



GOVERNMENT OF SINDH

ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP) FOR

Rehabilitation of Rain/Flood Affected Roads, District Sujawal



PROJECT IMPLEMENTATION UNIT
PIU - SFERP

Sindh Flood Emergency Rehabilitation Project (SFERP)

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LIST OF ABBREVIATION

BOQ	Bill of Quantity
CC	Construction Contractor
Col	Corridor of Impacts
CSC	Construction Supervisory Consultant
DC	Deputy Commissioner
ESF	Environmental & Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
GFP	Grievance Focal Point
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
PAP	Project Affected Person
PC-I	Pakistan Planning Commission Form – 1 Appraisal of Development Project
PD	Project Director
PDMA	Provincial Disaster Management Authority
PIU	Project Implementation Unit
PKR	Pakistani Rupee
SEPA	Sindh Environmental Protection Agency
SEQS	Sindh Environmental Quality Standards
SFERP	Sindh Flood Emergency Rehabilitation Project
WB	World Bank
WHO	World Health Organization



1. EXECUTIVE SUMMARY

The monsoon season of 2022 brought heavy causing high river flood in the province. Rainfall in various districts was recorded up to 900 mm. The River Indus discharge recorded above 0.6 Million cusecs due to heavy downpours in its catchment coupled with local rains. The high flood at Kotri Barrage persisted due to hill torrent emanating from Kirthar Mountains. The two month's rains and River Indus Flood caused heavy losses to human life, livestock, crops, houses, private buildings, industries, and public infrastructures like roads, irrigation; river protective embankments (Bunds) and Drainage networks, and railways.

The Sindh Flood Emergency Rehabilitation Project (SFERP) will restore/rehabilitate rural (farm to market) roads in affected districts, talukas and Union Councils (UCs) of rains & flood-affected areas. Raising the profile, adequacy of cross-drainage structures, provision of protection works (Riprap¹), increase in the number of culverts and provision of side drains all are the factors considered to address climate and/ or flood resilience design. The improvement in pavement structural numbers is an additional benefit.

The present Environmental and Social Management System (ESMP) represents the environmental impacts and mitigations of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure in Sujawal District.

There are 04 roads in different areas of district Sujawal which need rehabilitation/improvement. Administratively, most rehabilitation works fall in one each road at Taluka Jati, Mirpur Bathoro Taluka & two at Sujawal Taluka.

According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021, the sub-project falls under category (b) of schedule I which demands an Environmental Screening of the project through checklist for rehabilitation or rebuilding or reconstruction of roads in urban area from 500 meters to 1 kilometers and in rural area 500 meters to 5 kilometers . The above mentioned roads are falling in rural areas of district Sujawal and have length between 500 meters to 05 kilometers requiring an Environmental Screening to be submitted to Sindh Environmental Protection Agency (SEPA). However, an ESMP has been prepared to fulfil World Bank's Environmental and Social Framework (ESF) requirements.

Rehabilitation/restoration works are limited to the existing Right of Way (RoW) hence, the proposed project will have some minor adverse environmental impacts that are reversible and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category under the Environmental and Social Management Framework (ESMF) of the SFERP. The present ESMP has been prepared accordingly to meet the moderate risk level requirements.

¹ Riprap (in North American English), also known as rip rap, rip-rap, shot rock, rock armour (in British English) or rubble, is human-placed rock or other material used to protect structures against scour and water.



Furthermore, the sub-project screening was performed through the checklist covering environmental and social issues. Surveys were conducted to fill individual checklists and a summary of environmental and social concerns noted during surveys. The rehabilitation works of proposed Project are anticipated within defined. No public infrastructure or commercial activities exist within RoW. While the indirect impacts have been evaluated at 200 meters/656 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line). Trees will not be uprooted or need relocation due to rehabilitation works because the existing RoW will be used for the proposed rehabilitation works. No archaeological site was observed near (within 500 meters) the sub-project areas and no physical cultural resources at or near the proposed sub-project sites are observed which may likely be affected by construction activities. No graveyard is situated within the construction area. A number of the settlements were observed near the proposed rehabilitation works but outside the RoW. During the construction phase, none of the socially sensitive receptors like mosques, schools, basic health unit graveyards, etc. will be indirectly impacted. No protected forests were observed near the proposed sub-project area. As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites.

The proposed sub-project areas lie in south western Sindh, District Sujawal. The sub-project area is falling in Zone 2A, with Peak Ground Acceleration (PGA) varying from 0.08 to 0.16g (Pakistan Building Code of Pakistan, 2007). It is a low-damage risk zone, meaning the areas that fall under these zones have a low chance of having an earthquake. While no site is falling in Zone 4 which is called the High Damage Risk Zone.

Vehicular traffic on dirt roads causes some dust emissions and noise pollution whose effect is fairly localized. The main pollutants emitted by vehicle exhaust pipes are particulate matter, carbon monoxide, sulfur dioxide, and nitrogen oxides. These emissions generally affect the air quality in the vicinity of the roads. However, traffic on the roads in the proposed project intervention's area is low compared to the national highways or other major roads. The surface & ground water, ambient air and noise testing will be done by before the start of the construction by the contractor through a SEPA-approved lab with the consent of the Construction Supervisory Consultant (CSC).

As the population has increased in the project area, wildlife abundance and diversity have decreased to a minimum. The mammals of the district include Asiatic jackal, red fox, Indian desert cat, black-naped hare, Indian crested porcupine, and small Indian mongoose. Hyenas, wolves, and pigs are now rare in the region.

The common avifauna of the district includes black drongo, blue rock pigeon, cattle egret, common babbler, jungle babbler, striated babbler, common moorhen, common and bank myna, crested lark, desert lark, desert warbler, great grey shrike, hoopoe, house crow, house sparrow, Indian roller, common egret, and pond heron. The reptilian fauna of the district includes cobra, krait, saw-scale viper, rat snake, dhaman, eastern diadem snake, Pakistan ribbon snake, Indian sand swimmer, Indian fringe-toed sand lizard, desert monitor, Indian spiny-tailed lizard, common garden lizard, Sindh sand gecko, and Indian shelled turtle.

The natural vegetation consists of dry thorn forests and scrub. The common flora of the district includes kandi or jhand (*Prosopis cineraria*), vann or peelu (*Salvadora oleoides*), miswak or toothbrush tree (*Salvadora persica*), aak (*Calotropis procera*), booh or snow bush (*Aerva javanica*), babul (*Acacia nilotica*), ber (*Zizyphus numuaria*), kandi or pipal (*Ficus religiosa*) and



devi or mesquite (*Prosopis glandulosa*), neem (*Melia azadirachta*), tamarind or imli, tamarisk or jhao.

As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites. No protected forests were observed near the proposed sub-project area.

No acquisition of private land is required for this sub-project. In addition, no demolition of structures will be involved and no one will be required to resettle as sub-project areas are lying in the less populated areas and the population is scattered. None of the informal settlers/squatters exist in RoW as well as no livelihood disruption has been envisaged. The rehabilitation work is done on the existing platform/RoW. No additional land is needed. Indirect impacts, caused by noise, dust emissions, campsites and borrow sites could be beyond the RoW. Socio-environmental impacts may arise due to the influx of external workforce, unattended residual wastes, and occupational health and safety issues for laborers and the community, therefore ESMP has been prepared. Existing tracks will be used for the transportation of the material. The negative impact could only be anticipated during the construction phase, which will last for this very small period only. However, mitigation measures recommended in the report would need to be strictly ensured by the contractor during the construction period.

Anticipated negative impacts can be mitigated through proper inspection and maintenance of vehicles and machinery to reduce exhaust emissions, using noise suppressors or mufflers for heavy equipment & watering unpaved roads. Control of adverse impacts from construction debris/ residual wastes by proper handling, and immediate removal. Control of water pollution through proper storage and handling of oil wastes and treatment of wastewater at the active construction site. Control of solid waste through sanitary storage and frequent collection for sanitary disposal.

Occupational health and safety will be ensured through continuous inspection to prevent disease and accidents, awareness raising among labor and community, sanitation measures, communicable diseases management, monitoring and emergency response and rescue procedures, provision of adequate sanitary facilities, potable water, and garbage bins for workers.

Environmental and Social (E&S) monitoring will be carried out under Sindh Environmental Protection Act 2014, ESMF of SFERP, Labour Management Procedures prepared for SFERP & Stakeholder Engagement Plan (SEP) to ensure that the mitigation plans are regularly and effectively implemented. It will be carried out at three levels. At the Project Implementation Unit (PIU) level, the E&S specialists will carry out safeguard monitoring to ensure that the mitigation plans are being effectively implemented and will conduct field visits regularly. At the field level, the relevant staff of the CSC will carry out more frequent safeguard monitoring. At the third level, Construction Contractor's (CC) E & S team will implement and produce monthly, quarterly and bi-annual reports.

The overall responsibility for implementing the SFERP project as well as the present ESMP rests with the PIU, headed by the Project Director. The PIU is supported by the E&S team. PIU has also engaged CSC, responsible for construction supervision. Appropriate clauses will be included in the construction contracts for this purpose.



A separate budget of PKRs 6,682,000/- has been allocated for the implementation (for one year of estimation) of the ESMP including the Grievance Redress Mechanism (GRM) running & general community support needs. The ESMP cost included the cost for the protective measures which will be adopted for working near the socially sensitive receptors. This has been incorporated as a provisional sum item in the ESMP bill and Bill of Quantities (BOQs). The implementation of the ESMP involves inputs from CC, CSC and PIU. The CC will be primarily responsible for ensuring the implementation of mitigation measures proposed in the ESMP, which will be part of the contract documents. Hence, the provision of environmental mitigation costs as a separate head in BOQs will be made mandatory in contract documents.

However, if the CC fails to comply with the implementation of ESMP and reporting properly, the proponent will enforce compliance with the terms of the contract, including adherence to the ESMP. For the smooth execution of ESMP implementation activities, it has been recommended that all the bills/payments related to ESMP implementation will be approved/authenticated by the CSC. ESMP implementation cost will be deducted from Interim Payment Certificates (IPC) until compliance has been done.



2. INTRODUCTION

Following the Flood 2022 emergency, the Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster. Subsequently, the World Bank (WB) task team visited Sindh province and had a series of meetings with the provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.

- Restoration/rehabilitation of rural (farm to market) roads in affected districts, talukas and Union Councils (UCs).
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and UCs.
- To provide immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to farm(s), rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- Expansion of Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to 09 districts i.e. Jamshoro, Dadu, Larkana, Thata, Hyderabad, Matiari Nausheroferoz, Khairpur and Ghotki. The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six District Head Quarters (HQs) including Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur, and Larkana.

2.1 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project – SFERP falls into three main components.

- Component-I. Infrastructure Rehabilitation:
- Component-2 Livelihoods Restoration
- Institutional Strengthening for Resilience and Technical Assistance
- Component–3 Project Management.

2.2 The Proposed Sub–Project

The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas of the province:

Under the Flood 2022 Emergency Response following roads were identified for immediate rehabilitation. Location map is given in Figure 1.

Table 1: List of Districts Roads for Rehabilitation under SFERP

Sr. No	Description	No. of Roads
1	Rehabilitation of different roads in District Hyderabad	3



Sr. No	Description	No. of Roads
2	Rehabilitation of different roads in District Matiari	3
3	Rehabilitation of different roads in District Tando Allah Yar	3
4	Rehabilitation of different roads in District Shaheed Benazirabad	12
5	Rehabilitation of different roads in District Naushahro Feroze	14
6	Rehabilitation of different roads in District Thatta	16
7	Rehabilitation of different roads in District Sujawal	4
8	Rehabilitation of different roads in District Badin	3
9	Rehabilitation of different roads in District Dadu	6
10	Rehabilitation of different roads in District Jamshoro	16
11	Rehabilitation of different roads in District Tharparkar	2
12	Rehabilitation of different roads in District Mirpurkhas	3
13	Rehabilitation of different roads in District Umerkot	5
14	Rehabilitation of different roads in District Sanghar	8
15	Rehabilitation of different roads in District Sukkur	8
16	Rehabilitation of different roads in District Khairpur	19
17	Rehabilitation of different roads in District Larkana	13
18	Rehabilitation of different roads in District Kamber-Shahdadkot	14
19	Rehabilitation of different roads in District Shikarpur	4
	Total	156

Sub-Project/Sub-Component, Restoration of Roads and Allied Infrastructure

The present Environmental and Social Management Plan (ESMP) represents the environmental impacts and mitigations of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure.

As depicted in Table-1, there are 04 roads in different areas of District Sujawal. Administratively, most rehabilitation works fall in one each road at Taluka Jati, Mirpur Bathoro Taluka & two at Sujawal Taluka. The location map of the subcomponent is given in Figure - 2.

2.3 Objective of ESMP

The primary objectives of the ESMP are as follows:

- Identify the social and environmental impacts of the sub-component and related activities.
- Suggest suitable mitigation measures for identified impacts at the planning, designing, and implementation stage of the sub-projects and eliminate or reduce their adverse impacts if any.
- Propose environmental monitoring program to ensure that mitigation measures are implemented during the subprojects execution and timely corrective actions are taken where required, and
- Propose the institutional arrangements required to implement and monitor the ESMP.

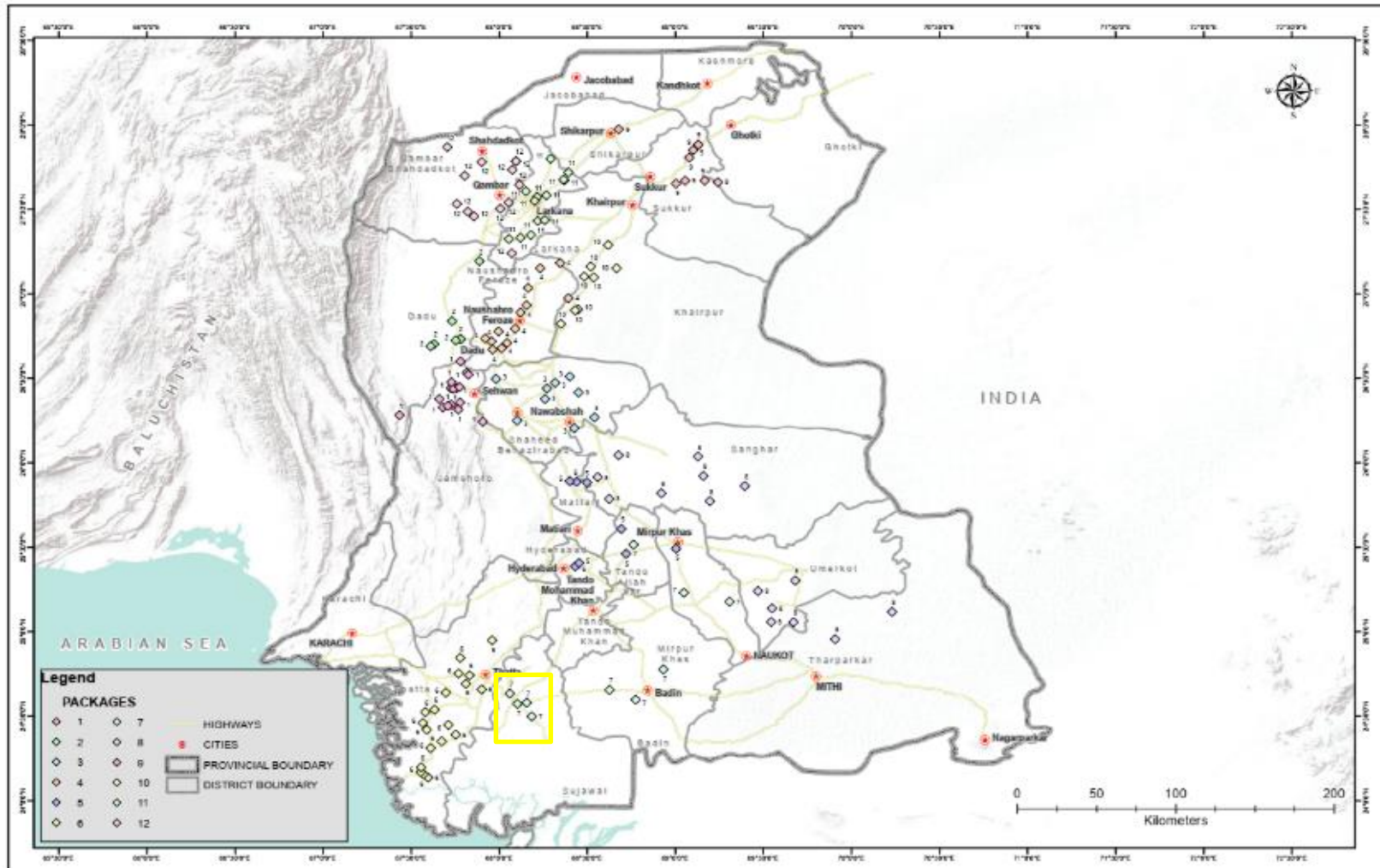


Figure 1: Location Plan for Rehabilitation Roads-SFERP



According to SEPA: According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021, the sub-project falls under category (b) of schedule I which demands an Environmental Screening of the project through checklist for rehabilitation or rebuilding or reconstruction of roads in urban area from 500 meters to 1 kilometers and in rural area 500 meters to 5 kilometers. The above mentioned roads are falling in rural areas of district Sujawal and have length between 500 meters to 05 kilometers requiring an Environmental Screening to be submitted to SEPA.

According to Donor Agency (World Bank): Rehabilitation/restoration works are limited to the existing Right of Way (RoW) hence the proposed project will have some minor adverse environmental impacts that are reversible and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category under the ESMF of the SFERP. The present ESMP has been prepared accordingly to meet the moderate risk sub-project requirements.

2.4 Sub-project Screening Procedure

The sub-projects screening was performed through the checklist covering environmental and social issues. Surveys were conducted to fill individual checklists (Annexure – I) and a summary of environmental and social concerns noted during surveys is given below.

- No trees will be uprooted or need relocation due to rehabilitation works because the existing RoW will be used for the proposed construction.
- No archaeological site was observed near (within 500 meters) the project area and no physical cultural resources at or near the proposed sub-project; sites are observed that may likely be affected by construction activities.
- Indirect impacts, caused by noise, dust emissions, campsites and borrow sites could be beyond the RoW. During the construction phase, a few socially sensitive receptors like mosques, schools, basic health unit graveyards, etc. might be indirectly impacted but this impact is temporary and reversible having a short duration with low significance (by adopting the mitigation measures).
- A number of settlements were observed near the proposed rehabilitation works. None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component.
- No protected forests were observed near the proposed sub-project area.
- The contractor will conduct the baseline environmental monitoring before the start of the civil work with the consent of the Construction Supervisory Consultant (CSC) Environmental Specialist after approval of Project Implementation Unit (PIU).

2.5 Project Corridor

The sub-project corridor is delineated according to two criteria: The RoW; which the Works and Services Department, Government of Sindh is legally entitled to, and the Corridor of Impact (CoI), i.e. the width of the corridor that will be impacted, directly or indirectly, by the proposed Project during the construction and operational phases.

2.5.1 Right of Way

The proposed sub-project corridor will have a well-defined RoW that will be the existing width of the roads as the proposed sub-project is rehabilitation or restoration. Major construction



works will generally remain confined within the RoW. None of the public infrastructures and commercial activities exist within RoW.

2.5.2 Corridor of Impact

The Col was delineated as the area/extension in which the sub-project has a direct or indirect impact. Direct impacts of a project are defined as the relocation of houses, trees, private land, utilities and air & noise pollution impact on workers during construction. All direct impacts are confined to the RoW. Indirect impacts, caused by noise, dust emissions, campsites and borrow sites could be beyond the RoW. The direct Col of the surface water bodies will be confined within the RoW of the proposed sub-project and will be temporary only for the construction period.

For the proposed sub-project, no impacts have been envisaged pertaining to the relocation of houses, trees, private land, and utilities. The work is done on the existing platform/right of way. No additional land is needed.

The indirect impacts have been evaluated at 200 meters/656 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the centre line).



3. DESCRIPTION OF SUB-PROJECTS

3.1 Locations of Sub-Project

The proposed sub-project falls in the District Sujawal. The proposed project is aimed at the reconstruction/rehabilitation of the four (04) roads of the district, damaged by the rain floodwater with the objective to restore road connectivity and restoration of livelihood resources of flood-affected communities.

3.2 Main Activities for Rehabilitation Works

The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works.

The main activities for the rehabilitation works are as follows:

- Asphalt wearing course shall pertain to “Class-B” gradation as specified in the National Highway Authority (NHA) General Specification of 1998.
- The asphalt concrete wearing layer shall be designed with air voids in the range of 3% to 5%. Air voids greater than this range will result in increased permeability/porosity of the mix.
- For rehabilitation of the existing carriageway, care shall be taken not to scarify/excavate the underlying exposed granular material.
- The Maximum Dry Density (MDD) of Water Bound Macadam (WBM) layer shall be 100%. In the section where the sub-base is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
- Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
- On both sides of the culverts backfilling should be done with Granular Backfill material over which required layers are to be laid. The compacting will be done with the plate compactor.
- Effective Drainage of the road shall be ensured through the proper cross slope of the pavement.
- The material for the Formation of Embankment shall pertain to AASHTO Class A-1-a, A-1-b, A-2-4, with MDD, CBR and Compaction as per NHA General Specifications:
- Zebra crossing and traffic calming measures including additional signage, marking and rumble strips with raised walkways and speed restrictions shall be given near socially sensitive receptors areas.
- Restoration of the campsite and Contractor’s demobilization.
- Typical cross sections for roads, culverts and causeways are given in Annexure – II.

3.3 Climate Resilient Measures

Raising the profile, adequacy of cross-drainage structures, provision of protection works (Riprap), increase in the number of culverts and provision of side drains all are the factors



considered to address climate and/ or flood resilience design. The improvement in Pavement Structural Number is an additional benefit.

- The design economizes with respect to field condition surveys and the type of roads. The side drain is provided.
- Daylighting of Aggregate Base and/ or sub-base is considered for all types of roads while 0.5 m rounding is also taken for proper daylighting.
- Raising the existing profile with the formation of the embankment is taken to make the design flood resilient.
- The damaged culverts are rectified or replaced while a sufficient number of culverts are provided for proper cross-drainage.
- Vented causeways will also be provided in detailed Design, while their plan cross-sections will also be part of detailed design drawings.
- The flow from culverts and road drainage will be ensured.

Table 2: Details of Four Roads for Rehabilitation at District Sujawal

S# No	Name of Road	Location / Taluka	Existing Width (ft)	Length (in Kms)	GPS Coordinates
1	Reconditioning of road from jati raj malik road to village qasim thaheemor via amin mori taluka jati	Jati	12'	4	24°18'8.02"N 68°22'45.27"E 24°16'23.15"N 68°22'0.48"E
2	Reconditioning of the link road from abral to bano road	Mirpur Bathoro	12'	3.6	24°53'27.00"N 68°14'33.98"E
3	Rehabilitation of road from sujawal bypass to village sher muhammad jamari village	Sujawal	12'	3	24°37'6.93"N 68° 4'40.67"E 24°38'33.93"N 68° 4'30.62"E
4	Road 4Rehabilitation of road from sujawal chohar road mile 90/0 (latif hotel stop) to ahmed otho village to sidiq otho across the river bund	Sujawal	12	3	24°29'53.95"N 68° 1'37.57"E 24°28'38.70"N 68° 2'5.43"E
			Total	13.6	

3.4 Construction Material

The following construction materials are foreseen to be used in the rehabilitation works includes:

- Embankment fill
- Granular Subbase
- Cement
- Fine and coarse aggregates
- Asphalt Concrete for Wearing Course
- Steel Reinforcement

Natural materials such as coarse aggregate, stones, and coarse filters can be obtained from crush plants of local suppliers. Illegal crushing plants/suppliers cannot do the procurement of these materials. Only purchase by those crush plants/ suppliers having approval from the relevant department of the Sindh Government (Mines and Mineral Development Department & SEPA) and this should be part of the contract agreement with the contractor. Existing tracks



will be used for the transportation of the material, and it is capable of the transportation of material.

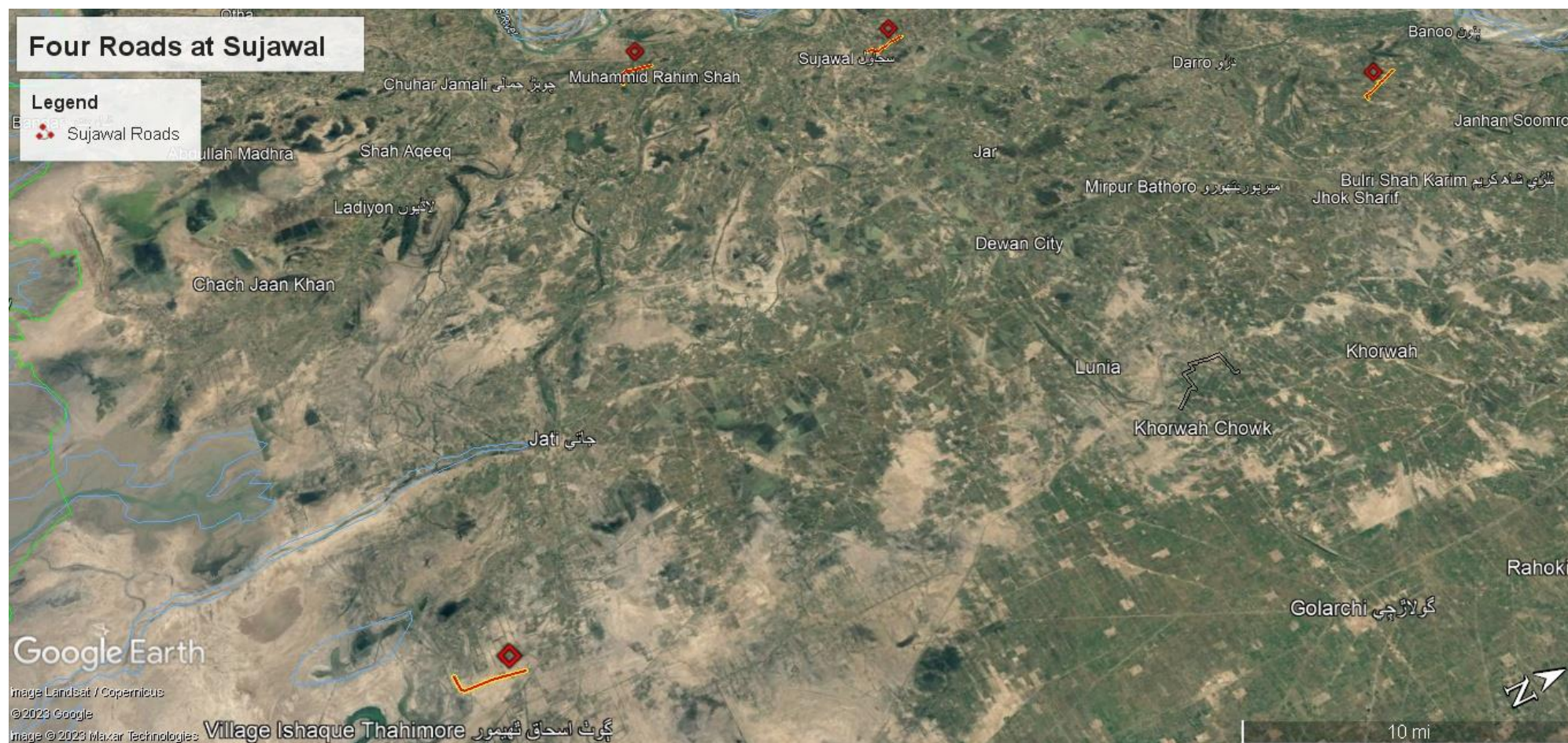


Figure 2: Location Map of Sub-Project - Sujawal Roads



The proposed project roads cross several watercourses and minor and major canals. The Contractor will be able to use canal water for general construction purposes with the permission of the Irrigation Department and Sindh Irrigation and Drainage Authority. The water would also be obtained from tube wells installed by the Contractors. The contractor shall be strictly bound not to use the community tube well. The contractor will dig a tube well or use canal water. The contractor will conduct an Electrical resistivity-surveying test along with a pump-out test to assess the groundwater potential required for the construction activities before the tube wellbore. This condition will be included in the bid document as contractual binding.

3.4.1 Reuse/Recycling of scarified material from the road surface.

The material from the scarification removal of the existing road surface is judged by the material engineer as being not suitable for use on the project roads due to its poor quality and the small quantities involved which makes recycling uneconomic. This leaves the following options.

Option 1: Waste material that meets the required specifications will be used as fill when constructing or repairing the shoulders.

Option 2: Waste material can be used to refill borrow pits and cover as topsoil.

Option 3: Scarification materials can be spread on earthen link roads, and compacted with rollers, improving the road surface as well as reducing road dust.

3.5 Contractor's Camps

For the construction of the sub-project, camps will be established on the government land near the subproject area a minimum of 500 m away from settlements. The contractor will prepare workers' code of conduct plans and Camp layout plans and get them approved by the Resident Engineer and PIU. The camp will be established after the approval of the layout plan.

3.6 Manpower Requirement

The manpower required by the contractor during the execution of the sub-projects will be determined by the contractor and will be depicted in the Site Specific ESMP (SSESMP), which needs to be approved by the CSC.

During surveys & consultations, the major demand of the community was the provision of jobs during the construction phase. Sufficient labor particularly unskilled is available in the sub-project area.

The contractor will be bound through the contractor's code of conduct and contractual obligations to provide jobs to local people for unskilled labor from the communities. Only if local unskilled labor is not available in the sub-project area, then Contractor can hire from outside the project area. Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and dozers, etc.). This does not include the drivers, which will carry the stone from the quarry and other items like cement and steel from the local market. This process would be initiated with the consultation of elders of different communities in an equitable manner hence there would be no need of setting up a large-scale camp.



3.7 Borrow Material

The fill for the earthwork/embankment can be obtained from borrow areas where suitable soil is available. The Contractors will identify borrow areas as per their arrangement and get approval from PIU. The contractor will be bound to procure the material from authorized quarries. Before the start of the work, the contractor will get approval.

3.8 Machinery & Equipment

The construction work includes mainly earthworks. These works will require earth-moving types of machinery such as excavators, dumpers, graders and rollers, transit mixtures, etc. The concrete works will involve a medium-sized batching plant and concrete placing equipment. The contractors will directly manage all equipment. The actual number of equipment required on the site will be determined by the contractor to carry out the work. The execution works of the sub-project are proposed to be completed in the stipulated time (PIU determined to ensure project completion in 1 year) after the approval of PC-1 and the bidding process according to the procurement plan approved by the World Bank.

3.9 Traffic Study

Survey of the present traffic is to analyze the current state of traffic, and use the survey results as the basic data for forecasting of traffic demand. In order to forecast the traffic demand, it is deemed necessary to review the recent present state traffic closely. Therefore, we have surveyed the traffic volume, road conditions and traffic facilities etc. The traffic volume has been collected through the field surveys at the project site.

Table 3: Traffic Volume Survey Approach

Contents	Items	Description	Remark
Traffic volume survey	• By selection, type, the direction of the vehicle	24hr Survey For a total of 12 vehicle types	By the PEAS survey team.
Travel speed survey	• The average speed of traffic by section and direction.	The survey by actual drive.	By experts visit.
Reference to Literature Data	• Socio-economic index	Socio-economic index of influence, direct/ indirect	Reference to literature data. To be utilized as fundamental data of traffic demand forecast.
	• Land use plan and environs development plan for the neighboring area	Major geographic features and urban infrastructure Traffic facility installation plan Status of designation of region and zone	
	• Installation of traffic facilities and relevant plans	Master plans associated with the project	

3.9.1 Method of Traffic Volume Survey

- Period: 3 Feb to 6 Feb 2023 for 4 days
- Method: On site traffic volume survey by consultant team
- Location: At Sujawal roads



- Duration: 24 hour for project route

Classification of vehicles for traffic survey: Twelve different classes of vehicles have been considered in the current traffic count survey. Details of these vehicles are provided in Table 4.

Table 4: Vehicle Classification

Classification	Vehicle Type	Classification	Vehicle Type
1	Motor Cycle	7	Truck (2-axles)
2	Rickshaw	8	Truck (3-axles)
3	Car/Jeep	9	Truck (4-axles)
4	Wagon/Pickup	10	Truck (5-axles)
5	Mini Truck	11	Truck (6-axles)
6	Bus	12	Tractor Trolley

Result of traffic Volume Survey: Total number of vehicles counted at the proposed project location is summarized in Table 5.

Table 5: Traffic Volume Survey Results

Classification	Sujawal			
Survey Date	3 (Fri) Feb,2023	4 (Sat) Feb 2023	5 (Sun) Feb 2023	6 (Mon) Feb 2023
Traffic volume	320	322	299	291

3.9.2 Analysis of Traffic Present State

Traffic volume characteristic of Sujawal

Monthly adjustment factor: Monthly and daily adjustment factors are used to convert the traffic volume into Average Annual Daily Traffic (AADT). Weekly and monthly adjustment factors have been adopted by National Transport Research Centre. The adopted monthly and daily adjustment factors are provided in Tables 6 and 7 respectively.

Table 6: Monthly Adjustment Factor

Monthly	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Factor	0.9974	1.0935	0.9808	0.9711	1.0165	1.0019	0.9557	0.9943	1.0137	0.9753	1.0113	1.0010

Source: Traffic Factors for Pakistan III, 1992, NTRC (National Transport Research Centre)

Table 7: Daily Adjustment Factors

Monthly	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Factor	0.9920	0.9928	0.9888	0.9785	1.0101	1.0318	1.0126

Source: Traffic Factors for Pakistan III, 1992, NTRC (National Transport Research Centre)

Conversion into average annual daily traffic volume: AADT (Average annual Daily Traffic) = ADT/ (Monthly Adjustment Factor* Daily Adjustment factor). AADT of various types of vehicles is provided in Table 8.

Table 8: AADT of various types of vehicles

Motor Cycle/ Rikshaw	Cars / Jeep	Bus	Mini Truck	Trucks					Tractor Trolley
				2-Axle	3-Axle	4-Axle	5-Axle	6-Axle	
192	206	4	8	34	6	0	2	0	16

Vehicle Type Composition: The component rate of vehicle types is passenger car (43.30%),



Hiace wagon (0.75%), motorcycle (42.03%) and truck (6.72%).



4. ENVIRONMENTAL & SOCIAL BASELINE

4.1 Introduction

This section describes the existing environmental and socio-economic conditions of the sub-project area. The environmental and social baseline aims to provide a baseline against which the project impacts can be measured. Due to the emergency nature of work, the details have pertained to the important areas according to the rehabilitation works. This Section also identifies socially sensitive receptors along the RoW of the proposed roads.

4.2 Physical Environment

4.2.1 Geography

It is located at 24°36'23" North and 68°4'19" East and is bordered in the northwest by the Indus river, which separates it from Thatta District. The district has an area of 7,335 km². Sujawal has boundaries with Thatta, Badin, and Tando Muhammad Khan districts. It also has semi defined boundary with Gujarat in India. Geography of the district is shown in Figure 3.

4.2.2 Soils

The soil in the plains of Sindh is plastic clay that has been deposited by the Indus. The soils of the district mainly consist of loamy saline soils of the estuary plains and silty and clayey wet, saline soils.

4.2.3 Seismicity

The map shown in Figure – 4 indicates that all of the sub-project areas are falling in Zone 2A, with Peak Ground Acceleration (PGA) varying from 0.08 to 0.16g (Pakistan Building Code of Pakistan, 2007). It is a low-damage risk zone, meaning the areas that fall under these zones have a low chance of having an earthquake. While no site is falling in Zone 4 which is called the High Damage Risk Zone. Moreover, all structure designs will be reviewed by the World Bank expert.

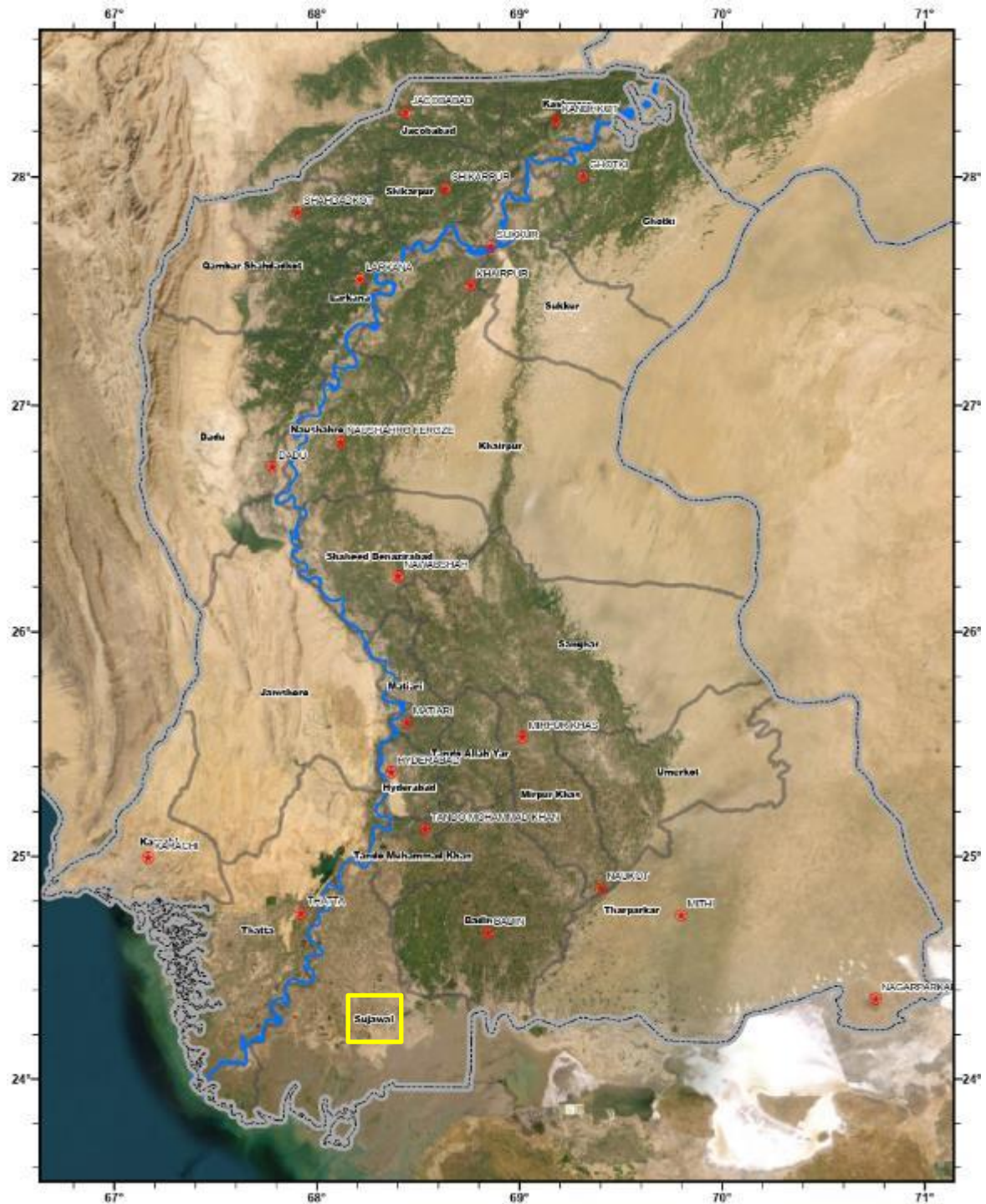


Figure 3: Geographic Map of Sub Project Area

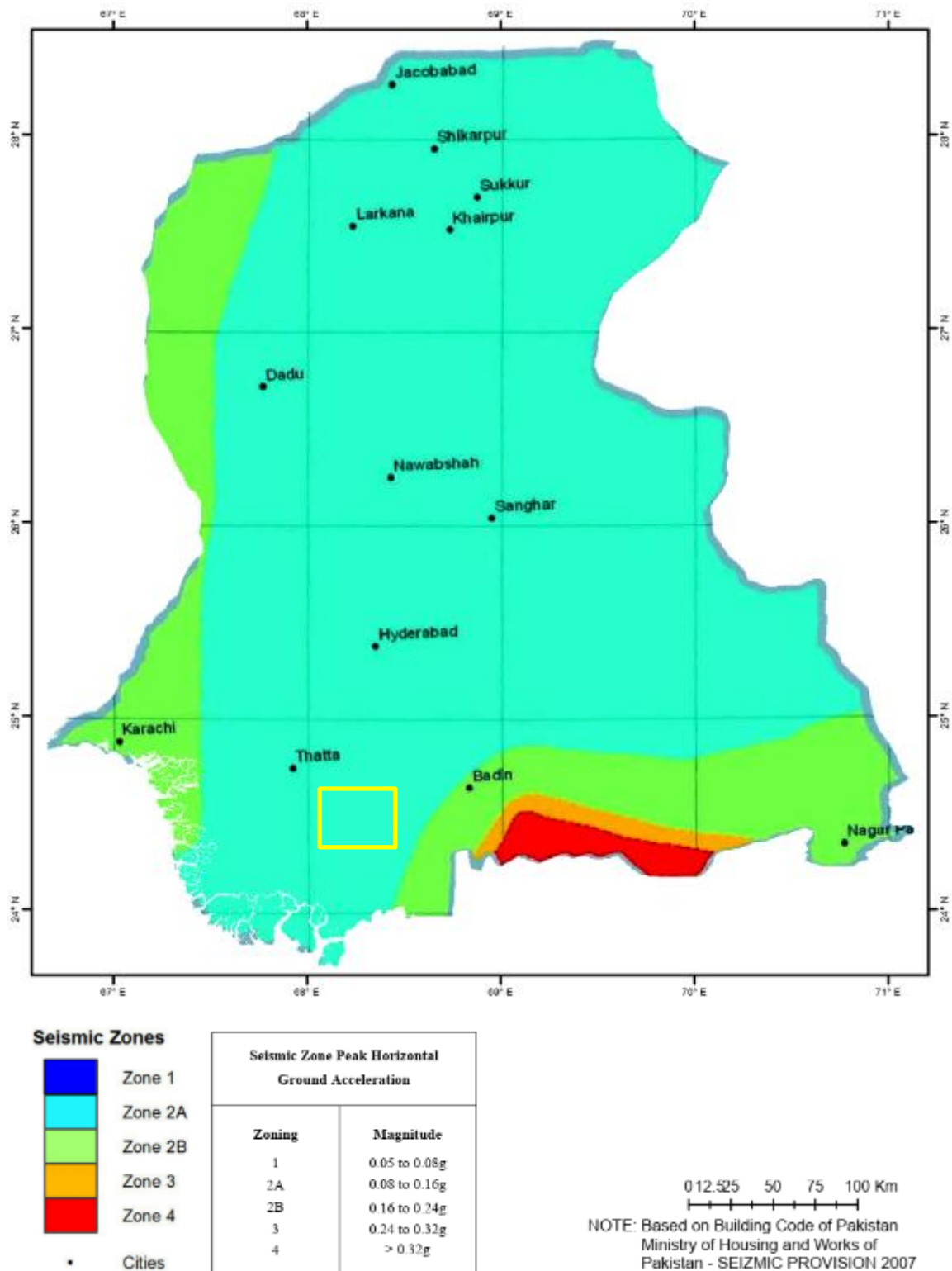


Figure 4: Seismic Zone Map of the sub Project Area



4.2.4 Rainfall

Sujawal district, located in the southern part of Pakistan, has a hot and arid climate with very hot and dry summers where temperatures often exceed 40 degrees Celsius, mild and dry winters with temperatures ranging from 10 to 25 degrees Celsius, and a monsoon season from July to September with heavy rainfall. The district receives an average annual rainfall of around 200 to 300 millimeters. Sujawal is known for its hot and humid weather, which can be challenging for those not accustomed to such conditions.

The last summer monsoon of 2022 with extraordinary torrential rains and subsequent occurrence of the flood left unprecedented damage to road infrastructures. One of the principal benefits of surface drainage in the Study Area is the timely removal of excess stormwater from cropped areas. Rainfall in the Study Area is sporadic and unreliable. However, most rain falls in the months of July to September and at this time large storms can occur, where daily rainfall may exceed the annual average as happened in 2022. District Meteorological Station is located within the catchment area, with precipitation data available from 1968 to 2011. Table 9 shows the 24-hour yearly maximum rainfall and Minimum and maximum temperature for Sujawal.

Table 9: Rainfall (mm) and Temperature (°C)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall	2.5	2.3	1.3	4.1	2.0	8.3	43.9	78.5	37.7	2.8	3.3	0.2
Maximum Temp	25.6	29.1	35.6	40.9	44.0	42.8	40.1	38.0	38.4	38.3	32.4	27.2
Minimum Temp	13.5	16.2	22.0	27.3	29.9	30.2	29.7	28.4	27.4	26.2	21.6	15.8

Source: District Profile of Sujawal

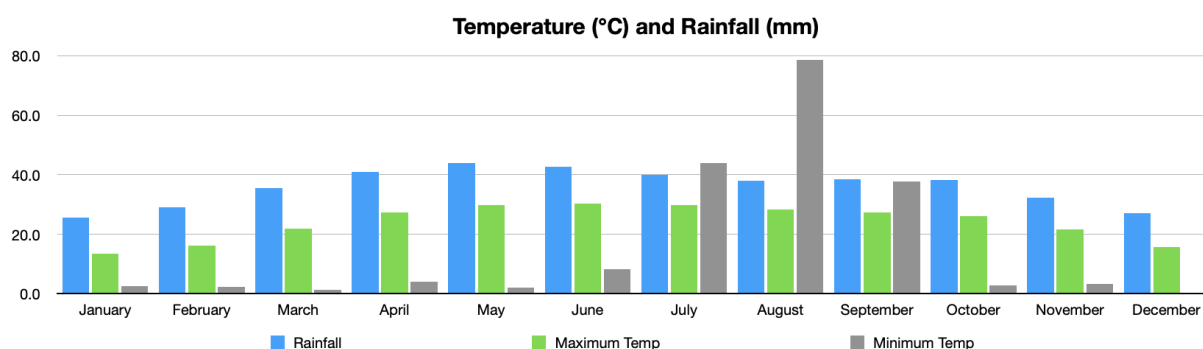


Figure 5: Mean Monthly Max. & Mini. Temperature & Rainfall at Sujawal

4.3 Water Resources and Quality

i. Surface Hydrology

The agricultural land of the district is irrigated through Phuleli, Guni Canal and Akram Canals of Kotri Barrage, moreover, Nasir Canal of Sukkur Barrage also provides irrigation water to the district. The Indus River Delta forms a scattered flow of the Indus River before entering



into the Arabian Sea. The Indus River Delta has the largest arid mangrove forests as well as a variety of birds and fish.

ii. Groundwater

Groundwater is found to be marginally sweet and is available in ample quantity in areas along the Canal. The water table also varies with the discharge in the canal and the amount of precipitation in the area. In periods of high discharge in the Canal, the water level in areas adjacent to the canal. Water quality in areas along the Canal is generally sweet. During the field survey in the subproject area it has been confirmed that the water is extracted through hand pumps; the water table in the area varies from 20 ft to 50 ft depending upon the location and elevation of the settlement.

iii. Surface and Groundwater Analysis

Due to emergency nature of the works the baseline environmental monitoring will be done by the contractor before the start of the civil works as per the approval of the CSC Environmentalist. Sampling from different locations in the sub-project area will be done by a Third-party instrumental environmental laboratory which is certified by SEPA as per SEQS 2016. The selection of locations for monitoring will be done with due consideration to Socially sensitive receptors.

4.3.1 Air Quality & Noise Level

The sub-project areas are located in a sparsely populated rural area with no industrial or commercial activity. Vehicular traffic on dirt roads causes some dust emissions whose effect is fairly localized. However, traffic on the roads in the sub-project area is low compared to the national highways or other major roads. The ambient air quality tests & noise levels will also be monitored before the start of the civil work by the contractor after the approval of the CSC Environmentalist. Rational for the baseline environmental monitoring has been given in Table 10.

Table 10: Rationale for the Baseline Environmental Monitoring

Sr. No	Monitoring Parameters	No. of samples	Rationale
1	Ambient Air	5	One from the proposed camp area, one from each road
2	Drinking Water/Ground Water	5	Construction near water body/one from each
3	Waste/Surface Water	4	Construction near the water body
4	Noise	8	2 from each road/nearby socially sensitive receptor

4.4 Biological Environment

The sub-project area falls in a rural locality and has a limited diverse habitat, which supports a few varieties of faunal and floral species. The following broad categories have been identified for this report focusing on the sub-project areas.



4.4.1 Fauna of the Sub-Project Area

As the population has increased in the project area, wildlife abundance and diversity have decreased to a minimum. The mammals of the district include Asiatic jackal, red fox, Indian desert cat, black-naped hare, Indian crested porcupine, and small Indian mongoose. Hyenas, wolves, and pigs are now rare in the region.

The common avifauna of the district includes black drongo, blue rock pigeon, cattle egret, common babbler, jungle babbler, striated babbler, common moorhen, common and bank myna, crested lark, desert lark, desert warbler, great grey shrike, hoopoe, house crow, house sparrow, Indian roller, common egret, and pond heron. Resident birds of the area are black and grey partridges, Indian roller, common, pied and white-breasted kingfisher, pond heron and cattle egret, collard and little brown dove, white-cheeked and red-vented bulbul. During the winter, a large number of migratory bird's/ water fowl visit the various dhands of the district, some of which include white-eyed pochard, gadwall, tufted duck, widgeon, northern shoveller, greater flamingo, common teal, large and small cormorants, greater white pelicans, painted stork, common shell duck, forest wagtail, marsh sandpiper, common kite, and herring gull.

The reptilian fauna of the district includes cobra, krait, saw-scale viper, rat snake, dhaman, eastern diadem snake, Pakistan ribbon snake, Indian sand swimmer, Indian fringe-toed sand lizard, desert monitor, Indian spiny-tailed lizard, common garden lizard, Sindh sand gecko, and Indian shelled turtle.

4.4.2 Flora of Sub-Project Area

The natural vegetation consists of dry thorn forests and scrub. The common flora of the district includes kandi or jhand (*Prosopis cineraria*), vann or peelu (*Salvadora oleoides*), miswak or toothbrush tree (*Salvadora persica*), aak (*Calotropis procera*), booh or snow bush (*Aerva javanica*), babul (*Acacia nilotica*), ber (*Zizyphus numuaria*), kandi or pipal (*Ficus religiosa*) and devi or mesquite (*Prosopis glandulosa*), neem (*Melia azadirachta*), tamarind or imli, tamarisk or jhao.

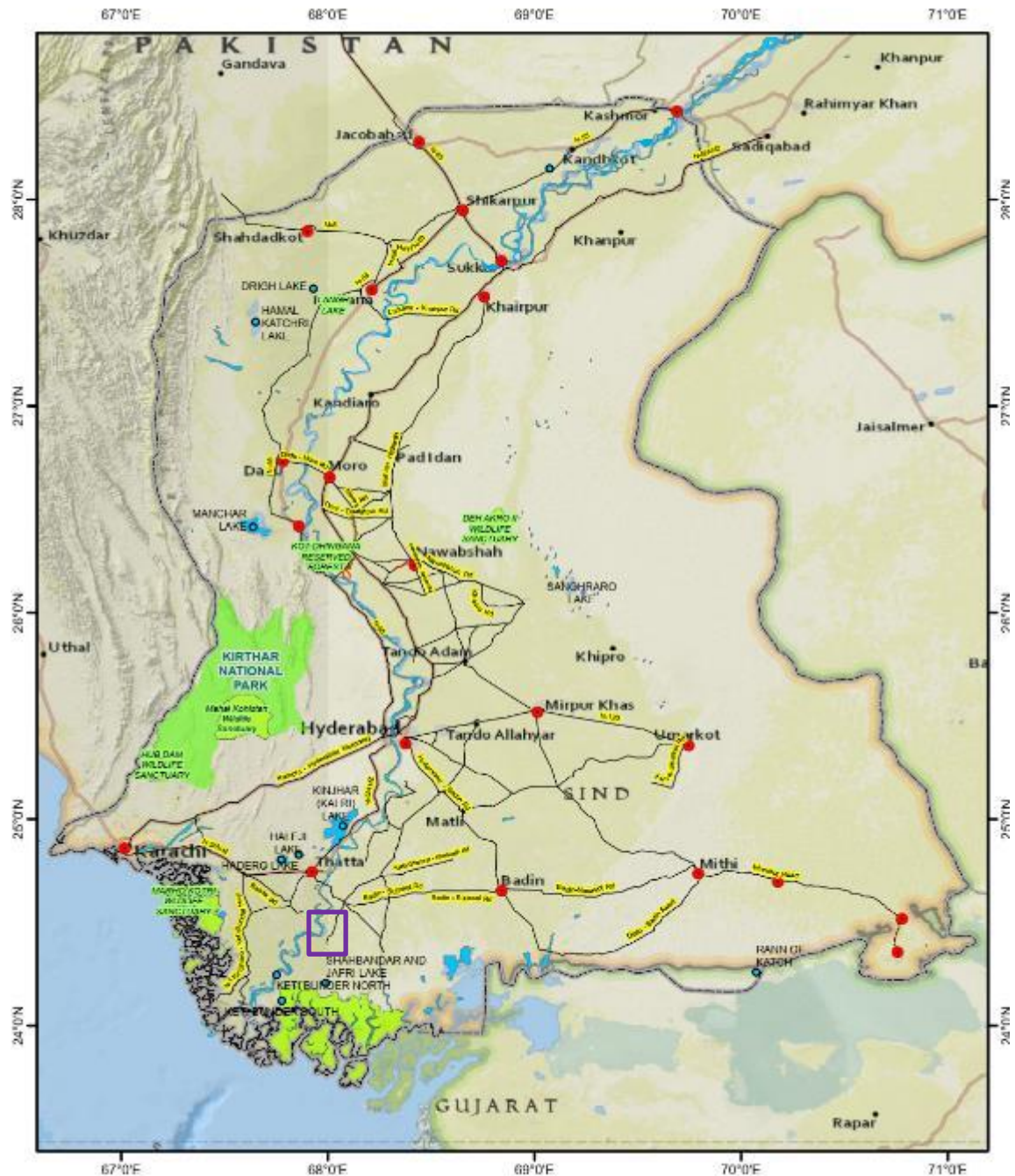
Some aquatic plants found along the dhands are water thyme (*Hydrilla verticillata*), rushes (*Juncus sp*), white water lily (*Nymphaea lotus*), tall reed (*Phragmites karka*), mace or lesser Indian reed (*Typha angustata*), horned pondweed (*Zannichellia palustris*) and salt cedar (*Tamarix dioica*).

