareness training program needs to be undertaken to avoid/prevent hunting / poaching and collecting of rare plants or animals by the work force. In addition, construction workers should be instructed to report chance finds of tortoises to the bio monitor, and to avoid any entry into fenced exclusion areas.

This training needs to be conducted on a monthly basis.

Roles and Responsibilities

Roles and responsible entities for ESMP implementation are in detail described in the chapter 3 of the ESMP which also applies for this BMP.

In order to duly fulfil the requirements of this BMP the contractor need to assign a full time environmental specialist in his safeguard team.

Reporting

The reporting on biodiversity issues is included in the environmental monitoring schedule which is in detail described in the chapter “Environmental Management Plan” of the IEE under the headline “Monitoring and Reporting”.