GOVERNMENT OF SINDH

ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP)
FOR
Rehabilitation of Rain/Flood Affected Roads, District Khairpur

Sindh Flood Emergency Rehabilitation Project (SFERP)

PROJECT IMPLEMENTATION UNIT
PIU - SFERP

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This document and its contents have been prepared and intended solely for the information and use of the Government of Sindh, Project Implementation Unit (PIU) concerning the **SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)**

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LIST OF ABBREVIATION

BOQ	Bill of Quantity
CC	Construction Contractor
CoI	Corridor of Impacts
CSC	Construction Supervisory Consultant
DC	Deputy Commissioner
EC	Electrical Conductivity
ECA	Employment of Child Act
EIA	Environmental Impacts Assessment
EPA	Environmental Protection Agency
ESIA	Environmental and Social Impacts Assessment
ESF	Environmental & Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standrads
FGDs	Focus Group Discussions
GFP	Grievance Focal Point
GoS	Government of Sindh
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IBIS	Indus Basin Irrigation System
IEE	Initial Environmental Examination
IPF	Investment Project Financing
IUCN	International Union for Conservation of Nature
NGO	Non-Governmental Organization
OP	Operational Policy
P&DD	Planning and Development Department
PAP	Project Affected Person
PCC	Public Complaint Centre
PC-I	Pakistan Planning Commission Form – 1 Appraisal of Development Project
PD	Project Director
PDMA	Provincial Disaster Management Authority
PEPC	Pakistan Environmental Protection Council
PID	Project Information Document
PIU	Project Implementation Unit
PKR	Pakistani Rupee
POPs	Persistent Organic Pollutants
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 rains 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 UCs of rains & flood-affected areas. Raising the profile, adequacy of cross-drainage structures, provision of protection works (Riprap[1]), 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 ESMP represents the environmental impacts and mitigations of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure in Khairpur District, and has the following sub-components:

The Rehabilitation of 19 roads in different areas of District Khairpur. Administratively, most rehabilitation works fall in different Taluka of the district. Taluka Thari Mirwah & Gambat have 8 roads (4 in each taluka), three in each Taluka named Faiz Ganj, Kingri & Kotdiji while Taluka Sobho Dero has two roads.

According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021, the sub-project falls under category schedule II – F. Transport 3. Rehabilitation or rebuilding or reconstruction of existing roads more than one kilometer in urban areas and more than 5 km from rural areas" (only 01 road is more than 5 km). Hence IEE will need to be prepared as per Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021.

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 level of requirements.

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 proposed Project

[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.

of road rehabilitation works is within defined RoW. Major construction works will remain confined within the RoW. No public infrastructure or commercial activities exist within RoW. While the indirect impacts 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). 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, 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). 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 north eastern Sindh, District Khairpur. The sub-project area is falling in Zone 2A, with peak ground acceleration (PGA) varying from 0.08 to 0.16 (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 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 red fox, Jungle Cat and Indian wild boar were noticed from different locations near the proposed area. All mammalian species are common and listed as Least Concern (LC) in IUCN red list. Two amphibians and six species of reptiles were recorded from the study area. These include one Buffo toad, one Skittering frog, two lizards, two geckos and two snakes. Both snake species are non-poisonous. Among bird species, the sites and its surrounding area have Common myna, grey shrike, Indian house crow and Red-wetted lapwing were the most common through the study 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/right of way. 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 labour and community, sanitation measures, COVID-19 management & Monitoring and emergency response and rescue procedures, provision of adequate sanitary facilities, potable water, and garbage bins for workers.

E&S monitoring will be carried out as per the SEPA 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 PIU level, the environment and social 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 Construction Supervisory Consultant (CSC) will carry out more frequent safeguard monitoring. At the third level, Contractor's 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 Environmental and Social 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 Rs 7,175,000/- has been allocated for the implementation of the ESMP including the GRM running & General Community support needs. The ESMP cost included the protective measures cost 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 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 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 UCs.
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and Union Councils.
- 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 HQs – 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.

i. Component-I. Infrastructure Rehabilitation:
ii. Component-2 Livelihoods Restoration
iii. Institutional Strengthening for Resilience and Technical Assistance
iv. 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 for Roads 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 ESMP represents the environmental impacts and mitigations of Component- 1: Infrastructure Rehabilitation, Sub-component 1.2: Restoration of Roads and Allied Infrastructure which has the following sub-components of the project include:

The Rehabilitation of 19 roads in different areas of District Khairpur. Administratively, most rehabilitation works fall in different Taluka of the district. Taluka Thari Mirwah & Gambat have 8 roads (4 in each taluka), three in each Taluka named Faiz Ganj, Kingri & Kotdiji while Taluka Sobho Dero has two roads. 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 EMP.

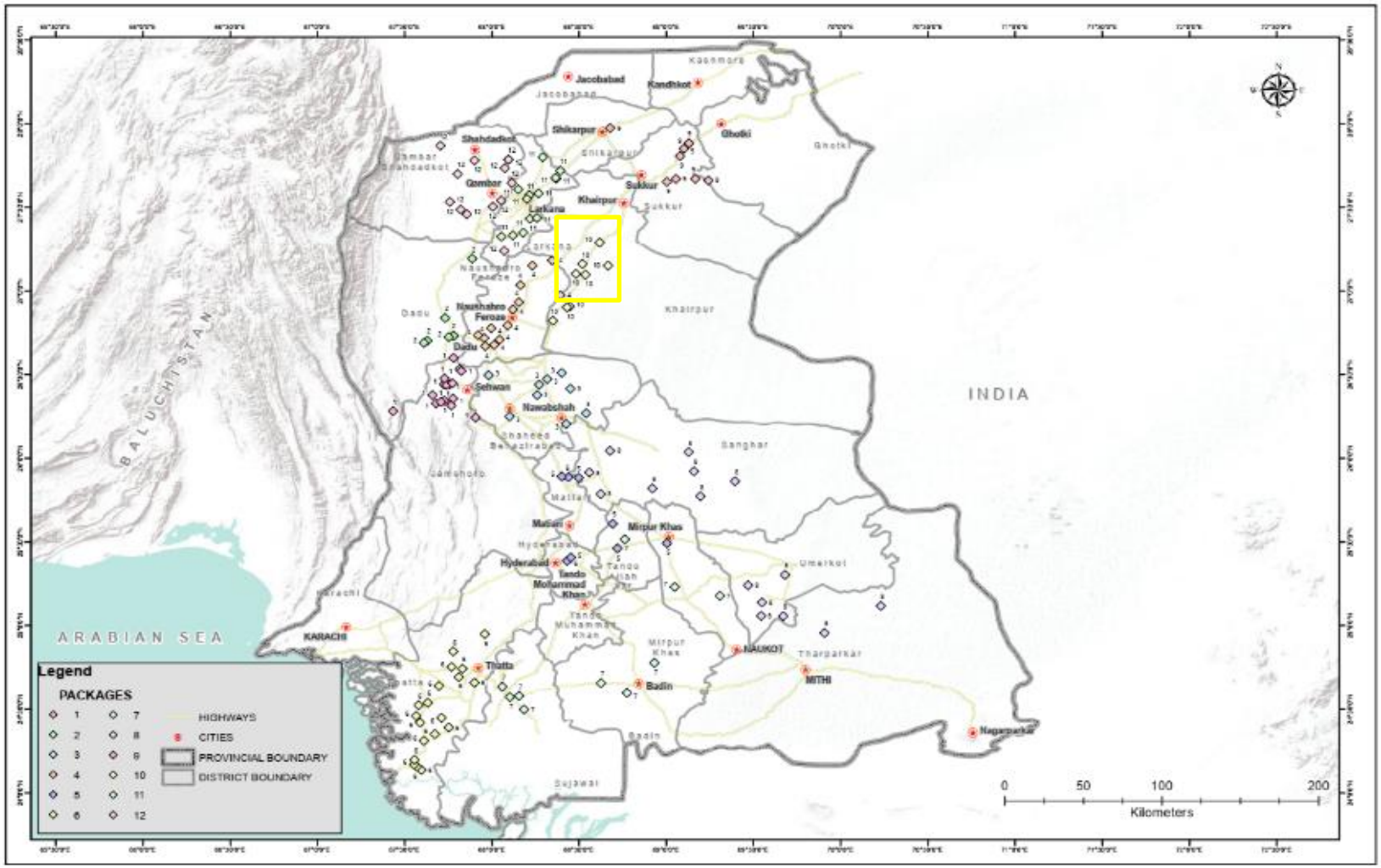

Figure 1: Location Plan for Rehabilitation Roads-SFERP

According to Sindh – EPA: According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021, the sub-project falls under category schedule II – F. Transport 3. Rehabilitation or rebuilding or reconstruction of existing roads more than one kilometre in urban areas and more than 5 km from rural areas". Hence IEE will need to be prepared as per Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021.

According to Donor Agency (World Bank): Rehabilitation/restoration works are limited to the existing 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 tree 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 PIU.

2.5 Project Corridor

The sub-project corridor is delineated according to two criteria: the Right of Way (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 (RoW)

The proposed sub-project corridor will have a well-defined RoW that will be the existing width of the roads (which is a minimum of 12 to a maximum of 18 ft as depicted in Table-2) 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 (CoI)

The Corridor of Impact (CoI) 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 CoI 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 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/650 ft buffer zone of the proposed roads (100 meters/328 ft on each side from the center line).