4.4.3 Endemic and Endangered Species

Keti Bunder South Wildlife Sanctuary is along the Indus Delta for the protection of different wild animals, sea life, and birds. Keti Bunder is part of the Indus Delta and situated at the mouth of the Indus River. There are abundant mangrove forests with several shallow and deep water channels. Wildlife Sanctuary is established to conserve various kinds of birds, animals, reptiles, and sea life.



As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from sub-project sites. No protected forests were observed near the proposed sub-project area (refer to Figure – 6²).



² https://wwf.org.pk/foreverindus/ie_protectedareas.php



Figure 6: Locations of Protected Area with respect to Sub-Project

4.5 Socially Sensitive Receptors along the RoW

In order to identify potentially Socially Sensitive Receptors like religious structures, graveyards, Basic Health Units (BHU), hospitals, schools, etc. A survey of the COL was undertaken. Socially sensitive receptors were identified through direct observation and by interviewing those living within the sub-project area. The indirect impacts on the receptors have been evaluated at 200 meters/656 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line of the road). Most of the structures were located near towns and settlements in rural areas and away from RoW. None of the Socially Sensitive Receptors has been noticed within the COL.

4.6 Socio-Economic Environment

4.6.1 Demography

The sub-project area is located in the Sujawal district. Demographic details have been depicted in Table 11³. The majority religion is Islam, with 79.4% of the population. Hinduism (including those from Scheduled Castes) is practiced by 19.9% of the population.

Table 11: Demography of the Subproject Areas

Factor	Sujawal
Area: km ²	7335
Population (Persons)	779,062
Male	52 %%
Female	48%%
Sex ratio (M:F)	108.2:100
Population Density	88 per km ²
Urban Population	85,496 (11%)
Rural Population	693,566 (89%)
Avg Household size	5.07 people
Literacy ratio 10+	25%:
Male	33.14%
Female	16.14%

4.6.2 Population Density of Sub-Project Area's Tehsil

The Subproject area falls under four tehsils named; Jati, Mirpur Bathoro & Sujawal. The population density of these talukas is given in following Table 12⁴ and depicted in Figure 7 also. The majority of the sub-project area falls in a rural setup as all these roads which are under rehabilitation are farm-to-market roads with short lengths.

³ District-wise Tables - Census 2017 Final Results". pbs.gov.pk. Pakistan Bureau of Statistics. 2017.

⁴ https://www.citypopulation.de/en/pakistan/distr/admin/825__sujawal/



Table 12: Population Density of Sub-Project Area's Tehsil

Sr. No	Name of Roads	Taluka	Population Density	Rural Population %
1	Reconditioning of road from jati raj malik road to village qasim thaheemor via amin mori taluka jati	Jati	57.8/Km ²	94
2	Reconditioning of the link road from abral to bano road	Mirpur Bathoro	302/Km ²	90.4
3	Rehabilitation of road from sujawal bypass to village sher muhammad jamari village	Sujawal	263/Km ²	72
4	Road 4Rehabilitation of road from sujawal chohar road mile 90/0 (latif hotel stop) to ahmed otho village to sidiq otho across the river bund			

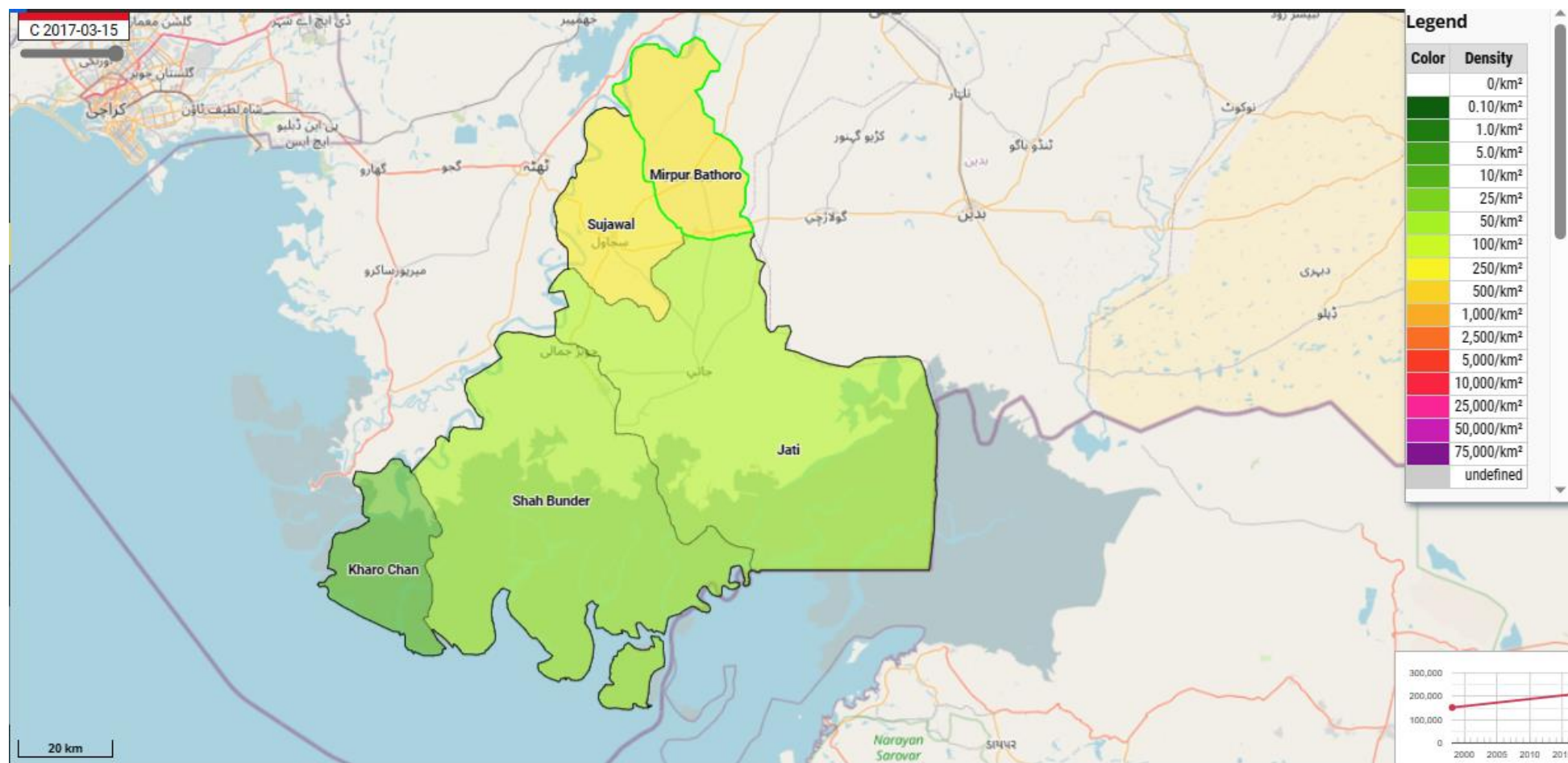


Figure 7: Population Density Map of District Sujawal



4.6.3 Languages

Sindhi is the dominant language spoken in the sub-project area, as 98% percent of the population speaks Sindhi and 0.6% Punjabi. The national language, Urdu, is spoken and understood by 1% of the people in the sub-project area.

4.6.4 Housing

The project area consists of a rural population living comparatively in isolation. The majority of the population lives in small settlements of 15 to 50 houses. Some of the houses usually have a boundary wall enclosing enough space for cattle and storage. The study area consists of various types of housing patterns such as Paka (cemented), Semi-Paka, Kacha (roofs of grasses with mud plaster). It was observed that all the people were living in self-owned houses.

4.6.5 Health Facilities

According to the community, different communicable and non-communicable diseases are prevalent in the subproject area. These diseases include typhoid, malaria, eye problems, diarrhea and other ailments. Due to long distances to health facilities in main cities, women with complications die during the delivery cases. In the sub-project area, there is a lack of health facilities like BHU dispensaries, midwifery centers and medical stores in the immediate vicinity. The seriously ill patients are taken to Thata & Hyderabad.

4.6.6 Occupations, Sources of Livelihood and Income Levels

Within the study area of sub-projects, canal-irrigated & rain-fed agriculture, as well as livestock are the main sources of income for the people. Sujawal is an agricultural city that produces several cash crops such as rice, wheat, and cotton. But the large size of the population has fishing as main profession. Sujawal operates many other freshwater fisheries by utilizing natural depressions and other water bodies such as surface drains, inland lakes, and tidal lakes as well as canals and distributaries.

The lowest family monthly income was recorded as PKR 16,000 while the maximum family income was recorded as 35,000 in the subproject area. This low income shows the high level of constraints families face to meet their day-to-day needs in these high inflation times.

4.6.7 Transport

The major source of transport in the villages of the sub-project area is public transport including buses, Van/pickup, Jeeps, Qingqi Rickshaw, while individual cars and motorbikes are other modes of transport in the sub-project area. The farm inputs and outputs are transported through trucks and tractor trolleys.

4.6.8 Telecommunication

During the survey, the community reported that there is no landline facility available in the sub-project area. Mobile phone coverage is better in the sub-project areas. Nearly all the major cellular companies operate in the district, and Internet facilities are available in all talukas of the district.



4.6.9 Social Cohesion and Conflict

The tribal system is strong in the subproject area. Social organization in all the villages is strongly based on a tribal system, where almost every tribe has a tribal leader. The tribe leaders are mostly landlords and politically influential. All families belonging to the same tribes have strong interactions with one another but mostly remain separate from other tribes. The marriages are usually arranged within the same tribe.

4.6.10 Energy Sources

Most of the sub-project areas are without electricity. The area people collect firewood from the surrounding area and some people purchase firewood from the nearby town. The cost of firewood is Rs 800 per 40 kg. Moreover, the use of both solar systems and diesel for irrigation purposes was also witnessed in some villages of sub-project areas. Diesel is mostly used at nighttime.

5. STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

This section describes the consultations undertaken with the stakeholders in the sub-project areas to explain about the project components and activities and to seek their views and opinions on the sub-project. The consultations were held with communities/households located in the sub-project interventions who are also the beneficiary of the sub-project. They include households and owners of commercial entities bearing positive and negative impacts of the sub-project. Institutional consultation with the relevant government agencies is also made part of this section, delineating information disclosure of environmental social safeguards measures.

5.1 Need of Consultation

The ESF of the World Bank under Environmental and Social Standard (ESS)-10 requires stakeholder engagement and information disclosure for the project. ESS-10 thrusts on to identifying and engaging the stakeholders, especially the ones affected by the project activities. It advises building and maintaining a constructive relationship in order to increase their interest and support for the project and to provide the stakeholders with enough opportunity to record their concerns so that their apprehensions are satisfactorily addressed.

The ESF necessities that an ESMP is prepared through a process of consultation with all concerned stakeholders and publicly disclosed. The process helps to minimize adverse environmental and social impacts and reduces the expected conflicts at the design and implementation stages, minimizes the risk of sub-project delays at the construction stage, and enables making the subproject more economical and socially acceptable. Moreover, public consultations create a sense of ownership among the stakeholders regarding the sub-project and disclosure further ensures transparency in sub-project activities.

5.2 Identification of Stakeholders

There are two types of stakeholders, i.e. project affected parties and other interested parties. Project affected parties are groups of individuals who are affected or likely to be affected by the project. The Other Interested Parties for the sub-project are the representatives of



Government Departments/agencies involved in the planning, design, implementation and operation of the sub-project, including various provincial government departments such as City/District Administration, Environment Protection Agency Revenue Department, Works & Services Department, etc.

5.3 Engagement approach

For the community-level consultations, three days before the consultations (verbal communication), representatives of all the segments of the community were invited to the consultations. The invitation purpose, date and time of the consultations were shared with the stakeholders.

5.4 Stakeholder Consultation

The social and environmental staff of consultants held consultation meetings with the local community residents of the sub-project area in March 2023.

The field team comprising the Environment and Social Safeguard Consultants visited the nearby communities of the sub-project to get the views of the people of the sub-project, who are going to be affected and beneficiaries. They appreciated the client for taking up the initiative of rehabilitation and restoration of rural roads and allied structures. According to the community, the rehabilitation works would enhance the communication means and transportation which will benefit the sub-project area.

The social and environmental team carried out a public consultation with the households and local people. Participants of public consultation meetings were briefed on salient features of the ESMP prepared for the sub-project. The team assured households that all project related concerns raised by them would be addressed. Measures have been made part of ESMP to minimize the impacts during construction. Mitigation measures will be adopted to control noise and air pollution. Participants were apprised that their concerns and suggestions have been incorporated into the ESMP. In case of any complaint/grievance from the households, a well-defined Grievance Redress Mechanism (GRM) is devised in ESMP. Participants were also briefed on the GRM.

Table 13: Details of Community Consultations

Name of Sub Project	Name of Settlement/ Village	Date of Consultation	No. of Participants
Reconditioning of road from jati raj malik road to village qasim thaheemor via amin mori taluka jati	Bohar	09-03-2023	15
Reconditioning of the link road from abral to bano road	Abrral	09-03-2023	12
Rehabilitation of road from sujawal bypass to village sher muhammad jamari village	Settlement Near Sujawal	09-01-2023	10
Road 4Rehabilitation of road from sujawal chohar road mile 90/0 (latif hotel stop) to ahmed otho village to sidiq otho across the river bund	Mureed Khoso	09-01-2023	10
Total			47



5.5 Consultations with Females of the Sub-Project Areas

During the survey, consultations with women were also conducted by female resource persons in a limited number as local males were discouraged from attending the women in some consultation sessions.

They were informed that the successful completion of the sub-projects, will boost the living standard of the inhabitants through enhanced means of communication/traveling. They were happy and told that these sub-projects are most important for their better livelihood and also help them during rainy seasons. They also told that these sub-projects will leave positive impacts on women and their livestock by developing climate-resilient roads and enhanced means of transportation. Moreover, they do not express any concerns regarding these sub-projects.

Table 14: Summary of concerns raised by the community during consultations

Comments /Observations	Action /Response
Overall the participants appreciated the project and foresee it as a positive sign of development. Participants raised a concern regarding temporary restrictions to access by-passers will occur due to construction activities. They suggested undertaking construction activities at a quicker pace.	The team briefed that the contract will be bound to provide a schedule of work and that will be communicated to local people. The contract will also work in patches to reduce the risk of restrictions on access. Participants were also briefed on GRM regarding the enumeration of any concerns.
There should be a clear demarcation of RoW. The rehabilitation works should be implemented in such a way that the minimum number of trees is felled.	As far as the rehabilitation works are concerned, the rural area of Sujawal witnessed that there are no plantations in the RoW. Therefore, no impacts on the flora of the area envisage.
The Participants informed that most of the rehabilitation work undergoes in rural areas and a number of socially sensitive receptors exist along the roads. Noise become a big issue, that alters the social behavior of the local communities.	All vehicles, equipment and machinery used for construction will be regularly monitored to the emission levels that conform with SEQS. Vehicles and equipment used will be fitted as applicable, with silencers and properly maintained. In rural settlements, construction activities will be restricted to being carried out between 9 a.m. and 5 p.m.
The community pointed out that the rainwater accumulated during the 2022 rain floods, affected the area badly as the water remained stagnant for a couple of months. Water drainage should be provided for the drainage of rain/flood water.	The field team briefed that the damaged culverts are rectified or replaced while a sufficient number of culverts are provided for proper cross-drainage. Vented causeways have also been provided. The flow from culverts and road drainage has to be ensured.
Participants from the sub-project villages, during the consultation strongly demanded that unskilled labour should be hired from the local area, as there is an availability of unemployed young men.	Participants were told that local community people would be preferred for employment and this will be monitored during the construction phase by the social specialist of CSC & PIU.

5.6 Institutional Consultation

Sr. No	Designation- Department	Representatives of Department
1.	Additional Director, Agriculture Extension	Mr. Hussain Bux Khaskheli
2.	Deputy Director, Social Welfare Department	Mr. Saroop Chand
3.	XEN, Irrigation Department	Sohail Hameed Baloch
4.	XEN Highway Department	Hameed Shaikh
5.	Deputy Director (Technical) SEPA	Mr. Ali Nawaz

The Environment and Social team conducted a consultation with relevant government departments in Sujawal. The team briefed the officers of government agencies regarding the salient features of the sub-project. It was informed that the “Detailed Design of the Sub-Project, under PIU-SFERP being implemented by the W & S Department and funded by the World Bank. They were informed that the project intends to improve the roads which are affected by rain/flood water. The primary goal of the project is to meet the present and future requirements. It was also briefed that the project will bring positive impacts on the lives of the local population through improved mobility.

Table 15: Details of Consultations with Line Departments



Generally, the officials were of the view, that the construction of the proposed project will have a positive impact on the people living in the sub-project areas. During the meeting, the officials



extended their full cooperation for the proposed project and their views were in favor of the project.

Table 16: Summary of Concerns Raised by Institutional Stakeholders

<i>Comments/Observations</i>	<i>Actions Responses</i>
The majority of the stakeholders expressed their positive views related to the rehabilitation of flood-affected roads.	In general, the participants approved of the project and believed that there is a dire need for this kind of project as the recent floods had badly damaged these roads.
The stakeholders suggested that the construction of the proposed project would lead to improvement in overall socioeconomic conditions in the sub-project areas.	Noted
The stakeholders suggested that the construction camp must be outside the settlements minimum of 500 away from the fence to avoid social issues	A single camp has been proposed for about 500 meters away from the settlement furthermore camp activities will be kept confined within the boundary area, and activities will not be allowed during Juma prayer and other festive times/days. A labor code of conduct will be enforced.
The stakeholders suggested that care must be given to protect fauna and flora during the construction phase.	The plantation would be undertaken with the preference of local species no exotic species will be promoted. The fruit plants will be provided to locals to plant in their adobe only.
The Stakeholder suggested that Emergency Preparedness and Response training should be given.	The duration of this training will be one day at three different times and will be free of cost. The training will guide the labor and staff in emergency preparedness and response to the emergency at construction sites.
The representative of the Agriculture Department stated that irrigation channels must be protected during the construction stage from contaminations. There is a risk of disposal of waste construction material or other waste material in a water channel passing near the subproject area.	The campsite would be confined to the minimum area and away from areas of the water body. Permanent as well as seasonal water channels should be protected from any type of contamination during construction work. Monitoring of the water bodies will strictly comply with SEQS.
The Stakeholder shows their concern regarding the impacts during the construction stage on waste management and land acquisition	Social and environmental teams briefed about the mitigation measures that will adopt to control dust, noise, health and safety issues. There are no issues regarding land acquisition due to rehabilitation work at the existing RoW. If the issues occur, then these matters will be dealt with by the Revenue Department. The contractor shall dispose of the hazardous waste through EPA-certified contractors.



5.7 Information Disclosure

As a disclosure requirement, the ESMF will be uploaded on the Provincial Disaster Management Authority (PDMA) and project website, while an executive summary of ESMP of the reported sub-projects will be translated into Sindhi after approval from the World Bank will also be uploaded on the website. In addition to this ESMP document will be made available at the campsite/s.

5.8 Future Consultation Plan

The stakeholder consultation is a continuous process and should be carried out throughout the life of the sub-project. The consultations carried out during the present ESMP stage and reported are essentially among the initial steps in this process. During the subsequent project phases as well, the participation of the project stakeholders needs to be ensured as per SEP of SFERP. Supervision Consultants along with PIU staff will ensure time-to-time consultation with locals to get their feedback on project activities and their related complaints.



6. ENVIRONMENTAL & SOCIAL IMPACTS AND MITIGATIONS

The reconnaissance field visit was carried out to assess the social and environmental impacts of the activities to be undertaken for the construction of rehabilitation works. A screening checklist showing rapid assessment of potential environmental and social impacts, mitigation measures and residual impacts after mitigation reveals that the project activities will not cause significant disturbance and inconvenience to the local community and natural environment of the area rather than provide the safe and steady mode of communication by improved roads after the flood. All the impacts that have been identified during the reconnaissance are associated with the construction phase and minor to moderate in severity, and can easily be mitigated through planning or adopting appropriate management measures. The minor impacts can be resolved through the best management practices. Social impacts such as getting borrow pit area, hiring laborers and setting up of labour camp will be mitigated according to applicable policies and procedures.

The social impacts associated with the rehabilitation works will be managed by proper guidance and strict monitoring of subproject activities. The labourers are expected to be recruited entirely from local areas, which will enhance economic opportunity for them.

6.1 Major Social & Environmental Impacts and Mitigations

It is evident from the screening checklist that the sub-project is very beneficial concerning the adjoining area. As regards the adjoining area, the people of this area will be the main beneficiaries. The following sections give in detail the possible environmental impacts and their mitigations.

During the construction stage of proposed rehabilitation works, the surrounding area will face some undesirable effects. Many impacts are temporary and may occur during construction. Some of them are described below.

6.2 Topsoil Erosion

6.2.1 Description

Excavation will expose bare soils that may erode. This will include sites such as; borrow pits, quarries, road embankments, culverts, bridge abutments and road diversions.

Runoff from rainfall can lead to erosion of the road surface or ditch bottoms. Drainage channels leading from the roads to nearby watercourses are receptors of soil and rock eroded from the unsealed surfaces of these roads.

6.2.2 Mitigation Measures for Erosion

Excavation of earth fill will be limited to an appropriate depth of 20cm. Priority will be given to getting the earth fill material from the licensed contractors, where the use of agricultural land is unavoidable private land will not be taken until a prior written agreement (with local tradition) and documentation of relevant details of compensation (on prevailing market rates) are signed between the owner/s and relevant authorities. Furthermore, the top 15cm of topsoil will be stripped and stored and then replaced after the removal of borrowed material. Where deep



ditching is carried out, the top half-meter layer will be stripped and stockpiled. The ditch will be filled initially with debris/scrap material from old construction and leveled with stockpiled topsoil later.

The provision for vegetation with a fast-growing crop and a native seed mix immediately after fill placement to prevent scour and encourage stabilization has been made in the design. Use of stone pitching or riprap has also been provided in the design at appropriate places, especially around culverts; Provision for rip-rap in discharge zones from drainage structures has been made in the design to reduce erosion; Side slopes will be adjusted to a gradient necessary to reduce erosion potential or, if steeper, stabilized, covered with riprap or other material to prevent soil erosion.

6.3 Air Pollution

6.3.1 Impacts of Air Pollution

The air-related mitigation is discussed as follows, during the construction phase of the proposed sub-project; some adverse impacts on the environment by suspended dust and noise are foreseen. As ESS3 of ESF 2018, the contractor will comply with the requirements for resource efficiency and pollution management and prevention by preparing a dust abatement plan before the start of the construction activities.

The Batch plant requires cement and dry sand gravel to be fed into a mixing chamber, and the addition of water to make concrete. Considerable fine dust is emitted when bagged cement is loaded manually into the batch plant hopper, as well as with the conveyor system bringing the materials to the plant.

Air quality would be disturbed during the construction stage due to vehicular movement, and the release of particulate matter PM_{2.5} from vehicular emission. Construction activities will generate dust and pollute the surrounding area. The emission from the machinery used in earthwork activities will also degrade the air quality of the site. The exhaust of noxious gases from the movement of heavy machinery will further pollute the air, which will adversely affect the health and vigor of plants. Smoke emissions from vehicular movement and heavy machinery would slightly cause the smoke problem in the nearby villages, which are located near the construction areas.

6.3.2 Air Pollution Mitigation Measures

Dust from the cement work will be avoided by using bulk cement brought to the plants in large tanker trucks and transferred to the plant hoppers via a closed system. Batch plant/s will need to be equipped with dust suppression equipment, now standard on most such facilities, or which can be easily retrofitted.

The air-related mitigation is discussed as follows, during the construction phase of the proposed sub-projects; some adverse impacts on the environment by suspended dust and noise are foreseen. These will be effectively mitigated by adopting the following preventive measures;

- The Contractor will be required to have approval (from The Construction Supervision Consultant) for the dust abatement plan/Pollution Prevention Plan.



- Regular spraying of water should be undertaken to minimize dust pollution. The water would be obtained from tube wells installed by the Contractors or maybe grey water from the camp areas and reuse of wastewater from batching plant.
- All vehicles, machinery, equipment, and generators used during construction activities will be kept in good working condition to minimize exhaust emissions & limit the idling time of construction vehicles to 2 minutes to minimize local air pollution.
- Enforce the maximum speed limit to 10km/h for vehicles to reduce dust emissions.
- Native species trees shall be planted, and no rapidly growing trees, shrubs and grasses in the sub-project area shall be allowed during the operation stage of the sub-project with the collaboration of the Forest department.
- Conduct ambient air quality monitoring as per SEQS periodically as per ESMP.

6.4 Water Pollution

6.4.1 Water Related Impacts

During the construction stage, different types of activities such as cutting, earthwork, and concrete work would alternately result in deteriorating the surface water quality. Canals and water courses crossed the road, and during the rehabilitation works of culverts and bridges can be polluted by the accidental discharge of cement and other chemicals like epoxy and paints.

A secondary adverse impact is the potential spillage of chemicals, hydrocarbons and other pollutants as part of the construction process as well as contamination arising from the improper disposal of wastes (organic and inorganic) at the camp and work sites.

6.4.2 Water-Related Mitigations

Asphalt should not be applied during heavy rain to avoid it being washed into watercourses. The water channels have to be diverted properly, and a protection mechanism should be provided, or construction will be undertaken during the dry season.

A contractor will make his arrangement, would not rely on existing community resources, and would not extract from sources currently used by the community. Moreover, the Contractor must provide the following facilities at each campsite: Latrines; lined washing areas; septic tanks, and soaking pits for toilet waste. Key mitigation measures are listed below.

- There should be proper septic tanks and soaking pits for sewage treatment and disposal, sewage/sanitation at work camps and proper wastewater collection facilities. Wastewater effluent from contractor/s will be passed through an oil skimmer and to gravel/sand beds to remove oil/grease contaminants before discharging it into the water body. The Septic tank and soak pit shall be covered properly to avoid any obnoxious smell in the surrounding areas. The soak pit will be built in absorbent soil and located 300m away from a water well. Soak pits will be designed to accommodate wastewater generated during the total operation. Soak pit will be constructed such that surface runoff cannot enter the pits. At the time of restoration, septic tanks will be dismantled in place and backfilled with at least a 1m soil cover keeping in view the landscape of the surrounding natural surface.



- To overcome the drinking water contamination issue, at the construction camp/s, the contractor shall install a solar-operated domestic water filter/150GDP with Ultraviolet (UV) to ensure safe and healthy drinking water for the workforce.
- The contractor shall prepare, and implement a spoils management plan under the supervision of PIU.
- The E & S team of PIU shall carry out regular monitoring of water quality.
- Wastewater from laundry, kitchen washings and showers will be disposed of in separate soak pits.
- Soak pits will be built in absorbent soil and located 250 m away from a surface water source or groundwater well.
- In case the soak pits are filled, greywater will be sprinkled over access tracks. A sprinkling of greywater will be done in a manner such that ponding of water is avoided.
- Water consumption will be monitored during the construction stage and records will be maintained to avoid any wastage.
- Diesel, oil, and lubricants should be properly stored following petroleum regulations. This will be the responsibility of the contractor.
- It has been further, proposed that before the start of the construction, the contractor will establish updated baseline environmental monitoring of air, water & noise including the soil analysis (trace metals such as Cd, Zn, Cu, Cr, Pb and Ni as per WHO standards) for comparison during the construction phase. Permissible limits/standards according to the World Health Organization and the Food, and Agriculture Organization of the United Nations (FAO) indicated for soil, and limits set by SEQS for Air, Water & Noise will be followed as standards for the comparison.
- Appropriate arrangements will be made to stop stones and soil to slip into the river water.
- Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;
- Dispose of any wastes generated by construction activities in designated sites;
- Conduct surface quality inspection according to the ESMP while adhering to SEQS 2016.
- Community liaison will be maintained and GRM will be established to address complaints related to waste disposal.

6.5 Diversion of Water channels

6.5.1 Impacts due to diversion of water course

Inadequate diversion of canal/water course will affect the water supply to agricultural land of communities living nearby, which may create a social issue. Insufficient diversions/bypasses around bridges and culverts under construction could cause a disturbance to construction activity as well as create a nuisance for the community and project workers.

6.5.2 Mitigations for diversion of water course

The contractor should provide an adequate-sized diversion so that there shall be no disturbance to the water flows of the canal /water course. Schedules for construction activities



along the water body have to be prepared with the consultation of the local community and active GRC needs to operate all the time.

6.6 Noise Pollution

6.6.1 Impacts of Noise Pollution

Construction works will be conducted along the roads in rural/semi-urban areas, where there are houses, schools and hospitals, religious places and small-scale businesses. An increase in noise level may be caused by excavation, particularly the breaking of cement concrete or bitumen roads, the operation of construction equipment like concrete mixers, and vibratory rollers used to compact subgrade materials and the transportation of equipment and materials. Vibration generated from construction activity, for instance from the use of pneumatic drills, will have an impact on near buildings. This impact is negative but short-term and reversible by mitigation measures.

6.6.2 Noise Related Mitigation

Plan the activities in consultation with CSC environmentalists so that activities with the greatest potential to generate noise are conducted during periods of the day, which will result in the least disturbance. Machinery operations close to socially sensitive receptors area are restricted to daylight hours, and a schedule will be agreed upon between the contractor and the local communities. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach. As a mitigation, the works shall be to limit working hours (8 hours a day) to between 9 am and 5 pm (can be altered as per weather conditions special reference to the summer seasons. Break will be considered during peak time 2 pm to 5 pm), six days a week. Noise monitoring will be conducted as recommended in ESMP as per SEQS.

In spite of this, the affected communities will also demand to carry out noise monitoring in case of any complaint. The noise level of machines to be used during the construction will be controlled and measured will be taken to limit the levels as per SEQS, as far as possible and the workers will be provided earmuffs, where necessary. Minimize the noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and using portable street barriers to minimize sound impact to surrounding socially sensitive receptors.

Community liaison will be maintained to ensure that complaints and grievances are addressed as soon as possible. Identify any buildings at risk from vibration damage and avoid any use of pneumatic drills or heavy vehicles in the vicinity. Consult the custodians of important buildings, cultural and tourism authorities and local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.

6.7 Waste Management

6.7.1 Impacts of Waste

As part of the reconstruction process, the asphalt layers of the existing road will be removed, together with base course material that is unsuitable for re-use. There will also be unused



construction material (sand, crush), empty drums, concrete waste and waste from work camps.

Proper management of waste is also important because of the risk that improper waste handling and disposal pose to human health and environmental degradation. Careless and indiscriminate open dumping of wastes can create unsightly and unsanitary conditions within the project area.

The total quantity of domestic waste generated will vary depending on the strength of labor that the contractor poses to use. Most of the laborers will be locals who will return to their homes at the end of the working day. A maximum of about 25 % of labour comprising mainly skilled labour will reside at construction camps at the peak of the works.

6.7.2 Mitigation for Waste

The asphalt and base course removed from the existing road will be recycled. It may be re-used in the soft shoulders or as fill for other parts of the new road depending on the quality of the material. It may also be used as a backfill for borrow pits and then over-lain with topsoil. Asphalt can be pulverized, spread on access roads and compacted.

The contractor will identify dumping locations for construction debris and nonhazardous solid waste with respective Taluka Municipal.

The contractor shall identify any hazardous waste as part of its Waste Management Plan and dispose of the material through Sindh EPA-approved waste contractor under section 13 of the Sindh Environment Protection Act 2014.

For solid wastes, the following mitigation measures are recommended:

- No waste will be disposed of in the field. All waste will be disposed of in the waste bins provided within the working area.
- Combustible noncombustible and hazardous waste will be temporarily stored on-site and handed over to approve waste contractors for recycling purposed and safe disposal.
- Encourage staff (through training) to reduce and reuse waste wherever possible.
- Arrange for regular collection of camp waste and transfer to storage area/disposal with the cooperation of local admiration.
- Furthermore, the contractor will draft The Waste Management Plan (WMP) and get approval from PIU. The Contractor shall include details of the procedures for the collection and disposal of wastes. The Plan shall deal with each waste stream separately.

6.8 Traffic Management

6.8.1 Traffic diversion and/or road closure.

Rehabilitation of road works significantly impact traffic movement. This should be avoided as far as possible by proper planning of construction works. Excavation along the roads, hauling of construction materials and operation of equipment on-site can cause traffic problems. If traffic diversion and/or road closure is required for the proposed works, prior consent from the department will be required and prior information to affected areas and the public should be



disseminated through consultations by PIU. The potential impact is negative but short-term and reversible by mitigation measures.

6.8.2 Traffic/Access-Related Mitigations

The Construction Contractor (CC) will be required to:

- Plan all works to minimize traffic disturbance/blockades; on all the roads under construction and adjacent connected / linked roads and streets, work planning is crucial to minimize the inconvenience to the public due to the construction works;
- Prepare and implement a Traffic Management Plan;
- Locate entry and exit points in areas where there is low potential for traffic congestion;
- Keep the site free from all unnecessary obstructions;
- Coordinate with Traffic/Local Police for temporary road diversions and provision of traffic aids if transportation activities cannot be avoided during peak hours;
- Proper road signage and traffic aids should be provided at the site. Use all necessary safety precautions including signboards, temporary signals, skilled traffic guides, traffic diversions, electric lights, demarcation of construction work lanes/worksites/excavation areas, construction equipment/plant/machinery, separate active/live traffic lane from the active construction work sites,
- Pro-Actively update the signage well in advance on the basis of planned construction activity
- Notify socially sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. Increase workforce in the areas with predominantly institutions, places of worship, business establishment, hospitals, and schools; consult businesses and institutions regarding operating hours and factoring this into work schedules. Outreach to nearby communities informing them of road closures and construction schedules. Conduct an awareness program on the nature of work, likely disturbances and risks and construction work, mitigation measures in place, entry restrictions, and do's and don'ts; and to the communities.

6.9 Biodiversity

6.9.1 Impacts on Biodiversity

ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources. The objectives of this standard are to protect, conserve biodiversity habitats and avoid adverse impacts on biodiversity habitats because of project activities. The following mitigation measures will adhere to comply ESS6. No tree cutting has been involved because existing RoW will be used for rehabilitation work and no rare or endangered aquatic faunal or floral species occurring in the sub-project area. Furthermore, all of the roads are in a rural area so no wild animals or critical habitats will be impacted. The sub-project will pose a minor negative impact on the fauna present in the area.

6.9.2 Mitigations for Biodiversity

During the baseline survey of the sub-project area, no endemic or rare species were observed in Col. All species recorded during the field survey have a wide range of distribution. Since the



campsite will occupy small areas and will be located in existing clearings, the impacts are reversible and localized by adopting mitigation measures. Use of local vegetation as fuel by labor will be prohibited.

No hunting, harassment, or netting of wildlife will be permitted. Major project activities will be completed before the arrival of migratory birds on wetlands and other sensitive areas that's during winter. No clearing of bushes will be allowed during the nesting/breeding season of birds. Maximum effort will be made to save rodent colonies during construction.

The camps will be properly fenced and gated to check the entry of wild animals in search of eatable goods. Similarly, wastes from the camps will be properly disposed of to prevent them from being eaten by wild animals. Staff working on the project should be given clear orders, not to shoot, snare or trap any bird. New and good-condition machinery with minimum noise will be used in construction. Noisy work will not be carried out at night time so that there should be no disturbance to local birds and animals. Maintain setbacks from wetlands, live dens, live nests, and live rodent holes & keep lights used at the camp to the minimum required. Use low upward scattering lights.

6.10 Occupational Health & Safety

6.10.1 Impacts on Construction Workers

The health and safety risks which could impact the construction workers are primarily associated with the construction activities of the sub-project. In particular, the various risks of injuries and accidents for workers are related to the rehabilitation of flood-affected roads and associated activities. The typical risks include exposure to the physical hazards of using the construction equipment, working near running traffic, operating equipment, working on and near scaffolding, tripping and falling, handling bitumen, burns, exposure to noise and dust, falling objects, traffic hazards associated with the operation of project-related vehicles, exposure to hazardous materials and exposure to electrical hazards related to the use of tools and machines as well as the prevalence of the incidence of respiratory diseases as a result of dust and emissions.

6.10.2 Health and Safety-Related Mitigations

The following steps are suggested for the proper management of occupational health & Safety within the sub-project area:

- The contractor will have to prepare Site Specific Labour Management Plan, an Occupational Health and Safety Plan as well as a Community Health & Safety plan according to Sindh Occupational Safety and Health Act 2017 while adhering to the ESS2 – Labor and Working Conditions as well as Labour Management Procedure (LMP) and will submit it to the PIU for review and approval. When approved, the contractor will implement the plan during the construction period. This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPEs, restrictions on activities or locations, and other measures. The plan also needs to describe what type of training will be given to the workers. Those who work near water, at heights, and with heavy equipment will need special training so those hazards can be managed and minimized.



- The contractor will ensure the use of Personal Protective Equipment (PPEs) for his labours during the construction period; OHS Training⁵.
- The contractor will train his crews on the aspects covered in the above-described Plan;
- The contractor shall fence the working area and unauthorized shall not be allowed to enter the area;
- The contractor will hire an HSE officer with adequate experience to address the above impacts.
- The Contractor will display signboards and banners about traffic diversion at places on detour routes;
- Provision of speed breakers at appropriate places in consultation with/approval of the Engineer which should be removed after completion of the project;
- Establish and obey speed limits;
- The Contractor will maintain workers' hygienic conditions in labour camps.
- The Contractor shall make available the first aid kit and bandages at all times and at all the sites. Moreover, paramedic staff will be available on-site and the cost of hiring will be a part of the BOQ item. The location of these kits shall be marked and shall be easy to access by all.
- No private property without permission of the owner will be used for transportation;
- Drivers will fix the net on containers while transporting stones and sand etc.
- Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards.

The contractor will also prepare an emergency response plan to address events such as urban floods, fires, earthquakes, injury/death, and accidents.

6.11 Community Health & Safety

6.11.1 Impacts on the Public due to Project Activities.

The potential impacts shall be direct, such as being struck by moving vehicles within and outside the sub-project area and indirect through the decrease in air quality surrounding the sub-project area. The air quality will reduce as a result of increased dust generated from construction and on transport routes, as well as due to emissions from plants and vehicles. The impact will continue for the duration of the work.

6.11.2 Potential Mitigation Measures.

- Ensure that the site is restricted from the entry of irrelevant people particularly children;
- Timely public notification on planned construction works;

⁵ Some of the key areas that may be covered during training as they relate to the primary causes of accidents include (i) slips, trips and falls; (ii) personal protective equipment; (iii) ergonomics, repetitive motion, and manual handling; (iv) workplace transport; and (v) legislation and responsibilities. Training can provide the foundations of competence but it does not necessarily result in a competent worker. Therefore, it is essential to assess staff competence to ensure that the training provided is relevant and effective. Supervision and monitoring arrangements shall be in place to ensure that training has been effective and the worker is competent at their job. The level of supervision and monitoring required is a management decision that shall be based on the risks associated with the job, the level of competence required, the experience of the individual and whether the worker works as part of a team or is a lone worker.



- Seeking cooperation with local educational facilities (school teachers) for road safety campaigns; especially when/if a school is located in the indirect impact area.
- Provision of proper safety and diversion signage, particularly at socially sensitive receptors areas;
- Setting up speed limits in close consultation with the traffic police; and
- During construction work, pedestrian and vehicular passages shall be provided for crossing near the settlement;
- Open trenches and deeply excavated shall be protected by a fence/barricade to avoid any accident.

6.12 Physical/Community Infrastructure

6.12.1 Damage to Physical Infrastructure

The construction works can potentially damage existing infrastructure such as roads, culverts, and electricity lines. Some of this infrastructure may need to be relocated to allow the proposed works to be carried out.

6.12.2 Mitigations to Physical Infrastructure

Currently, no public infrastructures are observed which creates hindrances in the execution of the work. All damaged/removed infrastructures will be repaired/ restored to their original or better condition. Liaison with the community will be maintained and GRM will be established to address any related complaint.

6.13 Cultural Heritage

There is little likelihood of buried archaeological sites as no archeological or cultural heritage has been identified with a minimum of 500 meters of sub-project area⁶.

6.13.1 Chance Find Strategy

The sites or items of heritage significance could be found in the course of development work. The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment for siting and designing a project to avoid significant adverse impacts to the culture the client is responsible for heritage. It would be ensured that any chance to find further is not disturbed until an assessment by competent professionals is made and actions consistent with the requirements of ESS8 – Cultural Heritage. ESS8 recognizes the importance of cultural heritage as a valuable source of scientific and historical information, as an economic and social asset for development, and as an integral part of people’s cultural identity. This standard sets out measures to protect cultural heritage throughout the lifecycle of the project

⁶ The 500m setback is based on the average zone of the impact that is expected from the sub-project. However, this distance may vary with the type and level of activity, sensitivity of the area, and probability of impacts.

Subproject is rehabilitation-related work (types and Levels of activity) furthermore sub-project area falls in a rural environment and the probability of the impact is low to negligible as the subproject area is far away from notified cultural heritage sites.



- i. In the case of a chance find, the contractor will secure the site and report immediately to PIU. Works may not recommence until the Engineer approves.
- ii. PIU will intimate to Culture Tourism & Antiquities Department, Govt of Sindh.
- iii. Meanwhile, the contractor will cease their operations and due caution will be ensured for archaeological remains.
- iv. Archaeology department to inspect, identify, advise management, and recover remains.
- v. Site visits of the Culture Tourism & Antiquities Department, Govt of Sindh will be facilitated. Further works will be carried out on such sites only after obtaining clearance from the Department.

6.14 Labour Influx

6.14.1 Impacts of Labor Employed from Outside

Some social impacts could arise due to labor influx. There shall also be a risk to community health from HIV/AIDS/COVID-19 or other transmitted infections as a result of the presence of migrant construction labour. There could be the risk of gender-based violence from migrant labour, which often remain away from home on the site. This may lead to inappropriate behavior including sexual harassment of women, girls and boys in the local community. This could especially be relevant in case the nearby population is from any marginalized group e.g. Hindu community.

6.14.2 Mitigation Labour Influx

A large-scale labor influx is not expected due to the availability of local unskilled labor supply in the subproject area and the scale of works anticipated under the subproject. Except for a limited number of managers, supervisors and skilled workers, the majority of workers may be sourced locally or from nearby areas within the district. The priority for local labor (dependent on skill, and experience capacity) is expected to minimize the risk of labor influx. As part of the mitigation process, the contractors shall locate/ construct camps for their staff at least 500 meters away from communities to avoid social conflict as well as to avoid the possible adverse impacts of the construction camps on the surrounding communities. Fencing will be provided around the campsite and the Contractor will provide security. The camp layout plan and workers' code of conduct will be prepared by the contractor and will be submitted for review and approval by the Engineer.

While the contractor shall also include proposals for awareness of HIV/AIDS/COVID-19 and the spread of sexually transmitted diseases in the SS&ESMP and the training plan. The contractor will train the workers regarding (GBV) and also train workers about sexual harassment, child abuse, and human trafficking for reducing the risk of GBV and the code of conduct.

6.15 Gender Base Violence (GBV), Sexual Exploitation & Abuse (SEA)/Sexual Harassment (SH)

6.15.1 Impacts related to GBV/SEA/SH

Although the influx of workers will be minimal as discussed earlier, new workers (outside of their social spheres) may form close social relationships with local communities. This can lead to



unacceptable and/or illegal behavior, ranging from unwanted aggressive advances, SEA/SH against women and children.

6.15.2 Mitigations related to GBV/SEA/SH

As part of the mitigation strategy, training/orientation sessions will be conducted to sensitize PIU and the Contractor's staff/workers on the importance of addressing GBV/SEA/SH risks at the project level. The contractor will be required to have a written contract with their workers materially consistent with the objective of ESS2, following the procedures as specified in the World Bank's Procurement Regulations. The workers will be required to sign a Code of Conduct (CoC) prepared by the Contractors and reviewed and approved by PIU.

6.16 Violence Against Child (VAG) & Employing Child Labour

6.16.1 Impacts Related to VAG & Child Labour

Although the risks of VAG & child labor are anticipated on the lower side, there may be instances when Contractors hire persons below the age of 18 years. Children hired at labor sites are susceptible to unfair treatment, exploitation and violence because their hiring may be depicted as a favor to them, and they may be talked into not raising complaints for fear of losing a much-needed source of income.

6.16.2 Mitigations Related to VAG & Child Labour

Only persons above the age of 18 years will be hired at construction sites, and their age will be confirmed by checking their government-issued Computerized National Identity Card (CNIC) which is only provided to persons above 18 years. Moreover, for child labour in hazardous work, the minimum age is 18 years and above as specified by the Sindh Prohibition of Employment of Children Act 2017. However, if other labor-related risks arise during project implementation, the PIU will develop procedures to prevent other impacts. This will include awareness-raising sessions, which will be conducted regularly in the communities to sensitize on prohibition and the negative impacts of child and forced Labor.

6.17 Human Resource Development

During the construction stage, the local population would get jobs in the form of semi and unskilled labor. The contractor would ensure that unskilled and skilled labour is paid wages as notified by the Government of Sindh. Due to their interaction with skilled labor, their skills would be developed for future development activities of this kind.

6.18 Road safety Risks and Mitigations

The increased vehicular movement and speed may result in road safety issues like traffic accidents. The impacts on road safety would be permanent and moderately negative. They will be mitigated by enforcing speed limits and imposing penalties on traffic violators. Traffic signs will be provided to facilitate road users about speed limits, turns, speed breakers, informative signage for Socially sensitive receptors, etc.

Warning messages will also be displayed at appropriate locations and local language to aware drivers of likely accidents due to over speeding. All the median and sharp bends will be reflectorized to facilitate travelers in the nighttime.



7. GRIEVANCE REDRESS MECHANISM

7.1 Grievance Redress Mechanism

The GRM is an institutional arrangement that allows stakeholders to address grievances related to the project through a timely, transparent, and predictable process. A grievance is defined as any formal communication that expresses dissatisfaction about an action or lack of action, about the standard of services, works or policy, deficiency of service, works or policy of the project management and its implementation mechanism. During project execution, different issues and constraints may arise. In this situation, if stakeholders have inadequate means to voice and resolve grievances, they may turn to other venues, which may be cumbersome and lengthy, leading to delays in the project. Alternatively, if their grievances remain unresolved or ignored over time, it may lead to inflexibility, stalemate and delays for the project to meet its sustainable development goals.

The SFERP GRM will be gender-responsive, culturally appropriate, and readily accessible to the stakeholders at no cost and without retribution. It will enable Project Affected Persons (PAPs), local communities, employees, and other affected stakeholders to raise grievances and provide suggestions vis the sub-projects, with the project proponents and contractors, and seek redress when they perceive a negative impact arising from the activities. This mechanism serves as a platform to promptly resolve and address community concerns, reduce risks, and strengthen systems and processes, thereby contributing to positive service delivery. Therefore, the complaints/grievances should be addressed through a well-organized GRM covering all activities under the project.

7.2 Objective and Composition of GRM

The principal objective of GRM is to implement and maintain a procedure for handling the environmental and social concerns of the project stakeholders. This procedure will include a redressal mechanism scaled to the project's identified risks and adverse impacts, focusing on stakeholders. Standard Operating Procedures (SOPs) and informational material will be prepared for the SFERP GRM in Urdu, Sindhi and English and made publicly available as soon as the Project begins implementation and before contractors mobilize to sites.

7.2.1 Specific Objectives:

- i. To systematically process complaints received from the PAPs and other stakeholders and provide a prompt, transparent and fair response and resolution without reprisals;
- ii. To provide project staff with practical suggestions/feedback that allows them to be more effective, accountable, transparent, and responsive to beneficiaries;
- iii. Increasing stakeholder involvement in the project
- iv. The GRM is expected to address 4 types of complaints: *Compensation*; *Environmental issues* (e.g. noise, pollution, solid waste management, flora/fauna, etc.); *Social issues* (Exclusion, Inclusion); *GBV*; and *other*.



7.3 GRM Structure

The SFERP -GRM is established at three levels starting from the site, PIU and Project Steering Committee (PSC). The process at each level is defined as under:

7.3.1 Site level Grievance Redress Cell (GR Cell)

At the site level, a GR cell will be established to enter the PAPs concerns/grievances. The Community Liaison Officer (CLO) appointed by the Contractor will be its Focal Person/Convener and be responsible for registering grievances and maintaining all records. Grievance Focal Points (GFPs) will be nominated by the community at each sub-project site. These will be men and women whom the community can easily approach. Grievances can be received by GFPs or the CLO in writing or by word of mouth, and recorded in the grievance register by the CLO. The Grievance Register contents will be kept updated by the CLO and s/he will share the monthly Grievance Register with the Grievance Redress Committee (GRC) at PIU level, so that the GRC can maintain a consolidated record of all Project sites grievances. The contractor and the project manager are responsible for resolving site level grievances. If a grievance remains unresolved, it will be sent in writing by the project manager of each sub-project to GRC.

The responsibilities of GR Cell shall include the following:

1. Review, consider and resolve grievances site level;
2. Conduct fact-finding pertaining to grievances;
3. Resolve grievances within a period of one week;
4. Undertake analysis of data on grievances and use this to make informed decisions;
5. Maintain confidentiality if complainants wish to remain confidential;
6. Maintain an updated GRM database/ Complaints Log;

During the complaint investigation, the GRC works with the Contractor and the PIC. If mitigation measures are identified in the investigation, the Contractor promptly carries out the mitigation. PIC is responsible for ensuring that the Contractor carries out the measures.

7.3.2 Grievance Focal Points

The GFPs will be men and women from each community who will assist and facilitate the community members in reporting grievances resulting from project activities. The GFPs will be provided training by the PIU/PIC in facilitating grievance redress.

GFPs will be identified by the relevant community in consultation with the Social Safeguard team of PIU (SFERP), PIC and CLO. The GFP would be responsible for making the community aware of the following components:

- Inform people about the GRM and how it works, and their options depending on the types of complaint;
- Types of grievances not acceptable/eligible to the GRM;
- Intake channels at the GRM, e.g., phone numbers, postal and email addresses, and website and information that should be included in a complaint;
- Inform the Complainant of the investigation results and the action taken, and option of appeal to PSC if not satisfied with the outcome;



- Two GFPs (a female and a male) will be selected for each sub-project site.

7.3.3 PIU Level GRM

A GRC has been established at SFERP PIU office which shall resolve the grievances of affected persons/parties received at the PIU level. If a grievance remains unresolved at the PIU level despite making best efforts till the stipulated time of 21 days, it will either be retained for another 21 days with prior agreement of the Project Director and the complainant, or sent to PSC for resolution, depending on the GRC's assessment on which is the best option to facilitate a resolution.

The GRC will function as a dedicated body that ensures the grievance redress process is effective and efficient. It will comprise Environmental, Social Safeguard and Gender Specialists of PIU, a Representative of the District Commissioner's office, and community/civil society members from sub-project areas. Its Focal Person/Convener will be the Social Safeguards Specialist. Decisions or findings taken in the GRC would be binding upon the contractor.

The PIU will issue public notices to inform the public about the GRM sub-project area. The contractor will also display prominent signage containing the contact details of GRC in the Sindhi language. The complainant(s) can lodge their grievances through an email, phone (021-99332368), and fax number (021-99332367) at GRC based at PIU.

These phone and fax numbers and email ID will be managed by GRC based at PIU. The Social Safeguard Specialist will be the designated focal person to receive complaint(s) in writing, through calls, fax and emails. The Social Safeguard Specialist will have resources and facilities to maintain a complaints database which will be digitized and available online, and will communicate with the contractor, Site Engineers, and PIC.

Given that female community members have restricted mobility outside their villages and homes, the female PIU staff (Gender Specialist) will be required to visit the local communities to record grievances. The frequency of visits will depend on the nature and magnitude of activity in an area and the frequency of grievances.

The responsibilities of the GRC at PIU are:

1. The Social Safeguard & Resettlement Specialist shall be the focal person for GRC, which is responsible for logging the complaint and date of receipt onto the complaint database and informing the PIC and the Contractor;
2. The GRC will coordinate with local government to receive project-related complaints made directly to them;
3. The GRC shall review, consider and resolve grievances related to environmental and social issues during implementation received at the PIU level;
4. The GRC, with the PIC, is responsible for investigating the complaint to determine its validity and assess whether the source of the problem is due to project activities and identifying appropriate corrective measures. If corrective measures are necessary, GRC, through the PIC, will instruct the Contractor to take necessary action;
5. Resolve grievances presented to the GRC within a period of two weeks;
6. Inform the Complainant of the investigation results and the action taken;
7. Undertake analysis of data on grievances and use this to make informed decisions;

8. GRC decisions, if not acceptable to the complainant(s), can be appealed to the PSC;
9. Maintain an updated online GRM database/Complaints Log.

7.3.4 Appeals at the PSC Level

The PSC will meet on a quarterly basis to hear grievance cases during its regular meetings, and will be convened for special grievance redressal meetings as needed. PSC members and the Secretary will address the grievance with a viable resolution. The below flow chart shows the grievance entry points:

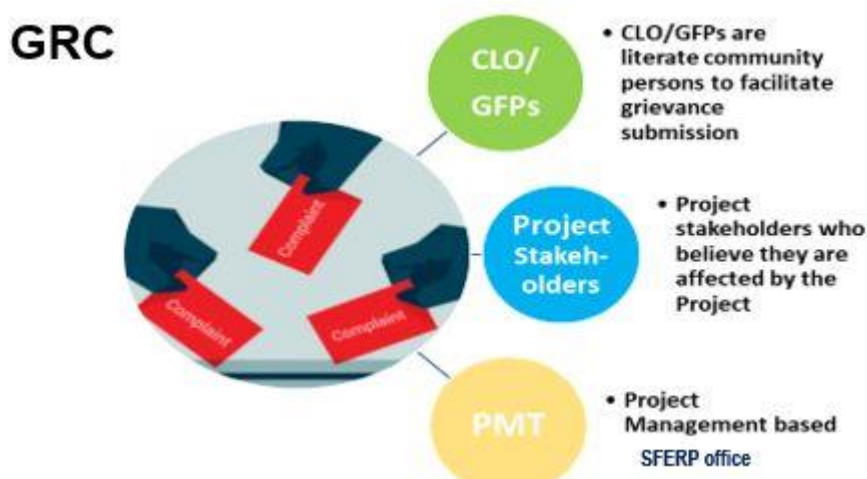


Figure 8: SFERP Grievances Processes

The GRC composition at different levels is given below.

<p><u>SITE Composition</u></p> <ul style="list-style-type: none"> - Community Liaison Officer (CLO) - Convener - Grievance Focal Points (GFPs) - Contractor - Project Manager - Co-opted Members 	<p><u>GRC PIU Composition</u></p> <ul style="list-style-type: none"> - Additional Director - Social Development Specialist - Convener - Environment Specialist - Gender Specialist - PIC Representative (s) - Representative of relevant Deputy Commissioner - Co-opted Members 	<p><u>PSC Composition</u></p> <ul style="list-style-type: none"> - Secretary - Project Director - Representative of relevant Deputy Commissioner - E&S Specialists - Gender Specialist - Co-opted Members
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Grievance Entry Points for Complaint

7.4 GRM for Workers

Community Liaison Officer (CLO) will serve as GFP for labor/workers complaints at site level. If the issue is successfully resolved, no further follow-up is required, and the case shall be



documented and closed. In case the grievance is unresolved at the site/contractor level, the workers may directly approach GRC about their grievance. The prominent signage containing the contact details of GRC in the Sindhi language will be displayed at each site.

7.5 Grievance Redress Mechanisms for GBV and SEA/SH

GRM will integrate mechanisms to track complaints related to SEA/GBV, including a feedback system for regular and timely feedback on actions taken to respond to complaints. These mechanisms will protect confidentiality of individuals without compromising access to justice.

Grievances related to GBV and SEA/SH will always be escalated to the PIU, and will be dealt with by the PIU designated GBV specialist. GBV/SEA related complaints will be communicated to World Bank no later than 48 hours after being received by the GR Cell (site level) or by the GRC (PIU level).

The GRC/PIU will assist GBV survivors by referring them to GBV Services Provider(s) for support immediately after receiving a complaint directly from a survivor. A list of GBV service providers will already be available with the GRC before project work commences. In general, the timeframe for resolution of complaints shall not exceed 21 days.

Grievances related to GBV and SEA/SH will be forwarded to the staff specifically trained to handle these types of complaints. The Social Specialist (as GRC Focal Person) and the Gender Specialist at the PIU will receive the necessary training to handle such sensitive cases.

The GRC will develop specific procedures to ensure complainants are able to register their grievances anonymously, and in a survivor-centered and discreet manner. The GRC will assist GBV survivors by referring them to GBV Services Provider(s) for support immediately after receiving a complaint directly from a survivor.

7.6 Role of Contractor in GRM Complaints Register

The Contractor will maintain a complaint register at the campsite office to document all complaints received from the local communities. The register will also record the measures taken to mitigate these concerns. The final report regarding complaint closing will be communicated to PIC, the project manager is responsible to provide the record to GRC/PIU. The PIU shall carry out the monitoring of the implementation of measures for the eradication of complaints.

7.7 Reporting and Monitoring

The GR Cell will enter the PAPs concerns/grievances at site level. The PIU gender specialist will be responsible for managing GBV and SEA/SH-related complaints at the project/PIU level. SFERP PIU will develop specific procedures to ensure complainants are able to register their grievances confidentially, and in a discreet manner. GBV/SEA related complaints will be communicated to World Bank no later than 48 hours after being received by the GR Cell (site level) or by the GRC (PIU level).

The GRC will record the complaint, investigation, and subsequent actions and results in the monthly Environmental Management and Monitoring reports. In the construction and initial operational periods covered by loan covenants, the PIU will periodically report progress to the



World Bank, including reporting complaints and their resolution. The tracking and documenting of grievance resolutions within the GRC and or PIU will include the following elements:

- i. tracking forms and procedures for gathering information from project personnel and complainant(s);
- ii. computerized grievance database with dedicated staff to update the database routinely;
- iii. systems with the capacity to analyze information to recognize grievance patterns, identify any systemic causes of grievances, promote transparency, publicize how complaints are being handled, and periodically evaluate the overall functioning of the mechanism;
- iv. processes for informing stakeholders about the status of a case; and
- v. procedures to retrieve data for reporting purposes, including the periodic reports to the PIU and GRC, reports into the monthly ESMP Compliance monitoring report to the World Bank.
- vi. An annual qualitative review of all complaints processed (ensuring filters such as gender, type of complaint, resolution status, time taken, intake channel, district/site, etc.) will also be undertaken to analyze the efficacy of the system.

The GRM will be provided the necessary budget required for its efficient functioning.

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8. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

8.1 Objectives

The purpose of the ESMP for the rehabilitation works is to ensure that all necessary identified measures have been adopted to protect the environment and social situations and to comply with the country's environmental and social legislation and applicable World Bank standards. After the preparation of ESMF, PIU has outlined site-specific ESMP for the Contractors and executing agency.

8.2 Institutional Arrangements

8.2.1 Project Management Responsibilities

Implementation of the ESMP will be a contractual obligation between the Contractor and the PIU, SFERP. The Contractor shall engage full-time technical staff capable of carrying out the monitoring activities as proposed in the ESMP as contractual obligations under the contract agreement.

Environmental and Social (E&S) Team of PIU will carry out monitoring activities related to the project during the construction phase by using checklists and notify the Contractor of any violations of the ESMP, check the progress reports, advise the client and contractor regarding any violations which require further action and maintain a record of events and surveys for reference.

The overall responsibility of ESMP implementation for the SFERP lies with E&S Team which is established within PIU to be headed by Project Director (PD).

8.2.2 Project Implementation Unit

The overall responsibility for the supervision of ESMP will rest with the PIU under SFERP will act as the apex body of the project to take care of Social/Gender, Environmental issues and to take policy decisions at the project level. An E&S Team will be hired which will be comprising of Environment Specialist, Social Safeguard/Resettlement Specialist and Gender Specialist

The E&S Team shall be responsible for the supervision of implementing and monitoring the ESMP including GRM. The team shall be answerable to the PD SFERP. The team shall be responsible for the monitoring defined in the ESMP as part of their overall monitoring of social and environmental management. Furthermore, the PIU must ensure that the Suggested Due Diligence measure which has been annexed in Annexure – IV be included in the contract/s.

8.2.3 Construction Supervision Consultant

The Construction Supervision Consultant (CSC) will be engaged by the project proponent who will be responsible for monitoring of the ESMP on behalf of the PIU during the execution of the Civil Works for sub-projects under the SFERP, and shall submit periodic reports. In general, the CSC has the following responsibilities regarding the environmental aspects of the project:

- Review the documents prepared by the Contractor regarding E&S implementation.



- Monitor the implementation of ESMP regularly during the execution of civil works by the Contractor. The CSC must have the following key positions:
 - a) Environmental Specialist
 - b) Social and Resettlement Specialist
 - c) HSE Expert

8.2.4 Contractor Responsibilities

The Contractor will be responsible for the on-field implementation of the ESMP as well as maintaining responsibility for environmental protection liabilities under Sindh Environmental Protection Act, 2014, World Bank ESF 2018, ESMF of SFERP, Stakeholder Engagement Plan (SEP-SFERP) Labour Management Procedures (LMP) for SFERP, Contractor's code of conduct as mentioned in the ESMF and other applicable national as well as provincial policies and regulations. Besides, the contractor has to comply with the suggested measure as annexed in Annexure – IV.

Furthermore, the contractor has to be filled the particulars of employment which have been given in Annexure – V. The Contractor will also be responsible for training his crews on all aspects and implementation of the ESMP. The bid should include an environmental and social mitigation budget as part of the engineering costs of the respective works. The key positions to be filled within the contractor's staff for implementation of the ESMP include:

Environmental; Occupational Health and Safety (OHS) Officers; and Social Expert as Community Liaison Officer.

8.3 Environmental Code of Practices

The objective of the preparation of the Environmental Code of Practices (ECOPs) is to address less significant environmental impacts and all general construction-related impacts for the proposed SFERP sub-project implementation. The ECOPs will provide guidelines for best-operating practices and environmental management guidelines to be followed by the contractors for sustainable management of all environmental issues. This ECOP will be annexed to the general conditions of all the contracts to be carried out under the SFERP project. Detailed E.CoPs can be obtained from the website⁷.

8.4 Contractor's Plans

This ESMP has been prepared before the Contract award, and therefore, certain mitigations, which are dependent upon the methodology chosen by any Contractor to deliver the project, could not be specified in it. For example, haulage routes are dependent upon the exact campsite locations chosen by the Contractor. Therefore, it is required that the Contractor shall prepare site-specific plans before mobilization and implement the plans described below with the help of mitigation measures. Once approved by the CSC Environment Specialist & PIU, these documents will become part of the SSESMP for the Contract.

⁷ <https://documents1.worldbank.org/curated/en/249991468024570005/pdf/E40110V70REVIS00disclosed0100260120.pdf>



8.4.1 Stakeholder Engagement Plan - SFERP

The contractor shall prepare the SEP-specific for the sub-project under the guidelines of SEP or SFERP as well as ESS10 – Stakeholder Engagement and Disclosure. The SEP outlines ways in which the PIU will communicate with stakeholders and includes a mechanism by which people can raise concerns, provide feedback, or make complaints about project activities. The plan shall also ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible, and appropriate manner and format.

8.4.2 Labour Management Plan

The contractor shall be prepared and get approval from PIU for the LMP and its implementation. The LMP will adhere to Labour Management Procedures, which have been approved for SFERP. These procedures have been developed to manage risks under the SFERP funded by World Bank. The LMP will set out the project's approach consistent with national requirements as well as the objectives of the relevant World Bank's Environmental and Social Standards on Labor and Working Conditions (ESS2).

8.4.3 Camp Management Plan

The contractor camp management shall provide all details of social facilities, including dormitories, washrooms for labor, cooking areas, dining facilities, prayer areas, septic tanks, drinking water, and other necessary facilities.

8.4.4 Communicable Diseases Prevention Plan

The contractor shall provide the details of prevention measures, and arrangements planned for the Communicable Diseases Prevention including Management of COVID-19. The Plan shall include the details of the designated quarantine area, disinfection facilities for Vehicles, and inventory arriving on site. The plan shall also include necessary supplies, such as facemasks, soap, hand sanitizers, temperature-monitoring infrared guns, etc. Disposal of COVID-19-related waste plans should also be prepared.

8.4.5 Pollution (air, land, and water) Control Plan

The Contractor shall provide details of the principal pollution control facilities proposed and of contingency plans in the event of failure of these facilities. The contractor must follow ESS3 – Resource Efficiency and Pollution Prevention and Management while formulating the plan before the start of civil work.

The plan shall include the details of the designated and licensed tip, oil treatment facilities and hazardous waste disposal sites that shall be used to dispose of waste. The plan shall also include Environmental effects monitoring.

8.4.6 Waste Management Plan

The Contractor shall include details of the procedures for the collection and disposal of wastes. The Plan shall deal with each waste stream separately. Waste Management Plan (WMP) will be prepared and implemented by the Contractor based on ECOPs 1, 2, 4 & 10 and WBG EHS Guidelines (2007), as well as the mitigation plans given in the report. The Plan will include the camp layout, and details of various facilities including supplies, storage, and disposal.



8.4.7 Traffic Management Plan

The basis of the site-specific Traffic Management Plan (TMP) and further information is to be provided. The Contractor is required to provide further details once camp/worksites locations and material sources are finalized. The Traffic Management Plan must include details of the proposed access routes to the project area as well as haulage and access routes throughout the project area (including access to and from borrow pits).

8.4.8 Plan for Handling of Hazardous Materials

The Contractor shall identify control measures to ensure no environmental or health impacts from the handling of hazardous materials and the collection and safe disposal of hazardous materials (this may be included within the Pollution Control Plan).

8.4.9 Occupational Health and Safety

Upon mobilization, the Contractor shall prepare an Occupational Health and Safety Plan following ESS4 – Community Health and Safety & Sindh Occupational Safety and Health act 2017, which shall be relevant to his chosen methodology. This plan shall detail the following:

- Health and safety management structure, responsibilities, supervision and reporting scheme
- Health and safety goals for the project
- Identification of potential hazards (health risks, safety risks)
- Proposed measures to reduce the risk of identified hazards
- Arrangements to implement such measures
- A system for reporting and investigating accidents, incidents and near misses
- A plan for emergency transfer of staff or public from the site to medical facilities
- Fire and emergency procedures
- Site security.

8.4.10 Environmental and Social Awareness Training Plan

This shall include details of the Contractor's environmental and social awareness training program proposed for the workforce. Details are given in Table – 17 given below.

8.4.11 Emergency Response Plan

The contractor will prepare an emergency plan to address emergencies/events such as fire, floods, earthquakes, accidents, and death/injury. The Plan will include the following details:

- Contacting the relevant agency (e.g., Fire Brigade)
- Procedure for the shutdown of the site;
- Indicators on-site that shall prompt the shutdown of areas of work (linked to natural events)
- Emergency evacuation procedure of staff and members of the public within range of likely impact.)



Table 17: Environmental and Social Awareness Training Plan

Areas of Training	Key Aspects to be Covered	Target Group	Frequency	Budget.
Environment, Social Safeguards	<p>a. Environmental and social awareness on ESS;</p> <p>b. Key environmental and social issues associated with the project and subprojects ESMP and findings;</p> <p>c. Subproject monitoring and reporting;</p> <p>d. Occupational Health and Safety Issues associated with Construction.</p> <p>e. Grievance Redress Mechanism implementation</p> <p>f. GBV/SEA/SH</p> <p>g. Child Labor</p> <p>h. Resource Efficiency and Conservation</p> <p>i. Safety measures for communicable diseases</p> <p>j. Water conservation and optimal resource use, Awareness regarding open defecation and better WASH practices for relevant community</p> <p>k. Identifications, conservation and precautionary measures of wildlife.</p>	PIU, Contractor staff as well as relevant communities	Before project/physical works commencement, during construction and after construction.	A total of eleven types of training for the proposed sub-project is to be conducted.

8.5 Compliance and Effects Monitoring

PIU shall carry out monitoring within the sub-project area using the monitoring checklists to be prepared based on this mitigation and monitoring plan to aid the monitoring process, the Contractor will complete the following:

- Train construction staff for the implementation of the ESMP and safety measures.
- Submit various progress reports to the Environmental and Social Specialists of PIU.
- Explain the implementation of various environmental aspects to visiting national and international agencies and representatives of the donor.
- Receive monitoring reports/notes issued and take action to mitigate various violations of ESMP.
- Regularly submit Reports to PIU Environment Specialists about compliance with the ESMP and various issues related to the HSE including but not limited to the following:
 - OHS Measures adopted (OHS statistics)
 - Fuel and hazardous material consumption
 - Workforce statistics (employment/deployment etc.)
 - Compliance monitoring to check whether the actions proposed in the ESMMP are being carried out.
 - Effects monitoring to record the impacts of mitigation measures adopted on the biophysical and social environment; as applicable, these effects are repeatedly measured.

E&S team – PIU, will complete compliance monitoring. The effects monitoring shall be the responsibility of CSC. Examples of compliance and effects monitoring parameters are



included in the Box below. Both approaches will be conducted using the monitoring parameters by visual observation, photographic documentation, and measurement where necessary. A record of events and surveys will be maintained.

8.6 Environmental Non-compliances and Corrective Measures

The Contractor will be notified of any violations of the ESMP, as well as any corrective actions required. Outlined below are some steps, relating to the increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

Step 1. PIU and Contractor to work out mitigations together and record the facts and the decision implemented.

Step 2. A more serious infringement is observed and PIU notifies the Contractor of the issues in writing, with a deadline by which the problem must be rectified. All costs will be borne by the Contractor.

Step 3. PIU shall order the Contractor to suspend part, or all, of the works. The suspension will be enforced until the offending parties, procedure, or equipment is corrected and/or remedial measures put in place if required. No extension of time will be granted for such delays and all costs will be borne by the Contractor.

Step 4. Breach of contract - One of the possible consequences of this is the removal of a Contractor and/or equipment and/or the termination of the contract. Such measures will not replace any legal proceedings that PIU may institute against the Contractor.

8.7 Communication Reporting and Documentation

The following environmental meetings are proposed:

- Primary meetings between the E & S team of PIU and the Contractor for setting out the format for the regular meetings shall be held before the commencement of the project.
- Scheduled Environmental and Social Progress Review Meeting (ESRPM) meetings between the team PIU and the Contractor shall be done every regular intervals.

The purpose of the meetings is to discuss the conduct of the operation, non-compliances noted by the environmental and social teams and measures recommended for their remedy. The Contractor and PIU will produce monthly, quarterly and work completion reports of the sub-projects based on social and environmental issues. The distribution of the reports shall be to PIU and World Bank.



Box 1

(i) Compliance Monitoring:

- Frequency of anti-dust water sprays during construction period;
- Installation of signage regarding community health and safety
- Safety at workplaces and working hours during construction;
- Incidence of liquid/solid waste in the vicinity of work camps (type and amount of waste, amount, interference with local residents, fauna, flora and crops);
- Plantation of saplings of new trees against trees cut
- Survival rate of saplings of new trees
- Arrangements made at construction sites for protection of floral and faunal resources
- Assurance of installation of signage regarding community health and safety

(ii) Environmental Effects Monitoring

- Ambient air quality (Particulate matter) during construction phase;
- Surface water quality during construction phase especially at diversion sites
- Ground water quality at camp sites;
- Ground water table at construction sites;
- Number of patients suffering from malaria, cholera, diarrhea, respiratory ailments during construction phase
- Noise levels (in dBA), monitored at fixed locations and planned schedule during construction
- Extent and degree of functionality of diversion channels to ensure un-interrupted water supply;

(iii) Social Effects Monitoring

- Number of local people recruited on project works.
- Incidence of child labour and disproportionate wages
- Conflict at community level
- Chance find archaeological site
- Grievance redressal mechanism is in place
- Health screening of labour at site
- Contractor's staff sensitized on GBV

A photographic record of the project area shall be kept. The contractor, E&S-PIU will take photographs at key locations using a digital camera of the project area in a walkthrough survey the following data shall be recorded for each photograph:

- Shot number
- All the photographs will be referenced with GPS Coordinates
- Title of photograph
- Date and Time, and
- Photographic features.

The photographic record shall be incorporated into the monthly reports.

Complaints Register. The Contractor will maintain a complaint register at the campsite and workplaces to document all complaints received from the local communities. The register will also record the measures taken to mitigate the reported concerns. The final report will be communicated to the E&S team of PIU. All complaints/issues of the community will be reported in the monthly progress report of the following month along with the status of the last month's complaints and will be reviewed by the E&S team of PIU.



Moreover, telephone numbers and addresses of all concerned tiers within the GRM would be displayed in Sindhi and Urdu at all sites, and the same would be distributed in community training/meetings.

Complaints Register Ties in with the Project GRM

The stakeholder's or affected people's concerns, complaints and grievances about sub-the project's environmental & social performance will be received, recorded and replied to in a systematic way using an understandable and transparent process that is gender-responsive, culturally appropriate and readily accessible to all segments of the affected people at no cost and without retribution.

Change Record Register. A review of this ESMP will be triggered in two scenarios:

- A change to the designs deviates from the parameters that are safeguarded in this ESMP.
- A discovery in the baseline socio-environmental conditions, which is not recognized or covered by this ESMP.

In the event of either scenario, the ESMP shall be updated and reissued accordingly. The Contractor and PIU to document any change in the project design/operation shall maintain the design change record.

8.8 Environmental and Social Management and Monitoring Cost

The implementation of the ESMP involves inputs from Construction Contractor (CC), CSC and PIU. The CC will be primarily responsible for ensuring the implementation of mitigation measures proposed in the ESMP, which will be part of the contract documents. Hence, the provision of environmental mitigation cost as a separate head in BOQs will be made mandatory in contract documents.

However, if the CC fails to comply with the implementation of ESMP and reporting properly, the proponent will enforce compliance with the terms of the contract, including adherence to the ESMP. For the smooth execution of ESMP implementation activities, it has been recommended that all the bills/payments related to ESMP implementation will be approved/authenticated by the CSC Env & Social. ESMP implementation cost will be deducted from Interim Payment Certificates (IPC) until compliance has been done.

The cost of PKRs. 6,682,000/- budget for the implementation (for one year estimation) of the ESMP has been allocated. The breakup of the cost is given in Table 18. The ESMP cost included the cost of the protective measures which will be adopted for working near the socially sensitive receptors.



Table 18: Cost of Environmental & Social Management and Monitoring Cost

Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Quantity/ year	no of units	Total Quantity	Estimated Amount (Rs.)
A. Baseline Environmental Monitoring Before Start of Civil Works								
1	Surface Water	Construction near water body	Once Before Start of Civil Works	15,000	1	4	4	60,000
2	Drinking Water	one from camp area and other from road due to presence of settlements near to subproject area		15,000	1	5	5	75,000
3	Ambient Air from Batching/Asphalt plant area	One from the proposed camp area, one each from roads		20,000	1	5	5	100,000
4	Ambient Noise	2 from each road/nearby sensitive receptor		1,000	2	5	10	10,000
Sub Total - A								245,000
B. Environmental Monitoring Cost During Construction Phase (12 months)								
5	Surface Water	Construction near water bod	Once every in four months	15,000	3	4	12	180,000
6	Drinking Water	one from camp area and other from road due to presence of settlements near to subproject area		15,000	3	5	15	225,000
7	Ambient Air from Batching/Asphalt plant area	One from the camp area & other from road due to presence of socially sensitive receptors		20,000	3	5	15	300,000
8	Ambient Noise	nearby sensitive receptors/as per community demand		1,000	3	4	12	12,000
9	Machinery/Stack emissions	.						200,000
Sub Total - B								917,000
C. EHS Management								
10	Personal Protective Equipment		Bi annual	5,000	2	50	100	500,000
11	Fire Fighting Equipment purchase and refilling						Lump sum	100,000
12	Soft and Hard Landscaping - Plantation Plan						Lump sum	100,000
Sub Total - C								700,000
D. EHS Administrative Cost								
13	Training/Capacity Building		50 persons	2,000	2	1	100	200,000
14	Social Expert (for social compliance & GRM implementation) Salary			120,000	12	1	12	1,440,000
15	GRM running & General Community support needs (if any)		including general protective measures near the socially sensitive receptors				Lump sum	300,000
16	Environmental & OHS Officer Salaries (120 thousand for each person)			120,000	12	2	24	2,880,000
Sub Total - D								4,820,000
TOTAL OF (A TO D)								6,682,000



Table 19: Environmental & Social Management Plan

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
A. DESIGN PHASE									
A.1. Design / pre-construction considerations									
A.1.1	pre-construction considerations	A.1.1.1	Slope Instability	Excavated Material Disposal Plan to include a siting and detailed assessment of the suitability of the proposed excavated materials disposal site	PIU	SFERP	All excavated surplus materials are to be disposed of in designated sites.	Once at the end of the design stage	SFERP Office
		A.1.1.2	Compliance to ESMP	Consideration of EMP in preparation for the detailed design and bid documents.	PIU	SFERP	Added ESMP in contract documents	Before the tendering	SFERP Office
		A.1.1.3	Baseline Environmental Monitoring	As per the monitoring plan given in ESMP before the start of the civil works as per SEQS	CC	CSC	Compliance to ESMP	Once before the start of the works	Sub-project areas
		A.1.1.4	Geology and seismology	Stone pitching of the degraded reaches	PIU	SFERP	Emergency Preparedness Plan in place before the commencement of construction.	Once at the end of the design stage	SFERP Office



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
		A.1.1.5	Public Consultations in rural semi-urban areas	Stakeholder Engagement Plan (SEP) has been prepared for the SFERP and will be implemented in the sub-project. Stakeholder consultations will be conducted throughout the project implementation. Full-time CSC Social Expert will be engaged for the proposed project. The CSC Social Expert will exchange rehabilitation work to roadside landowners, the period of access restriction, and the measures taken to allow movement around the construction work	CC	PIU	Implementation of SEP	Once at the end of the design stage	Sub-project areas
B. CONSTRUCTION PHASE									
B.1. Site Preparation and Clearance									
B.1.1	Site preparation	B.1.1.1	Top Soil Erosion	PIU will prepare earthworks the checklist that defines the contractor, and limits to the excavation during road rehabilitation. Instructions for topsoil management will also be defined, including the removal and storage of all topsoil to be used in landscaping, once the road work is completed. The use of soil from private land will be minimized and only after consultation with and compensation of landowners.	CC	PIU & CSC	Approved Plans and comply with ESS1	During the Planning phase, in parallel with the preparation of bid documents	At any locations where borrow pits, and quarries will be operated.



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				Vegetation clearance shall be limited to the area required for work.	CC	PIU & CSC	Written approval for cutting marked trees before cutting	Weekly	Same as above
				use of existing accessing tracks	CC	PIU & CSC	No tree-cutting on temporary haul routes	Weekly	Same as above
B.1.2	Disposal of Excavated Material	B.1.2.1	Identification of re-use of excavated material on site, to reduce off-site effects	All excavated materials are to be disposed of in designated sites as per the approved waste management plan the Plan shall deal with each waste stream separately	CC	PIU & CSC	Comply with approved WMP as per ESS1 – Assessment and Management of Environmental and Social Risks and Impacts, ESS3 – Resource Efficiency and Pollution Prevention and Management & ECOPs 1, 2, 4 & 10 and WBG EHS Guidelines (2007). Community complaints; Monitoring record	Monthly	Same as above
		B.1.2.2	Community Disturbance	Community liaison will be maintained during the construction stage and GRM will be established to address complaints.	CC	PIU & CSC		Monthly	Same as above
			Noise	Limiting working hours to between 9 am and 5 pm, six days a week. The campsite/s shall be situated at least 500m from any settlement. The affected communities will carry out on-demand noise monitoring in case of any complaint or request. Additional mitigation measures will be identified and implemented in case the noise levels exceed the permissible limits of SEQS. Community liaison will be maintained to ensure that complaints and grievances are addressed as soon as	CC	PIU & CSC		Monthly	Same as above



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				possible.					
		B.1.2.3	Damage to existing infrastructure Need to relocate infrastructure such as electricity transmission lines	Currently, no public infrastructure is observed which creates hindrances in the execution of the work. All damaged/removed infrastructures will be repaired/restored to their original or better condition. Community liaison to be maintained.	CC	PIU & CSC		Monthly	Along the alignment
B.2. Construction and Labor Camps									
B.2.1	Locating Camp	B.2.1.1	Community disturbance	Locate the camp at least 500m away from the communities. Community consultations will be carried out and liaison will be maintained. GRM to be established to address related complaints.	CC	PIU & CSC	Review of Camp layout plan	Once	Campsite
			Loss of flora and fauna	Submit layout plans for the camp for the approval of the Engineer before the construction of the camp	CC	PIU & CSC	Construction of campsite: do not begin before approval of the layout plan. As per ECOP 3:	Once before camp establishment.	Same as above
			Surface water pollution	Locate camps away from the waterbody, canal, watercourses, etc.	CC	PIU & CSC			
B.2.2	Supply of Drinking Water	B.2.2.1	Depletion of local drinking water resources	The contractor shall make his arrangements for the supply of water ensuring water supply and availability to local communities is unaffected.	CC	PIU & CSC	The contractor is not using public water resources	Monthly	Along the alignment
		B.2.2.2	Spread of the disease through the unsuitable water supply	Provision of safe drinking water and monthly testing according to the SEQS-16	CC	PIU & CSC	Comply with SEQS	Monthly	Same as above



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
B.2.3	Water contaminations	B.2.3.1	Construction of impermeable layer	Suitable latrines (septic tanks etc.) and washing facilities are provided in the camps	CC	PIU & CSC	Latrines are provided at each camp	Once	Construction Camp
				Lined washing facilities including a shower, are available near each latrine, including clean running water, soap and drying facilities.	CC	PIU & CSC	Suitable washing facilities are provided at each camp	Once	Same as above
	Diversion of Water channels/water course	B.2.3.2	Inadequate diversion of canal/water course will affect the water supply to agricultural land of communities living nearby, which may create a social issue.	Schedules for construction activities along the water body have to be prepared with the consultation of the local community and active GRC needs to operate all the time	CC	PIU & CSC	adequate-sized diversion	Monthly	Along the alignment
B.2.4	Accidents and Emergencies	B.2.4.1	Emergency Response	The contractor shall prepare a shutdown procedure and evacuation plan	CC	PIU & CSC	Approved Plan as per ECOP 10: Construction Camp Management	Once	All active work sites
				Emergency Response Plan to man-made and natural disasters (including rains, urban floods, fire, etc.)	CC	PIU & CSC	Annual evacuation drill	Quarterly	Same as above
				Emergency access routes shall be signed and maintained	CC	PIU & CSC	Emergency access routes are clear and signed	Monthly	Same as above
				Fire extinguishers are to be provided throughout the camp	CC	PIU & CSC	Fire extinguishers provided	Monthly	Same as above
B.2.5	Security	B.2.5.1	Conflict with local communities, attack on staff	Security for avoiding any conflict with local communities	CC	PIU & CSC	Fencing and security. The entrance to the	Monthly	Same as above



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
							camp shall be monitored and restricted		
				Preparation and Implementation of communication strategy	CC	PIU & CSC	Approval of Communication Strategy	Once	
				The contractor shall provide all staff with Identity Cards showing their association with the project	CC	PIU & CSC		Monthly	All active work sites
				Sindh-speaking staff to be available at all active work sites to communicate with the local community	CC	PIU & CSC	Sindh staff available at all active work sites	Monthly	Same as above
				The Contractor shall include in the Emergency Plan, a procedure for emergency evacuation of camp and practice this procedure	CC	PIU & CSC	Plan submitted and approved	Once	Camp area
B.2.6	Restoration	B.2.6.1	Change in Landscape after the closure of works	All temporary facilities shall be removed by the Contractor after the completion of the works	CC	PIU & CSC	Temporary facilities are removed on completion of works	Once	Same as above
B.3. Storage of Material									
B.3.1	Stockpile Storage of Materials	B.3.1.1	Increase in particulate matter	Proper covered storage. Water sprinkling of any uncovered stockpile where dust is generated	CC	PIU & CSC	No dust generated from stockpiles	Monthly	Stockpiles
B.3.2	Storage of Hazardous Materials	B.3.2.1	Health and safety due to improper use of hazardous material	Fuel tanks and other hazardous material storage containers will be properly marked to highlight their contents.	CC	PIU & CSC	Comply with the approved Plan for Handling of Hazardous Materials while adhering ECP2	Monthly	Hazardous material storage areas



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				Hazardous areas to be secure and access limited to trained personnel only	CC	PIU & CSC	Untrained personnel are not accessing hazardous storage areas	Monthly	Hazardous material storage areas
				Provide fire extinguishers	CC	PIU & CSC	Fire extinguishers are provided	Monthly	
				Provide and enforce the use of PPEs as per the Contractor's Health and Safety Plan	CC	PIU & CSC	PPEs used	Monthly	
		B.3.2.3	Health and Safety and Pollution	An oil-designated storage area used	CC	PIU & CSC	Stockpiles only in storage areas identified in the camp layout plan	Monthly	Sub-Project area
		Training on handling, use and disposal of hazardous material must be given to all those with access to the hazardous material area		CC	PIU & CSC	Training as per the Contractor's approved training plan	Monthly	Hazardous material storage area	
B.4. Waste Management									
B.4.1	Disposal of sanitary wastes using the municipal system (if available)	B.4.1.1	Introduction of Inappropriate Contaminants or Waste Volume to Municipal System	Testing of wastes and submission of results to the Engineer.	CC	PIU & CSC	Test results show waste is within SEQS limit for pre-treatment	Quarterly	Construction camp/s
				Written consent from the operator of the municipal system submitted to the Engineer	CC	PIU & CSC	Consent submitted	Once	
		B.4.1.2	Use of municipal system which falls below SEQS standards	All waste should be dispose of through SEPA certified vendor (They should be compliance and having expertise for handling and disposal the waste	CC	PIU & CSC	The government-approved system used	Once	



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
B.4.2	Collection of domestic wastes	B.4.2.1	Surface and groundwater pollution	Provide garbage bins within all camps for domestic wastes	CC	PIU & CSC	Provision of bins	Monthly	
B.4.3	Disposal of domestic wastes using Municipal facilities.	B.4.3.1	Ground and groundwater pollution, the spread of disease	Domestic waste shall be collected from waste bins on alternate days and transported by tractor trolley to dispose of in a nearby Municipal facility. A written agreement shall be made between the Municipal operator and contractor for the disposal of domestic waste.	CC	PIU & CSC	License or Written agreement b/w Municipal operator and Contractor checked.	Monthly	Licensed site.
B.4.4	Disposal of medical wastes	B.4.4.1	Surface water pollution, health and safety of staff and public.	Medical wastes will be stored on site The contractor will engage a third-party contractor for the treatment and ultimate disposal of medical waste in a controlled manner.	CC	PIU & CSC	No medical waste in the municipal facility.	Monthly	Collection point
B.4.5	Disposal of hazardous wastes	B.4.5.1	Ground, groundwater and surface water pollution, health and safety	Hazardous wastes are to be passed to licensed contractors, or, available wastes are to be stored in long-term storage facilities meeting the requirement of hazardous material storage area to be taken on client following construction. Details are to be provided in the pollution plan to the Engineer.	CC	PIU & CSC	As per approval of the Plan and guidelines set by ECOP 1: Waste Management. ECOP 2: Fuels and Hazardous Substances Management to meet the ESS1 & 3	Once	Collection point
B.4.6	Closure of works	B.4.6.1	Ground, groundwater and surface water pollution, health and safety.	All solid wastes shall be removed from the project area on completion of works	CC	PIU & CSC	All solid wastes disposed of or removed from the site	Once	Sub-Project area



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
B.5. Construction Plant and Vehicles									
B.5.1	Movement/operation of vehicles on site	B.5.1.1	Air pollution	All vehicles are regular services as per manufacturers' requirements	CC	PIU & CSC	Black smoke was not observed emitting from Vehicles/plant	Quarterly	Sub-Project area
		B.5.1.2	Generation of dust	The access road is to be adequately compacted or regularly sprinkled to prevent dust generation during use	CC	PIU & CSC	Dust not reaching the settlements in the project area		Settlement in the Sub-project area
			Soil and Groundwater pollution	Vehicles/plants will be checked daily for fuel oils and leaks and fixed as required	CC	PIU & CSC	No fuel oil leaks were observed from the plant/vehicle		Sub-Project area
		B.5.1.3	Safety of the community, other road users, fauna and staff	Vehicle speed is limited to 15km/hr.	CC	PIU & CSC	Submittal and approval of the plan	Once	
				Safe driving practices included in Contractor's training plan	CC	PIU & CSC	Training as per the approved plan	Monthly	Sub-Project area
				Flag persons to be provided where plant cross/meet the village road	CC	PIU & CSC	Flag persons provided	Monthly	Road approaching and crossing
				The contractor's Community Liaison Officer collaborates with communities to identify Socially sensitive areas and inform communities before the movement of large plant	CC	PIU & CSC	No complaints were received from the communities	Monthly	Settlement in the project area
				Vehicles with restricted rear visibility to be fitted with an audible backup alarm or provided with banks men	CC	PIU & CSC	Back-up alarms or banks men provided	Monthly	Project area
				Driving in the project area after nightfall is prohibited except on public highways	CC	PIU & CSC	No driving after dark	Monthly	Haul roads and temporary access roads



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
			Damage to public infrastructure	Damage to roads, infrastructure and property was immediately repaired/compensated by the Contractor	CC	PIU & CSC	No damage to roads/infrastructure	Monthly	Public roads
				Use of horns is prohibited near the settlement	CC	PIU & CSC	Nor horns were heard at the settlement	Monthly	Settlement in the project area
			Disturbance of Fauna	Biodiversity monitoring of impacts on fauna	CC	PIU & CSC	Status and behavior of terrestrial and avian-fauna	Quarterly	Sub-Project area
			Reduction in access to women and girls	Avoid routes used by women and girls as far as possible, if unavoidable, identify alternate routes for women and girls	CC	PIU & CSC	No complaints were received from women and girls	Monthly	
B.5.2	Deliveries to Site	B.5.2.1	Dust	Covered transportation of loose materials	CC	PIU & CSC	No dust generation from delivered materials	Monthly	Approach roads
		B.5.2.3	Community disturbance increase in traffic	Traffic management plan to be submitted to Engineer for approval and to include routes for delivery vehicles	CC	PIU & CSC	Submittal and approval of plan TMP as per ECOP 9: Road Transport and Road Traffic Management to address ESS 4	Once	
				Deliveries should be carried out during normal working hours and prohibited at night if unavoidable then follow the nighttime working protocols.	CC	PIU & CSC	No deliveries were carried out at the night.	Monthly	Construction camp
				Delivery vehicles are prohibited from queuing on public roads	CC	PIU & CSC	No queuing delivery vehicles on public roads	Monthly	Same as the above



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
B.5.3	Road/access Closure	B.5.3.1	Community disturbance increase in traffic	Flag persons are to be provided where the plant cross/meet the village road.	CC	PIU & CSC	Flag persons provided	Weekly	At road partial closure
				The contractor's Community Liaison Officer collaborates with communities to identify the sensitive areas and inform communities before movement.	CC	PIU & CSC	No complaint received	Monthly	Settlement in the project area
				Request for road closure must be approved by the relevant authority	CC	PIU & CSC	As per Approved TMP	Once for each closure	Throughout construction period
B.6. Health and Safety of The Workforce									
B.6.1	General construction works	B.6.1.1	Health and safety of provisions	The contractor shall prepare and submit occupational health and safety plan. This plan will need to describe all jobs, their risks, and the controls that will reduce risks; these controls may include PPE, restrictions on activities or locations, and other measures. Those who work near water, with heavy equipment will need special training so those hazards can be managed. The contractor will ensure the use of Personal Protective Equipment (PPE) for his labours during the construction period; To overcome the drinking water contamination issue, at each construction camp, the contractor shall install a solar-	CC	PIU & CSC	Submittal and approval of Labour Management plan as per the guidelines provided in Labour Management Procedure of SFERP to comply with the ESS 2. The number of reported accidents. The number of reported near-misses. Non-compliance observed. Community complaints.	Regularly	Sub-Project area



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				operated domestic water filter/150GDP with Ultraviolet (UV) to ensure safe and healthy drinking water for the workforce. The Contractor will display sign boards and banners about traffic diversion at places on detour routes; Community liaison will be maintained during the construction stage and GRM will be established to address complaints related to safety hazards.					
		B.6.2.1	Health and safety of Staff	The contractor will submit an accident report to the Engineer following an accident on site. The report must detail actions to be taken to reduce the risk of occurrence	CC	PIU & CSC	Submittal of the accident report	Monthly	Same as above
				Qualified health and safety manager will be appointed by the Contractor	CC	PIU & CSC	Qualified health & safety manager present on site	Monthly	Same as above
				The contractor shall engage a full-time first-aider on-site Contractor to have the on-call doctor	CC	PIU & CSC	On-site Presence of qualified Doctor	Monthly	Same as above



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				Provision of the dispensary for the treatment of staff. Dispensary to be stocked with appropriate medicines for likely incidents, diseases and ailments to have occurred on site. Stock is to be replenished as necessary.	CC	PIU & CSC	Dispensary available on-site and regularly restocked	Monthly	Same as above
B.7 Rehabilitation of rain-affected roads/ Works									
B.7.1	Rehabilitation works along water body/water crossing structures	B.7.1.1	Flooding	Prefer given not to work during rainy seasons Provide alternative drainage for rainwater if earthworks fill established drainage lines	CC	PIU & CSC	alternative drainage is provided	Monthly	Same as above
B.7.2	Formation of Borrow Areas	B.7.2.1	Habitat loss	The borrow Area Management Plan has to be prepared before the start of the civil work. Borrow areas shall not be established in the agriculture active land	CC	PIU & CSC	Borrow Area Management Plan. Borrow areas are not established in the agriculture-active lands.	Weekly	Borrow Area
		B.7.2.2	Borrowing from toes of embankments	The material shall not be borrowed from the outer and inner toe of the embankments	CC	PIU & CSC	Material is not borrowed from the toe of the embankments	Weekly	Borrow Area
		B.7.2.3	Borrow areas in environmentally sensitive sites	Borrow areas shall not be established in the wetlands, forest and any other environmental and socially sensitive areas	CC	PIU & CSC	Borrow areas are not established in the environmental and socially sensitive sites	Weekly	Same as above
		B.7.2.4	Restoration/rehabilitation of borrowed areas	Restoration of borrowed areas	CC	PIU & CSC	Borrow areas are restored to their original condition if situated on the	Monthly	Same as above



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
							private land		
				Community liaison to be maintained. GRM to be established to address related complaints.	CC	PIU & CSC	Number of complaints	Regularly	Borrow Area
B.7.3	Access to Borrow Areas	B.7.3.1	Impacts on flora and fauna	available/existing access routes shall be followed	CC	PIU & CSC	existing access routes are followed	Weekly	Sub-Project area
		B.7.3.2	Impacts on agriculture land and crops	access routes in agricultural land shall be avoided	CC	PIU & CSC	Same as above	Weekly	Same as above
		B.7.3.3	if access route in the agricultural land is unavoidable, the owner of the land and crop shall be compensated	Compensation to the affected person shall be paid	CC	PIU & CSC	the affected person is compensated	Weekly	
B.7.4	Restoration of borrowed areas	B.7.4.1	Loss of habitat and landscape change	Potential for shallow wetland creation shall be maximized by the limited restored depth of borrow area to 0.3m	CC	PIU & CSC		Monthly	
		B.7.4.2	Loss of topsoil	Spread stockpiled topsoil (where topsoil is unsuitable for the formation of rehabilitation work) over borrow areas	CC	PIU & CSC		Weekly	
B.8 Archaeology and Cultural Sites									
B.8.1	Construction near religious sites	B.8.1.1	Community disturbance	All works excluded from mosques and Graveyards at the Project Site. (Spiritual Place for local people).	CC	PIU & CSC	Compliance with ESS8 – Cultural Heritage by adopting the ECOP 11: Cultural and Religious Issues. All works excluded from the identified	Monthly	Sub-Project area



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
							locations		
				Works do not block access to sites	CC	PIU & CSC	access to the sites is not blocked	Daily	Same as above
B.8.2	Discovery of unidentified cultural or religious site	B.8.2.1	Community disturbance	The contractor shall not trespass into the site, shall exclude all works and immediately inform the Site Engineer	CC	PIU & CSC	The engineer informed of the discovery of unidentified cultural or religious sites	Monthly	Same as above
				Community liaison to be maintained. GRM to be established to address related complaints.	CC	PIU & CSC	Number of complaints	regularly	Same as above
B.8.3	Chance find	B. 8.3.1		In the case of a chance find, the contractor will secure the site and report immediately to PIU. Works may not recommence until the Engineer approves. Site visits of the Culture Tourism & Antiquities Department, Govt of Sindh will be facilitated. Further works will be carried out on such sites only after obtaining clearance from the Department	CC, CSC	PIU & Culture Tourism & Antiquities Department, Govt of Sindh	Chance find	As or when	Same as above
B9. Safety/Health Measures for The Local Population									
B 9.1	The local population living within/near the sub-project especially	B 9.1.1	Accident risks, particularly for the local population living within/near the subproject especially	Restriction on movement of machinery on the designated haulage routes for transportation of materials. Public awareness campaigns through displaying signboards	CC	PIU & CSC	Number of complaints to ensure compliance with ESS4 – Community Health and Safety	regularly	Same as above



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
	women, children and elderly people		women, children and elderly people; Public awareness campaigns through displaying signboards at site and haulage routes; Vulnerability to accidents; Deterioration of health due to dust	<p>at the site and haulage routes. Interaction with the community; Setting up speed limits (not more than 15 Km in work areas); Availability of first aid box for locals; Strict enforcement keeping non-working persons, particularly children, away from work sites; Adequate signage to manage traffic at sites, haulage and access roads; Ensure water sprinkling. (ECoP 12)</p> <p>For Community Female Members:</p> <ul style="list-style-type: none"> •Awareness should be created among the local community including females about the construction work. •Workers should not be allowed to crowd in the residential communities within the site. •Alternative routes for pedestrians should be provided to avoid mixing women with workers. •Raise awareness among the communities of the potential risks of GBV, SEA, and SH and establish links with response services in the nearby communities that can respond to instances of GBV (particularly those related to issues of labour influx). •Contractor should take proper 					



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				measures to address and resolve issues relating to harassment, intimidation, and exploitation, especially against women. •Measures to prevent GBV, SEA and SH the Contractor must include relevant clauses in the workers' code of conduct. •Development and implementation of grievance redress/stakeholder response mechanism procedures to ensure timely handling of grievances.					
C. OPERATION PHASE									
C.1	Maintenance of rehabilitation facilities	C.1.1	Road Safety	Road maintenance will be carried out as per the contract agreement. During maintenance follow road safety rules and regulations to avoid any accidents.	SFERP/ W&S Deptt	Third-party	No incident of any damages	Continues	Entire project area
C.2	Increased Traffic	C.2.1	Air pollution and Greenhouse gases	Regular motioning of the vehicles for engine efficiency and avoid any unnecessary work and transportation. Alternative energy resources should be considered where possible. SEQs applicable to gaseous emissions generated by construction vehicles, equipment and machinery should be enforced during construction works.	SEPA/ SFERP/ W&S Deptt	Third-party	Compliance with SEQs	Once in year	Entire project area



Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				Reduction in travel time and better mode and frequency of transport and enhanced tourism activities in the area which in many terms will boost the local economy and improve the lifestyle of local people. Access to quality health care facilities, educational and other infrastructural facilities. A better investment climate for industries creates more employment opportunities for local people.					

Table 20: Environmental Monitoring Plan

Sr. No.	Parameters	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
1	Vegetation clearance	Visual inspection of loss of vegetation, soil erosion & instability, surface water pollution and occupational health of workers and community	Weekly	CC	CSC/PIU-SFERP
2	Top Soil	Visual inspection of topsoil of 20 cm to 30 cm depth should be excavated and stored properly	Beginning of earthworks	CC	CSC/PIU-SFERP
3	Erosion	Visual inspection of the occurrence of erosion and erosion prevention measures	At the end of the filling activity	CC	CSC/PIU-SFERP
4	Operation of burrow and quarry site	Visual inspections of quarry sites/ burrow areas for change in landscape and creation of water ponds.	Monthly	CC	CSC/PIU-SFERP
5	Excavation of earth	Visual inspection for soil erosion & stability	Weekly	CC	CSC/PIU-SFERP
6	Material supply	Inspection of possession of official approval or valid operating license of suppliers' materials (asphalt, cement, quarry and burrow material)	Before the agreement for the	CC	CSC/PIU-SFERP



Sr. No.	Parameters	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
			supply of material		
7	Storage and handling of materials	Visual inspection of storage facilities	Monthly	CC	CSC/PIU-SFERP
8	Local roads	Visual inspection to ensure local roads are not damaged	Monthly	CC	CSC/PIU-SFERP
9	Traffic safety	Visual inspection to see whether proper traffic signs are placed and safety barriers for traffic management are occupied	Monthly	CC	CSC/PIU-SFERP
10.	Air Quality	Air quality monitoring mobile lab (Certified laboratory from SEPA)	Quarterly	CC	CSC/PIU-SFERP
		Visual inspection to ensure water sprinkling is being implemented	Daily	CC	CSC/PIU-SFERP
		Visual inspection to ensure asphalt plant is located greater than 500 m from residential/settlement areas	Monthly	CC	CSC/PIU-SFERP
10	Air quality & noise	Certified laboratory from SEPA	Quarterly	CC	CSC/PIU-SFERP
11	Surface & groundwater quality	Sampling and analysis of surface water quality (Certified laboratory SEPA)	Quarterly	CC	CSC/PIU-SFERP
12	Solid waste	The visual inspection that solid waste is disposed of at the designated site	Weekly	CC	CSC/PIU-SFERP
13	Floral and faunal monitoring	Visual inspection	Daily	CC	CSC/PIU-SFERP
14	Cultural and archeological sites	Visual inspection	Daily	CC	CSC/PIU-SFERP
15	Visual check for exhaust emissions from equipment and vehicles	Visual inspection	Daily	CC	CSC/PIU-SFERP



Sr. No.	Parameters	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
16	Grievances of the local communities	Visual inspection	Daily	CC	CSC/PIU-SFERP
17	Reinstatement of work site	Visual Inspection	After completion of all works	CC	CSC/PIU-SFERP



Annexure I: Rehabilitation of Road-SFERP Screening Checklist

SINDH FLOOD EMERGENCY REHABILITATION PROJECT

Environmental and Social Screening Checklist

Proposed Project Interventions Details			
Name of proposed project interventions	Reconditioning of road from jati raj malik road to village qasim thaheemor via amin mori taluka jati		
ID of proposed project interventions	01- 24°18'8.02"N 68°22'45.27"E 24°16'23.15"N 68°22'0.48"E		
Proposing agency	PIU-SFERP		
Proposed project interventions location	District Sujawal Taluka Jati		
Proposed project interventions objective	The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works, The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas.		
Estimated cost	-		
Proposed date of commencement of civil work	Will complete in 12 months		
Screening Question	Yes	No	Remarks
PHYSICAL ENVIRONMENT			
Will the proposed project interventions pose the risk of clearance of vegetation that may result in an increase in the level of suspended solids washing into nearby water bodies?		No	None of the trees will need to be cut due to the proposed rehabilitation work.
Will the proposed project interventions pose a risk of contaminating water sources due to construction activities?	yes		During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality
Will the proposed project interventions deplete groundwater because of the water used during road construction activities?		No	Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage.
Will the proposed project interventions result in an increase in ambient air pollution , including chemical and particulate matter due to the construction and operation of related machinery?	Yes		During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen.
Will the proposed project interventions result in an increase in ambient noise levels and vibrations due to the operation of construction machinery/vehicles?	Yes		An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc.
Will these ambient noise levels be beyond the specifications in the SEQS ?		No	These are within the limit as per baseline monitoring results.



Will the proposed project interventions lead to erosion hazards ?	No	Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient.
Will the proposed project interventions lead to increased soil erosion ?	No	
Will the proposed project interventions result in the generation of hazardous and/or non-hazardous waste ?	No	Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal.
Will the proposed project interventions result in potentially increased health risks for project workers and communities (e.g. COVID-19)?	No	The screening will be carried out before hiring the labour.
Is the proposed project interventions being implemented in an area with high natural hazard risk ? (e.g. floods, earthquakes, landslides)	No	The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences.
ECOLOGICAL ENVIRONMENT		
Will the proposed project interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services ?	No	No protected areas were observed near (1000 meters) of the proposed sub-project area.
Will any rehabilitation & improvement works be located in areas that would promote the conversion of natural habitats ?	No	Proposed rehabilitation works falls in rural area,
Will any proposed project interventions be located on or near sensitive environmental areas , including national parks and protected areas?	No	The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), None of the socially sensitive receptors found in the buffer zone.
Are the proposed project interventions activities likely to pose risks to any endangered species ?	No	As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site.
SOCIAL ENVIRONMENT		
Will the proposed project interventions involve land acquisition ?	No	No land acquisition is involved as the proposed subproject interventions are within the existing RoW.
Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this proposed project intervention?	No	Child & forced labour is not allowed on the SFERP,
Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated outside labor force .	No	A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject.



Will local labor be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force.	Yes	Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.).
Will there be any temporary or permanent displacement as a result of the proposed project intervention activities?	No	None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component.
Are there expected to be any traffic-related issues as a result of the proposed project intervention activities, particularly during the construction phase?	Yes	Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas
Are there any recognized Indigenous Peoples present in the proposed project interventions area, and are they likely to be impacted by the project, either positively or negatively ?	No	no Indigenous Peoples were found in the impact zone.
Are the proposed project interventions likely to have impacts on important religious/cultural heritage sites ?	No	no archaeological sites were found in the impact zone.
Have there been any past security-related issues at the proposed project intervention site?	No	no security-related issues were found in the impact zone.
Has stakeholder engagement taken place in the proposed project interventions area?	yes	A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts.
Were vulnerable and indigenous groups involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.)	No	no Indigenous Peoples were found in the impact zone.

RISK CLASSIFICATION

Step	Recommendations/Findings
Risk category identification	Low-Medium risk level
Recommendation on type of E&S instruments required.	ESMP
Summary of screening findings	These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas
Name of the person endorsing screening findings	Environmental Safeguard of PIU



SINDH FLOOD EMERGENCY REHABILITATION PROJECT

Environmental and Social Screening Checklist

Proposed Project Interventions Details			
Name of proposed project interventions	Reconditioning of the link road from abral to bano road		
ID of proposed project interventions	02- 24°53'27.00"N 68°14'33.98"E		
Proposing agency	PIU-SFERP		
Proposed project interventions location	District Sujawal Taluka Mirpur Bathoro		
Proposed project interventions objective	The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works, The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas.		
Estimated cost	-		
Proposed date of commencement of civil work	Will complete in 12 months		
Screening Question	Yes	No	Remarks
PHYSICAL ENVIRONMENT			
Will the proposed project interventions pose the risk of clearance of vegetation that may result in an increase in the level of suspended solids washing into nearby water bodies?		No	None of the trees will need to be cut due to the proposed rehabilitation work.
Will the proposed project interventions pose a risk of contaminating water sources due to construction activities?	yes		During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality
Will the proposed project interventions deplete groundwater because of the water used during road construction activities?		No	Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage.
Will the proposed project interventions result in an increase in ambient air pollution , including chemical and particulate matter due to the construction and operation of related machinery?	Yes		During the construction phase of the proposed sub-project, some adverse impacts on the ambient air by suspended dust and noise are foreseen.
Will the proposed project interventions result in an increase in ambient noise levels and vibrations due to the operation of construction machinery/vehicles?	Yes		An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc.
Will these ambient noise levels be beyond the specifications in the SEQS ?		No	These are within the limit as per baseline monitoring results.