3. DESCRIPTION OF SUB-PROJECTS

3.1 Locations of Sub-Project

The proposed sub-project falls in the District Khairpur. The proposed project is aimed at the reconstruction/rehabilitation of the following 19 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 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 follow:

- Asphalt wearing course shall pertain to “Class-B” gradation as specified in the 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 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 Maximum Dry Density (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 Nineteen Roads for Rehabilitation at District Khairpur

Sr. No	Name of Road	Location /Taluka	Existing Width (ft)	Length (in Kms)	GPS Coordinates
1	Rehabilitation of Road from Mehran Highway to Hindyari	Thari Mirwah	12'	5	27.097361, 68.535141 27.097361, 68.535158
2	Rehabilitation of Road from Mehran Highway to Mohsin Shah.	Thari Mirwah	12'	4	27.161176, 68.518627 27.160893, 68.518741
3	Road from Makhdoom Chowk to Ustad Jamauddin Kalhoro.	Thari Mirwah	12'	3	27.15162 68.665353 27.151665, 68.665986
4	Rehabilitation of Road from N.H.Way Bagh Bachra Mehrabpur to Balo jo Kharo	Thari Mirwah	12'	3	27.102691, 68.481304
5	Rehabilitation of Road from Baseero to Sanjayo.	Faiz Ganj	12'	5	26.907895, 68.446022 26.906945, 68.443639
6	Rehabilitation of Road from Fakir Ali Nawaz Hisbani to Khuda Bux Hisbani.	Faiz Ganj	12'	6	26.902164, 68.429865 26.903156, 68.429666
7	Rehabilitation of Road From Mehran Highway to Haji Kareem Bux Rajper via Lakhman	Faiz Ganj	12'	4	26.822663, 68349414 26.824233, 68.338922
8	Rehabilitation of Road from Kumb babar road to village Haji Jan Muhammad Tumrani, Ali Dino Tumrani, Muhammad Ramzan Mehrani & Roshal Palleh.	Kotdiji	12'	5	27.289988, 68.616961 27.283837, 68.618276
9	Rehabilitation of Road from Mithri to Hussainabad Narodhoro Road.	Kotdiji	12'	5	27°24'33.05"N 68°43'57.82"E 27°22'35.58"N 68°41'58.06"E
10	Rehabilitation of Road from Kotdiji Tando Masti road to village Fateh Ali Lashari via Raheem Bux Lashari.	Kotdiji	12'	5	27°27'5.82"N 68°41'33.10"E 27°24'44.56"N 68°40'0.40"E
11	Rehabilitation of Road from Pir Jo Goth Old Gate to Kingri.	Khairpur Kingri	18'	3	27.586841, 68.626708 27.583333, 68.612772
12	Rehabilitation of Road from Ahmedpur Bye Pass Road.	Kingri	18'	3.2	27.569421, 68.633384 27.56514, 68.633868
13	Rehabilitation of Road from Khairpur Machi Road to Pir Jo Goth Bye Pass Road.	Kingri	12'	3.2	27.603270, 68.550710 27.598571, 68.644705
14	Rehabilitation of Road from Mangla to Khairpur via village Yar Mohammad Markhand Larkana Road	Gambat	12'	5.4	27.2642, 68.2517 27.2423, 68.2327

Sr. No	Name of Road	Location /Taluka	Existing Width (ft)	Length (in Kms)	GPS Coordinates
15	Rehabilitation of Road from Ripri Regulato to Wadh Pagya road i/c Repair of 49 rft Bridge village Muhammad Larik)	Gambat	12'	5	27.2821, 68.2941 27.3014, 68.3021
16	Rehabilitation of Road from Khairpur Larkana road to Dargah Nabi Shah	Gambat	12'	3	27°28'13.54"N 68°25'43.77"E 27°26'40.59"N 68°25'19.66"E
17	Rehabilitation of Road from Rasool Abad City to Mehrabpur Bridge	Sobho Dero	12'	4.5	27.0658, 68.2344 27.0434, 68.2417
18	Rehabilitation of road from Hingorja Setharja road to Deparja Bridge via Aachar Sahito	Sobho Dero	12'	4.5	27.1225, 68.2646 27.1106, 68.2729
19	Rehabilitation of road from Agra to village Fatoo Sial road mile 0/0-3/1	Gambat	12'	3.65	27°24'5.47"N 68°21'3.88"E 27°23'5.40"N 68°23'38.96"E

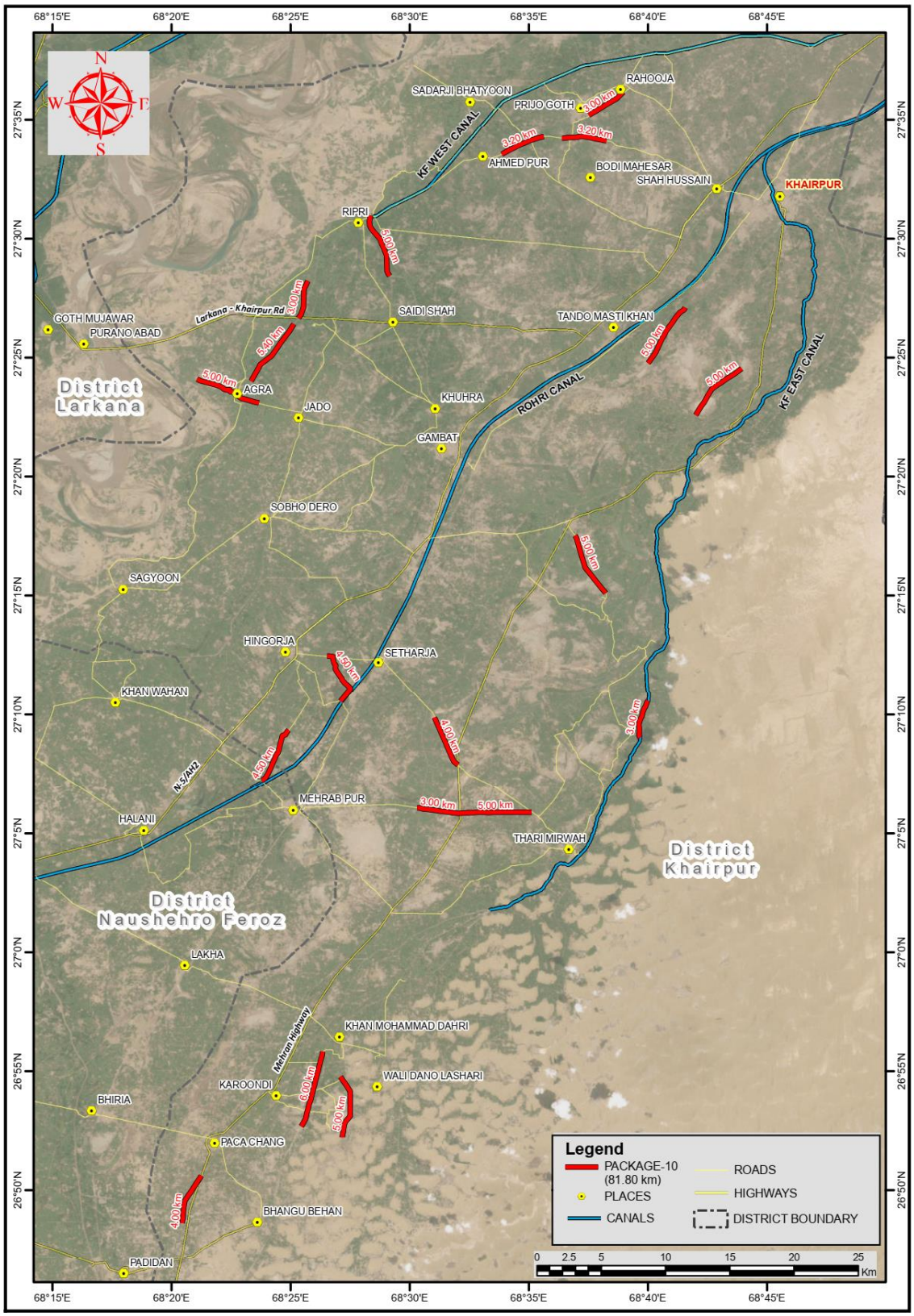

Figure 2: Location Map of Sub-Project - Khairpur Roads

3.4 Construction Material

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

a) Embankment fill
b) Granular Subbase
c) Cement
d) Fine and coarse aggregates
e) Asphalt Concrete for Wearing Course
f) 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.

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 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 covered with 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 EMP, 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 can the Contractor hire from outside. 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.

3.9 Construction Time

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.

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

Khairpur district is located between the middle and northern Sindh. It is bounded on the north by Shikarpur District and Sukkur District, on the east by India, on the south by Sanghar District and Shaheed Benazirabad District, and the west by Larkana District, Naushahro Feroze District and Indus River. The area of the district is 15,910 km^2. The district has a variety of features with its vast desert area and agriculture land.

4.2.2 Soils

The soil in the plains of Sindh is plastic clay that has been deposited by the Indus. Combined with water it develops into a rich mold and without water, it degenerates into a desert. Nearly the entire Indus valley has soil, which is extremely friable and easily disintegrated by the flow of water. As a result, the water always contains a large amount of suspended silt.

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 0.16 (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**.**