Will the proposed project interventions lead to erosion hazards ?	No	Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient.
Will the proposed project interventions lead to increased soil erosion ?	No	
Will the proposed project interventions result in the generation of hazardous and/or non-hazardous waste ?	No	Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal.
Will the proposed project interventions result in potentially increased health risks for project workers and communities (e.g. COVID-19)?	No	The screening will be carried out before hiring the labour.
Is the proposed project interventions being implemented in an area with high natural hazard risk ? (e.g. floods, earthquakes, landslides)	No	The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences.
ECOLOGICAL ENVIRONMENT		
Will the proposed project interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services ?	No	No protected areas were observed near (1000 meters) of the proposed sub-project area.
Will any rehabilitation & improvement works be located in areas that would promote the conversion of natural habitats ?	No	Proposed rehabilitation works falls in rural area,
Will any proposed project interventions be located on or near sensitive environmental areas , including national parks and protected areas?	No	The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), None of the socially sensitive receptors found in the buffer zone.
Are the proposed project interventions activities likely to pose risks to any endangered species ?	No	As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site.
SOCIAL ENVIRONMENT		
Will the proposed project interventions involve land acquisition ?	No	No land acquisition is involved as the proposed subproject interventions are within the existing RoW.
Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this proposed project intervention?	No	Child & forced labour is not allowed on the SFERP,
Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated outside labor force .	No	A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject.



Will local labor be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force.	Yes	Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.).
Will there be any temporary or permanent displacement as a result of the proposed project intervention activities?	No	None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component.
Are there expected to be any traffic-related issues as a result of the proposed project intervention activities, particularly during the construction phase?	Yes	Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas
Are there any recognized Indigenous Peoples present in the proposed project interventions area, and are they likely to be impacted by the project, either positively or negatively ?	No	no Indigenous Peoples were found in the impact zone.
Are the proposed project interventions likely to have impacts on important religious/cultural heritage sites ?	No	no archaeological sites were found in the impact zone.
Have there been any past security-related issues at the proposed project intervention site?	No	no security-related issues were found in the impact zone.
Has stakeholder engagement taken place in the proposed project interventions area?	yes	A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts.
Were vulnerable and indigenous groups involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.)	No	no Indigenous Peoples were found in the impact zone.

RISK CLASSIFICATION

Step	Recommendations/Findings
Risk category identification	Low-Medium risk level
Recommendation on type of E&S instruments required.	ESMP
Summary of screening findings	These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas
Name of the person endorsing screening findings	Environmental Safeguard of PIU



SINDH FLOOD EMERGENCY REHABILITATION PROJECT

Environmental and Social Screening Checklist

Proposed Project Interventions Details			
Name of proposed project interventions	Rehabilitation of road from sujawal bypass to village sher muhammad jamari village		
ID of proposed project interventions	03- 24°37'6.93"N 68° 4'40.67"E 24°38'33.93"N 68° 4'30.62"E		
Proposing agency	PIU-SFERP		
Proposed project interventions location	District & Taluka Sujawal		
Proposed project interventions objective	The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works, The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas.		
Estimated cost	-		
Proposed date of commencement of civil work	Will complete in 12 months		
Screening Question	Yes	No	Remarks
PHYSICAL ENVIRONMENT			
Will the proposed project interventions pose the risk of clearance of vegetation that may result in an increase in the level of suspended solids washing into nearby water bodies?		No	None of the trees will need to be cut due to the proposed rehabilitation work.
Will the proposed project interventions pose a risk of contaminating water sources due to construction activities?	yes		During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality
Will the proposed project interventions deplete groundwater because of the water used during road construction activities?		No	Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage.
Will the proposed project interventions result in an increase in ambient air pollution , including chemical and particulate matter due to the construction and operation of related machinery?	Yes		During the construction phase of the proposed sub-project, some adverse impacts on the ambient air by suspended dust and noise are foreseen.
Will the proposed project interventions result in an increase in ambient noise levels and vibrations due to the operation of construction machinery/vehicles?	Yes		An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc.
Will these ambient noise levels be beyond the specifications in the SEQS ?		No	These are within the limit as per baseline monitoring results.



Will the proposed project interventions lead to erosion hazards ?	No	Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient.
Will the proposed project interventions lead to increased soil erosion ?	No	
Will the proposed project interventions result in the generation of hazardous and/or non-hazardous waste ?	No	Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal.
Will the proposed project interventions result in potentially increased health risks for project workers and communities (e.g. COVID-19)?	No	The screening will be carried out before hiring the labour.
Is the proposed project interventions being implemented in an area with high natural hazard risk ? (e.g. floods, earthquakes, landslides)	No	The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences.
ECOLOGICAL ENVIRONMENT		
Will the proposed project interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services ?	No	No protected areas were observed near (1000 meters) of the proposed sub-project area.
Will any rehabilitation & improvement works be located in areas that would promote the conversion of natural habitats ?	No	Proposed rehabilitation works falls in rural area,
Will any proposed project interventions be located on or near sensitive environmental areas , including national parks and protected areas?	No	The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), None of the socially sensitive receptors found in the buffer zone.
Are the proposed project interventions activities likely to pose risks to any endangered species ?	No	As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site.
SOCIAL ENVIRONMENT		
Will the proposed project interventions involve land acquisition ?	No	No land acquisition is involved as the proposed subproject interventions are within the existing RoW.
Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this proposed project intervention?	No	Child & forced labour is not allowed on the SFERP,
Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated outside labor force .	No	A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject.



Will local labor be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force.	Yes	Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.).
Will there be any temporary or permanent displacement as a result of the proposed project intervention activities?	No	None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component.
Are there expected to be any traffic-related issues as a result of the proposed project intervention activities, particularly during the construction phase?	Yes	Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas
Are there any recognized Indigenous Peoples present in the proposed project interventions area, and are they likely to be impacted by the project, either positively or negatively ?	No	no Indigenous Peoples were found in the impact zone.
Are the proposed project interventions likely to have impacts on important religious/cultural heritage sites ?	No	no archaeological sites were found in the impact zone.
Have there been any past security-related issues at the proposed project intervention site?	No	no security-related issues were found in the impact zone.
Has stakeholder engagement taken place in the proposed project interventions area?	yes	A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts.
Were vulnerable and indigenous groups involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.)	No	no Indigenous Peoples were found in the impact zone.

RISK CLASSIFICATION

Step	Recommendations/Findings
Risk category identification	Low-Medium risk level
Recommendation on type of E&S instruments required.	ESMP
Summary of screening findings	These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas
Name of the person endorsing screening findings	Environmental Safeguard of PIU



SINDH FLOOD EMERGENCY REHABILITATION PROJECT

Environmental and Social Screening Checklist

Proposed Project Interventions Details			
Name of proposed project interventions	Road 4 Rehabilitation of road from sujawal chohar road mile 90/0 (latif hotel stop) to ahmed otho village to sidiq otho across the river bund		
ID of proposed project interventions	04- 24°29'53.95"N 68° 1'37.57"E 24°28'38.70"N 68° 2'5.43"E		
Proposing agency	PIU-SFERP		
Proposed project interventions location	District & Taluka Sujawal		
Proposed project interventions objective	The proposed activities will be confined to the existing road RoW. For this ESMP, potential impacts were considered within a corridor extending some 100 meters/328 feet on either side of the road center line. Both rehabilitation and reconstruction within the existing carriageway are category B works, The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas.		
Estimated cost	-		
Proposed date of commencement of civil work	Will complete in 12 months		
Screening Question	Yes	No	Remarks
PHYSICAL ENVIRONMENT			
Will the proposed project interventions pose the risk of clearance of vegetation that may result in an increase in the level of suspended solids washing into nearby water bodies?		No	None of the trees will need to be cut due to the proposed rehabilitation work.
Will the proposed project interventions pose a risk of contaminating water sources due to construction activities?	yes		During the construction stage, different types of activities, such as earthwork, Subbase formation, Asphalt wearing, concrete work and Restoration of the campsite might result in deteriorating the surface water quality
Will the proposed project interventions deplete groundwater because of the water used during road construction activities?		No	Water consumption will be monitored by keeping the records of consumption and capacity building of the construction crew during the construction stage and records will be maintained to avoid any wastage.
Will the proposed project interventions result in an increase in ambient air pollution , including chemical and particulate matter due to the construction and operation of related machinery?	Yes		During the construction phase of the proposed sub-project; some adverse impacts on the ambient air by suspended dust and noise are foreseen.
Will the proposed project interventions result in an increase in ambient noise levels and vibrations due to the operation of construction machinery/vehicles?	Yes		An increase in ambient noise and vibration is expected due to the operation of construction machinery such as bulldozers, excavators, pneumatic machinery, etc.
Will these ambient noise levels be beyond the specifications in the SEQS ?		No	These are within the limit as per baseline monitoring results.



Will the proposed project interventions lead to erosion hazards ?	No	Proposed project will reduce the erosion due to flood water by raising the existing profile with the formation of the embankment is taken to make the design flood resilient.
Will the proposed project interventions lead to increased soil erosion ?	No	
Will the proposed project interventions result in the generation of hazardous and/or non-hazardous waste ?	No	Combustible, noncombustible and hazardous waste will be temporarily stored on-site in the designated locations and handed over to approve waste contractors for recycling purposes and safe disposal.
Will the proposed project interventions result in potentially increased health risks for project workers and communities (e.g. COVID-19)?	No	The screening will be carried out before hiring the labour.
Is the proposed project interventions being implemented in an area with high natural hazard risk ? (e.g. floods, earthquakes, landslides)	No	The proposed rehabilitation works will improve the drainage during monsoon without any environmental consequences.
ECOLOGICAL ENVIRONMENT		
Will the proposed project interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services ?	No	No protected areas were observed near (1000 meters) of the proposed sub-project area.
Will any rehabilitation & improvement works be located in areas that would promote the conversion of natural habitats ?	No	Proposed rehabilitation works falls in rural area,
Will any proposed project interventions be located on or near sensitive environmental areas , including national parks and protected areas?	No	The indirect impacts have been evaluated at 100 meters/328 feet on either side of the road center line of the proposed rehabilitation works (250 ft on each side from the center line), None of the socially sensitive receptors found in the buffer zone.
Are the proposed project interventions activities likely to pose risks to any endangered species ?	No	As far as the sub-project area is concerned, none of the endemic or endangered species of both flora and fauna were recorded from the sub-project site.
SOCIAL ENVIRONMENT		
Will the proposed project interventions involve land acquisition ?	No	No land acquisition is involved as the proposed subproject interventions are within the existing RoW.
Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this proposed project intervention?	No	Child & forced labour is not allowed on the SFERP,
Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated outside labor force .	No	A large-scale labor influx is not expected due to the availability of local labor in the subproject area and the scale of works anticipated under the subproject.



Will local labor be used for the proposed project intervention activities? Please estimate the strength of the anticipated local labor force.	Yes	Local operators/drivers will be preferred with valid driving licenses having experience driving vehicles like (trucks, dumpers, and Dozers, etc.).
Will there be any temporary or permanent displacement as a result of the proposed project intervention activities?	No	None of the infrastructure and commercial activities exist within RoW. No resettlement is expected due to the rehabilitation of the proposed project's sub-component.
Are there expected to be any traffic-related issues as a result of the proposed project intervention activities, particularly during the construction phase?	Yes	Traffic Management Plan will be developed and implemented to address the traffic management issues during the rehabilitation works in sub-project areas
Are there any recognized Indigenous Peoples present in the proposed project interventions area, and are they likely to be impacted by the project, either positively or negatively ?	No	no Indigenous Peoples were found in the impact zone.
Are the proposed project interventions likely to have impacts on important religious/cultural heritage sites ?	No	no archaeological sites were found in the impact zone.
Have there been any past security-related issues at the proposed project intervention site?	No	no security-related issues were found in the impact zone.
Has stakeholder engagement taken place in the proposed project interventions area?	yes	A site visit was carried out to identify all stakeholders that either reside or work in the project vicinity and conduct an initial identification of potential positive and negative impacts.
Were vulnerable and indigenous groups involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.)	No	no Indigenous Peoples were found in the impact zone.

RISK CLASSIFICATION

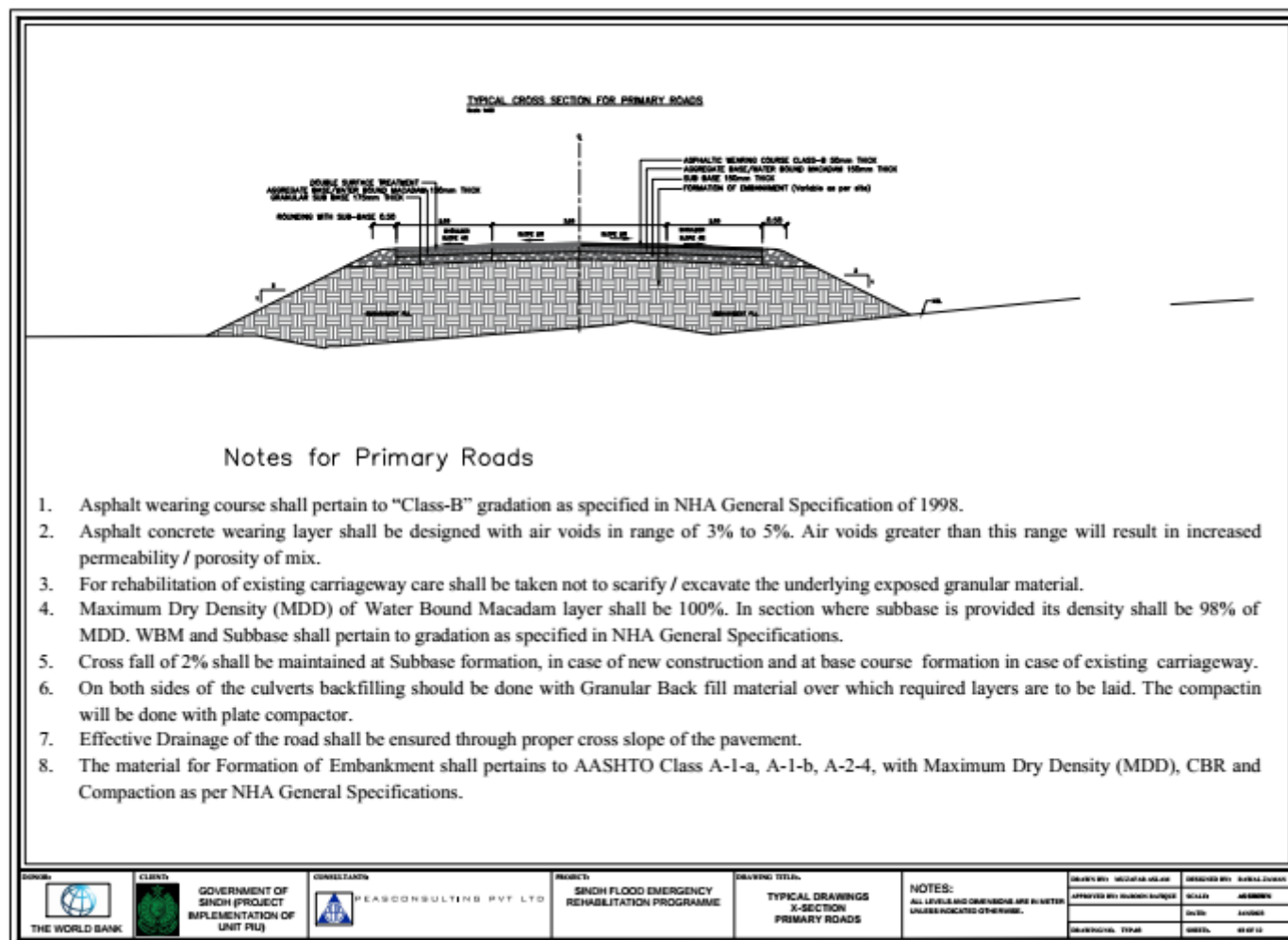
Step	Recommendations/Findings
Risk category identification	Low-Medium risk level
Recommendation on type of E&S instruments required.	ESMP
Summary of screening findings	These risks are likely to be temporary and reversible and are not expected to have lasting effects on the proposed project intervention areas
Name of the person endorsing screening findings	Environmental Safeguard of PIU



Annexure II: Typical Cross Sections of Sub-Project

LIST OF DRAWINGS	
SR.NO	DESCRIPTION
01	LIST OF DRAWINGS
02	CROSS SECTION – PRIMARY ROADS
03	CROSS SECTION – SECONDARY ROADS
04	CROSS SECTION – COLLECTOR ROADS
05	CROSS SECTION – MAJOR ROADS 01
06	CROSS SECTION – MAJOR ROADS 02
07	CULVERT – PLAN
08	CULVERT – CROSS SECTION
09	CULVERT – LONGITUDINAL SECTION
10	CULVERT – REINFORCEMENT DETAILS
11	CULVERT – APPRON DETAILS
12	CAUSEWAY DETAILS

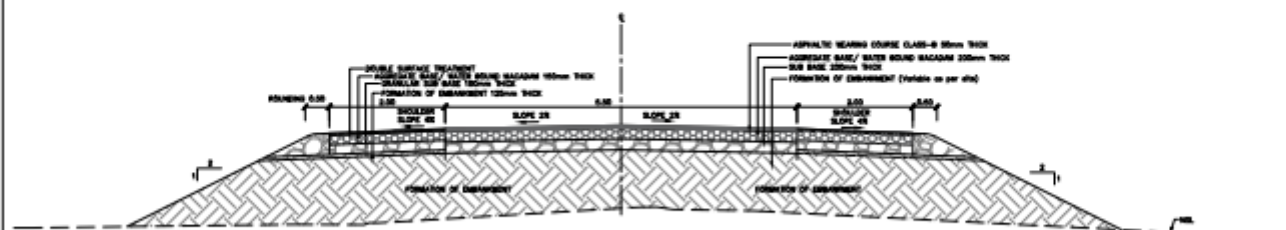
THE WORLD BANK	GOVERNMENT OF SINDH REHABILITATION OF URBAN PAVEMENTS	PEARSON CONSULTING PVT. LTD.	SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME	TYPICAL DRAWINGS LIST OF DRAWINGS	NOTES: ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED. UNITS: METERS	DRAWN BY: MUHAMMAD ALI KHAN APPROVED BY: MUHAMMAD ALI KHAN DATE: 10/01/2018	DRAWN BY: MUHAMMAD ALI KHAN APPROVED BY: MUHAMMAD ALI KHAN DATE: 10/01/2018
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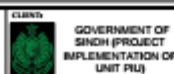
TYPICAL CROSS SECTION FOR SECONDARY ROADS

Scale 1:50



Notes for Secondary Roads

1. Asphalt Wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. Asphalt Base course shall pertain to "Class-A" gradation as specified in NHA General Specification of 1998
3. Asphalt concrete wearing layer shall be designed with air voids in range of 3% to 5%. Air voids greater than this range will result in increased permeability / porosity of mix.
4. For rehabilitation of existing carriageway care shall be taken not to scarify / excavate the underlying exposed granular material.
5. Maximum Dry Density (MDD) of Water Bound Macadam layer shall be 100%. In section where subbase is provided its density shall be 98% of MDD. WBM and Subbase shall pertain to gradation as specified in NHA General Specifications.
6. Cross fall of 2% shall be maintained at Subbase formation, in case of new construction and at base course formation in case of existing carriageway.
7. On both sides of the culverts backfilling should be done with Granular Back fill material over which required layers are to be laid. The compactin will be done with plate compactor.
8. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
9. The material for Formation of Embankment shall pertain to AASHTO Class A-1-a, A-1-b, A-2-4, with Maximum Dry Density (MDD), CBR and Compaction as per NHA General Specifications.

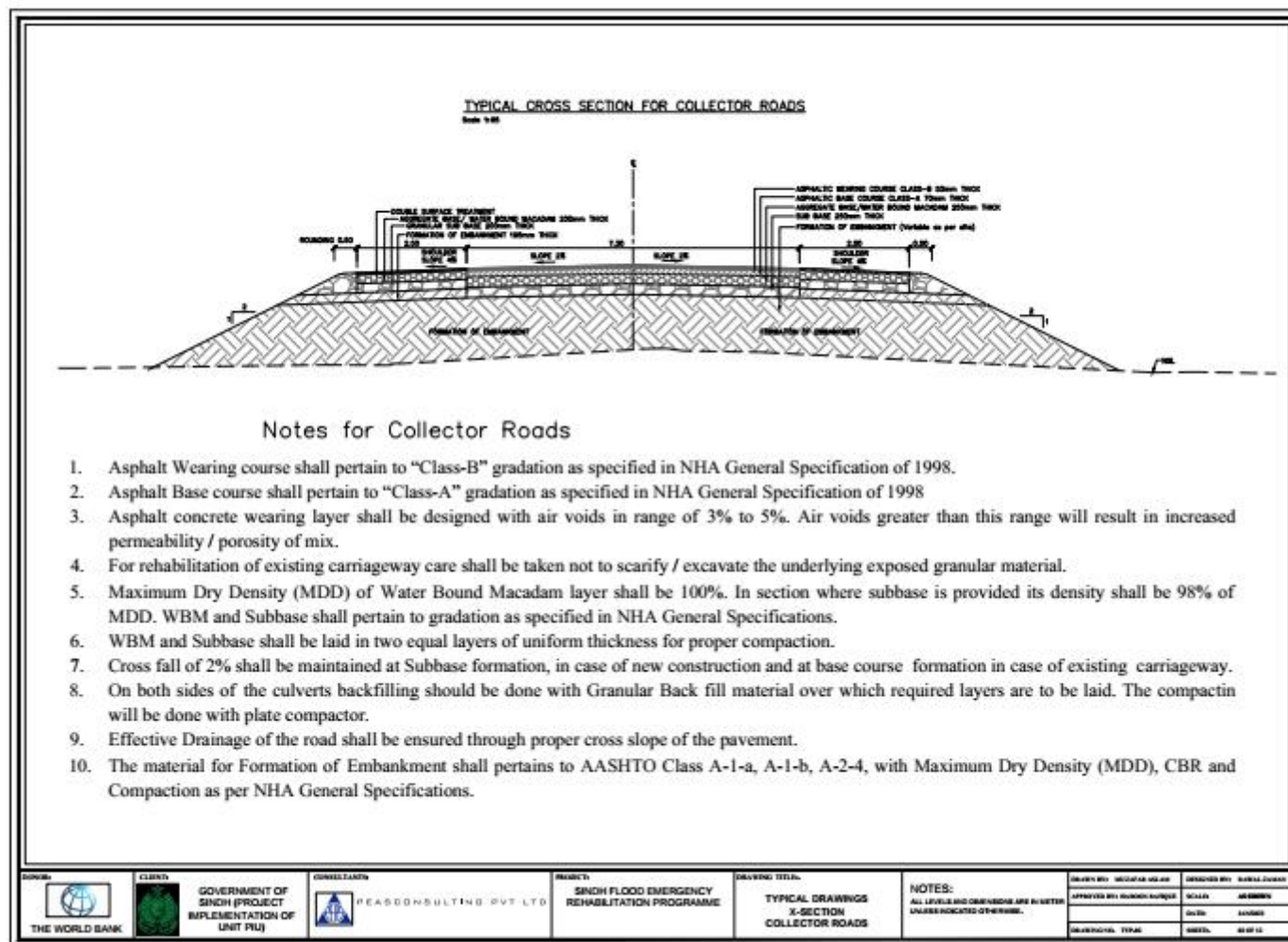


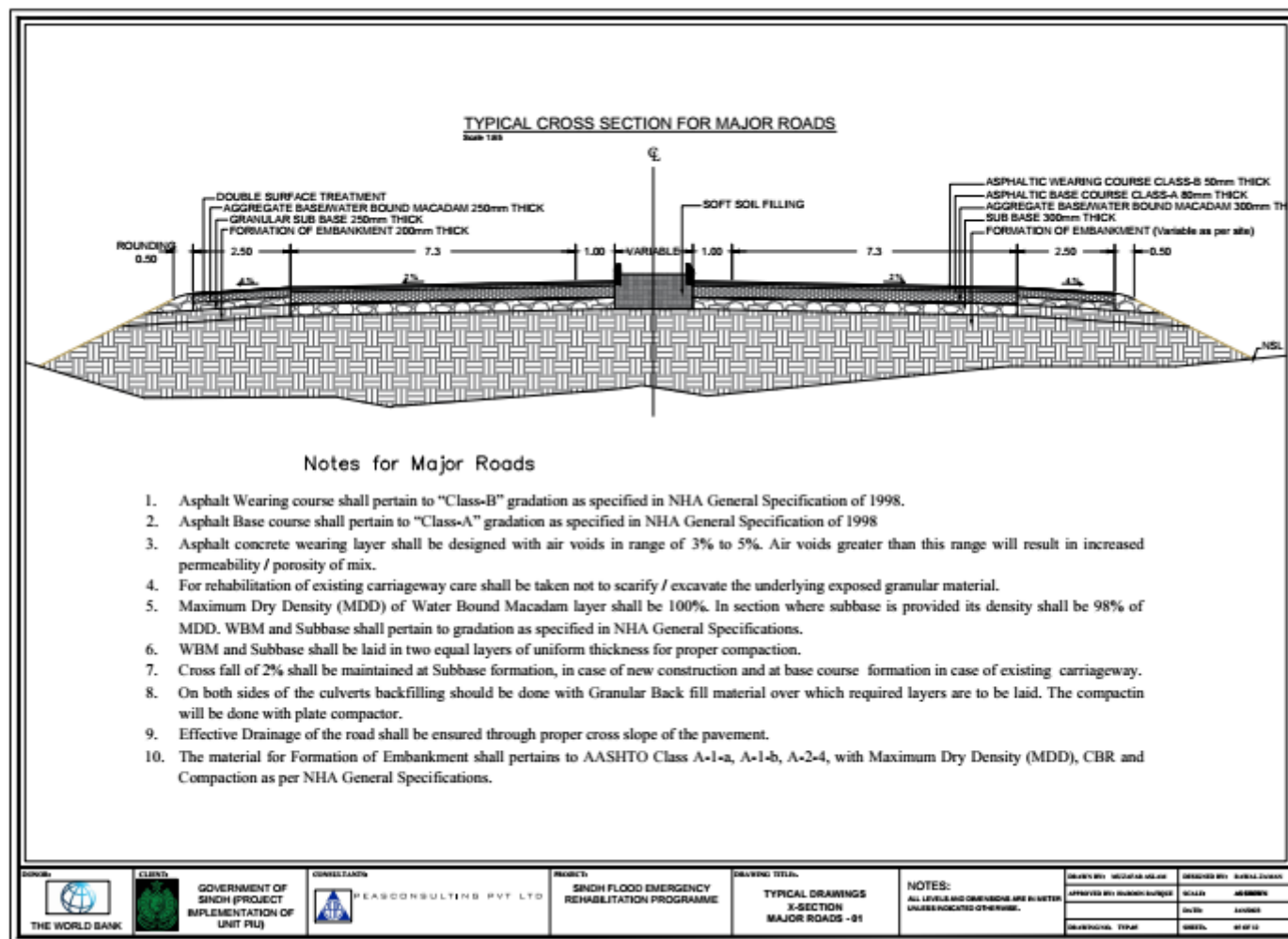
PROJECT
SINDH FLOOD EMERGENCY
REHABILITATION PROGRAMME

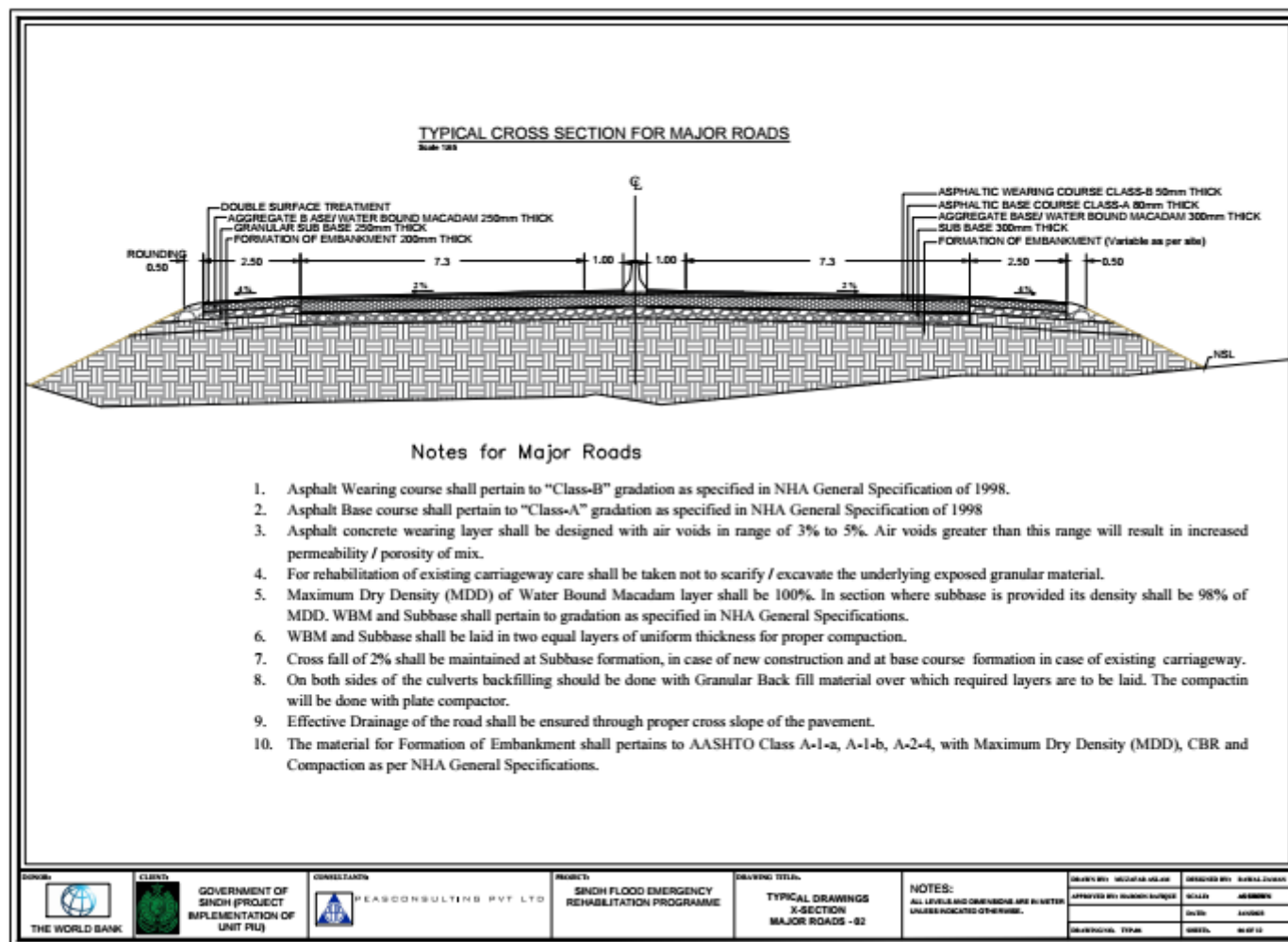
DRAWING TITLE
TYPICAL DRAWINGS
X-SECTION
SECONDARY ROADS

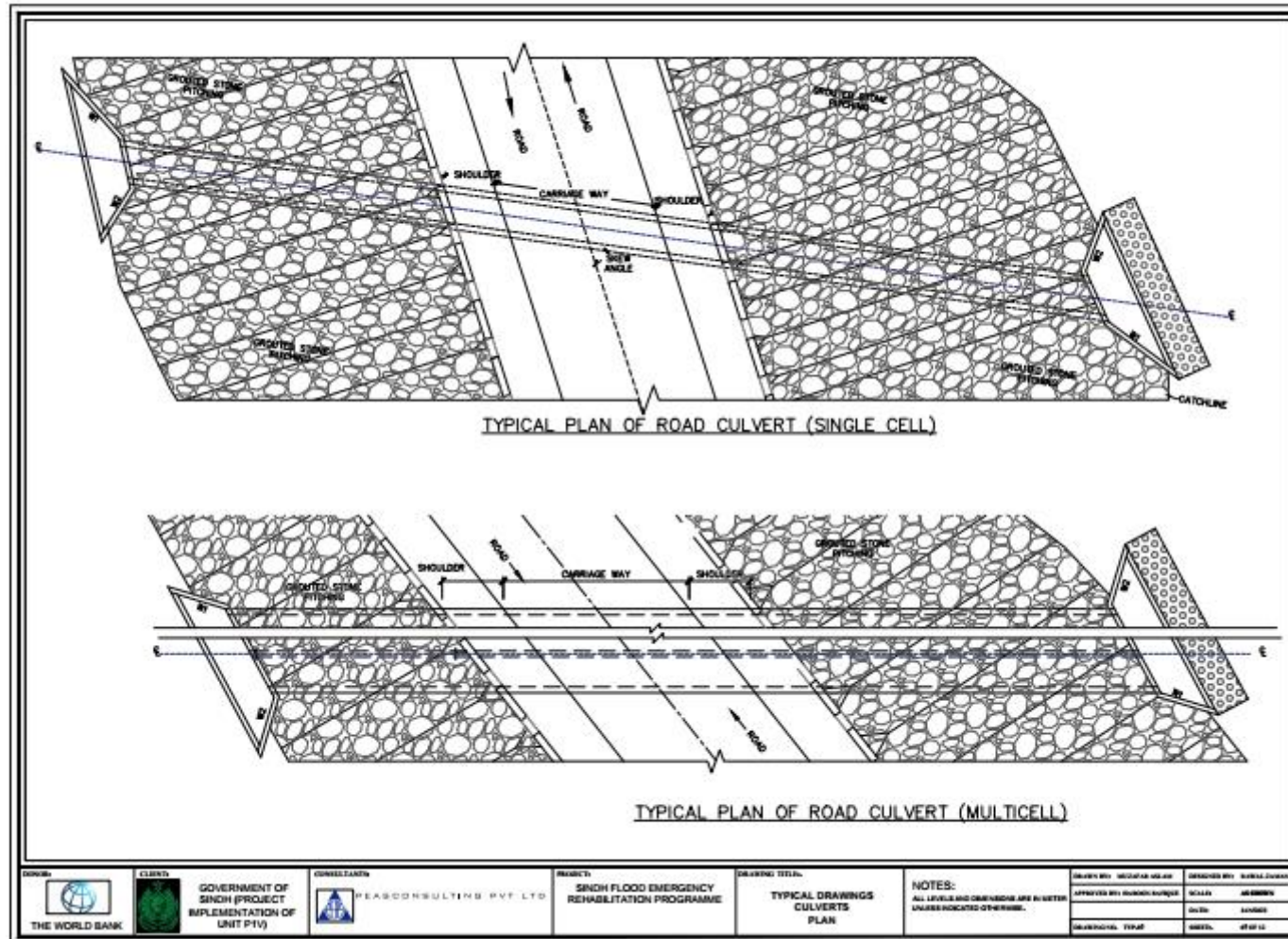
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ALL LEVELS AND DIMENSIONS ARE IN METERS
UNLESS INDICATED OTHERWISE.

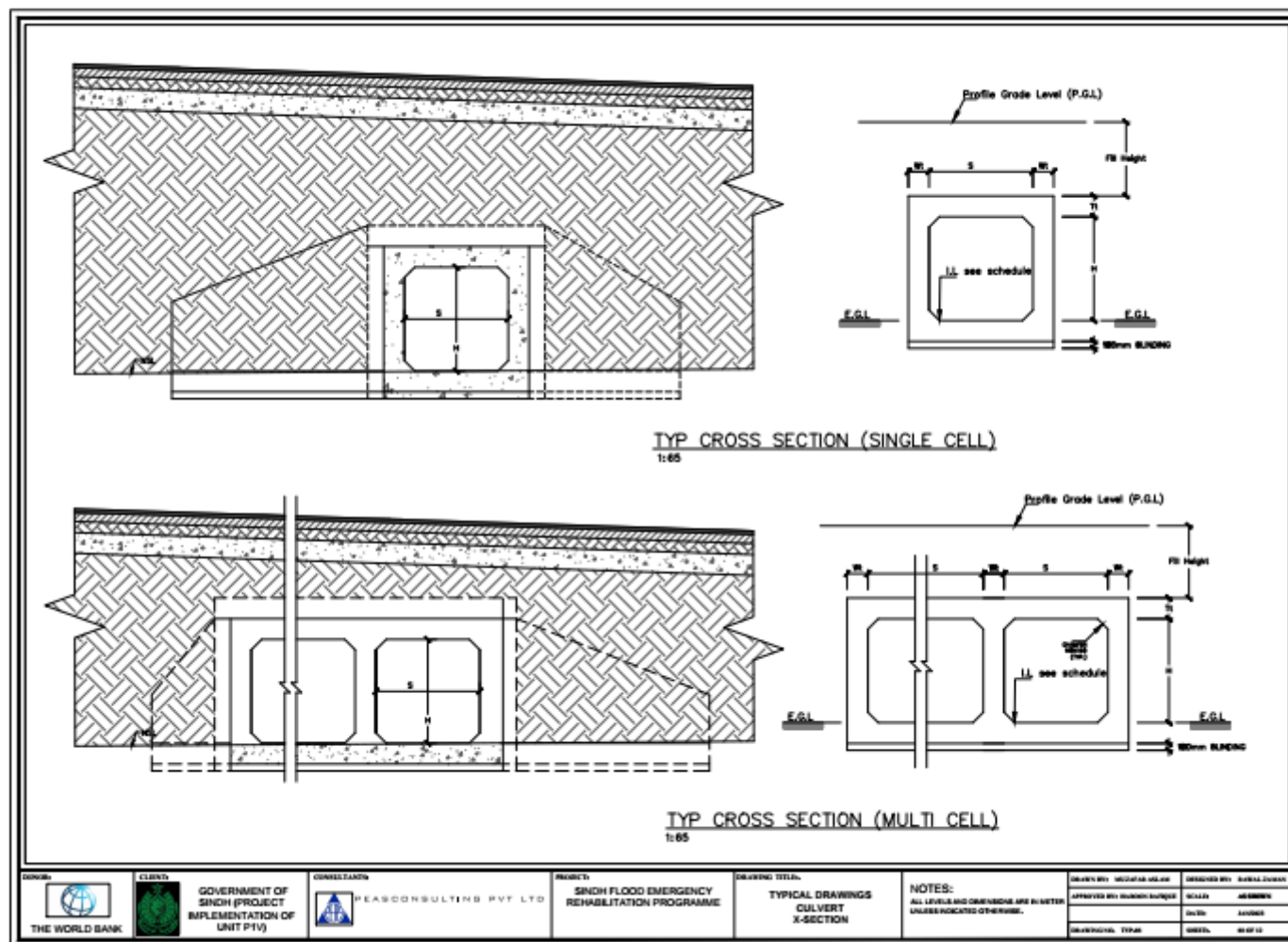
DESIGNED BY: MUHAMMAD AHMED	DESIGNED BY: RAHIL JUMRA
APPROVED BY: MUHAMMAD AHMED	APPROVED BY: RAHIL JUMRA
DATE: 10/05/2018	DATE: 10/05/2018
REVISIONS: 01	REVISIONS: 01

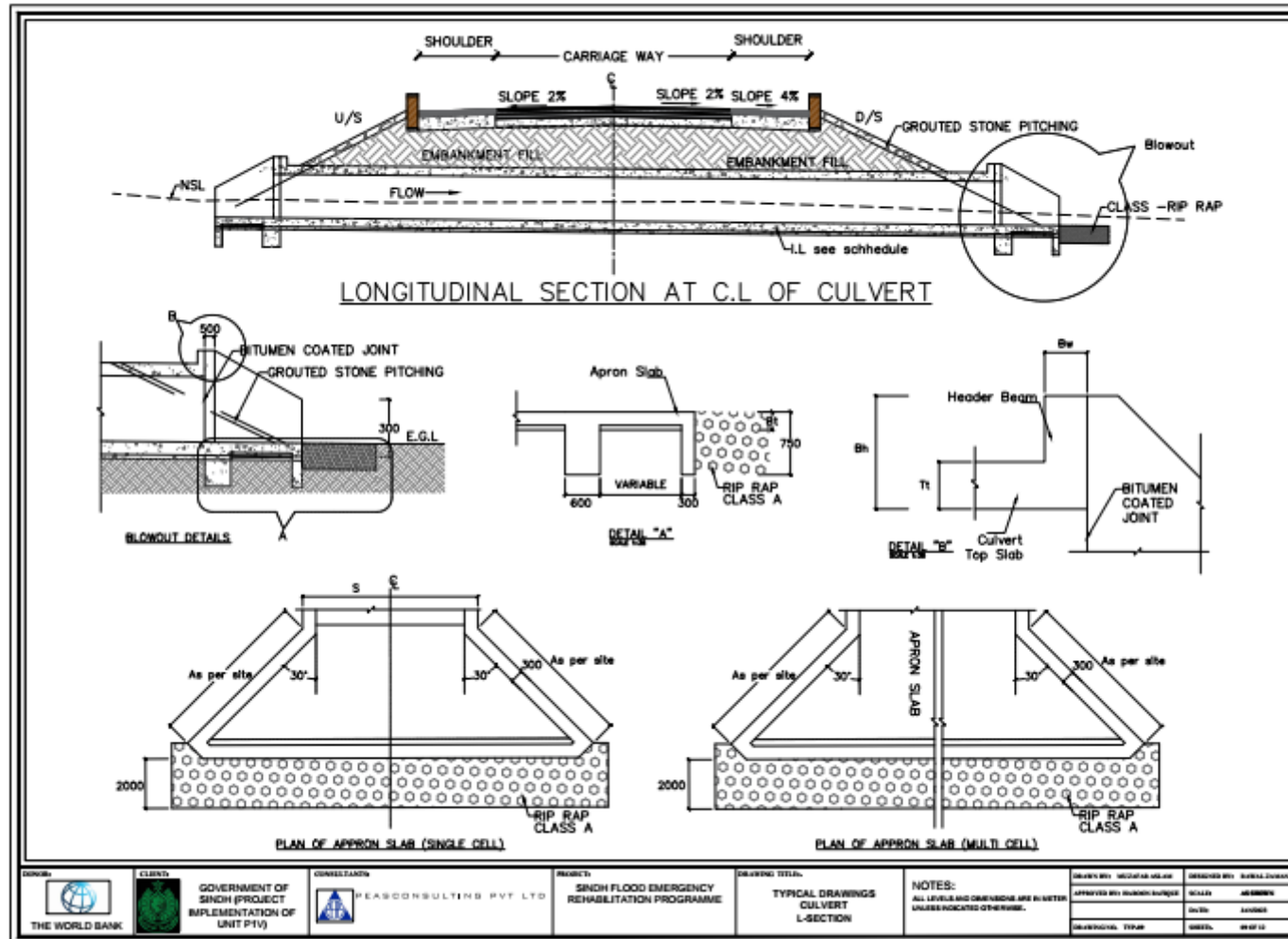














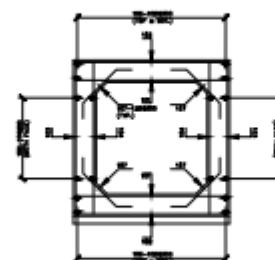
SINGLE CELL CULVERT											
DIMENSIONS				BAR MARK - 101		BAR MARK - 102		BAR MARK - 103		BAR MARK - 104	
S (mm)	H (mm)	FILL (mm)	WT (mm)	DT (mm)	T1 (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
1000	1500	600-3000	250	250	250	100	150 c/c	100	200 c/c	100	200 c/c
2000	1500	600-3000	300	300	300	120	100 c/c	120	150 c/c	120	150 c/c
3000	1500	600-3000	350	350	350	160	125 c/c	160	100 c/c	160	150 c/c
3000	1500	1000-3000	350	350	350	160	150 c/c	160	150 c/c	120	150 c/c

DOUBLE CELL CULVERT											
DIMENSIONS				BAR MARK - 101		BAR MARK - 102		BAR MARK - 325		BAR MARK - 104	
S (mm)	H (mm)	FILL (mm)	WT (mm)	DT (mm)	T1 (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	600-3000	300	300	300	160	250 c/c	160	250 c/c	160	250 c/c
2000	1500	1000-3000	300	300	300	120	150 c/c	120	150 c/c	120	150 c/c

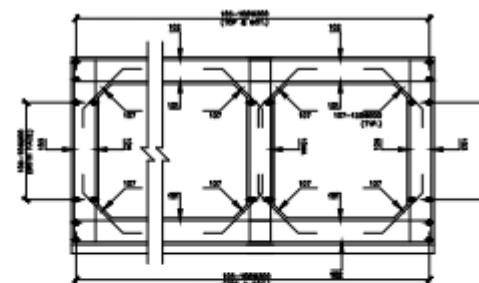
TRIPLE CELL CULVERT											
DIMENSIONS				BAR MARK - 101		BAR MARK - 102		BAR MARK - 325		BAR MARK - 104	
S (mm)	H (mm)	FILL (mm)	WT (mm)	DT (mm)	T1 (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	600-3000	300	300	300	160	250 c/c	160	250 c/c	160	250 c/c
2000	1500	1000-3000	300	300	300	120	150 c/c	120	150 c/c	120	150 c/c
3000	1500	600-3000	350	350	350	160	250 c/c	160	250 c/c	160	250 c/c
3000	1500	1000-3000	350	350	350	160	250 c/c	160	250 c/c	160	250 c/c
3000	3000	600-3000	350	350	350	160	250 c/c	160	250 c/c	160	250 c/c
3000	3000	1000-3000	350	350	350	160	250 c/c	160	250 c/c	160	250 c/c

FOUR CELL CULVERT											
DIMENSIONS				BAR MARK - 101		BAR MARK - 102		BAR MARK - 325		BAR MARK - 104	
S (mm)	H (mm)	FILL (mm)	WT (mm)	DT (mm)	T1 (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	600-3000	300	300	300	160	250 c/c	160	250 c/c	160	250 c/c

FIVE CELL CULVERT											
DIMENSIONS				BAR MARK - 101		BAR MARK - 102		BAR MARK - 325		BAR MARK - 104	
S (mm)	H (mm)	FILL (mm)	WT (mm)	DT (mm)	T1 (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	3500	300	300	300	120	150 c/c	120	250 c/c	120	150 c/c
3000	1500	600-3000	350	350	350	160	125 c/c	160	250 c/c	160	250 c/c



TYP CROSS SECTION (SINGLE CELL)
1:65



TYP CROSS SECTION (MULTICELL)
1:65

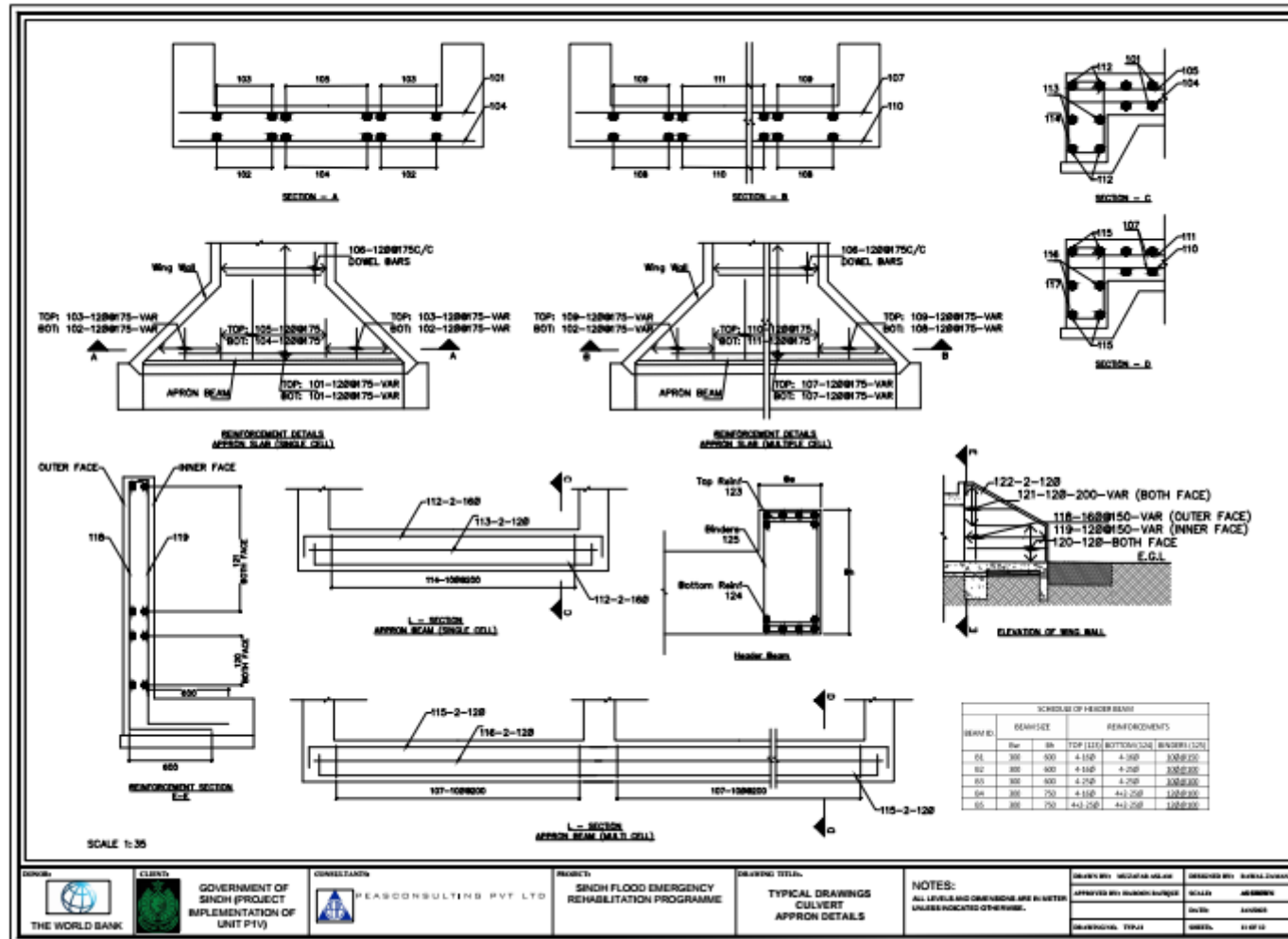


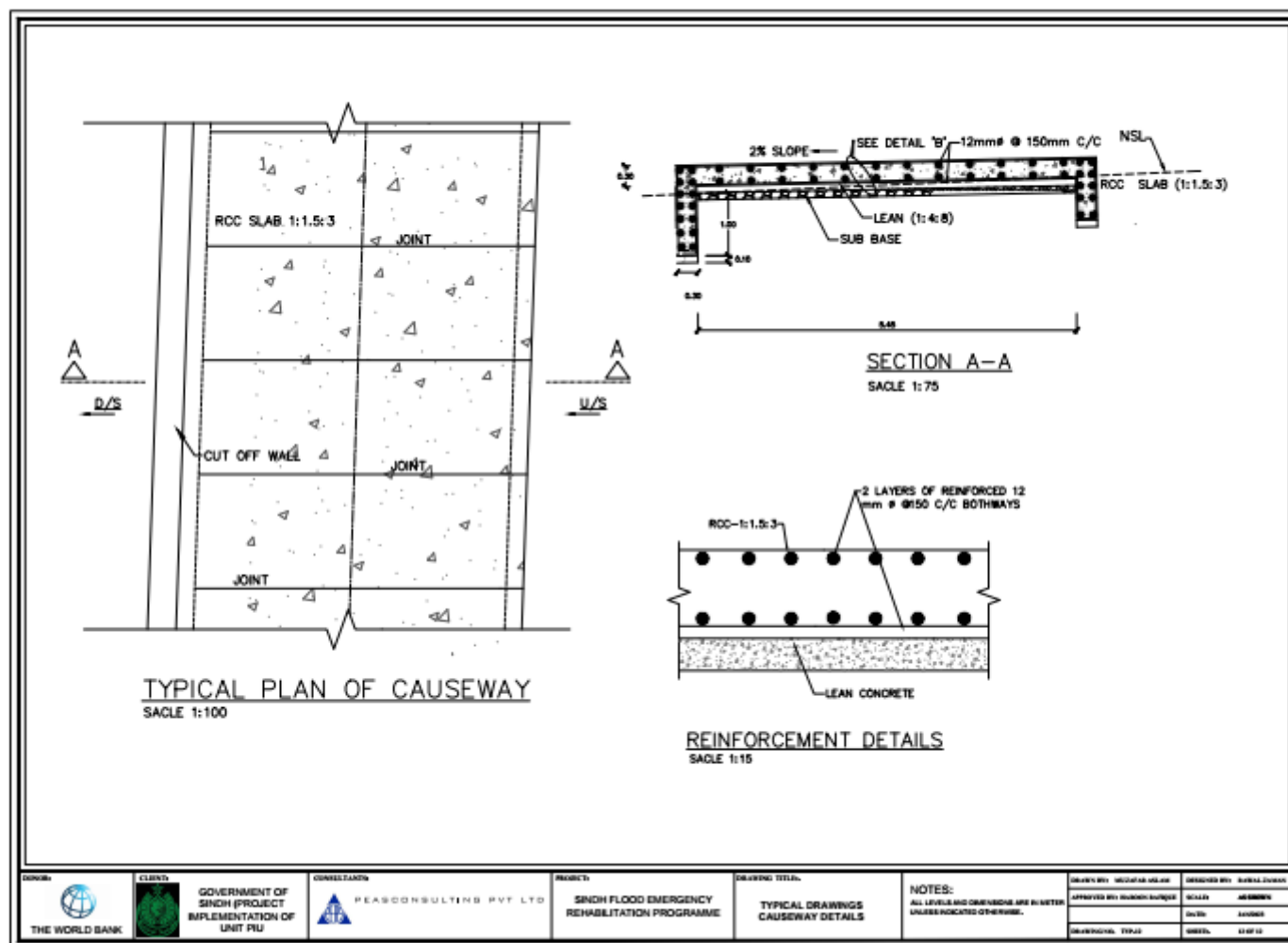
PROJECT
SINDH FLOOD EMERGENCY
REHABILITATION PROGRAMME

DRAWING TITLE
TYPICAL DRAWINGS
CULVERT
REINFORCEMENT DETAILS

NOTES:
ALL LEVELS AND DIMENSIONS ARE IN METERS
UNLESS INDICATED OTHERWISE.

DESIGNED BY: MUHAMMAD AHMED	APPROVED BY: MUHAMMAD AHMED
CHECKED BY: MUHAMMAD AHMED	SCALE: AS SHOWN
DRAWN BY: MUHAMMAD AHMED	DATE: 2020/01/10
REVISIONS: 01	REVISIONS: 01







Annexure III: Avifauna in Sub-Project Area

Sr. No.	Common Name	Scientific Name	Seasonal status
1	Black Kite	<i>Milvus migrans</i>	R
2	Shikra	<i>Accipiter badius</i>	R
3	Common Buzzard	<i>Buteo buteo</i>	WV
4	Imperial Eagle	<i>Aquila heliaca</i>	WV
5	Laggar Falcon	<i>Falco jugger</i>	R
6	Grey Partridge	<i>Francolinus Pondicerianus</i>	R
7	Red Wattled Lapwing	<i>Vanellus indicus</i>	R
8	Indian Sandgrouse	<i>Pterocles exustus</i>	R
9	Ring Dove	<i>Streptopelia decaocto</i>	R
10	Rose ringed Parakeet	<i>Psittacula krameri</i>	R
11	Syke's or Sind Nightjar	<i>Caprimulgus Mahrattensis</i>	R
12	House Swift	<i>Apus affinis</i>	R
13	Indian Pied Kingfisher	<i>Ceryle rudis</i>	R
14	Sind Small Green Bee- eater	<i>Merops orientalis</i>	R
15	Roller or Blue Jay	<i>Coracias benghalensis</i>	R
16	Hoopoe	<i>Upupa epops</i>	WV
17	Ashycrowned Finch-Lark	<i>Eremopterix grisea</i>	R
18	Crested Lark	<i>Galerida cristata</i>	R
19	Common Swallow	<i>Hirundo rustica</i>	WV
20	Grey Shrike	<i>Lanius excubitor</i>	R
21	Black Drongo or King Crow	<i>Dicrurus adsimilis</i>	R
22	Bank Myna	<i>Acridotheres ginginianus</i>	R
23	Indian Myna	<i>Acridotheres tristis</i>	R
24	Sind House Crow	<i>Corvus splendens</i>	R
25	White-cheeked Bulbul	<i>Pycnonotus leucogenys</i>	R
26	Red-vented Bulbul	<i>Pycnonotus cafer</i>	R
27	Common Babbler	<i>Turdoides caudatus</i>	R
28	Sind Jungle Babbler	<i>Turdoides striatus</i>	R
29	Indian Streaked Wren- Warbler	<i>Prinia gracilis</i>	R
30	Black Redstart	<i>Phoenicurus ochruros</i>	WV
31	Indian Robin	<i>Saxicoloides fulicata</i>	R
32	Yellow or Citrine Wagtail	<i>Motacilla flava</i>	PM
33	White or Pied Wagtail	<i>Motacilla alba</i>	WV
34	Purple Sunbird	<i>Nectarinia asiatica</i>	R
35	House Sparrow	<i>Passer domesticus</i>	R

Legend: R = Resident WV = Winter Visitor M = Migratory PM = Passage Migrant SV= Summer Visitor



Annexure IV: Suggested Due Diligence Measures (to be Included in The Contracts)

Stage of Contractual Process	Suggested Due Diligence
Before bidding	<ul style="list-style-type: none"> • Ensure that the terms of reference clearly define the supervision engineer's responsibilities regarding oversight of, and reporting on, labor influx and workers' camps. • Ensure the team skills in the terms of reference clearly include key staff qualified and experienced in managing similar projects, and demonstrated capacity to manage social and environmental issues, including issues pertaining to community health and safety. • Ensure that the project GRM is established and its use is widely publicized.
Preparation of bidding documents	<ul style="list-style-type: none"> • Review contract conditions included in bidding documents to: (i) Ensure that the relevant mitigation measures in the ESMP are reflected and budgeted in the contract, (ii) Ensure the ESMP forms part of, and is explicitly referred to in the bidding documents. (iii) Identify relevant provisions (workers, camps, child and forced labor, occupational health and safety, grievance redress, etc.) regulating the contractor's responsibility and identify any gaps, inconsistencies or areas of concern that could be addressed through additional provisions in the "particular conditions of contract" and/or technical specifications (iv) Include a requirement that all workers sign 'Codes of Conduct' governing behavior, and identifying sanctions (v) Clearly identify that training programs on implementing the Codes of Conduct, etc. will be undertaken by external providers • Ensure the contract conditions and matrix of consequences clearly specify what type of penalty the contractor will face if the provisions of the ESMP and CESMP including OHS MP are not adhered to— including by subcontractors. This may include direct consequences to contractors in the form of penalties for poor performance on social and environmental matters or specific Performance Securities for ESMP and CESMP compliance. • Ensure that bidding documents clearly indicate OHS standards that are going to be applicable to different aspects of the works • Ensure bidding documents make clear the responsibilities of the contractor to prepare and adhere to a CESMP based on the ESMP and that no civil works will commence until the CESMP has been approved by the supervision engineer. Ensure the bidding documents detail how the contractor and supervision engineer will be required to monitor and report on the impacts on the local community, issues related to labor influx and workers' camps. • Propose Key Performance Indicators (KPIs) for Contract Management, reflecting issues and risks specific to the contract and • the monitoring plan



Bidding evaluation	<ul style="list-style-type: none">• Review the bid evaluation report and request to review the bids where appropriate, to verify for the recommended bidder that documents related to the ESMP, safeguard implementation capacity, and other obligations of the contractor required to be submitted with the bid are sufficiently detailed and cover the contractual requirements.• Require the contractor's representative or dedicated community liaison staff to have the ability to communicate in the language of the Borrower and/or the local language.• Verify that the contract management framework identifies clearly lines of communication and that these are formalized and a consistent record is provided.• Ensure that the contractor meets the project's OHS requirements for capability and experience.
After contract signing	<ul style="list-style-type: none">• Prior to commencing works, the contractor submits CESMP(s) based on the ESMP, which includes specific management plans for: (i) work activities; (ii) traffic management; (iii) occupational health and safety; (iv) environmental management; (v) social management; and (vi) labor influx.• Supervision engineer reviews and approves the CESMP— with inputs from appropriate Government agencies—before any works start. For moderate-risk sub-projects, the supervision consultants should review and clear the CESMP. The borrower should disclose the approved CESMP.• Supervision Engineers must approve the occupational health and safety management plan is approved before contractor is mobilized at site



Annexure V: Written Particulars of Employment

1. Name of Employer
2. Name of Employee
3. Date Employment began
4. Wage and Method of Calculation
5. Interval at which wages are paid
6. Normal Hours of work
7. Short description of employee's work
8. Probation Period
9. Annual Holiday Entitlement
10. Paid Public Holiday
11. Payment during sickness
12. Maternity Leave (if employee female)
13. Nursing Break Entitlement (for female employee)
14. Notice employee entitled to receive
15. Notice employer required to give
16. Any other matter either party wishes to include

Notes:

- (a) An employee is free to join a trade union or staff association, which is recognized by the undertaking. The address of the Trade Union or Staff Association is:
- (b) The grievance procedure and disciplinary procedure in this undertaking requires to be followed when a grievance arises or disciplinary action that needs to be taken.
- (c) When any heading is inapplicable, enter NIL.

..... Employer's signature Witness
..... Employee's signature Witness
..... Date Date



Annexure VI: Photolog

1. RECONDITIONING OF LINK ROAD FROM ABRAL TO BANO ROAD L= 3.65 KM.





2. REHABILITATION OF ROAD FROM SUJAWAL CHOHR ROAD MILE 90/0 (LATIF HOTEL STOP) TO AHMED OTHO VILLAGE TO SIDIQ OTHO ACROSS THE RIVER BUND L= 3.0 KM.





**RECONDITIONING OF ROAD FROM JATI RAJ MALIK ROAD TO VILLAGE QASIM THAHEEMOR
VIA AMIN MORI TALUKA JATI L= 4.0 KM.**





REHABILITATION OF ROAD FROM SUJAWAL BYPASS TO VILLAGE SHER MUHAMMAD
JAMARI VILLAGE L= 3.0 KM.





Annexure VII: Contractor's Environmental & Social Management Plan (C-ESMP)

DRAFT-SAMPLE
CONTRACTOR'S ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (CESMP)
FOR
Rehabilitation of Rain/Flood Affected Roads



S. NO	DATE	PREPARED BY	CHECKED BY	APPROVED	REMARKS
1.		The Contractor	CSC	PIU	



ABBREVIATIONS / DEFINITIONS

CESMP	Contractor's Environmental & Social Management Plan
CFP	Chance Finding Procedure
CLO	Community Liaison Officer
E&P	Equipment & Plant
EIA	Environment Impact Assessment
EO	Environmental officer
EPA	Environmental Protection Agency
ESIA	Environment Social Impact Assessment
GRC	Grievance Redress Community
GRM	Grievance Redress Mechanism
HSE	Health, Safety & Environment
I/C	In-charge
IEE	Initial Environment Examination
MOU	Memorandum of Understanding
OHSO	Occupational Health Safety officer
PCIS	Physical and Cultural Infrastructure
PIC	Project Implementation Consultants
PM	Project Manager
PPE	Personal Protective Equipment
SDS	Safety Data Sheet
SM	Site Manager
WMP	Waste Management Plan



1 INTRODUCTION

This Contractor's Environmental & Social Management Plan (CESMP) is formulated for the Rehabilitation of Rain/Flood Affected Roads to control and minimize the environmental and social impacts of all construction related activities associated with the project at construction sites as well as at camp & batching plant sites.

This section explains the purpose of CESMP, the procedures and responsibilities associated with its implementation. It contains the general overview of the CESMP and details of measures, which have been included in the CESMP. The mitigation measures of each specific condition have also been addressed.

CESMP minimizes negative impacts of activities on local communities and natural environment. It also helps in reducing the induced impacts of construction activities; prevent pollution and ensure that construction activities are planned to ensure sustainable development without posing any risk to the environment.

1.1 Requirements of CESMP

Rehabilitation/restoration works are limited to the existing Right of Way (RoW) hence, the proposed project will have some medium-minor adverse environmental impacts that are reversible in nature and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category of ESMF of the SFERP. The ESMP has been prepared at PIU level accordingly to meet the moderate risk level requirements.

This CESMP has been prepared by (The Contractor) E&S Staff in line with guidelines provided in ESMP document.

1.2 Aims and Objectives of CESMP

For the main stakeholders, namely the Employer, Project Implementation Unit (PIU), Construction Supervision Consultant (CSC) and the Contractor, this CESMP will provide a guide on; (i) what mitigation measures need to be taken; and (ii) when and where they are needed to be invoked. Thus, it will help in mitigating adverse impacts associated with the project execution, which ultimately results in maximizing project benefits.

Development and implementation of CESMP is the requirement for execution of different activities (such as construction of camp, Rehabilitation of Rain/Flood Affected Roads and allied works) to provide delivery mechanism for addressing associated socio-environmental impacts of the project.

Following is the synopsis of CESMP objectives.

- Identify the potential negative environmental impacts that can result from the construction activities and identify measures to control or avoid these impacts.
- Outline specific roles and responsibilities of project staff related to environmental management and mitigation measures.



- Take actions and conduct monitoring to show the compliance with Provincial, National, International requirements and ESS 2018.
- To ensure that the impacts on the environment are kept to a minimum by ensuring the mitigation measures described in the CESMP are implemented and continuously monitored.
- To plan, organize and implement all the measures required for health and safety of the workers.
- The CESMP will perform a risk assessment & hazard identification and will propose site-specific mitigation options that would appropriate and commensurate with the actual impact and implement all the measures required for health and safety of the workers.

1.3 CESMP Administration

Copies of this CESMP will be kept at the site office and will be distributed to all senior project officers i.e. Project Manager, Construction Managers, E&S Staff and site engineers etc. All senior officers will be required to understand and familiarize themselves with the contents of this document.

1.4 Institutional Arrangements for implementation of CESMP

1.4.1 PIU (Project Director and its E&S Staff)

Overall responsibility for environmental and social management and monitoring will rest with the Project Director (PD). An Environmental & Social Staff (E&S Staff) has been deployed within the PIU, with direct reporting line to the PD to ensure compliance to ESMP/CESMP.

The responsibilities of PIU- E&S Staff will be, but not limited to the following.

- Ensure effective compliance of CESMP in line with ESMP.
- Provide technical assistance to the project team, in matters related to environmental and social safeguards as a whole.
- Put in place reporting mechanism and monitoring regimes for project staff as well as contractors.
- Provide technical input to the various training programs proposed as a part of the CESMP.
- Ensuring that all regulatory clearances from the Sindh-EPA are obtained before starting civil works for the Project.
- Conduct on site spot checks; to check the compliance level, as well as for any outstanding issue not being covered by the CESMP - Regularly report to PD as well as The World Bank on progress related to CESMP Compliance.
- Approve the CESMP prepared by the Contractor, reviewed by CSC and monitor the implementation.



Table 1 PIU Staff for CESMP Monitoring

Sr. No	Name of Staff	Designation	Contact Number

1.4.2 Construction Supervision Consultants

- During implementation, the Construction Supervision Consultants will support PIU.
- The CSC is responsible for day-to-day supervision of the CESMP on behalf of the Employer during execution of the project civil works and will accordingly submit periodic reports to the PIU regarding the implementation status.

Table 2 CSC Staff for CESMP Supervision

Sr. No	Name of Staff	Designation	Contact Number

1.4.3 The Contractor

- Contractor will be responsible for the implementation of the CESMP as well as maintaining responsibility for environmental protection liabilities. Contractor will also be responsible for training his crew in all aspects and implementation of the CESMP.
- Contractor has prepared CESMP, which includes the Contractor's plan to implement environmental management and monitoring requirements. The CESMP has been prepared in line with ESMP. The plan shall be reviewed by CSC and approved by the PIU. The Contractor will also be responsible for site restoration.

The key positions to be filled within the Contractor's staff for implementation of the EMP include:

Table 3: Contractor Staff for CESMP Implementation

Sr. No	Name of Staff	Designation	Contact Number
--------	---------------	-------------	----------------



2 PROJECT DESCRIPTION

The proposed sub-project falls in the District -----. The proposed project is aimed at the rehabilitation of the ----- roads of the district (refer Table-4 for detailed description and Figures 1 for location reference), damaged by the flood with the objective to restore the road connectivity and restoration of livelihood resources of flood-affected communities.

Table 4: Details of Roads for Rehabilitation at The District

S# No	Name of Road	Location / Taluka	Existing Width (ft)	Length (in Kms)	GPS Coordinates
1					
2					
3					

2.1 Location of the Project

Pls Insert the RD wise Location Plan of the proposed subproject.

--



Figure 1: Location Plan

2.2 Contract Description

Table 2.1 below, describes the brief of contract.

Table 5: Brief Contract Description

Project Name	Sindh Flood Emergency Rehabilitation Project (SFERP) P&DD component
Sub-Project Name	Rehabilitation of Rain/Flood Affected Roads, District -----
Project Cost	
Project Duration	
Camp Location	
Client/Proponent	PIU - SFERP
The Engineer	
The Contractor	
Focal Person Name & Number	From PIU From CSC From Contractor



3 DESCRIPTION OF CONSTRUCTION AREA AND BOUNDARIES

3.1 Project Boundaries

The proposed construction area lies around them ----- . As majority of construction activities will be undertaken within ROW, therefore, it has been taken as Construction Boundaries. In addition, the construction boundaries for temporary works like Contractor's Camp have been shown in Figure - 2 below.



Figure 2 Camp Location on Google Imagery

3.2 Camp and Batching Plant

To minimize social impacts, campsite has been identified away from the community/settlements minimum 500 meter. Total area of the land leased for camp is ----- acres. Contractor's camp is temporarily built, will be restored to its original condition after completion of the project. Location of the campsite is shown in Figure 2 followed by layout plan of camp & batching plant in Figure - 3.

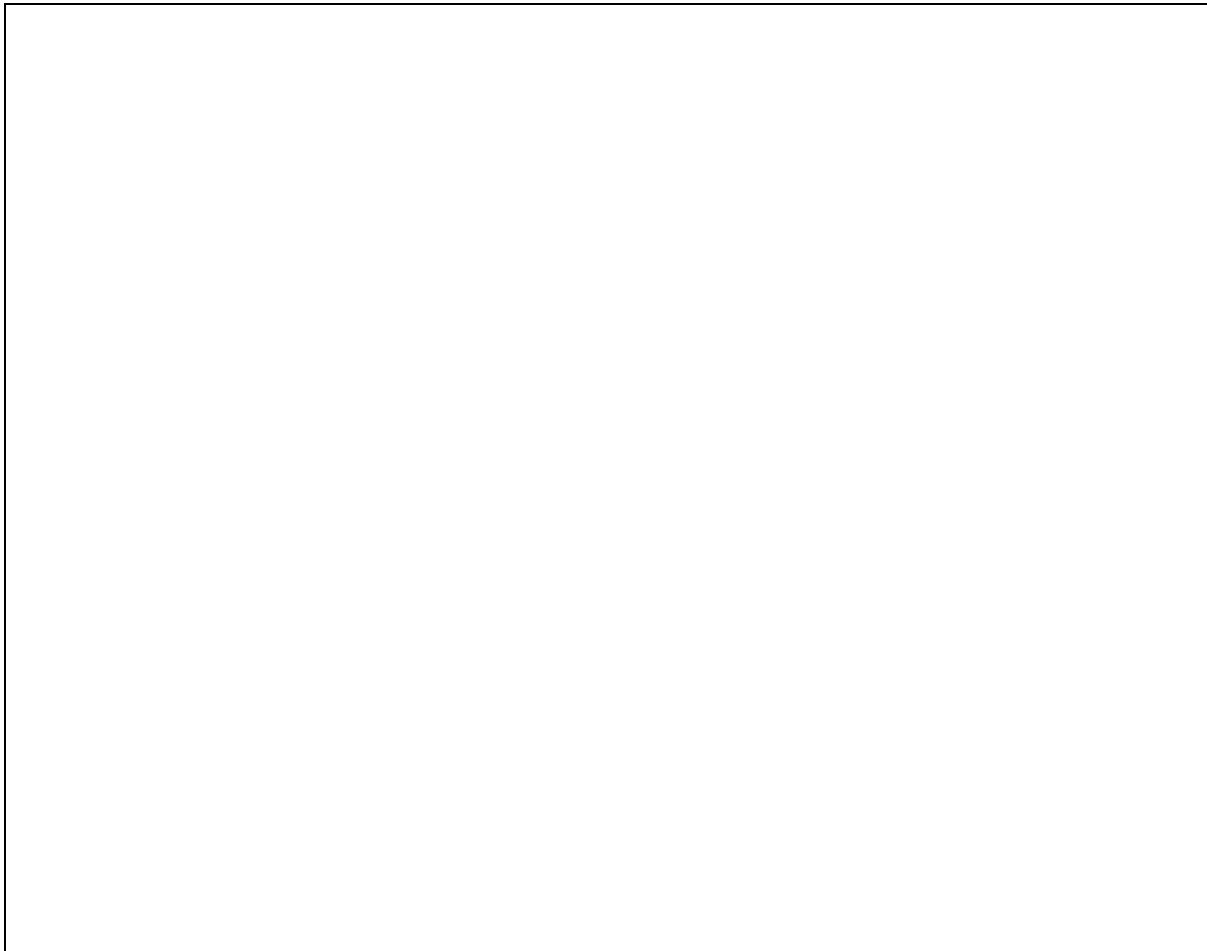
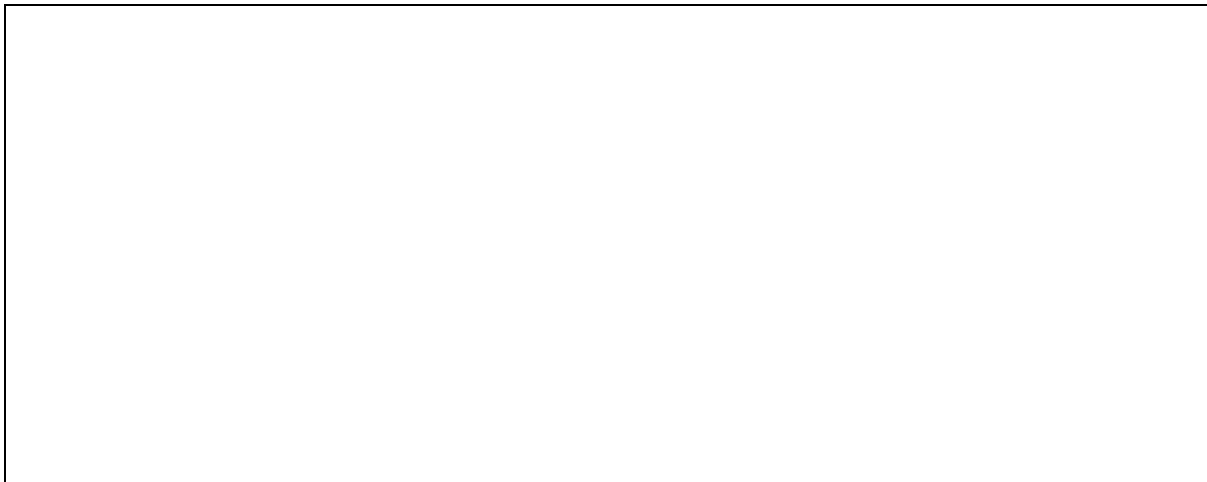


Figure 3: Construction Camp Layout Plan

3.3 Borrow Areas and Materials

For the construction activities, a borrow area has been selected for the extraction of materials which are already approved by the Engineer. The borrow areas is near ----- village -. Coordinates of the borrow areas are ----- . The area to be utilized as borrow area is ----- Acre as depicted in Figure -4:



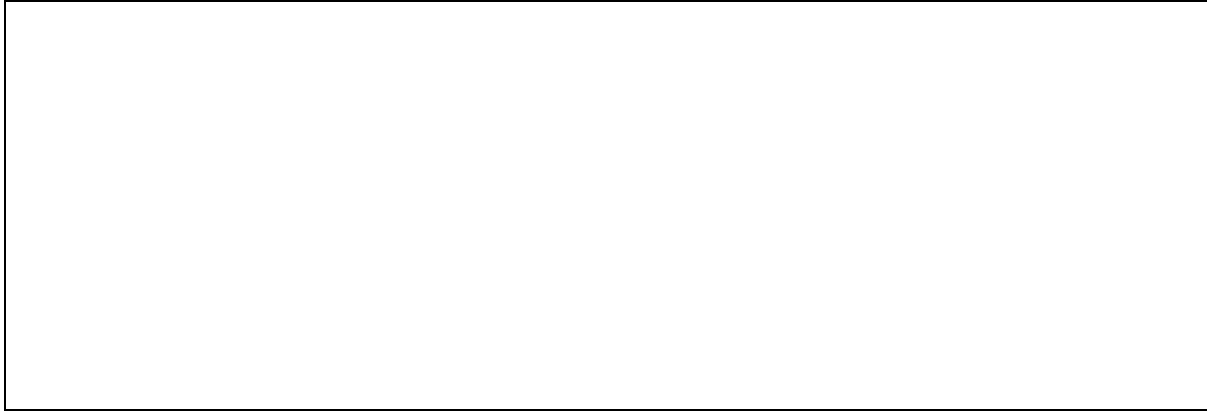


Figure 4: Borrow Area



4 RISK ASSESSMENT

Risk assessment and management techniques have been adopted so that potential hazards are identified and evaluated prior to execution of critical job or the job, which is going to be conducted first time. In the Risk Assessment Matrix, the environmental & social impacts and the control measures are explained with respect to the construction activities. Special attention needs to be paid during construction with adequate protection, to create friendly environment.

These potential risk activities can damage the community badly if not controlled. In order to prevent or mitigate any potential adverse impacts of the construction, it is necessary to implement the recommendations.

On the most common failures of environmental management is that the construction teams have no guidance as to what environmental management measures are required and so there is a high probability that environmental damage will occur. Once the damage has taken place it is often impossible to put right again, therefore the environmental management measures have failed right at the point when they are most needed. It also becomes difficult to retrofit the environmental management requirements after the construction activities have started. Proper planning is therefore essential

4.1 Risk Assessment and Management

Risk assessment and management are used interchangeably to describe a sequence of analysis and management activities focused on creating a project-specific response to the inherent risks of developing a new capital facility. The objectives of Risk Assessment for the construction phase CESMP is described in Table –.6 below:

Table 6: Risk Assessment Objectives and Expected Outcomes

Objectives for Risk Assessment	Expected Outcomes
<ul style="list-style-type: none"> Identify major design and construction risks 	<ul style="list-style-type: none"> Better understanding of environmental engineering, and construction issues faced by each project
<ul style="list-style-type: none"> Identification, quantification, and likelihood of major scope, budget and schedule risks for all major project components 	<ul style="list-style-type: none"> List of major project risks Reasonable estimate of risk costs and probable total project costs and duration Long list of risks mitigation strategies Preliminary risk management plan focused on design and constructability risks Preliminary risk allocation planning
<ul style="list-style-type: none"> Targeted assessment of construction problems, causes, and potential cost/schedule impacts Identification and systematic evaluation of possible corrective actions 	<ul style="list-style-type: none"> Analysis of specific problems Costs/Benefits of possible corrective actions that will allow project sponsors/owners to maintain (or recover) schedule and avoid cost overruns

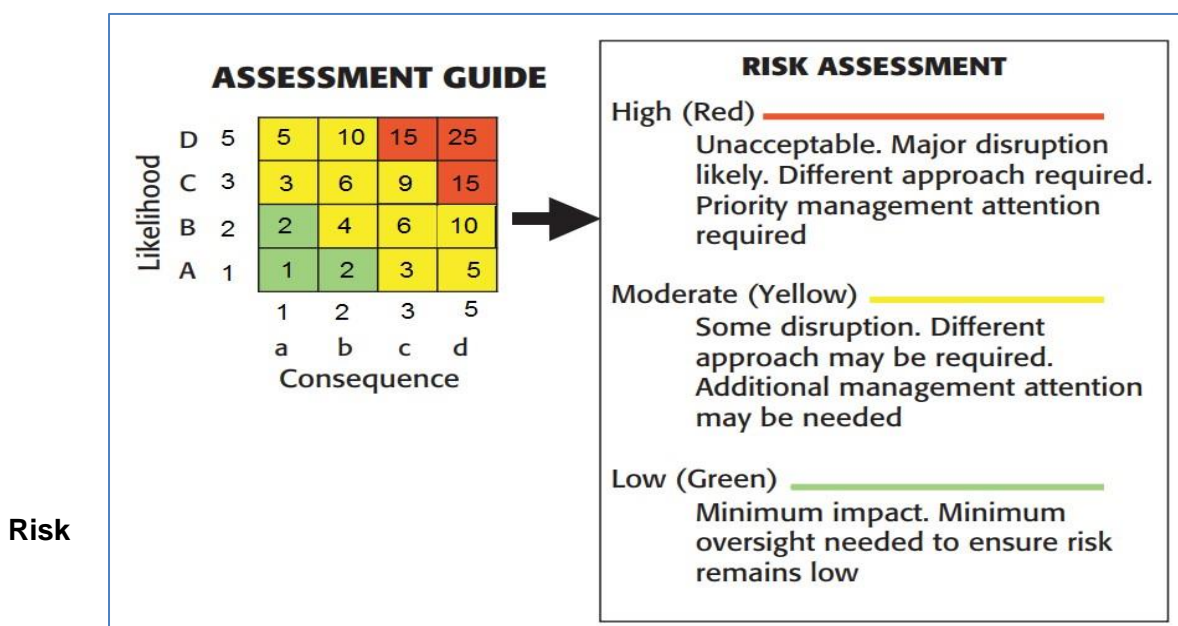
4.2 Risk Identification

The risk identification process identifies and categorizes risks that could affect the project. The objective of risk identification is the early and continuous identification of events that, if they occur, will have negative impacts on the project ability to achieve performance or capability outcome goals. The tools and techniques outlined in this chapter will support the risk identification process, but it will be the people involved in the exercises who are most critical to the success of the process.

4.3 Risk Assessment Process

Risk is assessed as the likelihood that the activity will have an effect on the environment as well as the consequence of the effect occurring, as described below.

$$\text{Risk} = \text{Likelihood} \times \text{Consequence}$$



Assessment Model

4.4 Response Options

Risk identification, assessment, and analysis exercises form the basis for sound risk response options. A series of risk response actions to avoid or mitigate the identified risks is considered as follows. The likelihood scale and consequence scale is described in Table - 7 and 8 respectively.

Table 7: Likelihood Scale

S/No	Likelihood	Definition	Score
A	Certain	Will certainly occur during the activity at a frequency greater than every week if preventative measures are not applied	5
B	Likely	Will occur more than once or twice during the activity but less than weekly if preventative measures are not applied	3



C	Unlikely	May occur once or twice during the activity if preventative measures are not applied	2
D	Rare	Unlikely to occur during the project.	1

Table 8: Consequence Scale

S/No	Consequence	Definition	Score
A	Catastrophic	Unprecedented damage or impacts	5
B	Major	Major adverse damage	3
C	Moderate	Limited adverse impacts	2
D	Minor	No or minimal adverse environmental or social impacts	1

- Avoided (by taking appropriate steps).
- Reduced (by an alternative approach).
- Handled by a combination of the above.

All the assessed risks are handled by providing mitigation, management or both. Special consideration and specific management sub plans are formulated for moderate and major risks. The consideration of issues in risk assessment matrix is carried out with respect to construction activities. The risk assessment process is undertaken with a risk assessment matrix and is provided in Table - 9 below (the table will be customized as per the sites conditions). The list of construction activities involved in the project is given in Table - 11.

Table 9: Risk Assessment Matrix

Construction Activity	Issues to Consider	Likelihood (Score)	Consequences (Score)	Risk: Likelihood x Consequences	Mitigation Measures
Site Surveying, Clearing and Grubbing	Damage to vegetation beyond project footprint				•
	Loss of topsoil and erosion of exposed area				•
	Deterioration of air quality due to machinery and equipment operation.				•
	Noise				•
Establishment of Camp, Batching plant etc.	Loss of vegetation				•
	Water pollution				•
	Noise				•
	Traffic congestion and access for road side residents				•
	Soil contamination due to chemical spill.				•
	Land degradation due to Solid Waste Disposal of campsite.				•
	Deterioration of air quality due to machinery and equipment operations.				•
	Health and Safety issues inside the Camp				•



Construction Activity	Issues to Consider	Likelihood (Score)	Consequences (Score)	Risk: Likelihood x Consequences	Mitigation Measures
Dismantling of Roads and Existing Structures	Noise				•
	Deterioration of air quality due to machinery and equipment operation.				•
	Community safety				•
	Worker safety				•
	Traffic congestion and access for roadside residents				•
	Waste management and disposal				•
	Deterioration of air quality due to machinery and equipment's operation.				•
	Traffic congestion				•
	Water contamination				•
	Soil erosion and sediment control				•
	Workers safety				•
	Public safety				•
Earth Work	Noise and vibration				•
	Soil erosion				•
	Surface water contamination				•
	Dust generation				•
	Deterioration of air quality due to machinery and equipment's operation.				•
	Worker safety				•
	Traffic congestion				•
	Community safety				•
Construction of Structure	Noise and vibration				•
	Deterioration of air quality				•
	Worker safety				•
	Traffic congestion				•
	Dust generation				•
	Deterioration of air quality.				•
	Traffic congestion				•
	Community safety				•
Concrete Activity	Worker safety				•
	Noise				•
	Air quality deterioration				•
	Worker safety				•
	Community safety				•
Removal of Temporary Works from Site	Traffic congestion				•
	Dust generation				•
	Water contamination				•
	Soil erosion				•
	Community safety				•



Construction Activity	Issues to Consider	Likelihood (Score)	Consequences (Score)	Risk: Likelihood x Consequences	Mitigation Measures
	Worker safety				•

The specific mitigation measures for the risks assessed in Table - 9 above, have been superimposed on the project layout as shown in Figure - 5 below, followed by details of the mitigation measures in Table - 10.





Figure - 5 and Table - 10 (both on A-3 size pages) below will be made part and parcel of the construction drawings and shall be available with the Engineer and Contractor at Site. In circumstances, where any unforeseen risk emerges during the currency of the contract, same shall be reflected with the proposed mitigation measures by updating the foregoing and shall be issued with the prior approval of the Employer.







Figure 5: Layout Showing Application of Mitigation Measures

Table 10: List of Issues and Mitigation Measures



Legends	Issues	Specific Mitigation Measures	Legends	Issues	Specific Mitigation Measures
	Noise Pollution	<ul style="list-style-type: none"> • Avoid Night operation • Inform community for unavoidable night work. • Use vehicles equipped with exhaust muffler (Silencers) • Inform community regarding noise generation. • Provision of PPE and ensure their usage • Acoustic guards and doors kept in place and usage of serviced equipment • Switch off vehicles engines, while queuing • Consult public with nearby schools and hospitals. • Installation of temporary acoustic noise barriers 		Worker Health and Safety	<ul style="list-style-type: none"> • Provision of safety vests, hard hats and protective footwear for workers. • Usage of protective mask by machine operators. • All time use of high-visibility jackets by project staff at site. • Proper lighting arrangement at site particularly in case of night work. • Installation of protecting fencing around the camp. • Provision of fire extinguishers, sand buckets etc. near fueling facility(y)s. • Isolated fuel storage area and prohibition of unauthorized entry. • Toolbox talk at the start of activities. • Firefighting training to the camp staff. • Provision of First Aid facilities at camp and Site • Provision of ambulance and dispensary at Camp. • Provision of hygienic food and drinking water. • Follow safety precautions while transporting, handling and storage of hazardous substance. • Insulation of electrical wires, switchboards and electric equipment at camp and at site where required. • Handling of used oil and chemical waste in accordance with MSDS. • Provision of spill kits and spill catching trays to the mechanical workshop crew
	Air Pollution	<ul style="list-style-type: none"> • Use of serviced vehicles as per manufacturer's requirements. • Regular sprinkling of water on compacted access road. 		Community Safety	<ul style="list-style-type: none"> • Isolation of work area through installation of demarcation tap. • Prevention of unauthorized entry.



Legends	Issues	Specific Mitigation Measures	Legends	Issues	Specific Mitigation Measures
		<ul style="list-style-type: none"> Removal of excess material upon job completion. Observance of speed limit (30km/hr.) on katcha track/haulage routes/local roads. Ensured usage of PPE i.e. face mask etc. 			<ul style="list-style-type: none"> Installation of temporary hard barriers and warning sign boards etc. at work site entry. No machinery will be left unattended, particularly in running condition. Public consultation with the nearby community. Provision of night time light at work area particularly at excavated sites.
	Water Pollution	<ul style="list-style-type: none"> Avoid pollution of surface water. Disposal of unsuitable materials to approved disposal sites. Avoid disposal of materials in flood drains. Locating storage area away from water-courses drains and transport routes. Fuel storage areas having masonry and concrete secondary containment with 120% capacity of fuel stored. Daily check of fuel tanks and immediate plugging of leaks Using only designated storage areas. Proper drainages for effluent discharge into the septic tanks. Septic tanks are well lined. Provision of soakage pit for final disposal. Provision of drain for drainage of storm water from camp Runoff from refueling and wash down areas collected for treatment. 		Soil Erosion and Contamination	<ul style="list-style-type: none"> Ensure canal stability of vulnerable cut and fill sections. No soil will be left unconsolidated after completion of work Placement of chemicals, engine used oil etc. on the brick paved surface. Good housekeeping practices at camp and workshop areas. Handling of used oil and chemical waste in accordance with MSDS. Provision of spill kits and spill catching trays to the mechanical workshop crew
	Traffic Collision	<ul style="list-style-type: none"> Avoid traffic hampering at local/major roads. Depute Flagman Installation of proper warning signboards. Near diversion point, public consultation for road diversion 		Solid Waste Management	<ul style="list-style-type: none"> Provision of garbage bins for domestic waste collection within camp. Avoidance of camp waste disposal near residential areas or in agriculture fields. Lining of disposal area base in case of permeable strata. Upon usage, rehabilitation of disposal area to



Legends	Issues	Specific Mitigation Measures	Legends	Issues	Specific Mitigation Measures
		<ul style="list-style-type: none"> Securing proper NOC for diversion (if required) Provision of compacted diversion road 			<ul style="list-style-type: none"> the baseline conditions. Locate disposal area at least 100 meter away from the settlements. Promotion of good housekeeping inside camp. Ensure construction waste disposal at approved site

Table 11: List of Major Construction Activities

S/No	Construction Activities Involved	Proposed Manpower	Equipment Needed	Proposed Schedule of activities
1	Site Surveying & clearance	Site Engineer, Supervisor, Surveyor, Helper, Labour and Operators	Grader, Excavator, Total station, and level machines	
2	Establishment of camp, batching plant, etc.	Site Engineer, Supervisor, Surveyor, Mason, Labour, Operators, Driver, and Helper	Crane, Excavator, Loader and Tractor trolley, Concrete mixer Machine	
3				
4				
5				
6				
7				
8				
9				
10	Removal of temporary works from the site			

4.5 Sensitive Receptors Assessment

4.5.1 Sensitive Receptor Analysis

Sensitive receptors are generally considered to include those, where noise/dust exposure could result in health-related risks to individuals, as well as places where individuals expect silence to be an essential element of the location. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise and potential sleep disruptions. Additional areas, such as parks, historic sites, cemeteries, and recreation areas, are also considered sensitive to exterior noise. Schools, mosques and other places of worship, hotels, libraries, nursing homes, and other



places where low interior noise levels are essential are also considered as sensitive receptors. The majority of sensitive receptors in the study area are residential dwellings, etc.

In order to identify potentially sensitive community structures, a survey of the Project impact area was undertaken. The indirect impacts on Socially sensitive receptors have been evaluated at 200 meters/650 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line). These were identified through direct observation and by interviewing those living within the sub-project area. Most of the structures were located near towns and settlements in rural areas. Details of Socially Sensitive Receptors along the Proposed Roads have been enumerated in tabular form in Table – 12 same has been depicted in Figure – 6.

Table 12: Inventor for Sensitive receptor along the subproject area.

Sr. No	Socially sensitive receptors	Village Name	RD	Off set	Spatial Reference

Figure 6: Photo log of Sensitive Receptors

4.5.2 Impact on Sensitive Receptors Short-Term Construction Related Activities

The proposed subproject would result in intermittent construction activities near the sensitive receptors. These construction activities could potentially expose sensitive receptors to noise levels in excess of the applicable noise standards or result in a noticeable increase in ambient noise levels, or both. Impacts of construction equipment, noise, dust and construction-related traffic on exposure of sensitive receptors to temporary and short-term construction related activities are discussed below.



4.5.3 Impact of Construction Equipment

Construction noise levels in the study area would fluctuate, depending on the particular types of equipment, the number of equipment used and the time duration of equipment use. The effects of construction noise depend largely on the type of construction activities. Construction generally occurs in several discrete stages, each phase requiring a specific balance of equipment with varying equipment type, quantity, and intensity.

Construction equipment includes bulldozers; loaders; excavation equipment, such as graders and scrapers; and compaction equipment. Erection of large structural elements and mechanical system could require the use of a crane for placement and assembly tasks, which may also generate high noise levels.

To assess noise levels associated with the various equipment types and operations, construction equipment can be considered to operate in two modes: mobile and stationary. Mobile equipment, such as loaders, graders, and dozers, moves around a construction site, performing tasks in a recurring manner. Stationary equipment is used to perform continuous or periodic operations in each location for an extended period, such as a batching plant, pile driver etc. Thus, determining the effective acoustical center of operations for mobile equipment during the construction process or the location of stationary sources during specific activities is necessary when conducting a noise analysis. Operation of heavy construction equipment typically is characterized by short periods of full-power operation, then by extended periods of operation at lower power, idling, or powered-off conditions.

4.5.4 Mitigation- Measures for Noise-Reducing

Contractor will implement the following measures during construction activities when noise-sensitive receptors are located nearby.

- It will be ensured that the regular inspection, maintenance, lubrication of construction vehicles and equipment will be carried out.
- Equipment will be operated, stored, and/or maintained as far away as practical from sensitive noise receptors.
- Construction equipment will be properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., mufflers, silencers, wraps). All impact tools will be shrouded or shielded, and all intake and exhaust ports on power equipment will be muffled or shielded.
- Substitution of high noise generating equipment with low noise generating equipment is necessary in the vicinity of sensitive receptor.
- Construction equipment operating in the vicinity of sensitive noise receptors will not be left idling for extended periods between construction activities.
- To the greatest extent feasible, construction activities will limit the use of "alarms" (e.g., backup indicators) on construction equipment in the vicinity of sensitive noise receptors.
- Construction equipment will be inspected before use at a project site located near sensitive noise receptors.
- To the extent feasible, construction outside of normal construction hours will be minimized or avoided completely when located in the vicinity of sensitive noise receptors.



- Where stationary construction equipment would result in exceedance of noise standards at a nearby sensitive receptor, temporary acoustic noise barriers or fence will be installed, where feasible, between the stationary construction operation and the sensitive receptor. Noise barriers will be 2.5m high corrugated sheets or wooden boards/sheets to avoid dispersion of noise into nearby community.
- As far as possible, nighttime traffic would be avoided. Local community will be well informed beforehand in case of night traffic is unavoidable.
- Vehicles equipped with exhaust muffler (Silencers) will be used for construction activities.

4.5.5 Impact of Ground borne Dust

Heavy-duty truck travel on haul routes for material transport and the use of heavy-duty equipment would cause ground borne dust during construction.

4.5.6 Mitigation Measures for Dust

Following are the mitigation measures for dust prevention.

- Implement a dust prevention strategy; reduction in speed limits 20km/hr. on unpaved access roads, regular water sprinkling, covered transportation of materials, access roads to be adequately compacted and regularly sprinkled to prevent dust generation, construction traffic limited to work area and established tracks.
- Take dust suppression measures, such as promptly watering exposed areas when visible dust is observed.

4.5.7 Impact of Operational Noise

- Some activities could result in long-term noise from operation of stationary sources (e.g., water pumps). Depending on the location of management actions and the equipment needed for long-term operation, a new source of noise could be introduced near sensitive receptors.

4.5.8 Mitigation-to Reduce Operational Noise

The project proponent will implement the following measures during operation.

- Stationary noise sources will be located as far away from sensitive receptors as feasible.
- Design techniques to reduce noise (e.g., structure encasing, installation below grade) will be implemented for stationary noise sources (e.g., water pumps) in the vicinity of sensitive receptors. If noise modeling indicates that noise reduction techniques are sufficient to allow the stationary noise source to be located closer to sensitive noise receptors and still not violate applicable noise standards, then the facility may be located closer to the receptor.

4.5.9 Impact of Air Contamination and Smoke

- There may be risk of air pollution and smoke from construction equipment near sensitive receptors.



4.5.10 Mitigation Measures for Smoke

- To ensure there is no health risk or loss of amenity due to emission of exhaust gases to the environment, following measures are required.
- Ensure that all vehicles and machinery are fitted with appropriate emission control equipment, maintained frequently and serviced to the manufacturers' specifications.
- Smoke from internal combustion engines should not be visible for more than ten seconds.

4.5.11 Impact of Traffic

- Bad traffic management and traffic may increase chance of traffic accidents near sensitive receptors.

4.5.12 Mitigation for Construction Traffic

- A proper traffic management plan will be in place during construction activities to overcome the problem of traffic jams causing inconvenience near sensitive receptors. In the project corridor, the impacts are temporary and minor negative in nature and will be mitigated by implementing proper alternative traffic management plan. The measures include the following:
- Traffic management plan will be prepared and get approval from the Engineer in consultation with community and local stakeholders.
- proper traffic management with marking will be done on the road crossings near proposed interchanges
- Speed limit will be reduced near sensitive receptors and speed limit boards will be installed near all sensitive receptors including, mosques etc.
- Alternative routes will be clearly defined.



5 CONSTRUCTION CAMP MANAGEMENT PLAN

The project Manager will ensure that all construction camps and welfare facilities shall be designed, constructed and maintained in accordance with the company set procedures. The following shall be ensured:

- General Arrangements for Camp Construction
- Construction camp hygiene
- Kitchen Areas/Food Storage & Quality
- Personal Hygiene
- Toilet Sanitary Facility and Laundry
- Temporary Electrical Facility, Internet accessibility and Installations
- Firefighting/Emergency Response System
- Insecticides/Mosquito Control
- Sewage Handling
- Evacuation Routes and Emergency Exits
- Medical Facilities
- Assembly points.
- Site office.
- Parking area

5.1 Drinking Water Supply

Access to a free, safe, readily available potable water source shall be provided at all times. Drinking water quality shall meet WHO standards & Sindh Environmental Quality Standards. Prior to use, the contractor shall arrange for tests on samples of each drinking water source from a SEPA certified laboratory approved by the Supervision consultant on a monthly basis. The results of these tests shall be submitted to the Supervision Consultant. Each supply of drinking water shall be conspicuously marked by an appropriate sign. All water storage tanks shall be covered to avoid the risk of contamination.

5.2 Room / Dormitory Facilities

Floors to rooms/dormitories shall be constructed, float finished concrete, or other similar solid, washable material. Rooms/dormitories shall be maintained to a livable standard and cleaned daily.

A minimum spacing of 1m (3.3ft) shall be provided between beds /cots and one bed/cots should be provided per resident. The use of bunk beds shall be avoided. Each worker shall be provided with an appropriate mattress, pillow, cover, clean bedding and mosquito net. Bed linen shall be washed regularly and treated with repellents as necessary. Cupboards for residents shall be provided for personal storage, with separate storage being provided



for any clothing or Personal Protective Equipment required for staff to carry out the work assigned to them.

5.3 Sanitary Facilities

The contractor shall provide and maintain hygienic, well-lit and ventilated sanitary facilities. Sanitary facilities shall be provided within separate buildings in the vicinity of rooms/dormitories. Separate latrines and washing facilities shall be provided for males and females (if females working on site) with total isolation by wall or by location. A minimum of one hand wash facility, one latrine and one shower shall be provided for every ten persons'/10 Rule will be followed properly.

Latrines (Toilets) shall be clearly distinguished in a language understood by those using them to avoid miscommunication.

Washing facilities, including showers, shall be provided at readily available places within the immediate vicinity of every latrine. Washing facilities shall include a supply of clean running water, soap and clean towel.

All sanitary facilities shall be built from easily cleanable material and shall be cleaned daily. Sanitary facilities shall be built so as to provide adequate privacy. All doors shall be lockable.

5.4 Canteen, Cooking and Laundry Facilities

Canteen, cooking and laundry facilities shall be built from easily cleanable materials and kept in a clean and sanitary condition. All such facilities shall be cleaned daily. Adequate facilities for washing and drying clothes shall be provided.

Kitchens and other areas used for food preparation shall promote good food hygiene and protect against contamination. Kitchens shall include raised, smooth, easily cleanable, non-toxic and non-corrosive surfaces for food preparation. Wood burning will not be taken during cooking. Cooking and other activities will be done by gas provision through gas cylinder

Adequate facilities for cleaning, disinfecting and storage of kitchen utensils shall be provided throughout the Contract period. Kitchens shall provide facilities to promote good personal hygiene, such as adequate hand wash and hand drying facilities. Food waste and other refuse shall be adequately deposited in sealed containers and regularly removed from the kitchen.

Kitchens shall be sheltered and separated from living quarters. The contractor shall provide sufficient fuel for cooking inside camps, to prevent the collection of firewood.

5.5 Standards for Nutrition and Food Safety

The WHO safer food process shall be implemented. Food shall be made available to workers and shall contain an appropriate level of nutritional value and consider religious/cultural backgrounds.

5.6 Leisure, Social and Telecommunications Facilities

Basic collective social/rest/recreational spaces shall be provided. Workers shall be provided with dedicated spaces for religious observance if so warranted.

5.7 Parking Area



Sufficient parking area for material/equipment vehicles, and light vehicles shall be ensured

5.8 Types of Safety & Security Events

The variety of safety and security events, impacts, locations, levels of severity, and combinations with other elements or other emergencies makes it impossible to define and plan for every scenario however, general types of events can be identified that may be faced by the Contractors, whether natural (e.g., flooding), accidental (e.g., fall), intentional (e.g., theft), or technological (e.g., communications failure). Contractor's Plan must adequately address reasonable possibilities. Listed below are safety and security events and emergencies for which Contractor will be prepared to respond.

- Natural events such as extreme temperatures
- Structural collapse or imminent collapse of structures or buildings
- Fire or smoke at or near works areas
- Accidental or intentional release of hazardous and non-hazardous material
- Loss of power, lighting or communications at job sites
- Collision involving private vehicles and/or construction vehicles/equipment
- Person struck by vehicle or construction equipment
- Unauthorized access onto the worksite
- Theft of material or equipment from job sites
- Vandalism or criminal acts
- Response to injuries, fatalities, medical emergencies or equipment/facility damage
- Pandemic of communicable or infectious disease
- Site evacuation, including persons with disabilities; and Other scenarios deemed reasonable and appropriate

5.9 Signage & Access Control

- Proper signage will be placed on the exterior of each worksite so that persons approaching the site from any area, sidewalk or known or anticipated access point are sufficiently informed that they are approaching a controlled area.
- Signage must identify the site as a worksite, with restricted public entry, and warn of the potential dangers. A phone number must be provided for notification of hazardous or emergency conditions or to report suspicious or inappropriate activity.
- Signage will be placed within the site prohibiting unauthorized crewmembers from operating machinery or equipment for which they are not qualified or trained, informing site crews and visitors of PPEs requirements and any other safety or security requirements.
- Appropriate access controls will be implemented at all worksites. Access control will include barriers, fencing and gates or other methods to prevent unauthorized individuals and vehicles from entering the worksite.
- All worksites on and along public roadways will provide physical separation through traffic control and pedestrian control, using barrels, barriers, tape, signage, or other means as appropriate. Work performed in close proximity to traffic must comply with all SOPs set by the Contractor. Work zones must be adequately protected from live traffic.



- Contractor will keep entry/exit records of all construction work zone visitors. Each visitor will be briefed and trained as appropriate about concerned hazards and dangers present at the work site before they are allowed to enter. All authorized work site visitors will be required to wear PPEs.

5.10 Drugs and Alcohol Usage

No person will be working on or otherwise present at any of the Contractor's construction site while under the influence of alcohol or any prescription drug that was not specifically prescribed to that person and taken in the directed amounts.

No person will operate any vehicle or machinery, or work in hazardous areas while under any narcotic or drug that impairs judgment or cause dizziness or drowsiness unless there is written approval by the attending physician. Particular concern will be applied if this individual performs a safety sensitive role and or operates equipment or machinery at the job site.

Any person found in such condition must be immediately removed by the site. Contractor will enforce all alcohol and drug-free workplace policies and requirements.

The use of illegal drugs and alcohol is strictly prohibited on Contractor's construction project sites. The contractor and all subcontractors are required to have a Program that addresses the prohibited use of alcohol and drugs, including pre-placement, periodic, for cause, and post-accident/incident testing.

5.11 Security Risk

In view of the present security situation, the Contractor will have to make necessary security measures to avoid the risk of security. Due to the uncertainty of the attacker, the measures for security will be with the orientation of precaution. The following precaution measures will be taken strictly.

- Camp will be fenced with temporary arrangement and at the entry of camp; security guards will be deployed for the security checking. All persons who enter or exit from the camp will be asked and searched. All vehicles coming inside will be thoroughly searched to avoid taking any hazardous materials. The person, who is not cooperative with the security staff for checking, will be rejected to enter or exit from the gate.
- Coordination with local police & authorities will be done to acquire more support and facilities from these authorities.

5.12 Hazards and Vulnerability Identification & Management

A central element of a CESMP is the management of construction site hazards and vulnerabilities. A key tool to support this is a safety and security risk assessment, which identifies hazards and vulnerabilities for the physical construction aspects of the project and then develops methods to mitigate or control such risks to acceptable levels or to eliminate them. Contractor will perform the hazard and vulnerability assessment prior to performing work on the project. The outcome from the risk assessment and the plan for appropriate mitigations must be provided to the Site Manager for approval prior to the start of field work on the project.





6 POLLUTION PREVENTION AND CONTROL PLAN

The Contractor shall ensure that its construction activities do not result in the contamination of any surface water, groundwater or agricultural soil by adopting methods that will prevent entrance or accidental spillage, solid matter, contaminants, debris, and other objectionable pollutants and wasters into Indus river flowing streams, flowing or dry watercourses, and underground sources.

6.1 Air Pollution Control

The Contractor shall ensure that mitigation measures as defined in the ESMP are in place to minimize the impact on health and the environment. The Contractor shall arrange Emission tests of vehicles, and generators through a third party approved by Environment Protection Agency in order to ensure compliance with national guidelines on ambient air quality.

Water is to be sprinkled during the construction phase in all mixing areas where dry materials are handled and/or crushed. Temporary access roads to aggregate sites must be included in the dust suppression program.

- The Contractor shall routinely inspect generators by using a checklist and emission tests through a third party shall be done quarterly in order to ensure that emissions do not exceed SEQS.
- Materials are to be transported safely in vehicles going to and from the construction sites to reduce spills. Dust suppression measures with the spraying of water should be taken for all roads used for transport.
- Comply with the national guidelines on ambient air quality standards and shall Implement ECP (Environmental Code of Practices) on Air quality management as defined in the ESMP.
- Vehicular traffic through communities will be avoided as far as possible. Vehicle speeds will be kept low if they should pass through communities.
- Dust Control Systems are an important factor in meeting environmental, health and safety requirements. Water Bowser shall be used to suppress the dust within the construction area.

6.2 Noise Pollution and Control

Administration control will be applied to control noise pollution shall be:

- Warning Signs shall be affixed in noisy areas.
- Training shall be conducted to create awareness in workers about noise protection.
- PPE shall be provided for noise protection.
- Noise survey shall be conducted on regular basis to monitor the level of noise. Noise monitoring through third party SEPA certified laboratory will be carried out on quarterly basis.