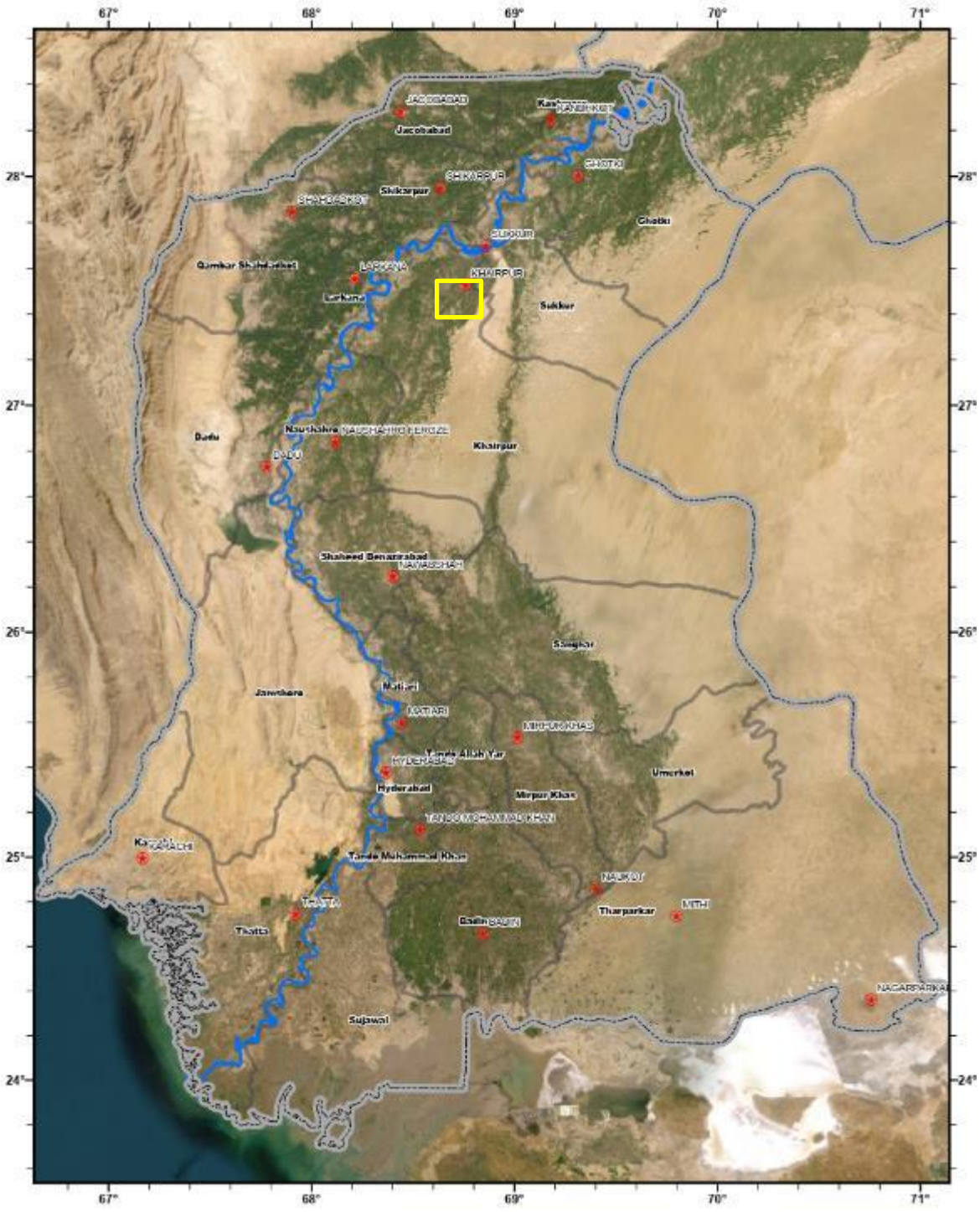

Figure 3: Geographic Map of Sub Project Area

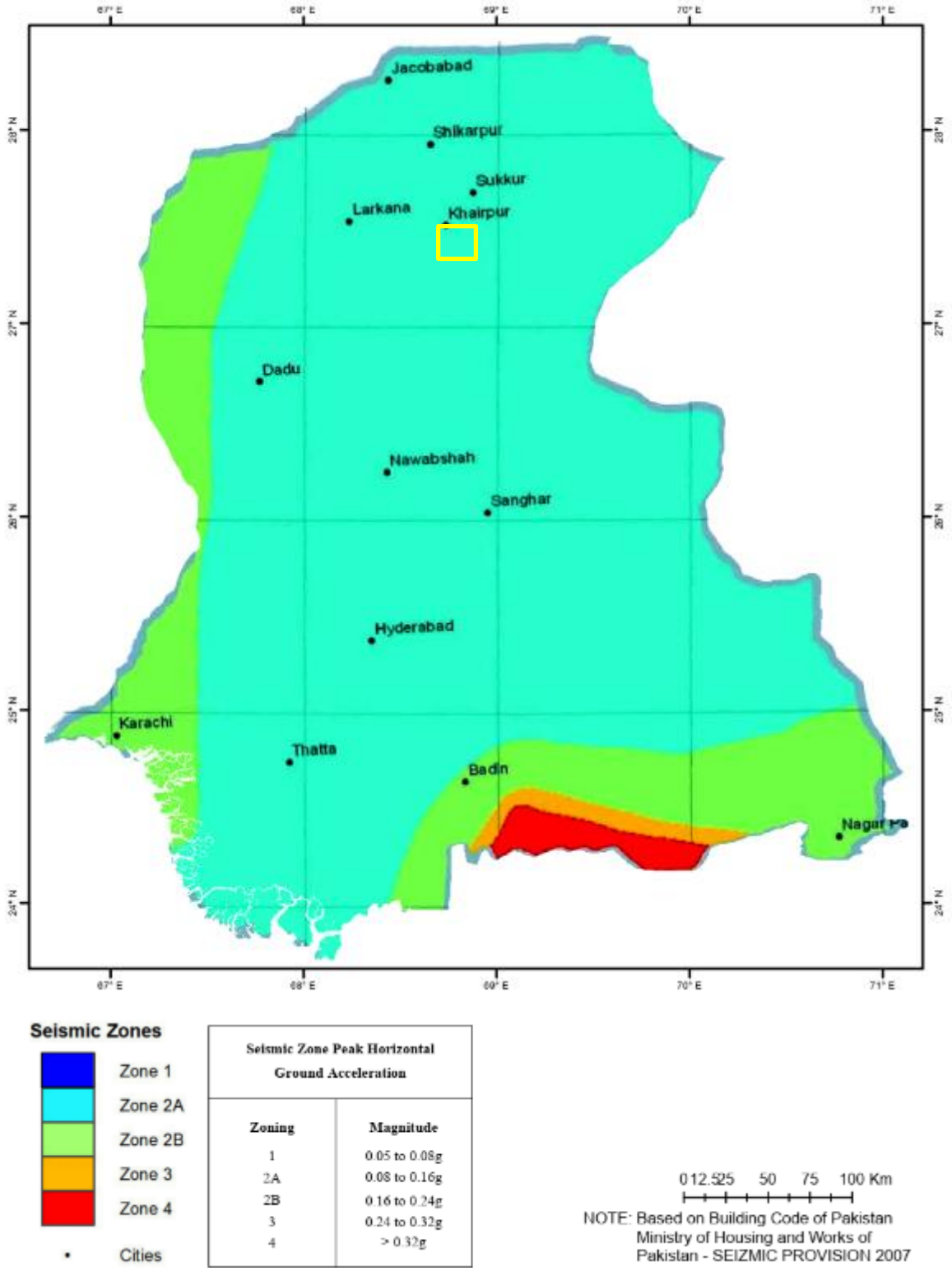

Figure 4: Sezimic Zone Map of the Project Area

4.2.4 Rainfall

The project generally falls in an arid zone with its climate as subtropical continental characterized by hot summer and mild winter. May and June are the hottest months with an average temperature of 40oC, the highest rising to 45oC at noon. January is the coldest month with a mean minimum temperature of 8oC. It is characterized by large diurnal and seasonal fluctuations of temperature, a dry season for the greater part of the year and a meager amount of annual rainfall, the mean annual ranging between 14 and 24 mm, of which nearly 75 percent falls during the monsoon season from mid-June to mid-September. Humidity is at its lowest during winter and higher during the monsoon months, but never exceeding 70 percent.

Figure 5: Monthly Average Temperature & Rainfall at Khairpur

4.3 Water Resources and Quality

i. Surface Hydrology

Khairpur (Mir's) city is situated about 25 Km in south- west of Sukkur on the left bank of the river Indus. A canal called Mir Wah flows almost through the center of the town from north to south. There are two principle sources of drinking water available to the inhabitants of Khairpur i.e. underground and surface water (Mir Wah canal).

ii. Surface and Groundwater Analysis

Due 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 Third party instrumental environmental laboratory which is certified from SEPA as per SEQS 2016. The selection of locations for monitoring will be done with due consideration to socially sensitive receptors. (as depicted in Figure 7).

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 4.

Table 3: Rationale for the Baseline Environmental Monitoring

Sr. No	Monitoring Parameters	No. of samples	Rationale
1	Ambient Air	14	as per SEQS/One from the camp area, one each from roads no 1, 3, 4, 5, 7, 8, 10, 11, 13, 15, 16, 17, 19
2	Drinking Water/Ground Water	9	Construction near water body/one each from roads no. 1, 2, 4, 9, 10, 12, 14, 18, 19 as per SEQS
3	Waste/Surface Water	7	Construction near water body/one each from roads no 1, 3, 5, 10, 12, 16, 19
4	Noise	57	3 from each road/nearby 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. Common animal habitats are mountains, deserts, and wetlands. 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. Red foxes (*Vulpes cana*), Jungle Cats (*Felis chaus*) and Indian wild boar (*Sus scrofa cristatus*) were noticed from different locations near the proposed area. All mammalian species are common and listed as Least Concern (LC) in IUCN red list. Two amphibians and six species of reptiles were recorded from the study area. These include one Buffo toad, one Skittering frog, two lizards, two geckos and two snakes. Both snake species are non-poisonous. Among bird species, the sites and its surrounding area have Common myna, grey shrike, Indian house crow and Red-wetted lapwing were the most common through the study area.

4.4.2 Flora of Sub-Project Area

The proposed project is located in District Khairpur, which can be classified as (a scrub forest) dominant by herbs and shrubs. However, the natural vegetation has long ago been replaced completely by crops and date trees. At present, there is generally a mixture of species found on the track.

4.4.3 Endemic and Endangered Species

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 – 6).

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 Project impact area 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/650 ft buffer zone of the proposed roads (100

meters/328 ft on each side from the centre line of the road). Most of the structures were located near towns and settlements in rural areas and away from RoW.

Mosques, shrines and graveyards are of historical, cultural and religious importance for the people. A detailed inventory of the sites showing the approximate location of the receptors has been provided in Table 5 as well as in Figure 7. All of the receptors are out of the RoW. By applying a careful design strategy all potential impacts were avoided. However, care will need to be taken during construction activity.