- Moreover, engineering controls will also be taken to control noise and separate rooms shall be constructed for generators and other noisy equipment.
- Ear plug/ear muff shall be used if the noise level exceeds from SEQS for day and night times.
- Safety signs and other mandatory hearing protection signs shall be placed in high-noise areas.
- The Contractor shall maintain construction machinery for the purpose of minimizing construction noise on the work site.
- The Contractor shall monitor noise and vibration results and adjust construction practices if required.
- In areas where noise may interfere with communication, suitable alternative arrangements shall be in place.
- All equipment in orders to keep it in good working order shall be maintained following manufacturers' maintenance procedures.
- Unnecessary use of alarms, horns and sirens shall be avoided
- Best available work practices shall be employed on-site to minimize occupational noise levels

6.3 Water Pollution

The Environmental Officer shall comply with applicable regulations concerning the control and abatement of water pollution as follows

- Construction activities shall be performed by methods that shall prevent entrance or accidental spillage of solid matter, contaminants, debris and other objectionable pollutants and wastes into flowing streams, flowing or dry watercourses and underground water sources.
- Pumps shall be provided to transfer fuel from fuel drums/tanks, and manual fuel pouring shall be prohibited.
- The Contractor shall ensure that caps on drums and tanks are completely sealed after filling.
- The Contractor shall ensure that drums and tanks are in good condition.
- Regular maintenance of vehicles and water browsers/ Water Pumps shall be carried out.
- Minimal generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes), It shall be ensured that these substances must not enter into waterways All waterborne plants shall be inspected daily prior to operation.
- All fuel tanks/drums shall be shifted and not stored on barges / waterborne vessels.



- The Contractor shall provide bunding around refueling points on any waterborne vessels to contain any spilled fuel.
- The Contractor shall ensure spill kits and absorbent material is provided at refueling points on all waterborne plant and ensures that staff involved in refueling operations is trained.
- Wastewater and Drinking water testing will be carried out on quarterly basis by engaging SEPA certified laboratory
- Proper storage and disposal of waste shall be ensured.
- Handling of chemical waste through proper channels/third parties.

6.4 Spill Prevention and Contingency Plan

Spill Prevention and contingency plan describes planning, prevention and control measures to minimize impacts resulting from spills of fuels, petroleum products, or other regulated substances as a result of construction.

6.5 Plant and Vehicle Maintenance

- Vehicles shall be inspected by Equipment and Plant (E&P) department on a daily basis to check for leakages
- Vehicles found with the leakage shall not be allowed to move on site

6.6 Treatment of Spills

- Spill kit including absorbents, neutralizers, PPE's and tools for cleanup, oil spill boom, shovels; plastic bags shall be available to deal with spills.
- Shovels, plastic bags, and absorbent material shall be present near fuel and oil storage or handling areas to attend the spills and leaks
- All oil spills major or minor on the ground or in water shall be managed by the HSE team.
- Contaminated material resulting from spills shall be collected and declared hazardous waste.
- Contaminated material (hazard waste) shall be disposed of through proper procedure.

6.7 Run-off from Camps and Worksites

The campsite shall be provided with all necessary drainage of storm water from the camp, construction area and community settlement.

6.8 Ground Pollution

Hazardous substances shall not be discharged onto the ground

- All possible efforts will be taken to maintain the ground in a better condition & to avoid ground pollution



- Most Importantly the contractor will import monthly effects monitoring from a third party as suggested by CSC/ Client.
- The following parameters will be taken into account;
- Gaseous Emissions;
- Physical, Chemical and Biological Parameters of water being used at site;
- Noise Levels;
- Ambient air;
- Disease/Health monitoring;



7 EMERGENCY PREPAREDNESS & RESPONSE PLAN

7.1 Purpose

A good Emergency Preparedness & Response Plan (EPRP) will help people take quick and effective action in the event of an emergency. It will help in easing the severity of the situation and limit the consequences.

EPRP provides procedures and structures for response to emergencies. EPRP provides strategies to combat specific situations and assign responsibilities for implementation.

The emergencies include but are not limited to;

- Fires
- Rains/Floods
- Explosions
- Civil disturbance
- Poisoning
- Structural Failures
- Workplace violence resulting in bodily
- Harm and Tolerance
- Chemical spill

7.2 Emergency Drills

All site personnel/members of the public (if applicable) will follow this plan that shall be tested through exercises/drills quarterly. These drills shall be conducted on the following scenarios;

- Fire Fighting
- Medical Evacuation
- Flooding
- Thunderstorm
- Spills of hazardous material
- Work at height

7.2.1 Fire Fighting

The operation on Fire Extinguishers and fire buckets shall be taken according to the “**Firefighting Procedure**” laid for which training shall be given at regular intervals.

Maintenance and inspections of firefighting appliances will be ensured through the checklist and regular monitoring.



7.2.2 Emergency Drills

Emergency response drills shall be conducted in the camp and the work site, and the observations and debrief notes shall be recorded. HSE officer shall analyze the findings and identify any remedial actions required.

The emergency procedure shall be updated from time to time to reflect observations made. Training shall be conducted on a regular basis for emergency response teams.

The location of emergency facilities e.g. firefighting appliances shall be identified on plans displayed at conspicuous locations.

7.2.3 Emergency Evacuation

Activate the emergency disaster siren to evacuate the area safely and ensure that unnecessary personnel leave the site by a safe route. The PM shall assign responsible personnel to advise security to open the facility's main gate for emergency vehicles.

For emergency response activities managed by The Contractor, key roles and responsibilities are detailed below:

7.2.4 Roles and Responsibilities

Key roles and responsibilities are detailed below:

Project Manager (Contractor's Representative)

The Contractor's Project Manager shall be responsible for the implementation of all the details of Environment and Social Management activities given in this CESMP.

- Providing leadership and direction in the event of an emergency.
- Ensuring that emergency response planning, preparedness and execution are consistent with the site requirements
- Ensuring that appropriate field response teams are defined and prepared for the various emergency response scenarios identified in this plan.
- Notification to the Client of any emergency incident.
- Providing leadership and direction in the event of an emergency.
- Ensuring that emergency response planning, preparedness and execution are consistent with the site requirements
- Ensuring that appropriate field response teams are defined and prepared for the various emergency response scenarios identified in this plan.
- Notification to the Client of any emergency incident.

Following initial notification, the liaison will be made with the Client during the execution of any emergency response.

7.2.5 Environmental Officer (EO)



The environmental officer shall be responsible to aid with the practical implementation of CESMP. Specific responsibilities of the Environmental Coordinator officer include;

- Ensure compliance with national legislation related to the environment and with the World Bank's environmental safeguard policies
- Oversees and ensures the implementation of the environmental components of CESMP and parallel management plans
- Reports on non-compliances and promotes corrective actions.
- Conduct regular inspections to check that impact mitigation measures are being implemented properly
- When required, arrange environmental training for the relevant.
- Personnel, The Contractor staff, contractors and service provider
- Reviews environment performance and reports to the in-charge HSE.
- To ensure that workers' accommodation meets the basic environmental requirements
- Maintain Trees Inventory
- Participate in Monthly Effects Monitoring by the third party

7.2.6 Health, Safety Environment Officer (HSE)

HSE will be responsible for site management for the on-site implementation of the CESMP plan. HSE will specifically aid with the following;

- To ensure that worker camps & latrines shall comply with The Sindh Occupational Safety and Health Act, 2017, Labor Camp Rules, 1960 & Sindh Factories Act 2015.
- Prevention of injury to personnel and damage to equipment
- Provision and ensure the use of protective clothing and equipment
- Assessments of potential hazards on jobs before work start
- To ensure that workers' accommodation meets applicable requirements
- Carrying out hazard identification and risk assessment, in association with the Construction Manager, Civil Supervisor to decide on the best safe methods of work in operation.
- Determining the cause of any accident or dangerous occurrence and recommending means of preventing recurrence. Arrange necessary HSE training for the workers and other relevant staff

The HSE officer is responsible for ensuring at the site that provisions are in place for emergency response, including:

- Muster points.
- Arrangements for conducting head counts.
- Identification and Mobilization of the Fire Team.



- Setting up drills and exercises.
- First Aiders with Ambulance.
- Conduct TBT (Tools Box Talks)
- Conduct WSTS (Weekly Safety Talks)

In the event of any emergency the HSE officer shall take the following actions:

- Shall attend the site of the incident, assess the situation and issue directions to the concerned parties and the Fire Team.
- Ensure that messages have been communicated to The Field Response Team Leader.
- Ensure all escape routes and assembly areas are marked by respective safety signs in the field as indicated on the site plan.
- Evaluate the scale of the incident and decide whether additional resources are required to adequately deal with it.
- Ensure effective use of PPE.
- Liaise with site supervision for the mobilization of any plant and equipment necessary for dealing with the emergency
- Limit access to the area with barriers or other means to prevent unauthorized access
- Coordinate the reinstatement measures following the stabilization of the incident.
- Prepare a full report.

7.2.7 Community Liaison Officer (CLO)

Ensure access to information by communities and use of localized means to disseminate information.

- CLO will provide information to communities on employment opportunities, Risks, Impacts and Mitigations prior to the start and end of construction and when other changes in project activities take place
- CLO will conduct consultation meetings with community leaders
- Coordinate activities concerning social mobilization and civil society involvement in the project
- The Community Liaison Officer (CLO) will maintain the Social Complaint Register (SCR) and complain box at the site to document all complaints received from the local communities and the actions taken against each complaint
- CLO will be inconsistent liaison with management and the community
- CLO will also document oral complaints (if any) by the community
- Community Liaison Officer (CLO) shall be hired having a background in sociology Subject



Proper communication & implementation of Communication and Local Recruitment Plan

CLO will also handle the issue of resettlement due to dam work. Employment opportunities will be addressed through CLO and Village Focal Points nominated and their frequency depends upon manpower requirements at the site. Community complaints will be maintained on a register and in the complaint Box. Community issues will be communicated as part of the routine HSE meetings held with the management. Actions taken against the complaints will also be maintained to show as issue close-out evidence. the progress will be part of the monthly monitoring and implementation report of the contractor to be submitted at PIC.

7.2.8 Dispenser

Holding a Certificate/Degree recognized by Pakistan Medical Commission

- Able to conduct the bred examination of each patient and also to document clinical findings
- Able to screen out Blood samples
- Able to operate BP apparatus and glucometer
- Able for Main medical record and could give a complete first add before reaching hospital
- Able to prescribe proper medication
- Able to keep a record of all medical proceedings
- Able to communicate and report the progress as and when necessary.

7.3 Emergency Response Team

In the event of an emergency, the chain of command will be as follows;

Name	Designation	Contact No.
	Site Manager	
	Environmental Officer	
	Health, Safety & Environment Officer	
	Social Expert/Community Liaison Officer	
	Dispenser /Paramedic	



8 TRAINING PLAN

As part of the Contractor's Environmental and Social Management Plan (CESMP) the training plan including the details such as subject, attendees, duration and frequency of the training has been prepared to provide all personnel with adequate information, instruction and training on environmental and social awareness, cultural sensitivity & occupational health and safety (Please see Table 13). The Contractor shall be responsible for conducting all the specified training through its highly trained Health, Social, and Environmental Management Team with the consultation of PIU. The Contractor shall also hire the services of experts with the prior approval/consultation of PIU for more training necessary and momentous for health, safety, social & environmental particular perspective under the provision of the contract. Training activities shall be recorded and reported on a regular basis. The Contractor shall:

- Update the training plan on a need basis.
- Organize induction training for all staff.
- Ensure employees are trained in the proper use of equipment in their care to minimize the risk of accidents.

Training Plan shall include below subject training as a minimum:

- Handling, use & disposal of hazardous material
- Waste Management
- Efficient & safe driving practices, including road & vehicle restrictions
- Actions to be taken in the event of major or minor pollution events on land
- Pollution Prevention
- Refueling of waterborne plant and Vehicles
- Use of spill kits and flexible booms
- Safe way to work & hazard awareness
- Safe Use of Plant and Equipment
- Work at Height
- Use of PPE
- Emergency Procedures and Evacuation
- Fire Fighting
- Importance of Tree Plantation
- Awareness of site-sensitive areas.
- HIV/AIDS / Covid 19
- Cultural Sensitivities of the local population
- Grievance Redressal Mechanism / GBV /SEA/SH



- Social Mobilization/Consultation
- Awareness of Social and Cultural Dynamics
- Gender Issues

All trainings will be conducted by a qualified competent person familiar with the work and hazards at the job sites, and deemed competent in terms of education, relevant experience, and instructional capability

Table 13: Environment, Social, Health & Safety Training Matrix

S. No.	Topics/Courses Required	To be Attended By			Duration	Schedule	Status		Re- marks
		PIU, CSC	Skilled Crafts	La-bors			Completed	Outstanding	
1.	Initial Orientation	✓	✓	✓	2 hrs	Once upon joining			
2.	Specific Orientation (on job)	✓			2 hrs	On job as- signment			
3.	Training to Staff Working within Active Process Area	✓	✓	✓	2 hrs	As & when required			
4.	Daily Tool Box Talk		✓	✓		Daily			
5.	Safety Talks				15 min	Weekly			
6.	Covid-19 SOP	✓	✓	✓	10 min	Daily			
7.	Task-Specific Training Course	✓	✓	✓					
8.	Environmental Issues	2 hours As & when required							
9.	PPEs on Site				2 hour	Weekly			
10.	Driving Rules and Driver's Training	For Any Category			2 hour	- Do -			
11.	Risk Assessment				1/2 day	- Do -			
12.	Accident/Incident Reporting				1/2 day	- Do -			
13.	Emergency and Evacuation Drills & Exercises				1/2 day	- Do -			
14.	Scaffolding and Ladders				1/2 day	- Do -			
15.	Fire Fighting				1/2 day	- Do -			
16.	Hazardous Material Handling				1/2 day	- Do -			
17.	First Aid				1/2 day	- Do -			
18.	Working at Heights				1/2 day	- Do -			
19.	Wastes and Spills				3 hours	- Do -			
20.	Air/Water Emissions				3 hours	- Do -			
21.	Grievance Redressal Mechanism		✓		½ hour	As & when required			
22.	Community Mobilization/Consultation		✓	✓	½ hour	Once in month			
23.	Social and Cultural Dynamic		✓	✓	½ hour	Once in month			
24.	Gender Issues		✓	✓	½ hour	Once in month			

On-site induction, TBT and trainings will be organized by the Emergency Response Coordinator/ HSE Officer/ Engineer regarding the health & Safety measures from potential and existing hazards, environmental protection, etc. New workers and staff will be orientated regarding their work and the potential hazards, and safety from them. All trainings will be recorded and communicated to the Supervision Consultant.





9 COMPLIANCE AND EFFECTS MONITORING PLAN

9.1 General

Monitoring Plan is an essential part of the CESMP. It is Contractor's contractual obligation to implement the CESMP. In this regard, Contractor has engaged full time technical staff capable of carrying out the suggested measures in the CESMP.

9.2 Objectives of the Monitoring

The main objectives of the Environmental Monitoring will be to:

- Monitor the actual project impact on physical, biological and socio-economic environment.
- Check the implementation status of CESMP and EMP.
- recommend mitigation measures for any unexpected impact or where the impact level exceeds SEQS that anticipated in the CESMP and EMP
- Ensure compliance with legal and community obligations including safety on construction sites.
- Ensure compliance of provisional obligation and condition laid down in NOC of Initial Environmental Examination (IEE).

9.3 Compliance and Effects Monitoring

9.3.1 Compliance Monitoring:

The contractor shall carry out compliance monitoring within the sub-project area using the monitoring checklists as annexed in the Annexure 1 to be prepared based on this CESMP to aid the monitoring process:

Frequency of anti-dust water sprays during construction period;

Installation of signage regarding community health and safety

Safety at workplaces and working hours during construction;

Incidence of liquid/solid waste in the vicinity of work camps (type and amount of waste, amount, interference with local residents, fauna, flora and crops);

Arrangements made at construction sites for protection of floral and faunal resources

- Assurance of installation of signage regarding community health and safety

9.3.2 Environmental Effects Monitoring

The Monitoring tests outlined in Table - 14 below shall be performed through Sindh EPA certified environmental laboratory and reports of monitoring tests would be shared with supervisory consultant for further guidance.

Table 14: Environmental Monitoring Plan

Environmental Quality	Parameters	Standards/ Guidelines	Location	Monitoring period/ Frequency	Responsibility	
					Implementation	Monitoring
Pre-Construction Stage						



Air Quality	SO ₂ , NO _x , CO, PM ₁₀ , PM _{2.5} , Humidity, Wind direction, Wind speed, Temperature etc.	Air quality standard by SEQS	Throughout the project areas particularly at: Camp and Batching plant site. Sensitive receptors at active construction site	Before start of civil work	Contractor	CSC and PIU
Water Quality	Water quality standard by SEQS	SEQS	Drinking water source at camp area	Quarterly	Contractor	CSC and PIU
			Surface water near project corridor and camp site	Quarterly	Contractor	CSC and PIU
			Ground water near project corridor particularly of sensitive receptors	Quarterly	Contractor	CSC and PIU
Noise Level	dB(A)	Noise pollution Control SEQS	Throughout the project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Construction Stage						
Air Quality	SO ₂ , NO _x , CO, PM ₁₀ , PM _{2.5} , Humidity, Wind direction, Wind speed, Temperature etc.	Air quality standard by SEQS	Throughout the project areas particularly at: Camp and Batching plant site. Sensitive receptors at active construction site	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Dust	Dust control	Air quality standard by SEQS	Throughout the project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Noise Level	dB(A)	Noise pollution Control SEQS	Throughout the project areas, particularly near sensitive receptors	Quarterly (24 Hours Duration)	Contractor	CSC and PIU
Water Quality	Water quality standard by SEQS	SEQS	Drinking water source at camp area	Quarterly	Contractor	CSC and PIU
			Surface water near project corridor and camp site	Quarterly	Contractor	CSC and PIU
			Ground water near project corridor particularly of sensitive receptors	Quarterly	Contractor	CSC and PIU
Noise monitoring	dB(A)	SEQS	Throughout the Project areas and campsite.	Monthly	Contractor	CSC and PIU
Light monitoring	(Lux Level)	Monitoring	Throughout the Project areas and campsite.	Fortnightly (Weekly during Monsoon)	Contractor	CSC and PIU
Waste Management	Check storage, transportation, disposal, handling of hazardous waste; Waste and effluents to be collected and disposed safely from camps; Waste and garbage from bridge/Aqua duct site.	Monitoring	Throughout the project areas and camp site	Weekly	Contractor	CSC and PIU
Health and Safety	Check quality of food and accommodation at construction camp.	Monitoring	Construction sites, labour camps	Regularly	Contractor	CSC and PIU



	Safe water supply, hygienic toilet at camps and construction of drain at campsites. Toilets are closely located to construction site and separate toilet for female workers; First-Aid kit; personal protective equipment (PPE) for worker at the Sites.					
Traffic Safety	Record of accidents, and implementation of the traffic Management plan prepared by the Contractor.	None Specific	Throughout the project corridor	Throughout the construction periods	Contractor	CSC and PIU
Socioeconomic issues	Local people recruited for all manual laborer and other jobs for which local skill are available; grievances of and conflicts with communities	;	At project locations; settlements	Throughout the construction periods	Contractor	CSC and PIU

9.3.3 Social Effects Monitoring

The social effects monitoring shall be the responsibility of Contractor social expert as well as CSC.

- Number of local people recruited on project works.
- Incidence of child labour and disproportionate wages
- Conflict at community level
- Chance find archaeological site
- Grievance redressal mechanism is in place
- Health screening of labour at site
- Contractor's staff sensitized on Gender base violence (GBV).

Both approaches will be conducted using the monitoring parameters by visual observation, photographic documentation, and measurement where necessary. A record of events and surveys will be maintained

9.4 Role & Responsibilities

The Contractor Environmental & Social Officer (E&S Staff) shall be responsible for day-to-day monitoring of compliance with the environmental and social requirements of this specification as well as the requirements of the CESMP.

The Contractor's E&S Staff shall prepare a monthly report to the Engineer. The format of the monthly report shall mutually be finalized however; it shall be ensured that the requirement of CESMP has been incorporated in the monthly report. The report shall also provide detailed



actions taken or proposed by the Contractor in response to any non-compliance identified the report shall be submitted not later than the third of each month.

The Environmental Officer shall be available to attend monthly meetings (when and where arranged by the Employer) to discuss environmental and social performance on Site. When instructed by the Employer or Engineer, any other member of The Contractor staff shall be available to attend such meetings.

9.5 HSE Inspections

The Contractor shall utilize a number of inspections not only to ensure compliance with the requirements of the CESMP but also to get feedback for the improvement of the CESMP

- The HSE Officer shall conduct inspections on day to day basis
- The HSE Officer shall be responsible to identify noncompliance and report it to the Site Manager/Project Manager
- Construction Managers and the area in charge shall be responsible for rectification of highlighted non-compliance



10 Reports

10.1 General

The E&S staff of the contractor and Supervision Consultant shall produce periodic reports as well as inspection notes based upon the implementation and monitoring of CESMP. All reports shall be location and activity specific. The reports shall especially identify areas of contractor's non-compliances with the EMP and provide guiding remarks on actions to be taken. The significance of the non-compliances shall also be noted. Copies of these reports shall be sent to the Resident Engineer (RE) who shall forward them to the Team Leader, then PD (E&S staff of PIU) and the Contractor for their action(s).

The RE will include in his routine reports a summary status of activities relating to the CESMP. Supplemental reports on issues should also be prepared as and when required. The reports will be prepared, reviewed and distributed according to reporting mechanism provided in Table - 15.

Table 15: Periodic Reports

Report	To be Prepared by	To be Reviewed by	Distribution
Daily	-Contractor's E&S officers	-Contractor environmental officer -Consultant's E&S	-Resident Engineer
Monthly	- E&S officers of the Contractor	-Consultant's E&S officers	-Resident Engineer -PIU E&S officers
Quarterly	- E&S officers of the Construction Supervision Consultants	- E&S officers PIU	-Resident Engineer -PIU -WB - SEPA
Bi-Annual Environmental Monitoring Report	E&S officers of the Construction Supervision Consultants	- E&S officers PIU	-Resident Engineer -PIU -WB - SEPA
Final	E&S officers of the Construction Supervision Consultants	- E&S officers PIU	-Resident Engineer -PIU -WB - SEPA

10.2 Complaint Register

The contractor will maintain a complaint register at the construction site(s), document all complaints received from the public or government organizations by whatever medium. The register will also record the measures taken to mitigate the reported concerns. All of these concerns shall be documented in the monthly reports. The status of the closeout concern shall be verified and counter signed by the designated official.

Complaints received shall be recorded in complaint register in tabulated form, which should concisely list the following information:

- Date of the complaint
- Name and contact address of the complainant
- Brief description of the complaint, with a reference number to any correspondence from the complainant



- Brief description of the action taken by the CLO to investigate the cause of the complaint and bring about corrective action, if justified
- Date of reply to the complainant, with a file reference to any correspondence.



11 PHYSICAL CULTURAL INFRASTRUCTURES (PCIS)






No archaeological site was observed near (within 500 meters) the project area and no physical cultural resources at or near the proposed sub-project; sites are observed that may likely be affected by construction activities.

In case of discovery of an unidentified graveyard or sensitive area, The Contractor shall notify the Engineer and the following Chance Find Procedure will be adopted:

- On discovery of archeology resources, all work in the area shall be stopped
- The engineer shall be informed about the discovery
- A brief report with photo, plan and location shall be submitted to the client and Engineer
- Work shall commence again according to the recommendations and comments provided by the Engineer.



Annexure 1: Compliance & Effect Monitoring Checklists (Daily & Weekly)

DAILY ENVIRONMENTAL INSPECTION CHECKLIST.					
Contractor :			Date of Inspection:		
Location:			Last Inspection:		
Time:			Climatic Conditions:     		
Accompanied By:			Report By:		
ENVIRONMENTAL INSPECTION CHECK ITEMS					
Sr. No.	Parameters	Yes	No	Credit	Remarks
1	Labour Camp Location & Management in order				
2	Drinking water facilities for Labour				
3	Burning of Wood in Camp				
4	Pollution from Concrete Mixer				
5	Oil Diesel Spills on land or Water				
6	Soil Erosion				
7	Traffic Control good & Signology functional				
8	Vehicle with Smoke and Noise				
9	Vehicle with in Speed Limit				
10	Water Sprinkled on Approach Road				
11	Correct Disposal of Waste Water				
12	Correct Disposal of Construction Solid Waste				
13	All materials safely stock piled				
14	Health Precautions taken for workers/first aid kits				
15	Proper PPEs available/used				
16	Threat cause to any endanger Species				
17	Dispensary working, doctor present				
18	Ambulance functional				
19	No loss of Flora and Fauna				
20	No Social issue Created				
21	The location of firefighting equipment identified				
22	Are accident/incident reported, preventive?				
TOTAL CREDIT				0	% of compliance 0.0

I, the undersigned, have been notified of the job site hazards and will take the necessary measures to correct the noted hazards immediately.

Signed/Date: _____
Environmental (Contractor)

Signed/Date: _____
Assistant Resident Engineer/Inspector (ARE-CSC)

Notes: Key for Climate conditions-Forenoon=FN, Afternoon=AN, Evening=E, Night=N. Weather, Sunny=S, Partly cloudy=PD, Cloudy=C, Rainy=R

Scoring Guide: Full Compliance = 10, Partial Compliance = 5, No Compliance = 0, Not Applicable (NA)



WEEKLY ENVIRONMENTAL INSPECTION CHECKLIST

Contractor:		Date of Inspection:	
Location:	Chainage= Coordinates=	Last Inspection:	
Time:		Weather Conditions:	
Accompanied By:		Report By:	

ENVIRONMENTAL INSPECTION CHECK ITEMS

Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
CAMP SITE	1	Is the labour camp properly organized in Blocks, Lanes and Barracks?					
	2	Is the drinking water supply to the camp available?					
	3	Is building / camp arrangement fit to guard off the weather effects?					
	4	Is the camp drainage system appropriate and effective?					
	5	Is the waste disposal hygienic?					
	6	Is the food cooked in a proper kitchen?					
	7	Has plantation been carried out to beautify the camp and surroundings?					
	8	the labour camp is not causing a social problem (specify as note)?					
	9	the labour camp is not causing any problem to Biota, (specify as a note)?					
	10	Has proper signology / warning signs been displayed?					
	11	there is no problem which has not been specified in the above question 1-10 (if yes, please specify)?					
	12	there is any violation of any clause of the contract (if yes, please specify as a note)?					
SCORE CREDIT - CAMP SITE			0	% of compliance		0	
MATERIAL DUMPS	13	Is material dump suitably located?					
	14	Has the material dump been properly fenced and a gate provided?					
	15	There are any leakages (if so specify their extent and nature in a separate note)?					
	16	Is storage and transaction of material causing any type of pollution to land, nearby water, or air (if so specify)?					
	17	Has proper signology been displayed?					
SCORE CREDIT - MATERIAL DUMPS			0	% of compliance		0	



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
MACHINERY YARD	18	Is machinery yard suitably located?					
	19	Is dust, smoke or any air pollutant being added to atmosphere?					
	20	Are there any POL leakages (if so specify their size, location and nature)?					
	21	Is the parking, haulage and movement of machinery causing any type of pollution to land nearby water, or air (if so specify)?					
	22	Has proper signology been displayed?					
SCORE CREDIT - MACHINERY YARD			0		% of compliance	0	
WATER SUPPLY	23	Is adequate clear drinking water available for labour and other staff?					
	24	Is adequate and clean water available for other uses in the contract area?					
	25	Is adequate water available for construction?					
	26	In case of fire, is there an adequate water availability for use in fire extinguishers?					
	27	Is there a water storage facility available at a suitable place?					
	28	Is there any violation to any clause of the contract while using the water supply source (If yes, please specify as a note)?					
	29	Has proper signology been displayed?					
SCORE CREDIT - WATER SUPPLY			0		% of compliance	0	
VEHICAL EQUIPMENT MANAGEMENT	30	Do all fuel operated stationary equipment have spill try?					
	31	Are spill try clean & well maintained?					
	32	Is equipment free of leaks?					
	33	Is maintenance conducted in approved area?					
	34	Is vehicles equipment fit for purpose?					
	35	Is there any spill of liquid waste into a water body?					
	36	Spill kits available in designated area.					
	37	Is any of the contract clauses being affected / violated due to waste disposal system?					
	38	Has proper signology been displayed?					
SCORE CREDIT - VEHICAL EQUIPMENT MANAGEMENT			0		% of compliance	0	



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
NUISANCE & EMISSION- Dust & Noise	39	Are stockpiles dumped covered/control to minimize dust?					
	40	Are vehicle speed controlled?					
	41	Is the machinery being used new or in best condition so as not to cause noise?					
	42	Is there any spot where excessive noise is being produced (specify in a note)?					
	43	Is there a hospital, road or any other sensitive place along the route?					
	44	Is there any violation to any clause of the contract related to Air pollution or Noise pollution?					
	45	Has proper signology been displayed?					
SCORE CREDIT - NUISANCE & EMISSION			0	% of compliance 0			

WASTE DISPOSAL	46	Is there a proper method of disposal of Solid waste in the Camp?					
	47	Is there a proper method of disposal of liquid waste in the Camp?					
	48	Is general waste free of chemicals /POL waste?					
	49	Is hazardous waste stored/removed within reasonable timeframe?					
	50	All are bin properly labelled?					
	51	Is there any spill of solid or liquid waste into a water body, clean living area, building or graveyard?					
	52	Is the smell from solid or liquid waste being added to a living area?					
	53	Is any of the contract clauses being affected / violated due to waste disposal system?					
	54	Has proper signology been displayed?					
SCORE CREDIT - WASTE DISPOSAL			0	% of compliance 0			

ECOLOGY	55	Is the labour and other workers of contractor aware of their limits towards the Protected Area?					
	56	Has the project labour been made aware that they will not (a) Disturb any other biotic life (b) Cut trees or bushes for fuel					
	57	Is there a record that shows that plant and machinery has arrived and departed clean and free of debris?					
	58	Due to activity of any one, is any clause of the contract being affected or has it been affected (If yes, specify in a note)					
	59	Has proper signology been put up?					
SCORE CREDIT - ECOLOGY			0	% of compliance 0			



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
SOCIAL CONTROL	60	Has the SFA been explained to labours and all classes of contractor's workers by the contractor?					
	61	Has the SFA been explained to the nearby members of the public by the contractor?					
	62	Has proper signology, Directions and Warnings been displayed at all suitable places?					
	63	Is there a check and control system to control the Labourers from disturbing the nearby villages and their folks especially for HIV / AIDS and other communicable diseases?					
	64	Is there a violation to any of the clauses of the contract due to any social infringement by anyone in the Project Area?					
SCORE CREDIT - SOCIAL CONTROL				0	% of compliance	0	
HOSPITAL / MEDICAL AID	65	Is there a Hospital/ Medical Aid centre in the area (If yes, specify site, size, location and distance?					
	66	Is the medical facility available to all classes of workers in the project Area?					
	67	Is the medical facility available to members of the public also?					
	68	Is there an awareness programme for making labour, other workers and members of public run by the contractor, especially HIV/ AIDS, Cholera, Malaria, Dengue and other infectious diseases?					
	69	Is there any violation to any other clause of the contract related to Medical field?					
	70	Does the mess hall have adequate bins?					
	71	Has proper sinology been displayed?					
SCORE CREDIT - HOSPITAL / MEDICAL AID				0	% of compliance	0	
RESOURCE & ENERGY CONSERVATION	72	Is exassive waste minimized?					
	73	Is fuel waste prevented?					
	74	Are energy conservation practices observed?					
	75	Is wastage of water prevented- Behavior?					
	76	Is wastage of water prevented- Equipment/system?					
SCORE CREDIT - RESOURCE & ENERGY CONSERVATION				0	% of compliance	0	
WELFARE & LAYDOWN	77	Is the laydown area litter free?					
	78	Are the toilets adequate?					
	79	Are the toilets free of leak?					
	80	Is the septic tank in good conditions?					
	81	Is sewage spillage is prevented?					
	82	Does the mess hall have adequate bins?					



Theme	Sr. No.	Parameters	Yes/No	Credit	Remarks	Actioner	Action Deadline
	83	Is the area clean?					
	84	Is the pest control effective?					
	85	Are environmental awareness material displayed?					
	86	Is there an environmental notice board?					
	87	Is the site currently operating within normal working hours?					
	88	Is the monthly environmental score displayed?					
SCORE CREDIT - WELFARE & LAYDOWN				0	% of compliance	0	
TOOL BOX TALK & INCIDENT / NEAR	89	Have appropriate toolbox talks been delivered for the works?					
	90	Have incidents or near misses reported previously been adequately mitigated?					
	91	Are accident/incident reported, preventive?					
SCORE CREDIT - TOOL BOX TALK & INCIDENT / NEAR MISS				0	% of compliance	0	

ENVIRONMENTAL SCORE

	SUMMARY	TOTAL SCORE	SCORE CREDIT	%	Relative %
1	CAMP SITE	120	0	0	0
2	MATERIAL DUMPS	50	0	0	0
3	MACHINERY YARD	50	0	0	0
4	WATER SUPPLY	70	0	0	0
5	VEHICAL EQUIPMENT MANAGEMENT	90	0	0	0
6	NUISANCE & EMISSION- Dust & Noise	70	0	0	0
7	WASTE DISPOSAL	90	0	0	0
8	ECOLOGY	50	0	0	0
9	SOCIAL CONTROL	50	0	0	0
10	HOSPITAL / MEDICAL AID	70	0	0	0
11	RESOURCE & ENERGY CONSERVATION	50	0	0	0
12	WELFARE & LAYDOWN	120	0	0	0
13	TOOL BOX TALK & INCIDENT / NEAR MISS	30	0	0	0
		910	0	0	0

This checklist does not include all hazards on every job, but should serve to all concerned you to general hazards.

I, the undersigned, have been notified of the job site hazards and will take the necessary measures to correct the noted hazards immediately.

Signed/Date:

Environmental (Contractor)

Signed/Date:

E&S Staff/Resident Engineer (CSC)

Signed/Date:

Project Supervisor(Contractor)

Notes: Key for Climate conditions-Forenoon=FN, Afternoon=AN, Evening=E, Night=N, Weather, Sunny=S, Partly cloudy=PD, Cloudy=C, Rainy=R

Scoring Guide: Full Compliance = 10, Partial Compliance = 5, No Compliance = 0, Not Applicable (NA)



Annexure VIII: Contractor's Health Safety & Environment (C-HSE)

**DRAFT-SAMPLE
CONTRACTOR'S HEALTH SAFETY & ENVIRONMENT (C-HSE)
FOR
Rehabilitation of Rain/Flood Affected Roads**



S. NO	DATE	PREPARED BY	CHECKED BY	APPROVED	REMARKS
1.		The Contractor	CSC	PIU	



1. INTRODUCTION

The contractor has produced this document to meet the project requirements for HSE. This plan has been established to identify the strategy of the contractor towards the management of safety, health and environment.

This document describes the policy in line with the contract provisions and statutory requirements to be observed when working on site. The purpose of this plan is to identify the potential impacts and to develop a mechanism for the better management of HSE issues relating to the project.

This plan will define the HSE guidelines established by the Contractor to provide all personnel with safe operating practices and awareness for the work they perform in the course of their duties during construction activities.

1.1 Requirements of C-HSE

Rehabilitation/restoration works are limited to the existing Right of Way (RoW) hence, the proposed project will have some medium -minor adverse environmental impacts that are reversible in nature and site-specific with short duration. Therefore, this sub-project falls under the moderate risk category under the ESMF of the SFERP. The ESMP has been prepared accordingly to meet the moderate risk level requirements.

This CESMP has been prepared by (The Contractor) E&S Staff in line with guidelines provided in ESMP document

1.2 Aims and Objectives of C-HSE

The main objective of this plan is to strictly enforce the provisions and mitigation measures for potential impacts throughout the entire construction period. Other objectives are:

- Preventing accidents, diseases and harmful impacts on the health of workers arising from employment in construction areas.
- Providing means of analyzing from the point of view of safety, health and working conditions, construction processes, activities, technologies and operations, and of taking appropriate measures of planning, control and enforcement
- Implement training programs that support the achievement of the personnel competency in relation to health, safety and environment.

1.3 HSE Policy

Pls insert HSE Policy of the contractor.

1.4 HSE Roles and Responsibilities

For the proper execution and implementation of HSE Management Plan, roles and responsibilities have been defined for everyone. Brief discussion of roles and responsibilities being fulfilled is given as under;

1.4.1 Project Manager (PM)



- Under the corporate leadership, the Project Manager faithfully implement the corporate HSE policies and aim to attain set goals, set up concrete measures, and ensures the measures strictly implemented by all project staff.
- Acquire and keep up to date knowledge of HSE matters.
- Check the environmental planning of the project and considering realities of the project, the Project Manager establishes a healthy project organization and put in place a well-functioning resource deployment system.

1.4.2 HSE Officer

- Implementation of mitigation measures and CESMP, ESMP, and ESMF recommendations at construction sites.
- Plan, manage, monitor and coordinate the entire construction phase in term of HSE.
- Take account of health and safety risk to every one effected by the work.
- Liaise with the CSC & PIU for the duration of the project, to ensure that all the risks are effectively managed.
- Maintain and practice good housekeeping and keep everything at work in its proper place.
- Coordinate with the site in-charge, store in-charge, workshop in-charge, administration manager, site engineers, Doctor/Paramedic, in-charge Security & other heads of departments.
- Ensure the provision of suitable welfare facilities are provided inside the Contractor's camp, from the start of project and maintained throughout the construction phase.
- Ensure the provision of Personal Protective Equipment (PPE), organize regular safety meetings, arrange trainings of first aid and inculcate safety consciousness among the officers, supervisory staff and work force through safety lectures, instruction, safety weeks, safety checks and drills and sign boards in local and English language and coordinate with E&S staff of CSC.

1.4.3 In charge Earthwork / Stone / Infrastructural Work / Care & Handling

- Take the leadership of on-site operations of the project.
- Responsible for construction on-site control, implement all protection measures, and directly accountable for environmental protection at the construction site.
- Responsible for the on-site coordination and apply deployment optimization and dynamic management on production factors on the construction site.



- Scientifically and reasonably, plan production and construction, with environment and social protecting considerations in line with CESMP and other safeguard document, based on construction schedule.

1.4.4 Site Engineers / Supervisors

- Site Engineers coordinate with HSE staff to communicate the scheduled and ongoing construction activities.
- Coordinate with HSE staff for the implementation of HSE plan and maintain the work sites according to the site-specific HSE rules.
- Well trained to respond in any type of emergency, incident or accident.

1.4.5 Flagmen

- They shall be responsible for the implementation of the Traffic Management Plan formulated by the E&S staff of contractor/In charge Safety and ensure that any vehicles of the Contractor as well as other agencies move across the subproject area without any disruption.
- They will help drivers to move safely in the working zone, avoid hazards and potential of hitting/colliding with people and other equipment.

1.4.6 Firemen

- They will be responsible for all precautions & preventive measures to be adopted at Site, site offices, residences, plant area, store, fuel station and workshop.
- They will educate project staff about combustible & flammable objects in their working premises.
- They will train the project staff to combat the situation in case of fire incident.
- They will educate project staff how to rescue people & property in case of fire incident

The key positions to be filled within the Contractor's staff for implementation of the CEMP and E&S safeguards include:

Table 1: Contractor Staff for C-HSE Implementation

Sr. No	Name of Staff	Designation	Contact Number



2. PROJECT DESCRIPTION

The proposed sub-project falls in the District -----. The proposed project is aimed at the rehabilitation of the ----- roads of the district (refer Table-4 for detailed description and Figures 1 for location reference), damaged by the flood with the objective to restore the road connectivity and restoration of livelihood resources of flood-affected communities.

Table 2: Details of Roads for Rehabilitation at The District

S# No	Name of Road	Location / Taluka	Existin g	Length (in	GPS Coordinates
1					
2					
3					

2.1 Location of the Project

Pls Insert the RD wise Location Plan of the proposed subproject.

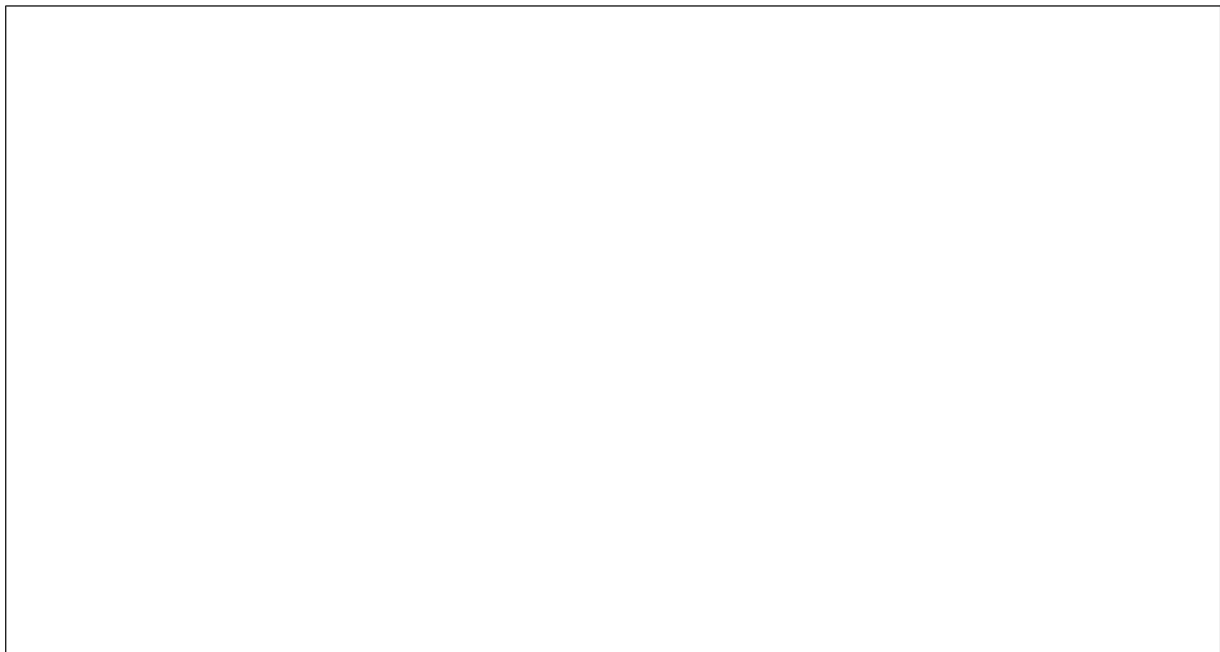


Figure 1: Location Plan



2.2 Contract Description

Table 2.1 below, describes the brief of contract.

Table 3: Brief Contract Description

Project Name	Sindh Flood Emergency Rehabilitation Project (SFERP) P&DD component
Sub-Project Name	Rehabilitation of Rain/Flood Affected Roads, District -----
Project Duration	
Camp Location	
Client	PIU - SFERP
The Engineer	
The Contractor	
Focal Person Name & Number	From PIU From CSC From Contractor

3. RISK MANAGEMENT AND HAZARD IDENTIFICATION

Risk management and hazard identification is a key part of this plan. Risk assessment and management techniques will be adopted so that potential hazards are identified and evaluated prior to execution of critical job or the job which is going to be conducted first time. The hazard analysis will be done by HSE Manager and Job relevant supervisor in coordination with site Engineer.

3.1 Hazard Control

The hierarchy of Risk/Hazard Control is used to determine risk reduction measure in order of their effectiveness, as follows in Figure - 2:

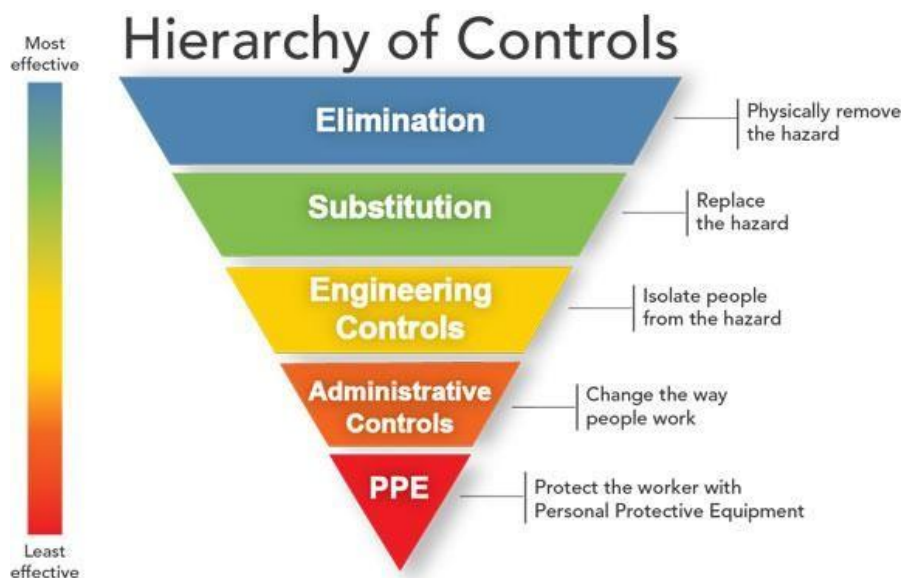


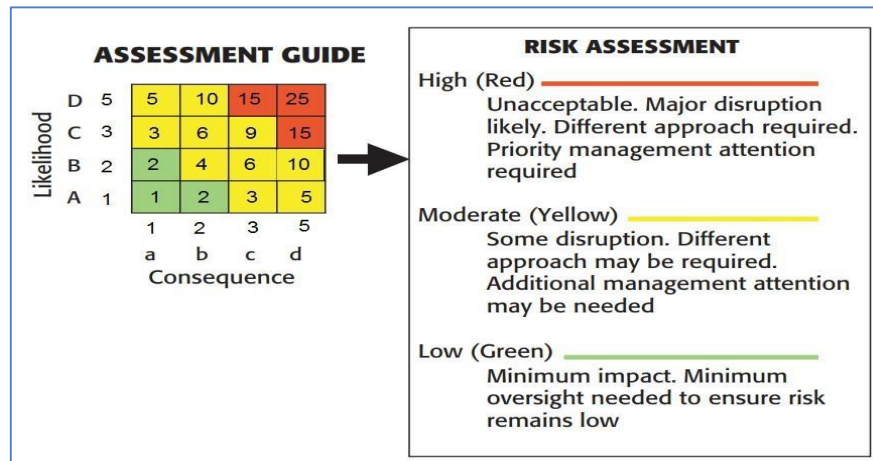
Figure 2: Hierarchy of Hazard Control



3.2 Risk Assessment Process

Risk is assessed as the likelihood that the activity will have an effect on the environment as well as the consequence of the effect occurring, as described below.

$$\text{Risk} = \text{Likelihood} \times \text{Consequence}$$



Risk Assessment Model

3.3 Response Options

Risk identification, assessment, and analysis exercises form the basis for sound risk response options. A series of risk response actions to avoid or mitigate the identified risks is considered as follows. The likelihood scale and consequence scale is described in Table - 4 and 5 respectively.

Table 4: Likelihood Scale

S/No	Likelihood	D	Score
A	Certain	Will certainly occur during the activity at a frequency greater than every week if	5
B	Likely	Will occur more than once or twice during the activity but less than weekly if preventative	3
C	Unlikely	May occur once or twice during the activity if preventative measures are not applied	2
D	Rare	Unlikely to occur during the project.	1

Table 5: Consequence Scale

S/No	Consequence	Definition	Score
A	Catastrophic	Unprecedented damage or	5
B	Major	Major adverse damage	3



C	Moderate	Limited adverse impacts	2
D	Minor	No or minimal adverse environmental or social impacts	1

- Avoided (by taking appropriate steps).
- Reduced (by an alternative approach).
- Handled by a combination of the above.

All the risks assessed are handled by providing mitigation, management or both. The identification of hazards in the risk assessment matrix is associated with respect to construction activities inside the camp and construction sites.

The risk assessment process is undertaken with a risk assessment matrix and is provided in

Table - 6 below (the table will be customized as per the sites conditions).

Table 6: Risk Assessment Matrix

S/ No	Hazard	Consequence (C)	Likelihood (L)	Risk (R) $R=C*L$	Risk Ranking	Control Measures	Residual Risk
1	Mobile equipment failure e.g. lifting gears, Hydraulic failure etc.	Fatality or serious injury (3)	3	9	Moderate	<ul style="list-style-type: none"> Inspection of mobile equipment including mobile crane, lifting chains, ropes and mobile concrete pumps will be carried out prior to the start of the work. 	Low



2	Oil, chemical spills,	Contaminate land, control water bodies and ground water. (3)	3	9	Moderate	<ul style="list-style-type: none"> • Selection of fuel storage area will be away from water bodies. • Hydraulic & Mobil oil will be kept in closed drums over brick paved bottom. • Contractor will ensure good housekeeping. • Loading and unloading of material will be managed by a competent person. • Spill catching trays will be used to collect used Mobil oil. • Top soil will be removed and disposed of properly where spillage occur. • Spill kit will be available to deal with small spills • Fire Extinguisher will be placed near chemical and oil storage and working areas 	Low
3	Concrete Batching Plant operations and use of hazardous chemical.	Deteriorate ambient air quality or mechanical failure. Cause ingestion of chemical through skin cuts, skin rashes and	3	9	Moderate	<ul style="list-style-type: none"> • Batching plant will be located away from the camp colony and also away from nearby local community. • Water sprinkling will be carried out before concrete batching operation to 	Low



S/	Hazard	Consequence	Likelihood	Risk (R)	Risk	Control Measures	Residual
						<ul style="list-style-type: none"> Regular inspection of plant and equipment's will be carried out to keep the workers safe due to mechanical failure. Training and toolbox talks will be provided to all concrete labor and laboratory staff regarding their safety at work. Safety drills will be conducted regularly 	
4	Accident due to collapsing of Farm work, working platform, steel cutting & bending, concrete pouring etc.	Casualty and serious injury, (5)	3	15	High	<ul style="list-style-type: none"> Provide work specific training and supervision of construction crew. Provision of Toolbox Talks with respect to the activity carried out at site. Regular inspection and monitoring of construction activities will be carried out to ensure safety of workers. Work specific PPE will be provided to the construction workers. 	Low
5	Accident due to movement of vehicles.	Casualties, serious injury and property damage. (3)	3	9	Moderate	<ul style="list-style-type: none"> Flagman will be deputed at required location to regulate vehicular movement in construction vicinity. Vehicular movement will be kept at well-defined haul roads. Necessary training regarding defence driving will be provided to all the drivers regarding safe and defence driving. 	Low



6	Road dismantling	Deteriorate ambient air quality, and damaged underground utilities. (3)	3	9	Moderate	<ul style="list-style-type: none">• Pre demolishing survey will be carried out.• Necessary instruction and information will be provided to the related staff.• Work Specific PPE will be provided to the workers.• TBT will be given from time to time during demolishing operations.	Low
7	Smoke from burning	Cause suffocation smog, and diseases of respiratory	2	6	Moderate	<ul style="list-style-type: none">• Cutting and burning of trees shall be prohibited.• Burning of waste will be prohibited.	Low
8	Project related vehicles	Soil erosion, toppling over, collision and overloading of vehicles. (3)	3	9	Moderate	<ul style="list-style-type: none">• Warning signs should be placed at work places.• Contractor will ensure safe load limit.• Inspection of vehicles will be ensured regularly.	Low



S/	Hazard	Consequence	Likelihood	Risk (R)	Risk	Control Measures	Residual
						<ul style="list-style-type: none"> Vehicles will be parked at designated parking areas. Training regarding safe driving will be provided to the drivers. 	
9	Fire at camp and site	Skin burns and fatalities. (3)	3	9	Moderate	<ul style="list-style-type: none"> Prohibition of smoking and flame near fuel storage or generators areas. Provision of fire extinguishers and sand buckets will be ensured. Awareness training, firefighting and emergency response training will be provided to the workers. 	Low
10	Electricity	Cause high risk if not attended i.e. Electric shock, cardiac arrest, muscular contraction and death. (3)	3	9	Moderate	<ul style="list-style-type: none"> Contractor will insure insulation of electric wires and equipment casing. Regular inspection of electrical equipment and cables will be carried out. Insulation work and electrification will be prohibited on live distribution network Provision of training and regular inspection will be ensured.. 	Low



11	Electric grinder and cutters.	May cause abrasion, deep skin cut, puncturing and stabbing due to ruptured cutting disc and grinding activities.	3	9	Moderate	<ul style="list-style-type: none"> Pre use inspection will be carried out. Training of workers will be ensured regarding the use of such equipment's. Necessary clothing, gloves face mask and shield will be provided to the workers. 	Low
12	Noise	Hearing loss, headache and interference in actions (3)	2	6	Moderate	<ul style="list-style-type: none"> It will be ensured that regular inspection, maintenance and lubrication of plant, equipment and vehicles will be carried out. Vehicles equipped with exhaust muffler will be used for the execution of construction works. Provision of Ear plugs and ear muffs and their use will be ensured by the workers. 	Low
13	Dehydration	Dizziness, unconsciousness, fatigue and stress (3)	2	6	Moderate	<ul style="list-style-type: none"> Provision of fresh drinking water facilities will be ensured at camp and construction sites. Provision of sheds at sites for frequent rest breaks. 	Low
14	Slip & trip	Scorching, fractured and broken bones. (3)	2	6	Moderate	<ul style="list-style-type: none"> Contractor will ensure good housekeeping at camp and construction site. 	Low



S/	Hazard	Consequence	Likelihood	Risk (R)	Risk	Control Measures	Residual
						<ul style="list-style-type: none">Spills and leaks will be clean immediately to avoid slip hazards.Training and supervision will be ensured.	
15	Improper solid waste management	Ill health and damage aesthetic values of camp & construction site environment. (3)	3	9	Moderate	<ul style="list-style-type: none">Daily sweeping and cleaning will be ensured at camp and construction sites.Primary & Secondary waste storage facilities will be provided inside the camp.Necessary Training, instruction will be given to workers to promote good housekeeping.	Low
16	Ergonomic	Muscles, back injuries, fatigue and stress. (3)	2	6	Moderate	<ul style="list-style-type: none">Substitute manual handling by using manual handling aids and mobile shovel or loaders.Modifying the work process to minimize repetitive movement.	Low



17	Environmental issues	Loss of flora and fauna. (3)	3	9	Moderate	<ul style="list-style-type: none">• Un necessary cutting of tree will be avoided.• Approval will be taken from concerned department and the Engineer.• Hunting of local fauna will be prohibited.	Low
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4. SAFETY REQUIREMENT

4.1 General

4.1.1 Personnel Requirement

- Construction of camp and offices, drainage of sewage water, washing & bathing places, adequate drinking water and provision of facilities for the work force will conform to the Government laws/regulations pertaining to hygiene & sanitation.
- GRC shall take all reasonable precautions to prevent any unlawful conduct by or amongst his staff/labour and protection of persons and property in the neighborhood of the workers against the same.
- Employees will be issued with protective equipment and clothing like safety belts, harnesses, goggles, helmets, masks, in accordance with the nature of their job whereas their use shall be made mandatory.
- Necessary instructions pertaining to camps, work site and weather will be issued separately and their implementation ensured.

4.1.2 Transportation Facilities and Vehicles

- Drivers and operators will observe and obey instruction contained in the Traffic Management Plan.
- Speed limits, which are safe for those vehicles as per its make, will be enforced in all working areas.
- To eliminate accidents, special provisions will be made for vehicles meant for transportation of personnel.
- Instructions pertaining to safe operation of vehicles including cars and trucks, watercrafts, crossing of roads and transportation of personnel will be issued separately and their implementation strictly monitored.

4.1.3 Temporary Installation

- All temporary electrical installation for the light and power will conform to the safety requirements.
- All temporary wiring will be properly supported and insulated. Wooden poles will be used to fix the loose electric cables. No bare conductor will be permitted in the working premises.
- No shovel, excavator, loader, dozer and any other machine, which has long boom will be operated in the vicinity of high voltage lines unless the power is off or necessary precaution taken before work.



- Scaffolding subjected to heavy use will be inspected each working day and necessary maintenance will be performed immediate. Scaffolds and platform will be kept free of oil, mud and any other material that create a hazard. Excessive storage of material or tools on installed scaffoldings will not be permitted.
- Material used in the fabrication of construction equipment such as ladders will be of appropriate structural grade and strength and free of defects, which will reduce strength. Each metal ladder will be marked in bold bright letters to show hazard of use around the electrical equipment. Workers performing vigorous jobs will not use stepladders, but appropriate platforms or scaffolds will be provided.

4.1.4 Construction Machinery and Equipment.

- Safety of worker will be ensured during repair and maintenance.
- Safety instructions as written in the instruction manuals will be written in English and Urdu and will be hung at proper places in the workshops.
- Equipment that has been raised by cranes etc. will be securely blocked.
- Only qualified personnel at safe speed mentioned in instruction manuals will operate all machinery.
- All welding and cutting operations will be performed by experienced personnel only. Welders & helpers will be properly protected. Welding screens will be provided to workmen to protect their eyes and body.
- Instructions will be issued separately for safe operation of each machinery or equipment and their implementation strictly ensured.

4.1.5 Excavation

- Each earthmoving equipment shall only be occupied by the operator while carrying out excavation.
- Movement of vehicles near the edges of excavation will be strictly prohibited.
- Excavation work will be carried out in the presence of competent person.
- Excavation will be barricaded to minimize fall in hazards.
- Deep excavation will be carried out in the form of slopes to minimize collapsing hazard.
- Instructions for safe excavation will be issued separately and their implementation ensured.

4.1.6 Concrete Operations



- When conditions require, all related workmen will wear protective devices like helmets, gloves, safety shoes, goggles etc.
- Precautions will be taken by workmen to prevent cement and concrete from contacting the skin by wearing hand gloves and long rubber shoes. Such workers will be provided facility for changing clothes and taking showers.
- During the periods of normal operation, repair or maintenance, concrete and aggregate processing plants will incorporate the use of alerting alarms and other measures necessary to ensure the safety of the employees in and about the equipment.
- Pump concrete pipelines will be adequately anchored at all bends.

4.1.7 Storage & Handling of Materials

- All construction materials will be stored in an orderly manner in safe stocks to facilitate handling and loading. Materials in storage will be placed within six (06) feet of doorways or hoist-ways. Where required, warning signals, lights and barricades will be provided.
- Unauthorized persons will be prohibited from entering storage areas and buildings and provisions will be made to guard against theft. Men working in the manual handling and storage of materials and equipment will be instructed to lift properly by keeping the ergonomic hazard.
- Workers, handling cement or chemicals, will wear protective clothing, gloves etc.

Materials will not be piled against walls that will be endangered by the thrust etc. All wood and flammable material in storage will be protected from fire.

- Workers handling reinforcing steel will be required to wear heavy gloves.

Structural

steel will be carefully piled to prevent sliding or tripping. Pipe will be stocked according to the size and will be supported to prevent spreading.

Storage of flammable liquids and materials will be in accordance with the Government regulations. Daily inspection will be made of all areas where flammable liquids and materials are stored or handled. Storage areas will be kept free of rubbish, bushes or like combustible materials.

4.1.8 Fire Protection

- Smoking will be prohibited in buildings/areas where there are extreme fire hazards like fuel stations, storage of bituminous materials, paint or gas etc. "NO SMOKING" signs will be posted and the prohibition enforced.
- Workers, working with flammable materials, will be instructed on precautions and will be trained in use of fire extinguishing equipment.



- Training in fire-fighting will be at sufficiently frequent intervals to ensure familiarity with the equipment and methods.
- Fire-fighting equipment i.e. fire extinguisher will be provided and installed.
- Extinguishers will be conveniently placed and distinctly marked & will be inspected

according to the manufacturer's recommendation.

- Fire barrels will be kept full at all times. Buckets will be painted red and marked

“FOR FIRE
ONLY”.

4.2 Site Specific HSE Rules

All workers will go through HSE orientation session before starting a new job and directed to:

- Understand the provisions of SSEMP regarding the specific job.
- always use work specific PPE
- understand and follow safety board's installed at sites
- In case of any emergency alarm, do not create panic and follow company emergency preparedness instructions.
- Access the first aid facility in case of any injury.
- Report promptly all accidents to the site in charge and HSE Manager.
- During night shifts, never work in darkness or dim light.
- Scraps, waste materials and garbage must be dumped in prescribed drums.
- Follow good housekeeping and prevent accidents.
- Do not remove Barricade tapes rather ensure its presence at vulnerable places.
- Never insert direct cables in electric sockets.
- Work at heights is strictly prohibited without safety harness. Ensure presence of strong side railings and toe boards at platforms.
- Do not smoke or produce naked flame in no smoking areas i.e. fuel storage area.
- Park vehicles at parking areas only & follow speed limit of 20 km/hr within project area.



4.2.1 Health Care and First Aid

Contractor will provide medical facility with ambulance and qualified doctor (as per EMP requirements) in the form of dispensary at the main camp. Weather proof first aid boxes will be available at each construction site. The first aid kit must consist of items approved by the consulting physician. The items of first aid kit will be checked before being sent out at each construction site and will be checked on weekly basis. The basic items of first aid kits are given

below.

- Basic medicines
- Cotton
- Cotton and antiseptic Bandages
- Pain Relief Gel / Creams
- Payodine
- Spirit
- Scissor

4.2.2 PERSONAL PROTECTIVE EQUIPMENT

The use of PPE depends upon the hazards present in the work area. Site supervisor and HSE Manager are responsible to provide PPE to all workers. With respect to hazard identification on working site,

The employees have a responsibility to:

- take reasonable care of the PPE provided
- use PPE in accordance with the training and instruction given
- to keep the PPE clean and return it to its place of storage after use and report any loss or defect immediately.

HSE Manager will organize orientation session regarding the importance and use of PPE. A partial list of protective gears to be worn by the workers at designated work areas is given below;

i. Head Protection

Protective helmets will be put all times mainly at the working sites, under scaffolds, erection etc., where there are possibilities of head injuries from falling/flying objects.

ii. Hearing Protection



Earplugs or earmuffs will be worn in areas where exposure to high noise level is expected. Examples of such activities include different machinery operation for construction activities.

iii. Eye and Face Protection

Spectacles, Goggles and Face Shield whichever is appropriate, will be used at times when welding; spray painting or similar activities are in progress at the field.

iv. Respiratory Protection

In work areas like concrete batching, concrete pouring and earthwork areas where exposure to harmful or toxic fumes and dust is likely to be, then the workers shall wear dust mask.

v. Hand and Arm Protection

In the work involving piercing, cutting or vibration hand protection gloves will be provided to the workers for protection against toxic chemicals. Special chemical resistant gloves should be worn. Over sleeves must be worn to protect one's arms.

vi. Foot Protection

To prevent from sharp and falling objects hazards i.e. working on or under scaffolds, roof works, formwork erection and dismantling, safety shoes/boots are essential protective measures.



5. SAFE WORKING PROCEDURES

During the execution of construction activities, the workers should be keenly aware of the hazards of their job, as well as the simple safety precautions that could help prevent an accident. Here are some ways to prevent hazards.

5.1 Promoting Safety First Mind-set

Ensuring workplace safety of workers and local community particularly, while executing earth works, structural works, concrete batching, lifting and rigging operations, must be a top priority that embodies the mind-set, attitude and Behaviour of workers, supervisors, drillers, and managers alike. Promoting personnel with a safety-first mindset, proactively keep an eye out for safety issues for maintaining a safe work environment, which includes adopting all safety rules and regulations and keeping alert to possible hazards.

5.2 Require Orientation and inductions

All site workers, mechanical, civil electrical teams and machinery operators, will undergo a mandatory orientation/induction, before being allowed to execute their specific work. Such orientation helps employees and sub-contractors become familiar with company and construction operational policies, expectations and worksite rules, thus producing a safer work environment.

5.3 Workers Training

Contractor will conduct the orientation trainings, which include instructions on the machinery and equipment in use, as well as on safety procedures. Refresher trainings for workers will also be conducted to remind their duties and responsibilities. Providing consistent trainings to employees demonstrates our commitment to safety and is yet another way to instil a safety-first mind set.

5.4 Provision of Required PPE

Contractor will provide mandatory PPE, including safety glasses, hard hats, gloves, safety shoes, and dungarees. Contractor will encourage workers for the use of PPE and will train them regarding their use and requirement.

5.5 Implement a Positive Reporting Process

A positive reporting process will be developed, through which, employees feel the freedom to report complaints and workplace hazards. Complaint register is present inside the camp office. Signboards have been also installed regarding the location of complaint office. Instead of responding negatively (or even acting punitively) to employees, who report potential hazards, Contractor will praise them for their efforts.

5.6 Communicate Safety Regularly

Contractor will carry out weekly safety talks, an excellent way to instil a safety mind set among workers. Rather than just lecture, use interactive small group discussions to involve everyone, and allow time for questions.



5.7 Educate Sub-Contractors

HSE practices will be a chief concern for the workers of Contractor or Sub-contractor. Contractor will educate sub-contractors regarding workplace activities, hazard related to working activities and execution of HSE practices at work place.

5.8 Routine Housekeeping

Housekeeping is the act of keeping the working environment cleared of all unnecessary waste and material, thereby providing a first-line of defense against accident and injuries. Housekeeping will be the responsibility of all site personnel, line management commitment will be demonstrated by the continued efforts of the supervisory staff towards this activity. Contractor will maintain routine housekeeping and keep the floors, walkways and work areas clear of unnecessary items to prevent trips, falls and struck-by hazards.

5.9 Machinery Maintenance

Contractor's Mechanical team will conduct regular maintenance checks of machinery to prevent premature failure, which could present potential hazards, and then repair or replace damaged or inoperable parts and equipment quickly. Maintenance record will be maintained as routine activity. Contractor will ensure integrity of the equipment and safer work environment.

5.10 Incident and Injury Management

Contractor will strive to ensure its operations reduce the levels of risk of personal injury, damage to health and damage to a level which is as low as reasonably practicable.



6. Reports

6.1 Communication

Communication means to inform workers and community to realize them that they are our development partners, our problem and issues can only be minimized by our collective efforts. Communication includes all types of trainings, banners, sign boards, warnings and precautions. All communication material being used is in English / Urdu languages.

6.2 Documentation

This step is mandatory for monitoring and progress evaluation. Following documents will be maintained, while execution of construction activities:

- Monthly HSE Progress Report
- CESMP, HSE Management Plan, Waste Management Plan, Traffic Management Plan and Emergency Preparedness Plan.
- Quarterly Environmental Monitoring Reports
- Daily, Weekly, Monthly Environmental Monitoring Checklists
- Material Safety Data Sheets (MSDS)
- Safety Violation Forms
- Toolbox Talk Forms
- PPE Record Register
- Environment and Social Complaint Register.
- HSE Training Participation Sheet

Formats of HSE Training Participation Sheet, TBT Forms, PPE Record Performa and Safety Violation Form have been furnished as attachments to the HSE Plan.

6.3 Hazard Reporting

Immediate reporting mechanism has been developed which allow the employees to report hazardous condition or practice as they notice them. Onsite workers or employees will directly report any hazardous condition or practice to their concern supervisor, then the supervisor will report to the HSE Manager/Supervisor. Hazard will be communicated verbally or either by filling form provided as Attachment-06. This procedure will allow for prompt reporting and subsequent corrective action without waiting for the next round of regular inspection.

6.3.1 Incident and Injury Management

In case of fire, explosion, falls from heights, electrocutions, cave-ins, etc., casualty(s); the Emergency Response Team (ERT) shall be activated; they shall provide first aid and transport causality to the nearest emergency medical facility or the concerned nearest camp / first aid post. Transportation arrangements must be made immediately and the concerned Emergency



Response Coordinator (ERC) or person in-charge must be informed immediately. The happening must be recorded and reported to PIC. The incident must be investigated, findings recorded, control measures devised; and communicated to all concerned, in order to avoid such happenings in future.

In case of any emergency, following contact information of ERT have already been shared with the camp staff and construction crew to communicate quickly and accurately through mobile phones, internally within the project area:

Table 7: Emergency Contact Numbers

Name	Designation	Contact
	<i>Site Manager</i>	
	<i>HSE In-charge/ Environmentalist</i>	
	<i>Project Coordinator</i>	
	<i>Paramedic</i>	

6.4 Monitoring

Monitoring will be carried out through daily, weekly and monthly checklists by both the Contractor and Consultant's HSE staff. It helps in understanding the prevailing conditions of health and safety of workers, safety of workplace and environment of the project area. This also leads to analyse the mitigation measures for continuous improvement.

6.5 Orientation & Training

Contractor's HSE staff recognizes the critical impact of the safety training in ensuring safe performance and is always executing a comprehensive training program. Safety trainings will be delivered by HSE Manager to ensure that it achieves its objectives. Safety sign boards are displayed on the work sites to aware / train local community and workers about safety rules. HSE meetings are being conducted on monthly basis with top management so that the solution of the problems can be sorted out on prior basis.

Trainings /Awareness campaigns are being conducted at site for capacity building of employees / workers / labour to make them well effective to respond in any kind of emergency situation. Following trainings will be imparted at regular intervals.

- HSE Plan Implementation
- Importance of PPE
- Fire Fighting
- First Aid
- Good Housekeeping
- Health, Hygiene and Communicable Disease
- Work at Height
- Electrical and Mechanical Safety



- Road Safety
- Camp Operations and related HSE issues
- Trainings on adaptation of preventive measures communicable diseases.

Training frequency will depend upon the complexity of the job and the identification of new hazard. These trainings are conducted in a realistic way, such that an artificial emergency situation is created & all the participants are trained about how to deal with such situation.

Above mentioned topics are repeated on demand so that new entries may get the knowledge shared in such meetings / trainings. They will be also instructed that they should avoid panic condition in any emergency.

6.6 Management of Sub-Contractor

Each Sub-contractor will be obligate to comply with all safety requirements, Site-Specific plans/procedures and any other contractor safety requirements. All sub-contractors will adhere to these requirements for the performance of their work to promote the safe completion of project.

6.7 Incident Investigation & Reporting

Contractor will properly and thoroughly investigate the incident / accident cause, damages to property or more serious injury and / or ill-health to workforce at construction site. Contractor shall promptly take a reasonable action on the event of incident / accident and shall prepare incident / accident report after proper investigation. The format of incident / accident report is provided as Attachment-07.

6.8 Preventive Measures for Communicable Disease

In compliance of SOPs, the following preventive measures have been adopted at camp and construction sites:

- At camp, all the personnel, workers and visitor go through temperature check via noncontact infrared thermometer at time of arrival and departure.
- Entry of unauthorized person is strictly prohibited inside the camp and sites.
- Sanitizers have been provided at work places i.e. Office, Laboratory, Store, Kitchen and construction work site.
- Hand washing facilities is available at camp site.
- Sharing of utensils etc. is discouraged.
- Limited passengers while traveling is maintained.
- Disinfection of the residential as well as workplace is regularly done.
- Awareness banners regarding preventive measures will be displayed at different location inside the camp.



Annexure 1: HSE Training Participation Sheet

Health, Safety & Environment Training Participation Sheet			
Site Address		Training Date:	
Training Topic:			
Trainer:		Signature:	
Site Engineer:		Signature:	
Remarks:			
S/No	Name	Designation	Signature













Annexure 2: Toolbox Talks Form

Toolbox talk:			
Project title:			
Topic:			Date:
Workplace:			
Delivered by:			Time:
Persons present			
Name	Signature	Name	Signature
Topics Discussed:			
Comments/Feedback:			



Annexure 3: PPE Assessment Form

Personal Protective Equipment Assessment Criteria														
S.NO	Activity	PPE REQUIRED												
		Helmet	Coverall	Safety Shoes	Safety Goggles	Faceshield	Hand Gloves	Earmuff	Earplug	Reflective Vest	Welding Helmet	Face Mask	Respiartor Mask	Full Body Harness
														
1	Work At Height	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✗	✓
2	Confined Space	✓	✓	✓	✓	✗	✓	✗	✓	✓	✗	✗	✓	✗
2	Welding Process	✗	✓	✓	✗	✗	✓	✗	✓	✓	✓	✓	✗	✗
4	Chemical Handling/Mixing	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	✓	✗
6	Material Handling	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✗	✗
6	Forklift Operation	✓	✓	✓	✗	✗	✓	✗	✓	✓	✗	✓	✗	✗
7	Overhead Crane Operation	✓	✓	✓	✗	✗	✓	✗	✗	✓	✗	✓	✗	✗
8	Grit/Sand Blasting Operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗
9	Painting Process	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✗	✗
10	Electrical Maintenance	✓	✓	✓	✓	✗	✓	✗	✓	✓	✗	✓	✗	✗
11	Mechanical Maintenance	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✗	✗
12	Visitors	✓	✓	✓	✓	✗	✓	✗	✓	✓	✗	✓	✗	✗
13	Drivers	✓	✓	✓	✗	✗	✓	✗	✗	✓	✗	✓	✗	✗
14	Excavation Work	✓	✓	✓	✓	✗	✓	✗	✓	✓	✗	✓	✗	✗
15	Housekeeping Work	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✓	✗	✗



Annexure 4: PPE Record Form

S/No	Name	Designation	Safety Helmet	Safety Gloves	Life Jacket	Safety Shoes	Work Wear	Face Mask	Goggles	Signed	
										Issued	Returned



Annexure 5: Safety Violation Form

Employees Safety Violation Form

Employee Name _____

Designation _____

Site Location _____

Site Supervisor _____

Violation details:

Note:

The person has found doing violation of HSE SOPs and because of the above mentioned violation, this person has been fined PKR _____ by the site HSE officer and has been warned not to commit such violation again.



Annexure 6: Incident / Accident Report Form

Project Title : _____ Project # : _____

Near Miss / Incident:- Title _____ Report No.: _____

Report of Incident – Section I				
Responsible Contractor / Dept. :				
Short Description of Incident:				
Report Prepared By:	Name:	Job Title:	Contact Details:	
Responsible Supervisor:	Name:	Job Title:	Contact Details:	
Incident Owner:	Name:	Job Title:	Contact Details:	
Where did the incident occur?				
Location:				
Specific Location:				
What were the conditions like?				
Weather:				
Lighting:				
Road Surface:				
When did the incident occur?				
Date Occurred:	(day/month/year)		Time:	24 hour
Date Reported:	(day/month/year)		Time:	24 hour
Who or What was involved?				
Employee:	Name:	Job Title:	Contact Details:	
Contractor:	Name:	Job Title:	Contact Details:	
Witnesses:	Name:	Job Title:	Contact Details:	
Vehicle / Equipment Involved:	Description and Number:			



Event Type:					
Incident resulting in personnel injury	<input type="checkbox"/>		Non-conformance	<input type="checkbox"/>	
Incident resulting environmental damage	<input type="checkbox"/>		Public complaint	<input type="checkbox"/>	
Incident resulting in asset damage	<input type="checkbox"/>		Potential incident	<input type="checkbox"/>	
Near miss	<input type="checkbox"/>		Unsafe act	<input type="checkbox"/>	
Type of Hazard: * Encircle any of the following hazard types.					
A. Health hazards	B. Safety hazards		C. Environment hazards		
1. Hazardous Material	1. Fire and Explosion		1. Airborne Emission		
2. Asphyxiation	2. Flammable Properties		2. Underground Equipment Failure		
3. Radiological	3. Ignition Sources		3. Surface water Run-off		
4. Lightning	4. Opening Equipment for Maintenance		4. Process Water Effluents		
5. Burns	5. Process Hazards		5. Separators		
6. Noise	6. Entry into Confined Spaces		6. Waste Generation Disposal		
7. Microbiological	7. Hot Work		7. Sludges		
8. Hygiene/Cleanliness	8. Machinery		8. Refrigerants		
9. Health	9. Electricity				
10. Physical Damage	11. Excavations				
	12. Working at Height				
	13. Road Operations				
	14. Falling Objects				
Associated Risk:					
Enter any illness or injury information:					
Enter any spill information:					
Enter full description of this incident:					

Enter any immediate corrective actions taken:						
Actual Incident Risk Assessment: See IRAM (Annexure A) (Please circle)						
Likelihood:	People	Asset	Environment	Reputation		
A, B, C, D, E	0, 1, 2, 3, 4, 5	0, 1, 2, 3, 4, 5	0, 1, 2, 3, 4, 5	0, 1, 2, 3, 4, 5		
Risk Classification:	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Green	<input type="checkbox"/>
Potential Incident Risk Assessment: See IRAM (Annexure A) (Please circle)						
Likelihood:	People	Asset	Environment	Reputation		
A, B, C, D, E	0, 1, 2, 3, 4, 5	0, 1, 2, 3, 4, 5	0, 1, 2, 3, 4, 5	0, 1, 2, 3, 4, 5		
Risk Classification:	Red	<input type="checkbox"/>	Yellow	<input type="checkbox"/>	Green	<input type="checkbox"/>
Section II - Root Cause Analysis						
1. Substandard Action			2. Substandard Condition			
3. Personnel Factor			4. Job Factor			
CAUSES CHECKLIST						
IMMEDIATE CAUSES			SUBSTANDARD CONDITIONS			
SUBSTANDARD ACTIONS			SUBSTANDARD CONDITIONS			
<input type="checkbox"/> 1. Operating equipment without authority <input type="checkbox"/> 2. Failure to secure <input type="checkbox"/> 3. Failure to warn <input type="checkbox"/> 4. Operating at improper speed <input type="checkbox"/> 5. Making safety device inoperable <input type="checkbox"/> 6. Using Defective equipment <input type="checkbox"/> 7. Using Equipment improperly <input type="checkbox"/> 8. Failure to properly use PPE <input type="checkbox"/> 9. Improper loading/placement/lifting <input type="checkbox"/> 10. Improper position for task <input type="checkbox"/> 11. Servicing equipment in operation <input type="checkbox"/> 12. Horse play			<input type="checkbox"/> 1. Inadequate guard or barriers <input type="checkbox"/> 2. Improper protective equipment <input type="checkbox"/> 3. Defective tools, equipment <input type="checkbox"/> 4. Conjunction or restricted action <input type="checkbox"/> 5. Inadequate Warning System <input type="checkbox"/> 6. Fire & Explosion Hazards <input type="checkbox"/> 7. Poor Housekeeping <input type="checkbox"/> 8. Environmental conditions <input type="checkbox"/> 9. Noise/Radiation Exposures <input type="checkbox"/> 10. Inadequate Ventilation <input type="checkbox"/> 11. High or low temperatures <input type="checkbox"/> 12. Inadequate illumination			
UNDERLYING CAUSE / BASIC CAUSE						
PERSONAL FACTORS			JOB FACTORS			
<input type="checkbox"/> Inadequate capability			<input type="checkbox"/> Inadequate Leadership supervision			



<input type="checkbox"/> Lack of knowledge <input type="checkbox"/> Lack of skill <input type="checkbox"/> Stress <input type="checkbox"/> Improper motivation	<input type="checkbox"/> Inadequate Engineering <input type="checkbox"/> Inadequate Purchasing <input type="checkbox"/> Inadequate Tools/Equipment <input type="checkbox"/> Inadequate Maintenance <input type="checkbox"/> Inadequate Work standards <input type="checkbox"/> Wear & Tear <input type="checkbox"/> Abuse or misuse	
Conclusion		
Preventive Actions		
Recommendations by Investigator	Responsibility	Closing Date
	Date	Area lead Incharge
Report Distribution: Note: * select amongst the following. PM, SM, Head QHSE, Head BA, CEO, construction mgr., Comm. mgr., HSE incharge, subcontractor.		
Report Entered By:	Name:	Date:
Incident Report No.:		

SM / Incident Owner
Date:

Site I/C HSE
Date:



Annexure 7: Hazard Reporting Form

Name:	
Location:	
Equipment:	
Description of Hazard:	
Supervisor Remark:	
Corrective Action Taken:	
Signature of Supervisor:	Date:
Suggested Corrective Action:	
Signature of HSE Manager / Supervisor	Date:



Annexure 8: Non-Compliance Reporting Sheet

Sr. #	Non-Compliance	Reported Date	Compliance Status	Compliance Date



Annexure IX: Contractor's Labour Management Plan (LMP)

**DRAFT-SAMPLE
CONTRACTOR'S LABOUR MANAGEMENT PLAN (LMP)
FOR
Rehabilitation of Rain/Flood Affected Roads**



S.NO	DATE	PREPARED BY	CHECKED BY	APPROVED BY	REMARKS
1.		The Contractor	CSC	PIU	



ABBREVIATIONS / DEFINITIONS

CoC	Code of Conduct
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
GBV	Gender Based Violence
GRC	Grievance Redress Committees
GRM	Grievance Redress Mechanism
HSE	Health Safety and Environment
ILO	International Labor Organization (ILO)
PIU	Project Implementation Unit
PPEs	Personnel Protective Equipment
SEA	Sexual Exploitation and Abuse
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection



1. INTRODUCTION

1.1 Project Background

The Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster following the Flood 2022 emergency. Subsequently, the World Bank (WB) task team visited the province and had a series of meetings with the provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.

- Restoration/Rehabilitation of Rural (Farm to Market) Roads in affected districts, talukas and UCs.
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and Union Councils.
- Provision of immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to Farm(s), Rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- Expansion of the Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to 09 districts i.e. Jamshoro, Dadu, Sajawal, Badin, Qambar Shehdadkot, Shikarpur, Jacobabad, Thatta, Ghotki. The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six Districts HQs – Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur, and Larkana.

1.2 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project – SFERP falls into four main components.

- i. Component--1 Infrastructure Rehabilitation:
- ii. Component--2 Livelihoods Restoration
- iii. Component--3 Institutional Strengthening for Resilience and Technical Assistance
- iv. Component--4 Project Management

1.3 The Proposed Sub–Project

The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas of the province.



The present Labor Management Plan (LMP) represents the risks and impact associated with workers of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure:

Administratively, this reconditioning work fall in ----- Rural Taluka of the district -----.

1.4 Labour Management Plan (LMP)

This Labor Management Plan (LMP) was developed by the Construction Contractor (CC) under the supervision of Construction Supervision Consultant (CSC) with the endorsement of Project Implementation Unit (PIU) - SFERP for Restoration of Roads and Allied Infrastructure. It identifies labor requirements and sets out the procedures for addressing labor conditions and risks associated with the proposed project during construction, which is aimed at helping the project to determine the resources necessary to address project Labor issues. The LMP is enshrined within the context of the World Bank Environmental and Social Standards (ESS) 2: Labor and Working Conditions as well as Labour Management Procedure prepared for SFERP.

The World Bank has rated the risks and impact associated with workers as well as community health and safety, and the risk associated with Labor impact as moderate due to the nature of rehabilitation activities which are well understood and expected to have limited impacts as they can largely be avoided, minimized or managed through procedures, including procedures set out in this LMP. The LMP will be reviewed continually during project implementation and adequate measures and procedures to manage negative impacts will be put in defined.

The objectives of the LMP include:

- To protect project workers including vulnerable workers such as women and girls, transgender, differently abled person/persons with disabilities, children of working age, migrant workers, contracted workers, community workers and primary supply workers
- To promote safety and health at work.
- To promote the fair treatment, non-discrimination
- To prevent the use of all forms of forced labor and child labor.
- To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with The Sindh Occupational Safety and Health Act, 2017.
- To provide project workers with accessible means to raise workplace concerns.

1.5 Scope of The Labour Management Plan



This LMP describes the requirements and expectations in terms of compliance, reporting, roles, supervision and training with respect to labor and working conditions, including camp accommodation. The LMP will cover all categories of workers. The LMP will set out the following procedures.

- How workers will be managed in accordance with the national law requirement
- Guidelines for the different categories of project workers
- Terms and conditions of Employment
- Child Labor
- Forced Labor
- Non-discrimination and equal opportunity
- Protecting the Workforce
- Grievance Mechanism
- Occupational Health and Safety



2. OVERVIEW OF LABOUR USE IN THE PROJECT

2.1 Type of Workers

ESS-2 categorizes the workers into direct workers, contracted workers, community workers, and primary supply workers. The categories for which the project workers have been defined are provided below.

- a) **Direct workers:** Direct workers will comprise a mix of government civil servants from various relevant line ministries and those deployed as technical consultants – full and part-time by the PIU-SFERP – under the project. The former will be governed by a set of public service rules, the latter by mutually agreed contracts. The officers in the PIU who will serve as Procurement Officer, Monitoring & Evaluation Officer, Gender Officer, Environmental Safeguard Officer, Social Safeguard Officers and Communications Officer.

The PIU will implement day-to-day coordination, management and monitoring of the project components.

- b) **Contracted workers:** Two broad categories of contracted workers are expected. First is Consultant service providers who will provide construction supervision services to the PIU. Second is the staff of civil works contractors to be subcontracted to arrange for civil works act as Construction contractor/the Contractor under the subproject.
- c) **Community Workers:** The labor will be sourced locally for skilled and unskilled labor.
- d) **Primary Suppliers** are likely to include suppliers of construction materials for any civil works to be supported by the project.

2.2 Number of Project Workers

Table 1 below provides labour requirement for rehabilitation of roads.

Table 1: Estimated labour requirements for Contract workers for the Proposed Subproject (for one road)

Project Phase	Proposed Intervention Works		Activities	Staffing per road	Support Activities	Schedule (Months)
Pre-construction	Rehabilitation	Preparatory Works: Land clearing, excavation of materials (sand),	Assessment of existing Project location Preparation of staging area	Skilled Labor: = ? Unskilled Labor: ?	Camp area	
		Creation of burrow pits,	Mobilization of equipment & personnel to the site			



Project Phase	Proposed Intervention Works	Activities	Staffing per road	Support Activities	Schedule (Months)
Construction	All Civil works	Mobilization of workers Siting and Preparation of staging areas camp/s including sanitary & allied facilities			
		Enlist main activities relating to the scope of work 1 2 3 4 5	Skilled Labor: = ? Unskilled Labor: ?	Burrow pit	
		Construction of structures, water sanitation and hygiene and facilities;	Labor: ?		
		Disposal of construction wastes	Unskilled = ?	Temporary construction waste collection areas	
Demobilization/ Restoration	Closure Works: Site demobilization/restoration activities	Removal of constructed/rehabilitated structures; Disposal of construction spoil and waste in general; • Dismantling of temporary work camp of the contractor (where available); and waste management	Skilled Labor: = ? Unskilled Labor: ?	Landscaping services	

2.3 Project Implementation Schedule and Activities

The direct workers will be required full time and around the year for the project duration. Consultant Services workers will be required full time and on intermittent basis for the project duration.

Civil works contracted workers will be required, as per the need. Construction season typically starts from March to November but can vary depending on the weather conditions. It will be up to the contractors to mobilize labor force to coincide with the type of works and the season. The rehabilitation works are estimated to be implemented over a ----- period. This is the maximum timeline required. It is envisaged that most of the roads may require less work.



3. ASSESSMENT OF KEY POTENTIAL LABOUR RISKS

This chapter outlines the potential Labor risks and impacts associated with the Rehabilitation of Rain/Flood Affected Roads, District -----.

3.1 Potential Risks and Impacts

Some of the potential labour risks and impacts associated with the subproject include:

- Unfair recruitment and selection practices which could discriminate against women, transgender and vulnerable groups
- Exploitative wages.
- Over-stretched working hours – no break periods.
- Poor work safety culture, accidents/incidents, Lack of provision of PPEs.
- Perception that wages, salaries and benefits are poor or that foreigners are treated better and receive better conditions of employment.
- Forced Labor.
- Child Labor.
- Gender-based violence (GBV) risks as a result of contractor workforce during civil works.
- Workplace sexual harassment and sexual exploitation and abuse.
- Lack of female security and privacy mechanism
- Lack of provision of basic facilities – water, food, toilets, washing hand facilities, separate space for feeding, and medical aid.
- Sub-standard campsite facilities and campsite management.
- Hostility and security threats from host community.
- Cultural differences may cause conflicts.
- Lack of unified rules and regulations for all workers.
- Favoritism.
- No grievance redress channel for workers.
- Dismissal from work.



- Boredom and lack of recreational activities.
- Search for access to religious practices.

3.2 Labour Management Plan

Table 2 below presents a plan to be adopted in the management of Labor risks for the subproject. The Contractor/s will be responsible for making provisions to ensure implementation of the LMP and develop corrective action for any default and non-compliance. The CSC will monitor contractor's compliance to the LMP with the help of PIU.

Table 2: Labour Management Plan

Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
Arbitrary decisions by contractors on Terms and Conditions of employment	<ul style="list-style-type: none"> • The duration of the contracts offered to contractor workers are short and may not allow employees adequate time and information for meaningful collective bargaining, leading to discontent of employees and disputes. • Project workers may not be provided with information and documentation that is clear and understandable regarding their terms and conditions of employment. 	<ul style="list-style-type: none"> • The CSC will closely supervise the Contractor Recruitment Plan and ensure fairness of Employment Terms and Conditions against the applicable and prevailing National requisites. • All information and documentation must be provided at the beginning of the working relationship and when any changes to the terms or conditions of employment occur. • Where applicable, project workers will receive written notice of termination of employment and details of severance payments in a timely manner.
Poor working conditions (unsafe work environment, underpayment, lack of workers' rights, etc.)	<ul style="list-style-type: none"> • The Rights of workers under national labor and employment law (which will include any applicable collective agreements), may be abused. • Workers payment may be delayed, irregular, or may be underpaid. • Campsites may be poorly managed, inconducive for workers, insecure, poor sleeping conditions, lack of access to basic amenities like water, toilets, healthcare etc. • The general appearance of the camp deteriorates making camp life unpleasant. 	<ul style="list-style-type: none"> • Project workers will be paid on a regular basis as required by Sindh Minimum Wage Notification with a principle of "equal pay for equal work" • In the case of subcontracting, the Borrower will require such third parties to include equivalent requirements and non-compliance remedies in their contractual agreements with subcontractors. • The CSC & PIU shall inspect the campsites to ensure workers have appropriate living quarters, sanitation facilities separate for male and female, basic amenities. • All project workers will be provided with adequate periods of rest per week, annual holiday and sick leave, as required by



Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
		<p>national law.</p> <ul style="list-style-type: none"> • Ensure that camp grounds and common areas are routinely cleaned and organized with appropriate signage in place, and that grounds are maintained (e.g., grassed areas are regularly mown). • See Annexure 1 for sample campsite management framework.
Non-discrimination and equal opportunity	<ul style="list-style-type: none"> • Decisions relating to the employment or treatment of project workers may discriminate against certain classes of workers including women, vulnerable groups amongst others. • Payment of workers may be based on discrimination e.g. male may be paid higher than women even on the same level of job schedule. 	<ul style="list-style-type: none"> • The employment of project workers will be based on the principle of equal opportunity and fair treatment, and there will be no discrimination with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment, or disciplinary practices.
Sexual Harassment and Sexual Exploitation & Abuse	<ul style="list-style-type: none"> • Risks of sexual harassment and SEA are possible 	<ul style="list-style-type: none"> • Training should include protocols on how sexual harassment and SEA will be prevented and addressed. • All workers should also be aware for the GBV/SH/SEA-GRM for the project
Child Labor	<ul style="list-style-type: none"> • There is a risk that children (below the age of 18) will be used as Labor in the subproject area. • Under aged persons within the community may disguise as above 18 to enable them work and get paid. 	<ul style="list-style-type: none"> • The minimum age of eighteen (18) will be enforced at recruitment and in daily staff team talks by Contractors. CSC & PIU will also supervise this through the Contractor HR record. • Contractors will liaise with community liaisons to attest to the age and conduct of all local hires, and maintain a list of same.
Forced Labour	<p>There is a risk that there could be involuntary or compulsory Labor, such as indentured Labor, bonded Labor, or similar Labor-contracting arrangements.</p>	<ul style="list-style-type: none"> • It will ensure that no forced Labor exists in the subproject by gathering documents and appropriate proof. Written Particulars of Employment as mentioned in the Annexure 2 must be filled by the Contractor and submitted to CSC for PIU endorsement. • A consent section will be part of the employee signed employment contract. It will ensure that



Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
		if Labor is sourced from any sub-contracting agency, the workers are not subject to coercion and forced Labor conditions.
Labor Influx	<ul style="list-style-type: none"> The project may face influx of Labor to local communities especially where skilled Laboure's are not available in some subproject area. This could lead to Increase in potential spread of STIs/STDs, HIV/AIDs due to workers on site, increase in GBV/SEA, sexual relations between contractors and minors. This could also lead to competition for resources like water, health facilities, electricity in the sub project locations 	<ul style="list-style-type: none"> Encourage hiring of Labor from the host communities. Maintain Labor relations with local communities through a code of conduct (CoC) (see sample CoC in Annex 3) The Code of Conduct must be signed by all categories of workers. Workers must be trained on the provisions of the CoC about refraining from unacceptable conduct toward local community members, specifically women and informed of the sanctions for non-compliance. Training must be conducted for all new hires including sub-contractors. Contractors should make resources available for their workers especially where stated in the ESMP.
Grievance Redressal Mechanism	<ul style="list-style-type: none"> Workers may be aggrieved due to unfair treatment, poor working conditions, conflicts, poor pay, overstretched working hours amongst other things. Project GRM will be surely integrated with a specific contractor's GRM will be designed to address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a local language, without any retribution, and will operate in an independent and objective manner. The grievance redressal mechanism will not impede access to other judicial or administrative remedies that might be available under the law. 	<ul style="list-style-type: none"> It shall comply with the Grievance redress mechanism defined to handle worker's grievances in a fair and timely manner. The CSC & PIU shall provide oversight to ensure effective implementation of the GRM.
Occupational Health and Safety	<ul style="list-style-type: none"> Site workers will be exposed to risks of accidental collisions with moving vehicles, strains, and ergonomics from repeated movements or from lifting and heaving of heavy objects, slips and falls. Accidental cuts from tools and machines are also safety risks. Dust and particulate emissions and welding works from rehabilitation site 	<ul style="list-style-type: none"> HSE training/s shall be provided for all workers before commencement of work and periodically (see sample training plan in Annexure 4) A full time HSE officer/s shall be hired. PPEs shall be made available



Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
	<p>may cause respiratory and eye impairment health concerns for workers and the public</p> <ul style="list-style-type: none"> • Movement of trucks carrying sand and materials, lack of road safety measures may also cause risk of accident, injury and death • Contractors should comply with Provincial and international labor legislations. • Every site will have emergency preparedness and response arrangements to emergency situations. • Maintain a safe working environment including workplaces, machinery, equipment and processes under their control are safe and without risk to health, including by use of appropriate measures relating to chemical, physical and biological substances and agents. • Where required, hire security for workers. 	<p>for all workers and the HSE officer should enforce compliance.</p> <ul style="list-style-type: none"> • First aid boxes should also be provided at construction site, staging area and mobile. • It is obligatory to report HSE accident/incidents to the CSC & PIU promptly, and the PIU should report this to the Bank within 48hrs (in accordance with the Environmental and Social Commitment Plan (ESCP)) • It should be ensured that training for their drivers and liaise with the local Traffic Management Agency to control traffic during project implementation.
Right of Association and Collective Bargaining	<ul style="list-style-type: none"> • Workers have the right to freely form, join or not join a trade union for the promotion and protection of the economic interest of that worker. • Workers have a right to organize and collective bargaining, and representation. 	<ul style="list-style-type: none"> • The CSC & PIU will ensure that workers are informed of their right of association and collective bargaining. • The CSC & PIU should also inform workers of the workers GRM and their right to utilize the system.
Contractors Management	<ul style="list-style-type: none"> • Records of workers engaged under the subproject, including contracts must be kept. • Records of all training attended by workers including CoC, HSE, STIs/STDs, GBV etc. • Accidents/ incidents and corresponding root cause analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and preventive activities required (Corrective Action Register) • Records of strike actions, reasons and resolution reached. • Records of grievances and how they were resolved. • Records of all sanctions, punishments and terminations with reasons and follow-up actions taken. 	<ul style="list-style-type: none"> • Documents should be kept at the site office with the site engineers and CSC office. • The PIU team should check these records during monitoring visits.



Risk/Impact	Analysis (Magnitude, Extent, Timing, Likelihood, Significance)	Mitigation
Primary Suppliers	Primary suppliers could also have occupational injuries, incident/accidents while performing project related functions	Primary suppliers should maintain records related to occupational injuries, illness and lost time accident, which should be reviewed by the contractor every quarterly and report to CSC for information.



4. ROLES AND RESPONSIBILITIES FOR MANAGING THE LMP

4.1 CSC & PIU

The Project Implementation Unit (PIU) have the overall responsibility to oversee all aspects of the implementation of the LMP including occupational safety, health and welfare of workers, and ensure contractor compliance with the assistance of CSC. This role will primarily be part of the responsibilities of the Environmental and Social Specialists of the CSC & PIU, however, they will be required to liaise with other staff of the PIU and report frequently to the Project Coordinator on all LMP matters.

4.2 The Contractor

The Contractors will be responsible for implementation of the plan on a daily basis and providing the required human, financial and training resources for effective compliance.

Specific roles are outlined below:

4.2.1 Occupational Health and Safety

Contractors must engage a minimum of one Health Safety and Environment (HSE) officer to ensure the day-to-day compliance with specified health and safety measures and records of any incidents. Minor incidents and near misses will be reported to the CSC & PIU (through the Environmental Specialist) on a monthly basis, serious incidents should be reported immediately and not later than 24hrs. Minor incidents will be reflected in the quarterly reports to the World Bank, while major accidents/deaths should be flagged to the World Bank within 48hrs.

4.2.2 Labour and Working Conditions

The Contractors will keep records in accordance with specifications set out in this LMP. The CSC & PIU may at anytime require records to ensure that Labour conditions are met. Where issues are spotted, the PIU will ensure that immediate remedial actions are implemented. A summary of issues and remedial actions will be included in quarterly reports to the World Bank.

4.2.3 Worker Grievances

Contractors must engage a minimum of one social officer/Social Expert/Labour Officer to handle issues relating to social risks. The CSC (through the counterpart) will review the effectiveness of the workers grievance redress mechanism as stipulated in section 4 and ensure that all complaints by workers are resolved. The CSC will report to PIU as part of the quarterly E&S reports for onward submission to WB.

4.2.4 Additional Training



The contractor will set up a system of daily HSE PEP talks, routine safety trainings and specialized job trainings for workers. Trainings will form part of the contractor's responsibility. The contractors HSE officers will provide safety instructions to contractor staff. The CSC will liaise with contractors to deliver trainings to address risks associated with Labor influx including GBV/SEA with endorsement of PIU. The contractor will be obligated to make staff available for this training, as well as any additional mandatory trainings required by the PIU, as specified by the contract.

4.2.5 Occupational Health and Safety compliance

The contractor shall comply with all provisions of the LMP, contractors ESMP that will be prepared, including occupational health and safety plans, emergency plans amongst others. In addition, contractors shall procure the identified PPE and First Aid kit for use during project implementation. The Contractor shall organize training for workers on the use of PPE and First Aid kit.



5. GRIEVANCE REDRESS PROCEDURES FOR WORKERS

5.1 Introduction

This procedure requires to have a Formal Grievance Procedure which should be known and explained to the employee:

- Who the employee should report to;
- Time frame for addressing grievances at each level should be specified;
- Opportunity to report to a higher-level authority if grievance is not resolved at within the stipulated time;
- Right to seek judicial redress

The grievance process shall be guided by the following principles:

- Transparency
- Confidentiality
- Non-retribution practices
- Non-vindictive
- Right to representation
- Proper documentation

It is recommended that since the nature of civil works for the project is minor-moderate, workers should adopt the existing Grievance Redress Mechanism defined for the subproject as summarized below:

5.2 Establish a GRM

Grievance Redress Mechanism (GRM) will be implemented to ensure that all complaints from workers are dealt with appropriately, with corrective actions being implemented, and the complainant being informed of the outcome.

5.3 Grievance Redress Committees

Grievance Redress Committees (GRCs) shall be constituted at various levels to implement the GRM for the project including community level, CSC, PIU level, Judiciary as shown in Table 3 below.



Table 3: Levels of Grievance Redress Committees

GRC Level	Redressal Mechanism
First Level GRM: GRC at the Site/Community Level	Composed at the community level and easily accessible to workers. This committee will comprise of community liaison officers, supervision consultant site engineer, representative of CSC management among other identified persons. In addition, complaint box will be placed in appropriate place that will encourage aggrieved workers drop their complaints. This should be checked regularly (at least twice weekly) by a designated person in the committee. This committee will be expected to report to the PIU.
Second Level of GRM: GRC at the PIU Level	This committee shall comprise of PIU members including the Project Coordinator, Social Officer/Expert among others, and other department level representative from within the Project Monitoring Committees. If the complainant does not accept the solution offered by the PIU-GRC, then the complaint is referred by the Project Coordinator to the court
Third Level of GRM: Project Steering Committee (PSC) Redress of Grievances	While the purposes of GRM put in place by this Project is to resolve all issues caused by the project implementation out of PSC and to save time which is usually involved in litigation matters, it is not out of place to anticipate a scenario where aggrieved person is not satisfied with the process and judgment given by the grievance redress committee(s). Therefore, PIU shall inform aggrieved persons of their right to seek for redress in the PSC law as the final resort.

5.4 Roles of the GRCs

The Grievance Redress Committees will be responsible for:

- Communicating with the Affected persons (AP's) and evaluate if they are entitled to recompense;
- Making the list of affected persons public and the established grievance redress procedure.
- Recommending to the Social Safeguard Specialists of the CSC & PIU solutions to such grievances from affected persons; Communicating the decisions to the AP's; to acknowledge appeals from persons, households or groups who rightfully will not be affected by the project, but claim to be, and to recommend to the PIU whether such persons should be recognized as AP's, and to communicate back the decisions to the Claimants.

5.5 Expectation When Grievances Arise

When workers present a grievance, any of the followings is or are expected from the project management/channel of grievance resolution:

- acknowledgement of their problem;
- an honest response to questions/issues brought forward;
- an apology, adequate compensation; and



- Modification of the conduct that caused the grievance and some other fair remedies.

5.6 Typical Grievance Redress Process

The process of grievance redress will start with registration of the grievance(s) to be addressed, for reference purposes and to enable progress updates of the cases. Thus, the aggrieved worker will file a complaint/ fill a grievance form with the Grievance Redress Committee. The complaint should contain a record of the person responsible for an individual complaint, and records dates for the date the complaint was reported; date the Grievance Log was uploaded onto the project database; date information on proposed corrective action sent to complainant (if appropriate), the date the complaint was closed out and the date response was sent to complainant.

The officer receiving the complaint (part of the GRC member) will ensure that each complaint has an individual reference number and is appropriately tracked, and recorded actions are completed. The response time will depend on the issue to be addressed but it should be addressed with efficiency. The Grievance committee will act on it within 10 working days of receipt of grievances. If no amicable solution is reached, or the affected person does not receive a response within 15 working days, the affected person can appeal to the PIU, which should act on the grievance within 15 working days of its filing.



Annexure 1: Workers Campsite Management Framework

Elements for managing risks associated with the Workers Campsite under the proposed project include:

- **Location:** The Contractor shall ensure to site workers camp at a designated location approved by the PIU. The location was determined during the preliminary design preparation in conjunction with the local communities/authorities with the following criteria:
 - ✓ Be located outside the protection zone of watercourses (100 m) and wetlands;
 - ✓ Be located within an acceptable distance from existing residential areas;
 - ✓ Not located in areas with intact vegetation
 - ✓ The contractor must first obtain the necessary licenses and consents from the local authorities or from the owner of the needed area; Although it is the contractor's decision, it is recommended that whenever possible the camps should be handed over to the administrative or community authorities for future use;
 - ✓ The contractor must submit for the prior approval of the Resident Engineer, the implantation design and other project structures and specifications related to the camps and sites that are intended to be built;
 - ✓ The contractor shall take all necessary measures and precautions to ensure that the execution of the works is carried out in accordance with environmental, legal and regulatory requirements, including those set out in this document; The contractor shall take all measures and precautions to avoid any disturbance in the local communities and among the users of the road, as a result of the project execution;
 - ✓ The contractor shall, whenever possible, apply measures to reduce or eliminate any sources of disturbances. The contractor shall follow the provisions of this document, as well as the applicable legislation and standards, during the use, operation and maintenance of the camps and sites, in particular with regard to water supply and sanitation, solid waste management, handling and storage of dangerous substances, etc.;
 - ✓ The areas occupied by the camps and sites must be recovered at the end of the project, when the contractor is demobilized, through the replacement of previously existing conditions, unless other uses are intended
- **Accommodation, Hygiene and Sanitation:** The Contractor will ensure that all necessary sanitary facilities shall be provided for workers expected on site: separate rooms will be provided for male and female workers, all necessary sanitary facilities complying with World Health Organization (WHO) regulations will be provided for workers including:
 - ✓ Separate toilets for male and female
 - ✓ Portable water with well-placed overhead tanks
 - ✓ Wash basins
 - ✓ Concrete and covered septic tanks
- **On-site Social and Health Care Facilities:** Provision of basic on-site social and medical facilities such as first aid, basic health care center, recreational center, food service, etc. in order to reduce pressure on community facility.
- **Campsite Safety and Security:** Provision of 24 hours security stationed at the



Campsite to ensure the security and safety of construction workforce and construction equipment.

- **Campsite Waste Management:** Adequate waste management of sewage and other forms of waste within the campsite. The Campsite shall be equipped with independent toilet facilities for male and female workers respectively, in order to discourage irregular waste disposal. Furthermore, standards must be instituted for personal and public hygiene among project workers. Additionally, project workers shall be properly trained on personal hygiene.
- **Establishment of and Training on Workers on Code of Conduct:** The Supervising Engineer and Safeguards Unit shall ensure that Contractors establish a workers' Code of Conduct (CoC). The CoC will help mitigate some of the social and environmental impacts of labour influx such as risk of social conflict, Increased risk of illicit behavior and crime, Increased burden on and competition for public service provision, Wastewater discharges, Increased demand on freshwater resources, and Inadequate waste disposal and illegal waste disposal sites etc., will help keep workers (local/foreign) in check on the rules and regulations binding their engagement. Contractors to ensure provision of training to workforce on code of conduct and ensure strict compliance. Measures provided for in the ESMP to deter illicit behavior and other social vices are adequately enforced.
- **Training programs:** Conduct and ensure key staff, including contractors, receive training regarding the likelihood, significance and management of influx-related issues such as HIV/AIDS, GBV, SH, SEA, VAC etc.
- **Carry out Regular Monitoring:** The CSC shall monitor and report to PIU for change throughout the project cycle to ensure compliance and on mitigation effectiveness from contractor. Ensure a documented monitoring program that tracks key social outcomes, changes and issues at regular intervals throughout the project lifecycle.



Annexure 2: Written Particulars of Employment

1. Name of Employer
2. Name of Employee
3. Date Employment began
4. Wage and Method of Calculation
5. Interval at which wages are paid
6. Normal Hours of work
7. Short description of employee's work
8. Probation Period
9. Annual Holiday Entitlement
10. Paid Public Holiday
11. Payment during sickness
12. Maternity Leave (if employee female)
13. Nursing Break Entitlement (for female employee)
14. Notice employee entitled to receive
15. Notice employer required to give
16. Any other matter either party wishes to include

Notes:

- (a) An employee is free to join a trade union or staff association, which is recognized by the undertaking. The address of the Trade Union or Staff Association is:
- (b) The grievance procedure and disciplinary procedure in this undertaking requires to be followed when a grievance arises or disciplinary action needs to be taken.
- (c) When any heading is inapplicable, enter NIL.

.....
Employer's signature

.....
Witness

.....
Employee's signature

.....
Witness

.....
Date

.....
Date



Annexure 3: Sample of a Contractors Code of Conduct

1. Aim of The Code of Conduct

The main aim of the Code of Conduct is to prevent and/or mitigate the social risks within the context of Rehabilitation of Rain/Flood Affected Roads. The Codes of Conduct are to be adopted by contractors. The social risks that may arise include but not limited to Gender Based Violence (GBV), Violence Against Children (VAC), HIV and AIDS infection/spread, and occupational health and safety.