Table 4: Socially Sensitive Receptors along the Proposed Roads

Sr. No	Name of Road	Existing Width/ ROW (ft)	Proposed length for rehabilitation/resto-ration (in Kms)	Socially Sensitive receptor *	Distance (ft) from the center line**	Side of Road (North /South)
1	Rehabilitation of Road from Mehran Highway to Hindyari	12'	5	School	90	N
2	Rehabilitation of Road from Mehran Highway to Mohsin Shah.	12'	4	None of the socially sensitive receptors found in the buffer zone		
3	Road from Makhdoom Chowk to Ustad Jamauddin Kal-horo.	12'	3			
4	Rehabilitation of Road from N.H.Way Bagh Bachra Mehrabpur to Balo jo Kharo	12'	3	Mosque	95	S
5	Rehabilitation of Road from Baseero to Sanjayo.	12'	5	None of the socially sensitive receptors found in the buffer zone		
6	Rehabilitation of Road from Fakir Ali Nawaz Hisbani to Khuda Bux Hisbani.	12'	6	School	255	N
7	Rehabilitation of Road From Mehran Highway to Haji Kareem Bux Rajper via Lakhman	12'	4	School	130	S
8	Rehabilitation of Road from Kumb babar road to village Haji Jan Muhammad Tumrani, Ali Dino Tumrani, Muham-mad Ramzan Mehrani & Roshal Palleh.	12'	5	None of the socially sensitive receptors found in the buffer zone		
9	Rehabilitation of Road from Mithri to Hussainabad Narod-horo Road.	12'	5			
10	Rehabilitation of Road from Kotdiji Tando Masti road to vil-lage Fateh Ali Lashari via Raheem Bux Lashari.	12'	5			
11	Rehabilitation of Road from Pir Jo Goth Old Gate to Kingri.	18'	3			
12	Rehabilitation of Road from Ahmedpur Bye Pass Road.	18'	3.2			
13	Rehabilitation of Road from Khairpur Machi Road to Pir Jo Goth Bye Pass Road.	12'	3.2	Mosque	170	S

*Category (Mosque, School, BHU, Hospital, Graveyard, Mazar, Mandir, etc.)

**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).

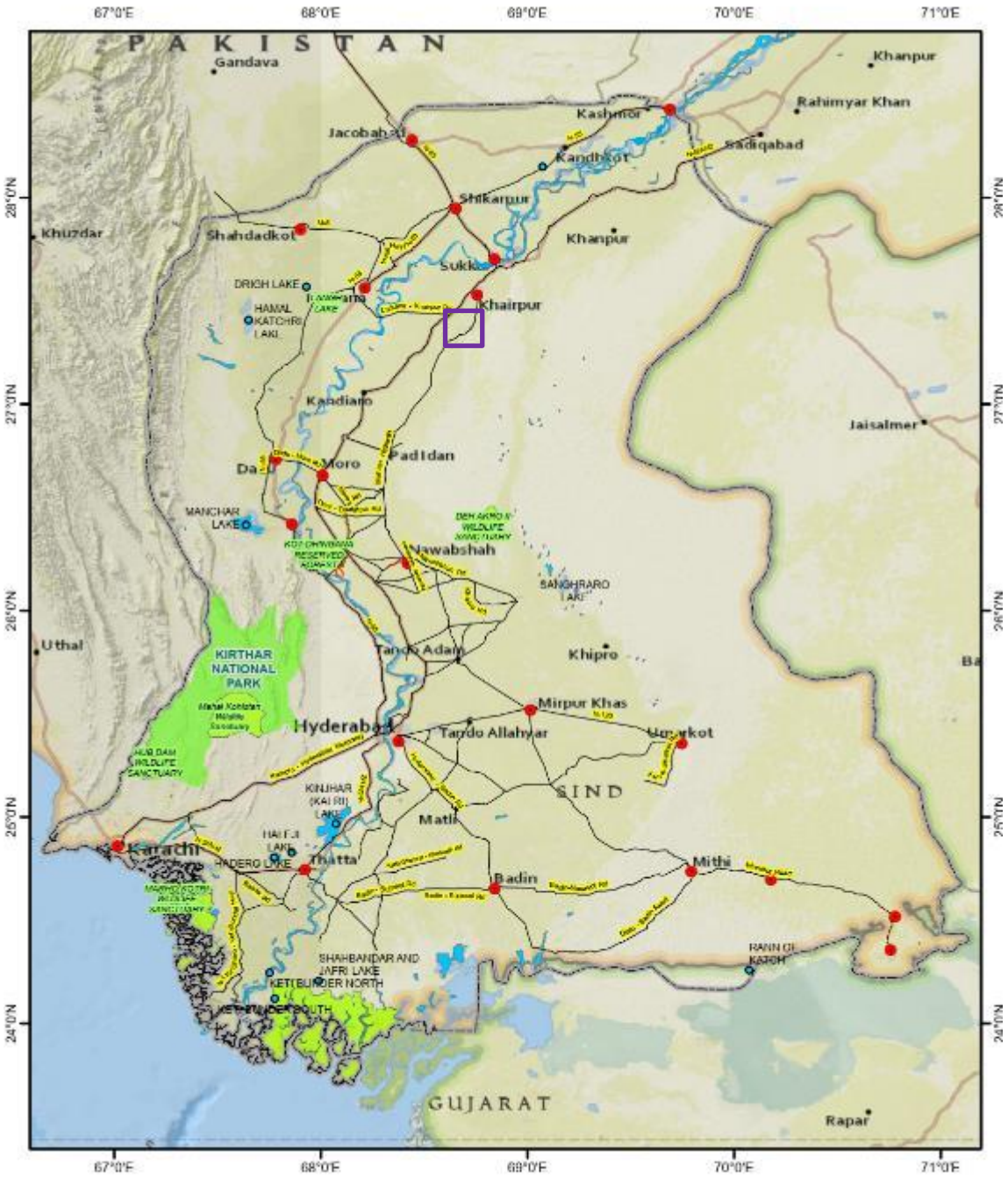

Figure 6: Locations of Protected Area with respect to Sub-Project

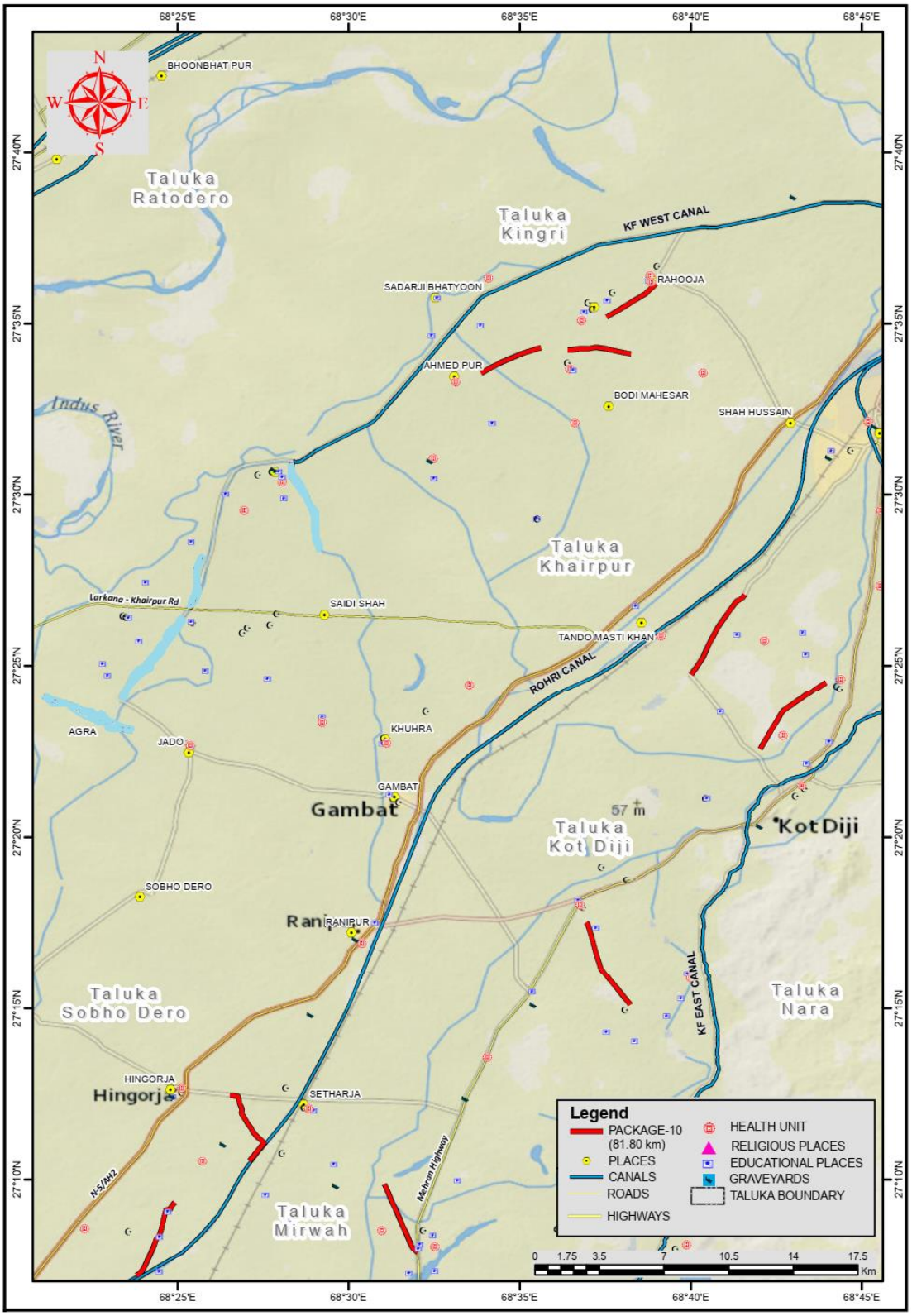

Figure 7: Socially Sensitive Receptor's Location Map


Rehabilitation of Road from Mehran Highway to Hindyari
Legend
Al -Zayed Public Elementary School
khr 1 road
Al -Zayed Public Elementary School...
Google Earth
200 ft
N


Rehabilitation of Road from N.H.Way Bagh Bachra Mehrabpur to Balo jo Kharo
Legend
Mosque
Kharirpur Road 4
DOODA KHAN
Google Earth
100 ft
N


Rehabilitation of Road from Fakir Ali Nawaz Hisbani to Khuda Bux Hisbani.
Legend
Govt High School Khuda Bux Hesbani
Khr Road 6
Govt High School Khuda Bux Hesbani
Google Earth
300 ft
N


Rehabilitation of Road From Mehran Highway to Haji Kareem Bux Rajper via
Legend
khrroad 7
School kauro khan rajpar
School kauro khan rajpar
Google Earth
200 ft
N

4.6 Socio-Economic Environment

4.6.1 Demography

Khairpur District exists in Sukkur Division. According to the 2017 census, it was the fifth most populated district in the province after four districts of Karachi city, with 2.4 million inhabitants. The headquarters of the district is the city of Khairpur. The district is further divided into eight Talukas: Khairpur Tehsil, Mirwah Tehsil, Kot Diji Tehsil, Kingri Tehsil, Sobho Dero Tehsil, Gambat Tehsil, Faiz Ganj Tehsil and Nara Tehsil. Demographic details have been depicted in Table 6[2].