2. Codes of Conduct

This chapter presents three Codes of Conduct (CoC) for use (note all COC must be translated into Sindhi as well):

- i. **Contractors Code of Conduct:** Commits the contractor to addressing GBV and VAC issues;
- ii. **Construction Site Supervisor /Manager's Code of Conduct:** Commits managers to implementing the Code of Conduct, as well as those signed by individuals; and
- iii. **Individual Code of Conduct:** Code of Conduct for each individual working on project funded projects

2.1 Contractors Code of Conduct

Contractors are obliged to create and maintain an environment which prevents social risks. They have the responsibility to communicate clearly to all those engaged on the project the behaviors which guard against any form of abuse and exploitation. In order to prevent Social risks, the following core principles and minimum standards of behavior will apply to all employees without exception:

- i. GBV or VAC constitutes acts of gross misconduct and are therefore grounds for sanctions, penalties and/or termination of employment and/or contract. All forms of Social risks including grooming are unacceptable be it on the work site, the work site surroundings, or at worker's camps of those who commit GBV or VAC will be pursued.
- ii. Treat women, children (persons under the age of 18) and people with disability with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic, cultural beliefs/practices, or other status.
- iii. Do not use language or behaviour towards men, women or children that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- iv. Sexual activity with children/learners under 18 (including through digital media) is prohibited. Mistaken belief regarding the age of a child and consent from the child is not a defense.



- v. Exchange of money, employment, goods, or services for sex, including sexual favours or other forms of humiliating, degrading or exploitative behaviour is prohibited.
- vi. Sexual interactions between contractor's employees and communities surrounding the work place that are not agreed to with full consent by all parties involved in the sexual act are prohibited. This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex.
- vii. Where an employee develops concerns or suspicions regarding acts of GBV or VAC by a fellow worker, whether in the same contracting firm or not, he or she must report such concerns in accordance with established Grievance Redress Mechanism (GRM) that protects the identities of victims and whistle-blowers.
- viii. All contractors are required to attend an induction prior to commencing work on site to ensure they are familiar with the social risks and Codes of Conduct.
- ix. All employees must attend a mandatory training once a month for the duration of the contract starting from the first induction prior to commencement of work to reinforce the understanding of the institutional social risks and Code of Conduct.
- x. The Contractor shall ensure provision of financial resources and support compliance to occupation health and safety requirements for all workers. The Contractor shall ensure that workers dress appropriately i.e. dress in a way that:
 - Is unlikely to be viewed as offensive, revealing, or sexually provocative.
 - Does not distract, cause embarrassment or give rise to misunderstanding.
 - Is absent of any political or otherwise contentious slogans.
 - Is not considered to be discriminatory and is culturally sensitive.
- xi. The Company shall ensure provision of financial resources and trainings to prevent spread of communicable disease including Covid 19, HIV and AIDS.
- xii. The company shall comply with all the applicable provincial legislation including giving terminal benefits to workers who have served for at least three months;
- xiii. All contractors must ensure that their employees sign an individual Code of Conduct confirming their agreement to support prevention of social risks activities.
- xiv. The contractor should ensure equitable access to limited natural resources (e.g. water points) to avoid conflicts with local communities.
- xv. Where possible, the contractor should ensure employment of local workforces especially where unskilled labour is required to mitigate social risks

I do hereby acknowledge that I have read the foregoing Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities. I understand that any action



inconsistent with this Code of Conduct or failure to take action mandated by this Code of Conduct may result in termination of the contract.

FOR THE CONTRACTOR

Signed by:

Signature: _____

Title: _____

Date: _____

2.2 Construction Site Supervisor/Managers Code of Conduct

Site Supervisors at all levels play an important role in creating and maintaining an environment, which prevents workers misconduct. They need to support and promote the implementation of the Contractors Codes of Conduct and enforce Workers Codes of Conduct. Construction site supervisor must adhere to this Code of Conduct. This commits them to develop and support systems, which maintain a safe working environment. Construction Site Supervisor responsibilities include but are not limited to:

- i. Where possible, ensure employment of local workforces especially where unskilled labour is required to mitigate social risks;
- ii. Ensure there is zero tolerance to child labour practices;
- iii. Promote gender inclusion at all levels;
- iv. Establish a workers' committee to oversee issues of workers' misconduct including GBV and VAC;
- v. Ensure compliance to occupation health and safety requirements for all workers;
- vi. Ensure that workers dress code is adhered to appropriately;
- vii. Ensure that access to construction sites is restricted to authorized persons; hoarding is provided and that there is proper signage to construction site(s);
- viii. Facilitate workers training and capacity building on social, environmental and health and safety;
- ix. Ensure that all workers are sensitized on HIV and AIDS issues;
- x. Ensure that fundamental workers' rights (e.g. working hours, minimum wages, etc) are protected;
- xi. Ensure that possession of alcohol and illegal drugs and other controlled substances in the workplace and being under influence of these substances on the job and during working hours should be strictly prohibited;
- xii. Ensure compliance to all legal requirements;
- xiii. Supervisors failing to comply with such provision can be in turn subject to disciplinary measures including termination of employment; and
- xiv. Ultimately, failure to effectively respond to some provisions of the code of conduct may provide grounds for legal actions by authorities.



- xv. Ensure that every employee under his/her supervision has been oriented on the Code of Conduct and has signed.

I do hereby acknowledge that I have read the foregoing Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to comply to all rules of this code of conduct. I understand that any action inconsistent with this Code of Conduct or failure to take action mandated by this Code of Conduct may result in disciplinary action.

Signed by: _____

Signature: _____

Date: _____

FOR THE EMPLOYER

Signed by: _____

Signature: _____

Date: _____

2.3 Workers Code of Conduct

I, _____, acknowledge that preventing any misconduct as stipulated in this code of conduct, including gender based violence (GBV), child abuse/exploitation (CAE) are important. Any activity, which constitute acts of gross misconduct are therefore grounds for sanctions, penalties or even termination of employment. All forms of misconduct are unacceptable be it on the work site, the work site surroundings, or at worker's camps. Prosecution of those who commit any such misconduct will be pursued as appropriate

I agree that while working on this project, I will:

- i. Consent to security background check;
- ii. Treat women, children (persons under the age of 18) and persons with disability with respect regardless of race, colour, language, religion, political or other opinion, national, ethnic or social origin, property, birth or other status;
- iii. Not use language or behaviour towards men, women or children/learners that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate;
- iv. Not participate in sexual activity with children/learners—including grooming or through digital media. Mistaken belief regarding the age of a child and consent from the child is not a defense;
- v. Not exchange money, employment, goods, or services for sex, with community members including sexual favours or other forms of humiliating, degrading or exploitative behaviour;



-
- vi. Not have sexual interactions with members of the communities surrounding the work place, worker's camps and fellow workers that are not agreed to with full consent by all parties involved in the sexual act (see definition of consent above). This includes relationships involving the withholding, promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex - such sexual activity is considered "non-consensual" within the scope of this Code;
 - vii. Attend trainings related to HIV and AIDS, GBV, CAE, occupational health and any other relevant courses on safety as requested by my employer;
 - viii. Report to the relevant committee any situation where I may have concerns or suspicions regarding acts of misconduct by a fellow worker, whether in my company or not, or any breaches of this code of conduct provided it is done in good faith;
 - ix. With regard to children (under the age of 18):
 - x. Not invite unaccompanied children into my home, unless they are at immediate risk of injury or in physical danger.
 - xi. Not sleep close to unsupervised children unless absolutely necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.
 - xii. Refrain from physical punishment or discipline of children.
 - xiii. Refrain from hiring children for domestic or other labour, which is inappropriate given their age, or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.
 - xiv. Comply with all relevant local legislation, including labour laws in relation to child labour.
 - xv. Refrain from any form of theft for assets and facilities including from surrounding communities.
 - xvi. Remain in designated working area during working hours;
 - xvii. Refrain from possession of alcohol and illegal drugs and other controlled substances in the workplace and being under influence of these substances on the job and during working hours;
 - xviii. Wear mandatory PPE at all times during work;
 - xix. Follow prescribed environmental occupation health and safety standards
 - xx. Channel grievances through the established grievance redress mechanism.



I understand that the onus is on me to use common sense and avoid actions or behaviours that could be construed as misconduct or breach this code of conduct.

I acknowledge that I have read and understand this Code of Conduct, and the implications have been explained with regard to sanctions on-going employment should I not comply.

Signed by: _____

Signature: _____

Date: _____

FOR THE EMPLOYER

Signed by: _____

Signature: _____

Date: _____



Annexure 4: Training Plan

S/N	Training Title	Description	Timing	Who to Deliver the Training
1	Sensitization on the HSE Manual	To train all workers on all the provisions in the HSE Manual and the company's HSE Policy (use local language as necessary) including the right use of PPEs	Upon mobilization of every worker to site	HSE Expert
			Refresher on a monthly basis	Contractor HSE Officer
2	First Aid administration/ Use of First Aid Box	To train selected officers (Contractor HSE Officer, Site Manager, Yard Manager, Team leaders, Female workers representative) on the right first aid administration for different scenarios including demonstrations	Upon mobilization to site and after every 6 months	First Aid Care Giver
3	Protocol for construction site, staging areas, borrow pits and campsite	To ensure all workers understand the protocol to adopt at the construction site, staging areas, borrow pits and campsite	Upon mobilization to site Refresher every 3 months	Site Manager
4	General Training on sitework	Right procedures for: manual handling, electrical safety, emergency procedures, work at height, confined spaces, underground construction, cofferdams etc.	Upon mobilization to site Refresher every 2 months	Site Manager/ Project Manager/ Engineer/ HSE Officer
5	Daily HSE Pep Talks	To provide daily reminder on safety precautions and acceptable environmental and social protection including do's and don'ts for all workers	Daily	Contractor HSE Officer
6	Community Health and Safety Training	To train all workers and project management on: <ul style="list-style-type: none"> Sexual Exploitation and Abuse/ Gender Base Violence Training Code of Conduct Training Sensitization on STDs/STIs Grievance Redress Mechanism 	Upon mobilization of every worker to site Refresher every 3 months	Social Safeguard Expert
7	Drivers Training	To train all project drivers on safety and acceptable conduct	Upon employment Daily Monitoring Monthly Refresher	Site Incharge



Annexure X: Draft-Sample Contractor's Traffic Management Plan (TMP)

DRAFT-SAMPLE CONTRACTOR'S TRAFFIC MANAGEMENT PLAN (TMP) FOR Rehabilitation of Rain/Flood Affected Roads



S.NO	DATE	PREPARED BY	CHECKED BY	APPROVED BY	REMARKS
1.		The Contractor	CSC	PIU	



1. INTRODUCTION

1.1 Project Background

The Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster following the Flood 2022 emergency. Subsequently, the World Bank (WB) task team visited the province and had a series of meetings with the provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.

- Restoration/Rehabilitation of Rural (Farm to Market) Roads in affected districts, talukas and UCs.
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and Union Councils.
- Provision of immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to Farm(s), Rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- Expansion of the Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to 09 districts i.e. Jamshoro, Dadu, Sajawal, Badin, Qambar Shehdadkot, Shikarpur, Jacobabad, Thatta, Ghotki. The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six Districts HQs – Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur, and Larkana.

1.2 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project – SFERP falls into four main components.

- v. Component--1 Infrastructure Rehabilitation:
- vi. Component--2 Livelihoods Restoration
- vii. Component--3 Institutional Strengthening for Resilience and Technical Assistance
- viii. Component--4 Project Management

1.3 The Proposed Sub–Project

The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected road network to improve accessibility to public facilities and facilitate the socio-economic revival of the worst-affected areas of the province.



The present Traffic Management Plan (TMP) represents the risks and impact associated with workers of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure:

Administratively, this reconditioning work fall in Hyderabad Rural Taluka of the district Hyderabad

1.4 Traffic Management Plan (TMP)

This TMP was developed by the Construction Contractor (CC) under the supervision of construction Supervision Consultant (CSC) with the endorsement of Project Implementation Unit (PIU) - SFERP for Restoration of Roads and Allied Infrastructure.

This plan has been prepared to fulfill a contractual obligation, provide guidelines and set criteria for the safety of the personnel, assets, general public and environment being affected by the movement of vehicles and equipment for the construction of the proposed subproject.

The following details based on the Environmental Code of Practice shall be considered

- Access routes for material deliveries to storage areas shall be ensured that it will not impact local traffic.
- Material-carrying vehicles will not disturb local traffic. Delivery vehicles should not be allowed to queuing on the local road.
- Loading / unloading points for deliveries are in the storage areas and shall not impact local routes and traffic.
- Appropriate warning signs should be displayed at different locations near the main barrage e.g. crossing points, pedestrian walkways, diversions, etc.
- Several flagmen shall be assigned to control and guide delivery vehicles to ensure smooth traffic flow.
- The contractor shall minimize traffic disruption by selecting non-peak hours for its vehicle's operation if possible
- The contractor shall ensure that high traffic flow is prohibited during working hours
- The contractor shall closely monitor the Traffic control management plan and ensure its implementation.
- Local authorities/District Management and traffic police shall be involved in handling traffic flow while the flow is at peak if required.



- They shall ensure regular sprinkling of water on haul routes to minimize dust/erosion.
- Speed limit signs shall be placed, and speed limits shall be followed and monitored regularly.
- Safe & defensive driving training sessions shall be conducted regularly.

The World Bank has rated the risks and impact associated with workers as well as community health and safety, and the risk associated with Labor impact as moderate due to the nature of rehabilitation activities which are well understood and expected to have limited impacts as they can largely be avoided, minimized or managed through procedures, including procedures set out in this TMP. The TMP will be reviewed continually during project implementation and adequate measures and procedures to manage negative impacts will be put in defined.

1.4.1 Introduction

Pursuant to ESMP, Traffic Management Plan (TMP) preparation and submission is one of the Contractor's contractual obligation. This document has been prepared for management of traffic during the construction activities of the proposed subproject. Purpose of TMP is to provide guidelines and set the criteria for safe movement of traffic during the execution of construction works for safety of transporters, road users, assets and general public. It also provides guidelines regarding conservation of environment and will take into account the related social and cultural issues of local community.

Contractor is well aware of the various legislations and regulations relevant to traffic and transportation in subproject area and is committed to the safe operation of transportation and traffic management, providing clear operating procedures and standards, which shall be observed and adhered to. As far as traffic environment is concerned, the strategy to organize the traffic in order to ensure least passage closures is demonstrated in next sections of this document.

1.4.2 Objective and Target of TMP

For effective implementation of TMP, the objectives are to:

- Provide safe working environment.
- Ensure smooth traffic movement during construction activities.
- Avoid social issues during traffic movement.
- Provide public awareness through public consultation.
- Ensure traffic diversion as per designated route(s).
- Ensure working within allowed period of time.
- nullify or minimize the risk of accidents to avoid injuries and casualties
- Enhance the capacity of the workers to response in ambiguous situations.
- Save maximum lives and assets.

Following targets will be set to achieve the above mentioned objectives:



- Ensure deployment of sufficient manpower in the shape of Flagmen / Traffic controllers etc. for TMP implementation.
- Ensure maintenance of diversion routes.
- Ensure management of off-site and on-site traffic appropriately.
- Ensure no or least impacts of TMP on local residents and local road network as far as possible.
- Set out mitigation measures to reduce impact on health, safety and environment pertinent to traffic management and transportation.
- Ensure organization of TMP in such a way to reduce the risk of accidents by providing an accident / incident free workplace.

1.5 Scope of The Traffic Management Plan

The intention of TMP is to ensure effective implementation and continued improvement in traffic flow in the project area. Contractor is committed to:

- Ensure that vehicular movement will not result in irreversible adverse impacts.
- Ensure that vehicular movement will not result into disturbances for the local community residing in the vicinity of the project as far as possible.
- Ensure the site activities as per guidelines of TMP and all regulatory requirements.



2. ROLES AND RESPONSIBILITIES

2.1 Project Manager (PM)

Under the corporate leadership, Project Manager/Site Manager faithfully implements the corporate environmental policies and aim to attain set goals, set up concrete measures, and ensure the measures strictly carried out by all Project staff. Project Manager/Site Manager at Site shall be responsible to:

- Ensure effective running and implementation of TMP with the assistance of HSE/OHS staff.
- Establish a healthy project organization and put in place a well-functioning resource deployment system.
- Inspect implementation procedures and operating facilities for effective TMP compliance.

2.2 In charge Structural Work

He will establish and maintain the practical aspect of TMP. He will be responsible for the following duties.

- Takes the leadership of traffic management and operations.
- Take radical measures for on-site coordination; apply deployment optimization and dynamic management.
- Scientifically and reasonably, plan TMP with environment protection considerations.
- Maintain coordination with the HSE Manager/Environmental Specialist regarding the TMP matters.

2.3 HSE Manager/Environmental Specialist

- HSE Manager will be responsible for the following duties.
- Prepare and submit the TMP for approval from the Engineer.
- Establish and maintain practical setup of TMP with coordination of PM and in charge of sites without any compromise over health and safety of workers / local community / transporters.
- Supervise the duties of his (HSE) team.
- Arrange meetings with HSE staff and other construction staff as per requirement
- Guide, monitor controlling, and precautionary measures for effective implementation of TMP.
- Training of concerned management staff and workers.
- Report the PM on the implementation of TMP and its lapses-if any.



- Conduct investigation in case of any incident / accident to identify its immediate root causes.
- Prepare and submit reports including Incident Report (IR) to the Engineer.
- Identify and implement the control and proactive measures to avoid recurrence.
- Organize his team to inspect regularly the transportation / movement of equipment / vehicles as per communicated plan.

2.4 Traffic Controller and Flagman

Contractor will depute a person as traffic controller who will ensure smooth traffic flow during construction and will perform the following duties.

- Allocate the flagmen at their required designated places.
- Perform all tasks associated with traffic management during working hours.
- Inform all project stakeholders.
- Maintain traffic diversion point(s).
- Display banners at diversion points or other required locations.
- Complete site checks and monitor traffic behavior accurately and regularly.
- Ensure safety is maintained at all times during the flow of traffic.
- Give special consideration to pedestrians and cyclists.
- Establish and maintain strong coordination with HSE Manager regarding TMP implementation.

2.5 Capacity Building Of Workers

Arrangements will be made by the Contractor's HSE team, for the capacity building of workers involved in the TMP. Trainings will be conducted by the HSE Manager for Traffic controllers, Flagmen, In-charge Earthwork, Site Supervisors and Site In-charges to make them aware about the guidelines of TMP. HSE supervisors will also deliver frequent toolbox talks at work sites to ensure safe and streamlined traffic flow.

Road Safety training will be conducted for the project staff including Machinery Operators and Divers to make them well aware regarding project specific and other traffic regulatory rules and regulations. Symbols and signs will be used to make these training sessions more effective. Consequences of fast / rash driving will also be explained to them so that they may remain most careful while driving a vehicle or operating a machinery. Different safety guidelines for different sort of heavy machinery i.e. crane; excavator etc. will be explained separately.

2.6 Public Feedback

- Complaint registers will be maintained at the Contractor's camp to get public feedback wherein every single complaint will be registered and adhered timely.
- Contractor's HSE staff will take strict notice of these complaints and mitigate the social problems on priority basis.
- Public consultations will be conducted at required locations to get feedback of local community and to make them well aware about different scope of work at different times.



3. PROVISION OF DIVERSION ROUTE

Diversion route will be provided at crossing points of different public passages. Temporary diversion routes will be provided for public facilitation and flagman will be deployed on diversion routes for safe vehicle movement.

Salient features of the temporary diversion route are:

- diversion route will be constructed for LTV and HTV traffic
- width of temporary diversion route will be 24ft at minimum.
- top level of diversion route will be provided with 1 feet compacted sub-base material.

3.1 Arrangement for Traffic Control

Contractor will ensure following arrangements for controlling traffic on diversion route.

- Colored concrete post will be installed at the edges of diversion route to restrict and indicate the traffic flow in safe area.
- Soft and hard barricading will be provided along the edges of diversion route to restrict the traffic flow in safe area.
- Top level of diversion route will be provided with 1 feet compacted sub-base material on which traffic will ply.
- Specific signboards, caution / awareness boards and banners / flexes will be installed at different required locations of traffic diversion route.
- It will ensure that there may not be any chance for traffic stoppage and will take all necessary measures for smooth traffic flow. Traffic flow will be regulated by deploying flagmen at junction points of diversion route.
- Water sprinkling will be done twice a day to avoid dust pollution. No. of trips of water sprinkling per day can be increased or decreased as per requirement.
- Road will be closed from both sides, which will be clearly marked with installation of barriers and signpost.
- No, unauthorized person will be allowed to enter the working area.

3.2 Project Specific Traffic

Since project under discussion have scattered sites. Therefore, project specific traffic includes both light & heavy traffic.

3.2.1 Light Traffic Vehicles (LTV)

Light Traffic Vehicles include cars, jeeps, tractor trolleys, diesel vans and pickups. These vehicles are used for:

Inspection & execution of site activities by Civil, Mechanical, or HSE staff.

Shifting of construction crew from campsite to work sites or from one site to other.

Delivery of fuel from camp to active work sites.

Shifting of form work material from camp sites to active work sites or from one site to other.



3.2.2 Heavy Traffic Vehicles (HTV)

There is wide variety of heavy traffic being used within the project area. Heavy traffic vehicles include dumpers, transit mixtures, mobile concrete pumps, graders, excavators etc. These are involved in:

- Transportation of construction material from supplier to the campsites or from camp sites to active construction sites where required.
- During concrete pouring activities, transit mixtures, concrete pumps etc. are mobilized from camp to required site.
- For earth work activities, HTV equipment excavators, water bowzers, rollers, graders, dumpers, loaders and dozers are mobilized from camp to the site. After the completion of shift, all the equipment remains at site to minimize fuel consumption and roadside accident.
- Shifting of form work material from camp sites to active work sites or from one site to other (on large scale)

3.3 Traffic Arrangements for Different Project Activities

3.3.1 Transportation of Manpower and Machinery

Campsite is inter linked with the active sites. Labor and staff is mobilized through Contractor's bus from camp to sites and vice versa. For Earth work activities, once this equipment i.e. water boozers, graders, rollers, dozer, dumpers are mobilized from camp then these will remain at sites after the completion of shift to minimize fuel consumption and risk of road side accident. Non-crawling and slow crawling equipment are shifted from camp to active worksite through low bed trailer. Machinery movement will be kept safe by adopting the informed haulage routes. Haulage routes are also kept as minimum & are selected by keeping in view of low impact on nearby residents / local community. In case of dust pollution due to mobilization operation, water sprinkling will be carried out.

3.3.2 Transportation of Construction Material

Transportation of construction material from supplier to camp or site is usually carried out during day & night times. Every kind of construction material is transported in closed or properly covered vehicles such that there is no chance of leakage / spreading during haulage. Proposed routes for transportation of construction material are given below.

3.3.2.1 Cement Carrying Bulklers and Trailers

To be filled as per the site specific situation. The location map of these routes need to be attached as Attachment-01.

3.3.2.2 Aggregate/Sand Carrying Trailers

To be filled as per the site specific situation. Location maps of these routes needs to be attached as Attachment-01.



4. TRAFFIC PROTOCOL FOR EMERGENCY SITUATION

4.1 Introduction

In case of emergency, incident will be immediately communicated to the Emergency Response Team (ERT). Special care will be taken to avoid any hindrance at points where traffic is likely to be stuck. Communication will be done through mobile phones with Internal and External bodies: Incident /accident shall be documented as given in Annexure 2: Incident / Accident Investigation Report Format.

4.2 Internal Alerting

In case of emergency, following contact information of ERT have already been shared with the camp staff and construction crew to communicate quickly and accurately through mobile phones, internally within the project area:

Table 1: Internal Contacts Information

Name	Designation	Contact
TBN	Site Manager	
TBN	HSE In-charge/ Environmentalist	
TBN	Project Coordinator	
TBN	Paramedic	

4.3 External Alerting

Following contact information of external agencies have been shared within the subproject area.

Table 2: External Contacts Information

External Agencies	Contact Number
Rescue Department	
Nearby Hospital	
RHC	
THQ	

4.4 Accident and Incident

All types of traffic accidents / incidents will be reported to HSE Manager by Transport Supervisor. HSE Manager will submit Incident report to the Engineer. In case of roadside traffic accident, it will be advised not to move the vehicle unless the investigation is over. In case of minor accident, vehicle shall be moved at side to avoid traffic blockage. Equipment like crane, loader and excavator will be available at site to deal with any kind of vehicle related



emergency. Passengers will be moved away from vehicle / road and will be advised to stay at scene but at a safe place. Contractor's Emergency Response Team (ERT) will do the following:

- Assist any injured and give first aid if competent to do so.
- Call ambulance / police for immediate assistance.
- Take all necessary details such as, date, time and location of accident of, number of persons in vehicle, type of vehicle etc.
- Record details of eye witness, if any.
- Only give statement to police and do not accept any liability unless responsible person from company advises to do so.
- Complete all formalities before moving from the location.
- Ask transport supervisor to arrange recovery if vehicle cannot be driven.
- Provide medical arrangements to cope with emergencies.
- Suggest the proactive measures to avoid recurrence in future.
- Initial Incident Report format is attached as Attachment-02.



5. GENERAL CONSIDERATION

General but site-specific considerations have been developed and will be implemented during construction activities.

5.1 Transportation of Construction Material

Transportation of construction material, plant and equipment will be well planned and executed safely.

- Experienced drivers will be assigned for transportation of heavy equipment / material to and from work site.
- All loads will be properly tied down to the transporting vehicles and will be checked prior to start and during the journey.
- Backs man will be deputed with all heavy vehicles and moving equipment.
- Project vehicles will be passed on priority from stoppage points.
- Close coordination, between I/C store / warehouse and Transport Supervisor, will be established and maintained.

5.2 Traffic Management During Rain

Diversion route is provided with 1 ft. compacted sub base material to avoid any kind of traffic disruption during rainy days. Furthermore, for emergency purposes, appropriate machinery, such as grader and loader will be available at site round the clock to maintain the roads for smooth flow of traffic.

5.3 Road Safety Guidelines

Following guidelines will be followed and practiced by the project personnel at all levels:

- Traffic and mobility of the local community will be kept un-interrupted.
- In case of any accident, emergency plan will be followed and treatment will be given on time
- Use of radio / tape recorder will be prohibited and- if allowed- low volumes will be ensured.
- Vehicles will be properly and regularly maintained so that noise and emission levels could be reduced.
- Water will be sprinkled (as per requirement) on earthen routes to control dust emissions.
- No private land / property without prior permission from the owner will be used for transportation routes.

5.3.1 Speed Limit

Speed limit will be ensured as 20 km/h within the subproject area. This limit will be applicable to all kind of vehicles. Speed limit signs will be displayed near and on the diversion routes. On main roads, traffic assigned speed limits will be strictly followed by all drivers.



5.3.2 Road Safety Sign

HSE Manager will ensure that all required road safety signs are displayed at all required locations; are kept quite visible and in good condition. Road safety signs will be shifted according to progress in the construction phases. Signboards will be erected at all the required locations and nodal points for smooth entry / exit of vehicles to and from the project area.

Besides signboards, different notice boards, banners and flexes will be displayed at the desired locations showing diversion routes or any other important information related to traffic flow, as and when required.

5.3.3 Emergency Vehicles

Access will be provided immediately for emergency vehicles including the following.

- Ambulance
- Vehicles having patient
- Fire brigade
- VIPs
- Army Convoy / Vehicles

5.4 Communication and Complaints

Contractor and Consultant representatives will arrange coordination / consultation meetings on monthly basis or as required, with all parties / stakeholders involved in the construction activities of the project in order to regulate public transport in an orderly manner. Complaint registers will be maintained at the camp to register complaints of local community, transporters and other stakeholders.

5.5 Safe Drug and Alcohol Policy

- Drivers, on prescribed drugs by a physician due to ailment / sickness, will inform Transport Supervisor so that their work schedule can be adjusted.
- Driver or any other machine operator will be checked for fitness by the concerned supervisor to ensure that they are not under the influence of alcohol or drugs.
- Strict disciplinary action, up to immediate termination, will be taken against the drivers / operators who consume drugs / alcohol and operate machinery or any vehicle under its influence.

5.6 Defensive Driving

- Defensive driving will be encouraged and ensured / practiced. Any kind of violation will not be compromised at any level.
- Use of seat belts will be ensured.
- Speed limit of 20 km / h will be strictly implemented within Project area.
- Use of mobile phones will be prohibited during driving.
- Overtaking, wrong parking and fast crossing will be strictly prohibited and controlled.



5.7 Pollution Control

5.7.1 Noise Pollution Control

- Playing tape recorders will be strictly prohibited in the project area.
- Use of pressure horns will not be allowed.
- Machinery, plant and equipment will be inspected regularly and maintained to avoid producing loud noise beyond SEQS.
- Silencers will be fitted and maintained in every plant, machinery and equipment, where required.
- Noise level monitoring will be conducted for heavy machinery on diversion route with the help of Noise Meter as part of monthly environmental monitoring.

5.7.2 Air Pollution Control

- Machinery, plant and equipment will be inspected regularly and maintained to avoid producing excessive gaseous emissions.
- Dust emissions will be controlled by regular water sprinkling on diversion route and other routes / access roads within the Project area.
- Speed limit as 20/h will be implemented as fast driving vehicles / machinery can be a cause of dust pollution.

5.8 Driving Conditions

If, due to weather or other conditions, it is unsafe to drive, then Transport Supervisor will issue instructions to suspend construction machinery movement. All drivers will be alerted of the unsafe situation.

5.8.1 Fog, Smog and Reduced Visibility

The acceptable visibility for driving in fog or related condition of reduced visibility is 50 meters of clear vision. In case of poor visibility (less than 50 meters), construction traffic movement will be stopped until visibility is improved. If fog or reduced visibility is encountered during a journey, following precautions will be taken by the drivers.

- Reduce speed
- Used Hazard Light / Double Indicators
- Increase the distance from front vehicle
- Switch on the head lights (low beam only)
- No heavy braking
- No frequent lane changing
- If visibility is too poor, stop at a side and inform the immediate supervisor.

5.8.2 Driving During Rain

Following actions will be taken by the company drivers, if it is raining while on the road. Reduce speed, since breaking distance significantly increases due to wet surfaces therefore, the distance between vehicles shall be increased.



- Switch on lights (low beam)
- Avoid over taking
- Maintain access routes by applying grader and loader.
- Use the route in work area where subbase material is applied to avoid any slushy condition.
- Follow the flagmen deputed to control the traffic during rain.



Annexure 1: Routes for Transportation

Maps and Layout



Annexure 2: Incident / Accident Investigation Report Format

INCIDENT / NEAR MISS REPORT		QUALITY RECORDS / FORMS	
Doc. Level:		Doc. Version:1	
Doc. No			

HS.T.02	INCIDENT / NEAR MISS REPORT		
Title of Project:			
Location:		Date:	

Objective(s)
To implement immediate and effective process in order to provide immediate treatment against any fatality, Injuries, Casualty.

SECTION A: TO BE COMPLETED BY PERSON INVOLVED (OR BY SUPERVISOR OR HEALTH AND SAFETY REPRESENTATIVE IF WORKER IS INCAPACITATED) AND BY THEIR SUPERVISOR

Details of the person involved in the incident/near miss			
Employee #:	Site Address	Work phone:	
Name:	Father Name:		
Position:	Date of birth:	<input type="checkbox"/> Male <input type="checkbox"/> Female	
Please select one: <input type="checkbox"/> Member <input type="checkbox"/> Client Member <input type="checkbox"/> Sub Contractor <input type="checkbox"/> Visitor/Other			
Details of the: <input type="checkbox"/> Incident <input type="checkbox"/> Near miss <input type="checkbox"/> Medical			
Date:		Time: A.M /P.M	
City:		Location:	
Was the incident/near miss reported to your supervisor, immediately: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Part of the body injured			
Head	Trunk	Internal	Arm
<input type="checkbox"/> neck	<input type="checkbox"/> heart	<input type="checkbox"/> left	<input type="checkbox"/> left
<input type="checkbox"/> hip	<input type="checkbox"/> lungs	<input type="checkbox"/> right	<input type="checkbox"/> right
<input type="checkbox"/> nose	<input type="checkbox"/> chest	<input type="checkbox"/> systemic	<input type="checkbox"/> shoulder
<input type="checkbox"/> mouth	<input type="checkbox"/> stomach		<input type="checkbox"/> upper arm
<input type="checkbox"/> teeth	<input type="checkbox"/> groin		<input type="checkbox"/> elbow
<input type="checkbox"/> face	<input type="checkbox"/> back		<input type="checkbox"/> forearm
<input type="checkbox"/> skull	<input type="checkbox"/> multiple		<input type="checkbox"/> wrist
			Hand
			<input type="checkbox"/> left
			<input type="checkbox"/> right
			<input type="checkbox"/> thumb
			<input type="checkbox"/> fingers
			<input type="checkbox"/> palm
			Leg
			<input type="checkbox"/> left
			<input type="checkbox"/> right
			<input type="checkbox"/> knee
			<input type="checkbox"/> lower leg
			<input type="checkbox"/> ankle
			<input type="checkbox"/> thigh
			<input type="checkbox"/> upper leg
			Foot eye
			<input type="checkbox"/> ear
			<input type="checkbox"/> great toe
			<input type="checkbox"/> other toes
			<input type="checkbox"/> psychosocial
Nature of injury			
<input type="checkbox"/> abrasion	<input type="checkbox"/> puncture	<input type="checkbox"/> heart attack	<input type="checkbox"/> sprain
<input type="checkbox"/> bruise	<input type="checkbox"/> laceration	<input type="checkbox"/> hearing loss	<input type="checkbox"/> strain
<input type="checkbox"/> fracture	<input type="checkbox"/> amputation	<input type="checkbox"/> foreign body	<input type="checkbox"/> hernia
<input type="checkbox"/> concussion	<input type="checkbox"/> bite	<input type="checkbox"/> minor cuts	
			<input type="checkbox"/> burn
			<input type="checkbox"/> scald
			<input type="checkbox"/> rash
			<input type="checkbox"/> allergy
			<input type="checkbox"/> traumatic shock
			<input type="checkbox"/> electric shock
			<input type="checkbox"/> psychosocial
			<input type="checkbox"/> chemical
<input type="checkbox"/> aggravation of previous injury or medical condition (please describe):			
Type of incident which caused injury			
<input type="checkbox"/> striking against	<input type="checkbox"/> stumbling	<input type="checkbox"/> lifting	<input type="checkbox"/> pushing
<input type="checkbox"/> struck by	<input type="checkbox"/> slipping	<input type="checkbox"/> bending	<input type="checkbox"/> pulling
<input type="checkbox"/> caught in/on	<input type="checkbox"/> tripping	<input type="checkbox"/> twisting	<input type="checkbox"/> jumping
<input type="checkbox"/> stepping on	<input type="checkbox"/> falling	<input type="checkbox"/> stress	<input type="checkbox"/> vehicle
<input type="checkbox"/> other (please describe):			<input type="checkbox"/> ingestion
			<input type="checkbox"/> absorption
			<input type="checkbox"/> inhalation
			<input type="checkbox"/> needlestick



INCIDENT / NEAR MISS REPORT	QUALITY RECORDS / FORMS				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Doc. Level: III</td> <td style="width: 50%;">Doc. Version:1</td> </tr> <tr> <td>Doc. No:</td> <td></td> </tr> </table>	Doc. Level: III	Doc. Version:1	Doc. No:	
Doc. Level: III	Doc. Version:1				
Doc. No:					

Agency of injury

<input type="checkbox"/> vehicle power <input type="checkbox"/> tools <input type="checkbox"/> animal/insect <input type="checkbox"/> biological agent <input type="checkbox"/> objects	<input type="checkbox"/> buildings <input type="checkbox"/> furniture <input type="checkbox"/> heat stress <input type="checkbox"/> chemicals <input type="checkbox"/> ionising radiation	<input type="checkbox"/> mobile plant <input type="checkbox"/> other tools/equipment <input type="checkbox"/> materials <input type="checkbox"/> equipment	<input type="checkbox"/> structures <input type="checkbox"/> surfaces <input type="checkbox"/> sunburn <input type="checkbox"/> stress
---	---	---	---

☐ other (please describe):

SECTION B: TO BE COMPLETED BY THE SUPERVISOR AND THE PERSON INVOLVED WITHIN 48 HOURS
THIS SECTION IS EXTREMELY IMPORTANT AS THE AIM OF THE INVESTIGATION IS TO IDENTIFY PREVENTATIVE ACTION THAT WILL AVOID RECURRENCE OF A SIMILAR INCIDENT/NEAR MISS

Probable cause or causes of incident/near miss

<input type="checkbox"/> inadequate instruction <input type="checkbox"/> inadequate workspace <input type="checkbox"/> assistance unavailable <input type="checkbox"/> other (please describe):	<input type="checkbox"/> fault of plant or equipment <input type="checkbox"/> equipment unavailable <input type="checkbox"/> lack of attention	<input type="checkbox"/> poor storage <input type="checkbox"/> poor access <input type="checkbox"/> incorrect method	<input type="checkbox"/> weather <input type="checkbox"/> terrain <input type="checkbox"/> work practices
--	--	--	---

Describe the incident/near miss:

Immediate action:

Long term action:

Training Required? Induction <input type="checkbox"/> Yes <input type="checkbox"/> No Task specific <input type="checkbox"/> Yes <input type="checkbox"/> No Area specific <input type="checkbox"/> Yes <input type="checkbox"/> No	Rehabilitation is required <input type="checkbox"/> is not required <input type="checkbox"/> unknown as yet <input type="checkbox"/> time off work required <input type="checkbox"/>
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AUTHORISATION (ALL SIGNATURES ARE REQUIRED)

Person involved in the incident: Name: Signature: Date:	HSE Officer/ Supervisors: Name: Signature: Date:
HSE Manager: Name: Signature: Date:	Project Manager: Name: Signature: Date:



Annexure XI: Draft-Sample Waste Management Plan (WMP)

**DRAFT-SAMPLE
CONTRACTOR'S WASTE MANAGEMENT PLAN (WMP)
FOR
Rehabilitation of Rain/Flood Affected Roads**



S.NO	DATE	PREPARED BY	CHECKED BY	APPROVED BY	REMARKS
1.		The Contractor	CSC	PIU	



1. INTRODUCTION

This WMP was developed by the Construction Contractor (CC) under the supervision of construction Supervision Consultant (CSC) with the endorsement of Project Implementation Unit (PIU) - SFERP for rehabilitation of Roads and Allied Infrastructure.

This site specific Waste management plan is applicable to all working sites and accommodation facilities utilized by the contractor. All the waste either generated from camp areas, construction sites or batching plants will be collected and disposed of in an environmentally safe manner. All the workers and visitors will be required to implement solid waste management system at site.

The following details based on the Environmental Code of Practice for General Waste shall be considered:

- Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of the disposal site, to cause less environmental impact.
- Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach.
- Segregate and reuse or recycle all the wastes, wherever practical.
- Collect and transport non-hazardous wastes to all the approved disposal sites that is endorsed by the provincial government and Sindh EPA.
- Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process.
- Provide refuse containers at each worksite.
- Request suppliers to minimize packaging where practicable.
- Place a high emphasis on good housekeeping practices.
- Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
- The waste shall only be collected, transported and disposed off through SEPA certified waste vendor/collectors.

The following details based on the Environmental Code of Practice for Fuels & Hazardous Substance Management shall be considered:

- Prepare spill control procedures and submit the plan for CSC and PIU for approval.



- Train the relevant construction personnel in the handling of fuels and spill control procedures.
- Store dangerous goods in bonded areas on top of a sealed plastic sheet away from the water course. Refueling should occur only within bonded areas.
- Make available MSDS for chemicals and dangerous goods on-site.
- Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site approved by the government and Sindh EPA.
- Provide absorbent and containment material (e.g., absorbent matting) where hazardous material is used and stored and personnel trained in the correct use.
- Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use.
- Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with the expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur.
- Store hazardous materials above flood plain level by providing the secondary containment.
- Put containers and drums in temporary storage in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area should preferably slope or drain to a safe collection area in the event of a spill.
- Put containers and drums in permanent storage areas on an impermeable floor that slopes to a safe collection area in the event of a spill or leak.
- Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution.
- Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials.
- The hazardous waste shall be treated appropriately only authorized person would be allowing to dealt with. The hazardous waste should be incinerated at SEPA approved incinerator plant.
- The waste handlers should be SEPA certified and having expertise to dealing the material which is hazardous in nature.

1.1 Waste Management Plan (WMP)



Waste Management (WMP) is the generation, segregation, collection, transfer, transportation and disposal of waste in a way that takes into account public health, economics, conservation, aesthetics, and the environment, and is responsive to public demands. Failure of the waste management system has serious environmental impacts like land and air pollution, blockage of drains and water pollution in natural streams. There are various factors that attribute to poor waste management, such as, lack of public awareness, high waste generation and non-functioning of existing systems. Rate of urbanization, scavenger role for recyclable separation and the capacities of existing municipalities for solid waste management are also important factors that should be considered.

1.1.1 Objective and Target of WMP

The goal of this management plan is to outline the requirements for managing and controlling the waste generation, collection, storage, transportation and disposal systems to be applied during the rehabilitation of roads.

The overall goal of this Waste Management Plan is to improve the quality of life of people working for the proposed subproject and to conserve natural resources by reducing, reusing and recycling (3R) waste in a sustainable manner. The objectives of the plan are:

- To devise a mechanism of waste management and its final disposal in an environmentally safe manner i.e. minimizing the waste, recovery of Reusable and Recyclables
- To reduce waste generation at source and encourage reuse and recycling of waste.
- To record the quantity of waste generated, reused and recycled at site.
- To properly dispose the hazardous waste if any without harming the environment.
- To enhance segregation of waste before final disposal
- To organize awareness campaigns and training s to educate workers for waste management.
- To report the progress of implementation of Solid Waste Management to the Engineer.



2. ROLES AND RESPONSIBILITIES

2.1 Site Manager

Site Manager is responsible to hire and facilitate staff for collection, segregation, transportation and disposal of waste. He will assign responsibilities to ensure that waste has been segregated and disposed of properly. His responsibilities include:

- To ensure housekeeping at offices and camps
- To ensure the license of SEPA is remains valid till the job ends
- To ensure the compliance of condition laid down in EPA approval
- To provide drainage of rain water in all areas in association with HSE Team.
- To provide hygienic conditions in living rooms and dining halls
- To collect all waste, segregate it properly and dispose of accordingly.

2.2 In charge camps:

In charge camps is responsible for maintaining neat and clean environment and ensure housekeeping of the camps. All the waste will be collected and disposed of properly. He will ensure no littering inside the camps. His responsibilities include

- Daily sweeping and collection of general waste from rooms, kitchen and office area.
- Sanitation of wash rooms and toilets.
- Trimming and maintenance of green areas and walkways if present.
- Fumigation to avoid any pests.
- Maintaining environment healthy for all workers.

2.3 Site Waste Coordinator:

Environmental engineer will be responsible to monitor and report the progress of overall management of the waste. Contractor shall ensure that suitable arrangements are in place to ensure the consignment and disposal of waste materials. These arrangements shall include;

- Daily monitor site conditions and ensure that remedial actions are implemented.
- Satisfy himself that waste material removed from site is reaching the disposal pits area and is not being "fly tipped" or causing environmental damage.
- Waste generation, collection, transportation and disposal will be recorded and reported to Engineer on monthly basis. Contractor will discuss all efforts and issues of waste management system.
- To ensure implementation of this plan, such as collection of solid waste from waste bin into drums, and onward from waste drum to solid waste pits and transportation of the solid waste and segregation at solid waste pits area.

2.4 Support Staff for Solid Waste Management:



In residential areas and offices, housekeeping staff is hired and administered by Administration department. While on site, area in charge is responsible for the housekeeping, collection of waste and segregation while transportation to the disposal pits is the responsibility of I/C Admin/site manager.

2.5 Capacity Building of Workers

All the waste will be collected according to the procedures delineated in this Plan. The Contractor's HSE staff will conduct trainings regarding waste management on required basis. Trainings will be conducted for following staff:

- Employees / Workers: To reduce waste generation on individual level and to make use of installed waste bins.
- Housekeeping staff: To ensure safe and adequate collection, segregation, transportation and disposal of the waste.



3. ENVIRONMENTAL IMPACTS OF WASTE

The proposed Waste Management strategy is based on both short-term and long-term effects on the environment including conservation of resources and prevention of pollution. Inadequate handling or disposal of waste can contaminate the air, water or land resources and can cause overall environment pollution; including emission of greenhouse gases, effects on other physical infrastructure, chemicals, cause fire or explosion hazards.

If the waste is not handled properly, it can cause severe nuisance and can cause variety of viral or bacterial diseases. Domestic (kitchen) waste contains high percentage of readily degradable hydrocarbons which release bad odor during its decomposition, especially in hot and humid conditions. Medical waste or construction waste classified as inert waste, can pose a problem for disposal. Medical waste can cause serious injury to human health if not properly handled and disposed.

3.1 Adverse Impacts of Waste and their Mitigation Measures

Table-1 presents the adverse impacts of different type of wastes, their mitigation measures and responsibility to mitigate the environmental impacts:

Table1: Adverse Impacts of Waste and their Mitigation Measures

Sr.	Type of Waste	Adverse Impacts	Mitigation Measures	Responsibility
1	Biodegradable Organic Waste	Attract rats, flies, mosquitoes, cockroaches, birds and other vectors, which can transfer diseases in humans and animals.	Primary and secondary storage of waste will be secured in designated waste bins or pits by covering them to avoid interference of birds, cockroaches, rats or other vectors. Waste will be handed over to local authorities like TMA, on required basis.	The Contractor
2	Commercial Waste	Broken glass, metals, cement bags and sharp objects, which are potentially dangerous to people coming in contact with.	Commercial waste will be handed over to vendors on required basis for recycling.	The Contractor
3	Hazardous Waste	Exposure to hazardous waste like used oil, chemical waste, oil spills / leaks etc. can affect human or animal health if they come in contact with through skin or any other mode.	Hazardous waste will be collected in separate containers and will be handled separately (not with other types of waste). This type of waste will be handed over to local authorities like TMA and/or any other appropriate agency, for its proper disposal, on required basis.	The Contractor
4	Medical Waste	Medical waste can cause infection to the personnel involved in handling or other who	Medical waste shall be collected in separate containers and will be handled separately (not with other types of	The Contractor



Sr.	Type of Waste	Adverse Impacts	Mitigation Measures	Responsibility
		may come in contact with it.	waste). It will be handed over to THQ Hospital for its disposal along with their own hospital waste or to DHQ Hospital for final disposal (for incineration).	
5.	Construction Waste	Construction waste can cause accidents or injuries associated with slip / trip / fall hazard. This can cause poor house-keeping at construction site.	Construction waste will be segregated at first to recover the re-useable items. It will be disposed at a designated disposal site, after taking approval from the Engineer.	The Contractor

Job specific PPE like gloves, masks, safety shoes and coveralls will be provided to the personnel involved in handling of all kind of waste as mentioned in Table-1

4. WASTE MANAGEMENT HIERARCHY

4.1 Introduction

Waste management hierarchy includes all the activities and actions required to manage waste from its inception to its final disposal. The following flow chart as shown in Figure below will be implemented by the Contractor during execution of the Project, which shows the interrelationship between the different functional elements of solid waste management plan.

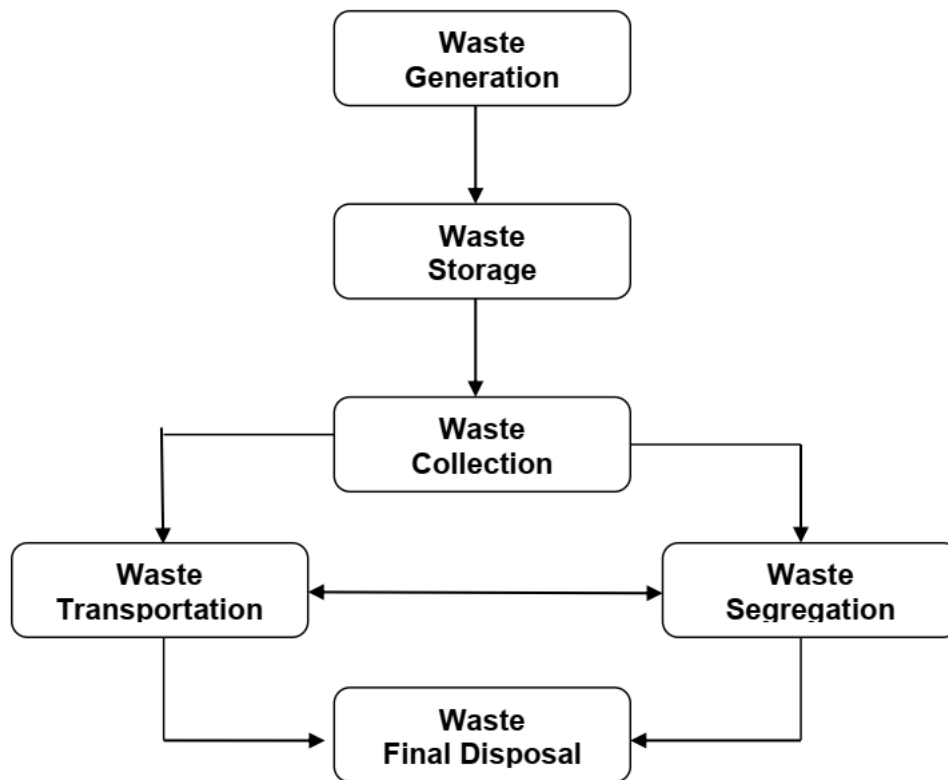


Figure: Interrelationship between the Functional Elements of WMP

4.2 Primary Collection and disposal:

The collection from the source is called primary collection. All the waste will be collected in bins and transported to nearby waste collection drums.

4.2.1 Room and Street sweeping:

All the rooms, corridors walkways etc. will be swept on daily basis. The waste from these rooms will be collected into drums. These drums will be emptied on need basis. The frequency to clear the drum will be optimum to avoid any nuisance or litter in the area.



4.2.2 Site domestic Waste Collection:

All the domestic waste from camps and accommodation site will be collected from drums and put in jumbo plastic bags and transported through a vehicle to final disposal point. The vehicle will be covered to prevent litter during transportation to final disposal point.

4.3 Waste Segregation & Collection:

Waste is segregated at the source of generation; a numbers of waste bins shall be provided at each site/Location with color coding as per our waste management plan & collected on daily basis.

- **Blue** Paper, cotton & general waste
- **Green** Metallic & Crockery waste, plastic
- **Yellow** Food & Kitchen waste
- **Red** Oil Waste, cartridge & Batteries
- **Orange** Medical Waste
- **Septic Tanks** Black & Grey water



5. HAZARDOUS WASTE

5.1 Construction waste:

All the construction waste will be collected and disposed of only at designated places as approved by TMA. Most of the construction waste (surplus concrete, washing waste from Transit Mixer, concrete pump, batching plant waste) will be re-used or recycled during the mixing phase. Any remaining waste will be disposed of in demarked and designated places. The paper bags of cement will be collected at the place of use and handed over to store to sale it for its recycling purpose.

5.1.1 Waste with Commercial value:

Timber and other scrap material with a commercial value shall be separated and stored in segregated areas prior to removal. These will be for recycling or reuse purpose. General but site-specific considerations have been developed and will be implemented during construction activities.

5.2 Hazardous waste:

All the waste from Mechanical workshop will be stored into different drums and segregated at the spot. The used mobile oil will be stored into drums and handed over to store. Used vehicle filters will be stored into drums and will also be handed over to store.

Batteries shall be drained and flushed before disposal, and the residual acid diluted and neutralized, shall be discharged into the septic tank.

Similarly, all the other waste will be collected from workshop and handed over to store for its proper storage and then transportation to concerned vendor selected for its re-use or recycling. Only municipal waste from Mechanical workshop will be collected in drums daily and segregated before final disposal into disposal pit.

5.2.1 Medical waste:

All the medical waste will be collected in designated bins. The waste collection bins will be labeled to differentiate infectious and non-infectious waste. Sharp containers will be provided in the medical facilities (for syringes, suturing kits and needles) and also clearly identified bagging for infectious or contaminated dressings; these will be removed and disposed of by third party which is certified from SEPA, keep track record for its final disposal in the form of pictures and personal witnessed.

5.3 Segregation of waste:

All the waste will be transported to disposal pit where final segregation will be done. The segregation staff is the same appointed for housekeeping purpose. Segregation will be in accordance with 3R technique. First of all, it will be required to Reduce the amount of waste generated. Moreover, all the Recyclable and Reusable material will be segregated. All the



waste will be segregated at all stages of waste management to ensure maximum recovery of valuable material. All the segregated material will be temporarily stored in pits meant for the purpose and sold to vendor to promote recovery of valuable material.

5.4 Transportation of Medical Waste:

All the medical waste will be collected into designated bins. These bins will have polythene bags inside them. The non-hazardous, non-infectious waste which is being generated during medical process should also be disposed off with them. The infectious waste will be disposed of by SEPA certified-third party.

5.5 Disposal of Waste:

All the waste will be disposed off in disposal site of the TMA with the written consent of the relevant authority.



6. MONITORING MECHANISM

Environmental Officer will carry out monitoring to ensure effective implementation of Waste Management Plan at following locations:

- Officer's Office Area and Residence Area
- Labor Barracks
- Primary Waste Collection Bin(s)
- Secondary Storage Pit(s)
- Final Waste Disposal Site(s)

Following parameters will be monitored at the above mentioned locations:

- Any sign of soil or water contamination
- Any un-disposed waste at unauthorized area
- Integrity and maintenance of the septic tank and soaking pits



Annexure 1: Location of Waste Collection Points

Maps and Layout



Annexure 2: Waste Management Checklists

Date: _____

<u>Description</u>	<u>Status</u>	<u>Notes</u>
Is there a proper method of disposal of Solid waste?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is there a proper method of disposal of liquid waste Camp?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is general waste free of chemicals /POL waste?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is hazardous waste stored/removed within reasonable timeframe?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
All are bin properly labelled?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is there any spill of solid or liquid waste into a water body, clean living area, building or graveyard?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is the smell from solid or liquid waste being added to a living area?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Is any of the contract clauses being affected / violated due to waste disposal system?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Contractor _____

Consultant _____