Table 5: Demography of the Subproject Areas

Factor	Khairpur
Area: km^2	15,910
Population (Persons) Male Female	2,405,190 51 % 49%
Sex ratio (M:F)	106.48:100
Population Density Urban Population Rural Population	150 per km^2 777,006 (32.31%). 1,628,184 (67.69%)
Avg Household size	5.83 people
Literacy ratio 10+ Male Female	49.15% 62.08% 35.49%

[2] District-wise Tables - Census 2017 Final Results". *pbs.gov.pk*. Pakistan Bureau of Statistics. 2017.

4.6.2 Population Density of Sub Project Area's Tehsil

Sub project area falls under four tehsils named; Thari Mirwah, Faiz Ganj, Kingri & Kotdiji. Population density of these talukas given in following Table 7 and depicted in the Figure 8 also. Majority of the sub-project area falls in rural setup as all these roads which are under rehabilitation are farm to market roads with short lengths.

Table 6: Population Density of Sub Project Area's Tehsil

Sr. No	Name of Roads	Taluka	Population Density	Rural Population %
1	Rehabilitation of Road from Mehran Highway to Hindyari Rehabilitation of Road from Mehran Highway to Mohsin Shah. Road from Makhdoom Chowk to Ustad Jamauddin Kalhoro. Rehabilitation of Road from N.H.Way Bagh Bachra Mehrabpur to Balo jo Kharo	Thari Mirwah	560/Km^2	73
2	Rehabilitation of Road from Baseero to Sanjayo. Rehabilitation of Road from Fakir Ali Nawaz Hisbani to Khuda Bux Hisbani. Rehabilitation of Road From Mehran Highway to Haji Kareem Bux Rajper via Lakhman	Faiz Ganj	237/Km^2	81
3	Rehabilitation of Road from Kumb babar road to village Haji Jan Muhammad Tumrani, Ali Dino Tumrani, Muhammad Ramzan Mehrani & Roshal Palleh. Rehabilitation of Road from Mithri to Hussainabad Narodhoro Road. Rehabilitation of Road from Kotdiji Tando Masti road to village Fateh Ali Lashari via Raheem Bux Lashari.	Kotdiji	670/Km^2	75
4	Rehabilitation of Road from Pir Jo Goth Old Gate to Kingri. Rehabilitation of Road from Ahmedpur Bye Pass Road. Rehabilitation of Road from Khairpur Machi Road to Pir Jo Goth Bye Pass Road.	Kingri	641/Km^2	82

4.6.3 Languages

At the time of the 2017 census, 95.64% of the population spoke Sindhi and 1.55% Punjabi as their first language.

4.6.4 Religion

The majority religion is Islam, with 97.16% of the population. Hinduism (including those from Scheduled Castes) is practiced by 2.76% of the population.

Social harmony is prevailing in the area people maintain their social relations and participate in each other's social and religious events, but the area is deprived of high poverty and low literacy rate. The main livelihood of the people is related to agriculture and livestock rearing followed by daily wage earners.

4.7 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 Basic Health Units (BHU) dispensaries, midwifery centers and medical stores in the immediate vicinity. The seriously ill patients are taken to Khairpur, Sukkur, and Gambat.

4.8 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. Major crops of the area, which is at subsistence level include wheat (40 Maunds/acre) and vegetables.

In absence of alternative livelihoods like industrial-based employment opportunities, people depend on traditional livelihood sources like agriculture and livestock. However, a good number of youth from the subproject area also work in big cities as private sector employees and daily wage labor.

Mostly, livestock feeds on the grazing of crop residues. Women besides performing household chores also contribute to livestock rearing and work on handicrafts to complement family income generation.

Average livestock head per household is 10 in the sub-project areas, whereas landholding is very low i.e. Less than 3 acres. Some families also earn their living from a small business like shops and daily wages, tailoring and other errands.

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.

4.9 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

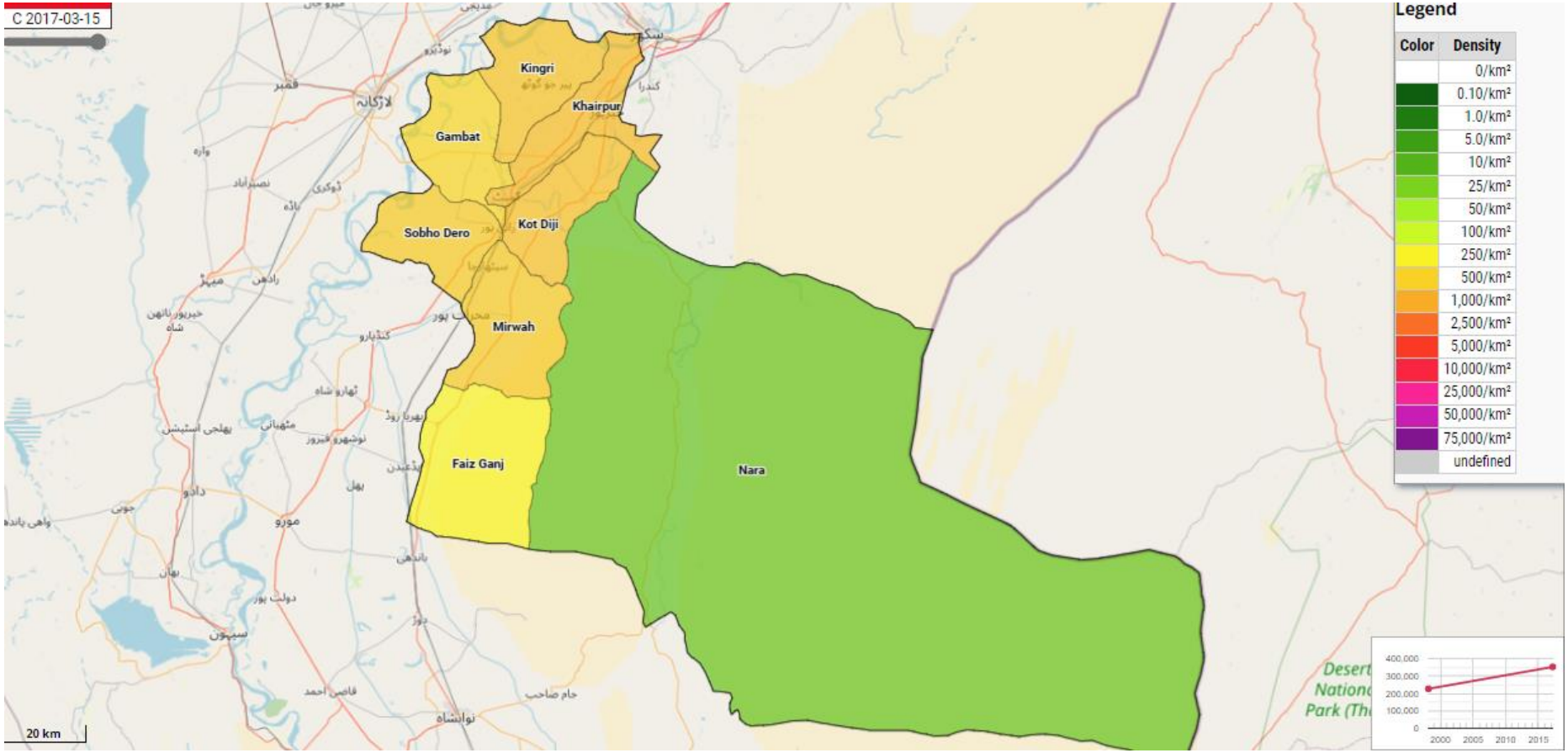

Figure 8: Population Density Map of District Khairpur

4.10 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.

4.11 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 600 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.

4.12 Housing

Majority of the population in subproject area resides in small settlements of 30 to 200 houses. The walls of these houses are usually made from brick and cement/mortar. It was noted that majority of the families were living in self-owned houses. These spacious houses usually have a boundary wall enclosing enough space for cattle and storage.

4.13 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.

4.14 Traffic Studies

4.14.1 General

A survey of the present traffic was done to analyze the current state of traffic and use the survey results as the basic data for forecasting traffic demand. In order to forecast the traffic demand, it is deemed necessary to review the recent present state traffic closely. Therefore, a survey has been conducted regarding the traffic volume, road conditions and traffic facilities, etc. The traffic volume has been collected through field surveys in the project areas.

Table 7: 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 14 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	• Socio-economic index	Socio-economic index of influence, direct/ indirect	Reference to literature data.

Contents	Items	Description	Remark
Data	• 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	To be utilized as fundamental data of traffic demand forecast.
	• Installation of traffic facilities and relevant plans	Master plans associated with the project	

4.14.2 Method of Traffic Volume Survey

- Period: 9 Jan to 12 Jan 2023 (for 4 days)
- Method: On-site traffic volume survey by the consultant team
- Location: At Khairpur
- Duration: 24 hours 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 9.

Table 8: 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 10.

Table 9: Traffic Volume Survey Results

Classification	Khairpur			
Survey Date	09 (Mon) Jan 23	10 (Tue) Jan 23	11 (Wed) Jan 23	12 (Thu) Jan 23
Traffic volume	6380	6316	6191	6086

4.14.3 Analysis of Traffic Present State

Traffic volume characteristic of Khairpur

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 11 and 12 respectively.

Table 10: Monthly Adjustment Factor

Monthly	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Factor	0.997	1.093	0.980	0.971	1.016	1.001	0.955	0.994	1.013	0.975	1.011	1.001

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

Table 11: 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 13.

Table 12: 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	
1652	2767	69	166	388	46	23	8	0	259

Vehicle Type Composition: The component rate of vehicle types is passenger car (43.98%), Hiace wagon (1.10%), motorcycle (40.77%) and truck (7.39%). These are shown in Figure 9.

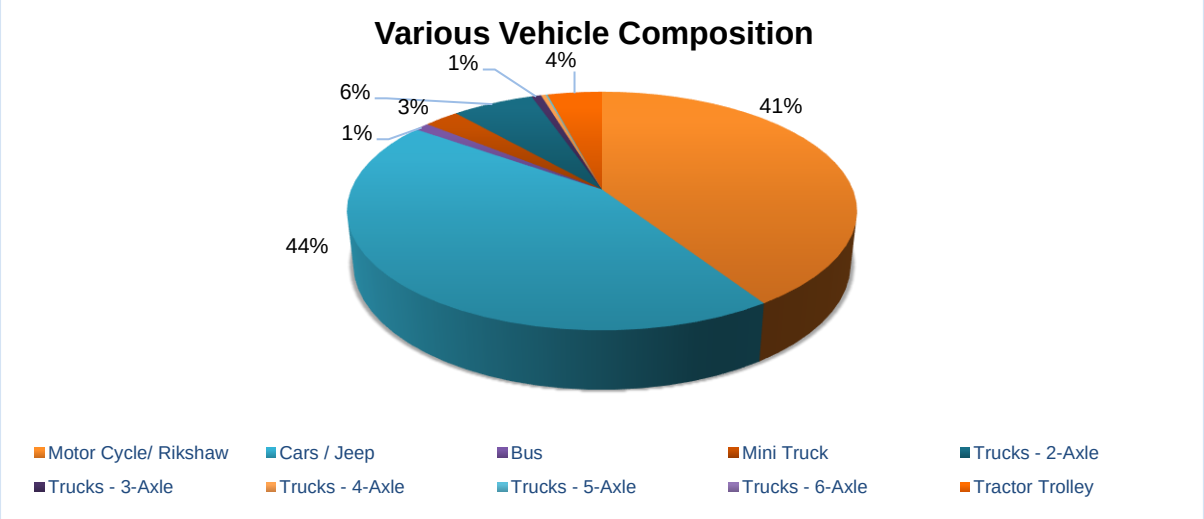

Figure 9: Vehicle Type Composition

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5. STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE

This section describes the consultations undertaken with the stakeholders in the sub-project areas to explain to them 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 Environmental and Social Framework (ESF) of the World Bank under Environmental and Social Standard (ESS)-10 requires stakeholder engagement and information disclosure for the project. ESS-10 requires identifying and engaging 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 Environmental and Social Management Plan (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 January – February 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 Environmental and Social Management Plan (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
Road No 1	Dato Goth	30-01-2023	15
Road No 2	Mohsin Shah	30-01-2023	10
Road No 3, 4	Talpur Nandha	30-01-2023	12
Road No 5, 6	Haji Naik Muhammad Lashari	31-01-2023	15
Road No 7	Haji Kareem Baksh	31-01-2023	10
Road No 8	Jaan Muhammad Tumran	31-01-2023	10
Road No 9	Village Latifabad	01-02-2023	12
Road No 10	Lal Bux Lashari	01-02-2023	8
Road No 11	Goth Rahooja	01-02-2023	15
Road No 12, 13	Village Kanhar	02-02-2023	12
Total			**119**

5.5 Community Consultations with Females of the Sub-Project Areas

During the survey, consultations with women were also conducted by female resource persons. The details of the sub-project were described and explained using simple language. During the meetings, the women were encouraged to ask questions and share their views and concerns related to the project, which were noted accordingly.

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: List of villages visited during the women's consultation

Name of Sub Project	Name of Settlement/ Village	Date of Consultation	No. of Participants
Road No 1	Dato Goth	30-01-2023	8
Road No 2	Mohsin Shah	30-01-2023	5
Road No 3, 4	Talpur Nandha	30-01-2023	10
Road No 5, 6	Haji Naik Muhammad Lashari	31-01-2023	8
Road No 7	Haji Kareem Baksh	31-01-2023	5
Road No 8	Jaan Muhammad Tumran	31-01-2023	5
Road No 9	Village Latifabad	01-02-2023	10
Road No 10	Lal Bux Lashari	01-02-2023	8
Road No 11	Goth Rahooja	01-02-2023	5
Road No 12, 13	Village Kanhar	02-02-2023	12
Total			**76**

They applauded the efforts of the Department and SFERP. They were also informed that continuous liaison with the local community will be maintained to update them about the status of sub-project implementation. Their complaints, if any will be redressed through the Grievances Redress Mechanism. It will provide the local community with a chance to address their concerns during construction activities. During public consultation/ interviews, the people of the sub-project areas were fully involved and they came up with a positive conclusion: Some comments/ observations with actions/ responses from the community (male and female) are as follows.

Table 15: 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.
The contractor should not dispose of their camp waste in the community area and it should be properly disposed of. Contactors should not cut the tree nearby the project area for their consumption for food cooking in camps. He should arrange alternative sources like gas cylinders, etc. for cooking purposes.	Waste from construction camps will not be disposed of in the community area. The camp area will be 500 meters away from the settlement. This will be monitored as per the EMP. The contractor will ensure the availability of gas cylinders for cooking in camps.

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 Khairpur 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 contractor should not use the local resources without the permission of the community	The contractor will make arrangements for the utilization of resources with the consultation of the community as well as after approval from competent authority.
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.
Consultation outcomes from Female participants	
Livestock movement could be disturbed by the increase in traffic and noise from machinery during project construction. Restriction of livestock grazing and accidental killings of livestock	Techniques to reduce the noise will be employed. Traffic routes will be planned to avoid disturbance to livestock as well as the community. Vehicles speed will be controlled to avoid accidents
The privacy of women may be affected due to the project. Women currently collect fuel wood, tend to livestock, etc. and the family is concerned about their safety. However, with the increase of outsiders, this freedom of movement for women will be reduced.	The field team briefed that the contractor will be bound to provide a schedule of work that will be communicated to local people. The chances for outsider labour will be minimized by adopting a proactive approach like hiring local labour. The camp area will be 500 meters away from the settlement. Cultural emersion and sensitization training will be a part of the induction program for new employees. Moreover, the specific clause would be made part of the contract/ bidding document as below: Furthermore, the contractor has to abide by Labour Code of Conduct as well as mitigation measures regarding GBV/SEA as mentioned in the EMP.
Participants were of the view that proper dissemination of information about the sub-project may be ensured	Participants were briefed about the sub-project in detail during field focus group discussions, interviews, and consultation while preparing ESMP. Interaction between the project and the community would be an

	ongoing process throughout the project, and will be guided by the Stakeholder Engagement Plan (SEP). Project GRM will be available at site level in case of any complaints.

Consultation with residents of Talpur Nandha

Consultation at Goth Rahooja

Consultation with residents of Haji Naik Muhammad Lashari

Consultation with residents of Jaan Muhammad Tumran

Consultation with residents Talpur Nandha

Consultation with residents Village Kanhar

5.6 Institutional Consultation

The Environment and Social team conducted a consultation with relevant government departments in Khairpur in January – February 2023. 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 16: Details of Consultations with Line Departments

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.	District Forest Officer, Forest Department	Mr. Sharjeel Memon
6.	District Education officer Elementary and Secondary, Education Department	Mr.Bilawal Ahmed Bhatti

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 17: Summary of Concerns Raised by Institutional Stakeholders

Comments/Observations	***Actions Responses***
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.
Detailed discussions were held regarding the screening of the sub-project according to the Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021	As the proposed sub-project is restoration /rehabilitation hence the proposed sub-projects According to Sindh Environmental Protection Agency (Environmental Assessment) Regulations, 2021, the sub-project falls under category schedule II – F. Transport 3. Rehabilitation or rebuilding or reconstruction of existing roads more than one kilometer in urban areas and more than 5 km from rural areas" (only 01 road is more than 5 km). Due to the emergency nature of work and impact will be low and confined during the construction stage hence in spite of submitting the IEE monthly compliance & effect monitoring will be strictly follow-up. The project will bring all direct and indirect development to the area. The contractor's staff shall be engaged locally and if workers from outside are

Comments/Observations	***Actions Responses***
	brought to the project area, then they should respect local customs and traditions.
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 500 away with 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 with 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.
The privacy of women may be affected due to the project. Women currently collect fuel wood, tend to livestock, etc. and the family is not concerned about their safety. However, with the increase of outsiders, this freedom of movement for women will be reduced.	This impact intensity and probability will be low due to the hiring of local labour. Cultural immersion and sensitization training will be a part of the induction program for new employees. Moreover, a specific clause would be made part of the contract/bidding document as “No interaction of labour with women and children during the construction phase in the

Comments/Observations	*Actions Responses*
	sub-project area." All contractor employees will sign a Labor Code of Conduct which clearly outlines what is unacceptable unethical behavior and the consequences for it.

5.7 Information Disclosure

As a disclosure requirement, the environmental and social management framework (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 Labour is 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 Environmental Management Plan (EMP).

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 Environmental Management
- Plan (EMP) 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 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. 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 and EPA Khairpur.

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 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 and conserve biodiversity and habitats and avoid adverse impacts on biodiversity and habitats because of project activities. The following mitigation measures will adhere to comply ESS6. No tree cutting has been involved due to 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.

Hunting/trapping/poaching of birds is the main threat, especially in winter when the water birds visited Hamal lake.

6.9.2 Mitigations for Biodiversity

During the baseline survey of the sub-project area, no endemic or rare species were observed in CoI. 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 Training[3].
- 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.

[3] 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.

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;
- 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 a site-based 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 area[4].

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

[4] 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.

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

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 remains 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 Contractor's Environmental & Social Management Plan (CESMP) and the training plan. The contractor will train the workers regarding (Gender Based Violence - GBV) and also train workers about sexual harassment, child abuse, and human trafficking for reducing the risk of GBV and 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 is 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 night time.

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.

7. GRIEVANCE REDRESS MECHANISM (GRM)

7.1 Grievance Redress Mechanism (GRM)

The grievance redress mechanism (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 Grievance Redress Mechanism (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 Project Affected Persons (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); *Gender Based Violence (GBV)*; and *other.*

7.3 GRM structure

The SFERP grievance redressal mechanism (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 (GFPs)

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 Grievance Redress Committee (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 Project Steering Committee (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 Grievance Redress Mechanism (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 Project Steering Committee (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:

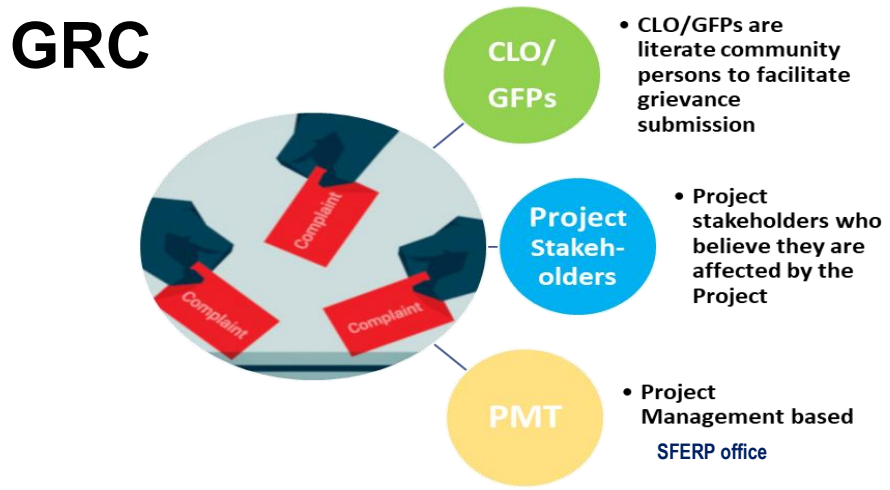


Figure 10: SFERP Grievances Processes

The GRC composition at different levels is given below.

SITE Composition

- **Community Liaison Officer (CLO) - Convener**
- **Grievance Focal Points (GFPs)**
- **Contractor**
- **Project Manager**
- **Co-opted Members**

GRC PIU Composition

- **Additional Director**
- **Social Development Specialist - Convener**
- **Environment Specialist**
- **Gender Specialist**
- **PIC Representative (s)**
- **Representative of relevant Deputy Commissioner**
- **Co-opted Members**

PSC Composition

- **Secretary**
- **Project Director**
- **Representative of relevant Deputy Commissioner**
- **E&S Specialists**
- **Gender Specialist**
- **Co-opted Members**

Grievance Entry Points for Complaint

7.4 GRM for workers

Community Liaison Officer (CLO) will serve as Grievance Focal Point (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

Grievance Redress Mechanisms (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.

8. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

8.1 Objectives

The purpose of the Environmental and Social Management and Monitoring Plan 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 Project Implementation Unit (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 Team – 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 for the SFERP project as well as the Environmental and Social Team will rest with the PIU. Besides, the PIU will be supported during ESMP implementation by E&S team to be established within PIU respectively.

8.2.2 Project Implementation Unit (PIU)

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 Environmental and Social Management team (E&S Team) will be hired within Key positions within the E&S Team including Environment Specialist, Social Safeguard/Resettlement Specialist and Gender Specialist

The E&S Team shall be responsible for the supervision of implementing and monitoring the ESMMP including GRM. The team shall be answerable to the Project Director (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 – III be included in the contract/s.

8.2.3 Construction Supervision Consultant (CSC)

The Construction Supervision Consultant (CSC) will be engaged by the project proponent, is 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 (SEPA), 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 be comply with the suggested measure as annexed in Annexure – III.

Furthermore, the contractor has to be filled the particulars of employment which have been given in Annexure – IV. 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 (ECOPs)

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 website[5]**.**

8.4 Contractor's Plans

This Environmental and Social Management Plan (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 plans before mobilization and implement the plans described below with the help of mitigation measures. Once

[5] https://documents1.worldbank.org/curated/en/249991468024570005/pdf/E40110V70REVIS00disclosed0100260120.pdf

approved by the CSC Environment Specialist & PIU, these documents will become part of the Site-Specific Environmental Management Plan -SSEMP for the Contract.

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 Corona Virus Management Plan (COVID-19) and Communicable Diseases Prevention Plan

The contractor shall provide the details of prevention measures, and arrangements planned for the Management of COVID-19 and other communicable diseases. 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. 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 Contractor's Traffic Management Plan and further information is to be provided. The Contractor is required to provide further details once camp/worksite 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 – 19 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 18: Environmental and Social Awareness Training Plan

Areas of Training	Key Aspects to be Covered	Target Group	Frequency	Budget.
Environment, Social Safeguards	**a.** Environmental and social awareness on ESS; **b.** Key environmental and social issues associated with the project and subprojects ESMP and findings; **c.** Subproject monitoring and reporting; **d.** Occupational Health and Safety Issues associated with Construction. **e.** Grievance Redress Mechanism implementation **f.** Gender-Based Violence (GBV)/SEA/SH **g.** Child Labor **h.** Resource Efficiency and conservation **i.** Safety measures for communicable diseases **j.** Water conservation and optimal resource use, Awareness regarding open defecation and better WASH practices for relevant community **k.** Identifications, conservation and precautionary measures of wildlife.	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 interval.

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 planed 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 Gender base violence (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 Bill of Quantities (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 EMP 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 Rs. 7,175,000/- budget for the implementation of the ESMP has been allocated The breakup of the cost is given in Table 20. The ESMP cost included the protective measures cost adopted for working near the socially sensitive receptors.

Table 19: 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/one each from roads no 3, 6, 7, 10	Once Before Start of Civil Works	15,000	1	4	4	60,000
2	Drinking Water	one from camp area and other from road no. 1, 4, 5, 8, 9, 11, 13 due to presence of settlements near to subproject area		15,000	1	8	8	120,000
3	Ambient Air from Batching/Asphalt plant area	One from the proposed camp area, one each from roads no 1, 4, 6, 7, 11, 13		20,000	1	7	7	140,000
4	Ambient Noise	2 from each road/nearby sensitive receptor		1,000	2	13	26	26,000
							Sub Total - A	**346,000**
B. Environmental Monitoring Cost During Construction Phase (12 months)								
5	Surface Water	Construction near water body/one each from roads no 3, 6, 7, 10	Once every in four months	15,000	3	4	12	180,000
6	Drinking Water	one from camp area and other from road no. 1, 4, 5, 9, 11, due to presence of settlements near to subproject area		15,000	3	6	18	270,000
7	Ambient Air from Batching/Asphalt plant area	One from the camp area & other from road 1, 4, 6, 7, 11, 13 due to presence of socially sensitive receptors		20,000	3	7	21	420,000
8	Ambient Noise	nearby sensitive receptors/as per community demand		1,000	3	13	39	39,000
9	Machinery/Stack emissions	Lump sum - depending upon machinery used for construction activities						200,000
							Sub Total - B	**1,109,000**
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)						Lump sum	500,000
16	Environmental & OHS Officer Salaries (120 thousand for each person)			120,000	12	2	24	2,880,000
							Sub Total - D	**5,020,000**
							TOTAL OF (A TO D)	**7,175,000**

Table 20: 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 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.
				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

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				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 & ECPs 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 possible.	CC	PIU & CSC		Monthly	Same as above
		B.1.2.3	Damage to existing infrastructure Need to relocate	Currently, no public infrastructure is observed which creates hindrances in the execution of the work. All	CC	PIU & CSC		Monthly	Along the alignment

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
			infrastructure such as electricity transmission lines	damaged/removed infrastructures will be repaired/ restored to their original or better condition. Community liaison to be maintained.					
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
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,	CC	PIU & CSC	Suitable washing facilities are provided at each	Once	Same as above

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				including clean running water, soap and drying facilities.			camp		
	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 camp shall be monitored and restricted	Monthly	Same as above
				Preparation and Implementation of communication strategy	CC	PIU & CSC	Approval of Communication Strategy	Once	

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				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	Sindhi 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
				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

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				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 shall be disposed off through SEPA certified vendor.	CC	PIU & CSC	The government-approved system used	Once	
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	CC	PIU & CSC	License or Written agreement b/w Municipal operator and Contractor checked.	Monthly	Licensed site.

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				written agreement shall be made between the Municipal operator and contractor for the disposal of domestic waste.					
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
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

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
		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
			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

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
			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 aggress 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
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	CC	PIU & CSC	As per Approved TMP	Once for each closure	Throughout construction

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				authority					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-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	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			
				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
				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

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
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 private land	Monthly	Same as above
				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	

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
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 locations	Monthly	Sub-Project area
				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	CC, CSC	PIU & Culture Tourism & Antiquities Departme nt, Govt of	Chance find	As or when	Same as above

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
				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		Sindh			
B9. Safety/Health Measures for The Local Population									
B 9.1	The local population living within/near the sub-project especially women, children and elderly people	B 9.1.1	Accident risks, particularly for the local population living within/near the subproject especially 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	Restriction on movement of machinery on the designated haulage routes for transportation of materials. Public awareness campaigns through displaying signboards 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) **For Community Female Members:** •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.	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			
				•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 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 damges	Continues	Entire project area

Sr. No.	Project Activities	Section	Environmental Impacts/Entity	Mitigation Measures	Responsibility		Key Performance Indicators	Monitoring Frequency	Location
					Execution	Monitoring			
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
				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 21: 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

Sr. No.	Parameters	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
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 supply of material	CC	CSC/PIU-SFERP
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	Weekly	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 from SEPA)	Quarterly	CC	CSC/PIU-SFERP

Sr. No.	Parameters	Means of Monitoring	Frequency	Responsibility	
				Implementation	Supervision
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
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

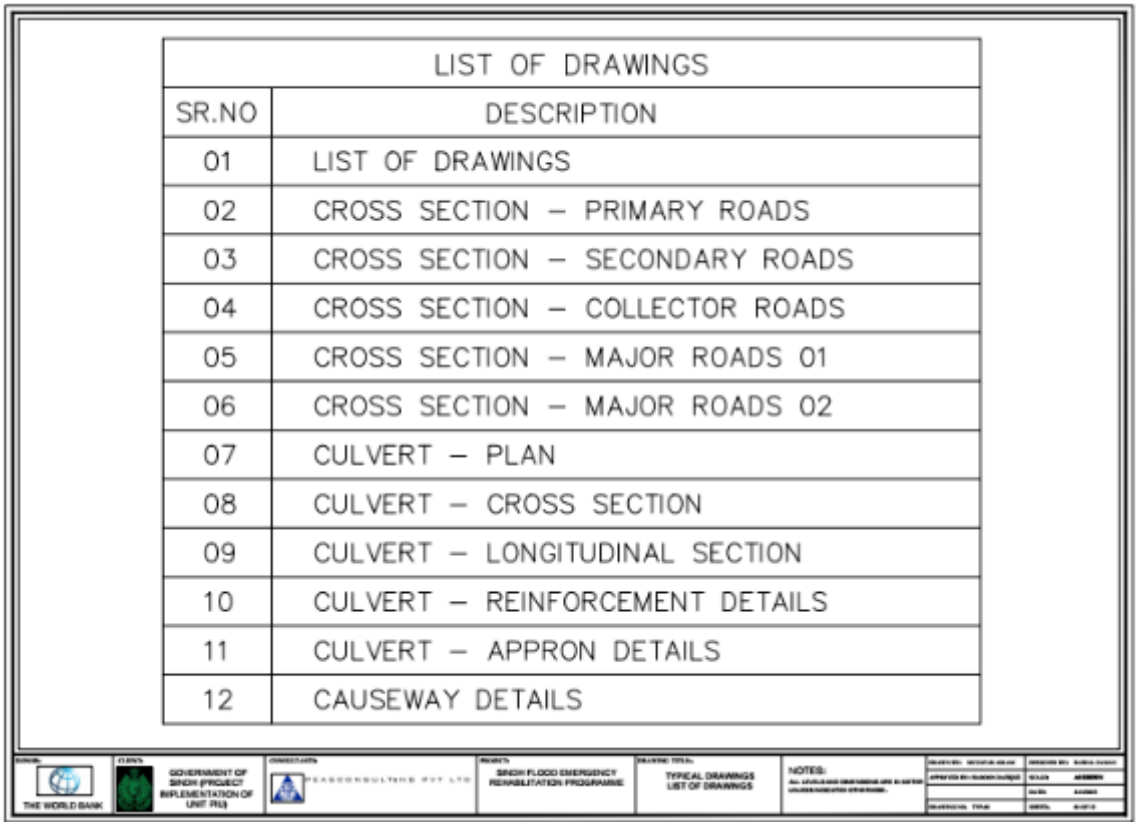
Annexure I: Rehabilitation of Road-SFERP Screening Checklist

Proposed Project Interventions Details			
Name of proposed project interventions			
ID of proposed project interventions			
Proposing agency			
Proposed project interventions location			
Proposed project interventions objective			
Estimated cost			
Proposed date of commencement of civil work			
Status of review of technical drawings and specifications			
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?			
Will the proposed project interventions pose a risk of **contaminating drinking water sources** due to construction activities?			
Will the proposed project interventions **deplete groundwater** because of the water used during road construction activities?			
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?			
Will the proposed project interventions result in an increase in **ambient noise levels** and vibrations due to the operation of construction machinery/vehicles?			
Will these ambient noise levels be beyond the specifications in the **SEQS**?			
Will the proposed project interventions lead to **erosion hazards**?			
Will the proposed project interventions lead to increased **soil erosion?**			
Will the proposed project interventions result in the generation of **hazardous and/or non-hazardous waste**?			
Will the proposed project interventions result in potential increased health risks for **project workers and communities** (e.g. COVID-19)?			
Is the proposed project interventions being implemented in an area with **high natural hazard risk**? (e.g. floods, earthquakes, landslides)			
ECOLOGICAL ENVIRONMENT			
Will the proposed project interventions potentially cause any adverse impacts on **habitats, ecosystems**, and/or ecosystem services?			

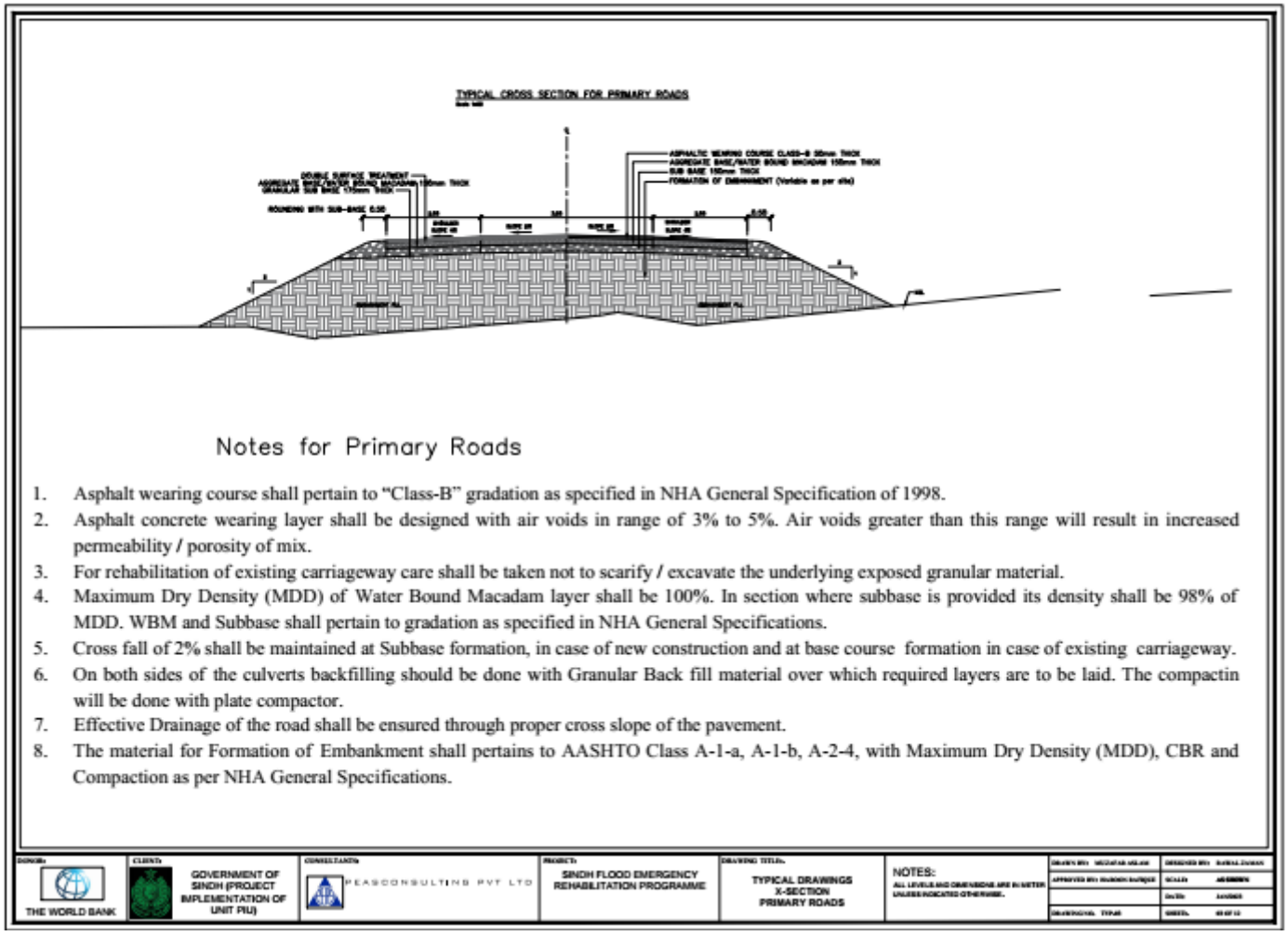
Will any rehabilitation & improvement works be located in areas that would promote the **conversion of natural habitats**?			
Will any proposed project interventions proposed project interventions be located **on or near sensitive environmental areas**, including national parks and protected areas?			
Are the proposed project interventions activities likely to pose risks to any **endangered species?**			
SOCIAL ENVIRONMENT			
Will the proposed project interventions involve **land acquisition**?			
Are there any **forced labor or child labor** risks associated with contractors or other third parties involved in implementing this proposed project interventions?			
Is labor influx expected during the implementation of the proposed project interventions? Please estimate the strength of the anticipated **outside labor force.**			
Will local labor be used for the proposed project interventions activities? Please estimate the strength of the anticipated local labor force.			
Will there be any **temporary or permanent displacement** as a result of the proposed project interventions activities?			
Are there expected to be any **traffic-related issues** as a result of the proposed project interventions activities, particularly during the construction phase?			
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**?			
Are the proposed project interventions likely to have **impacts on important religious/cultural heritage sites**?			
Have there been any past **security-related issues** at the proposed project interventions site?			
Has **stakeholder engagement** taken place in the proposed project interventions area?			
Were **vulnerable and indigenous groups** involved in stakeholder consultations? (e.g. women, minorities, economically disadvantaged individuals, etc.)			

RISK CLASSIFICATION	
Step	**Recommendations/Findings**
Risk category identification	
Recommendation on type of E&S instruments required.	
Recommendations to design engineer	
Summary of screening findings	
Name of person conducting screening	
Name of the person endorsing screening findings	

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


TYPICAL CROSS SECTION FOR PRIMARY ROADS
DOUBLE SURFACE TREATMENT
ROUNDING WITH SUB-BASE 0.50
ASPHALTIC WEARING COURSE CLASS-B 25mm THICK
AGGREGATE BASE/WATER BOUND MACADAM 150mm THICK
SUB BASE 150mm THICK
FORMATION OF EMBANKMENT (Variable as per site)
0.50
Notes for Primary Roads
1. Asphalt wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. 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.
3. For rehabilitation of existing carriageway care shall be taken not to scarify / excavate the underlying exposed granular material.
4. 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.
5. 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.
6. 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.
7. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
8. The material for Formation of Embankment shall pertains 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.
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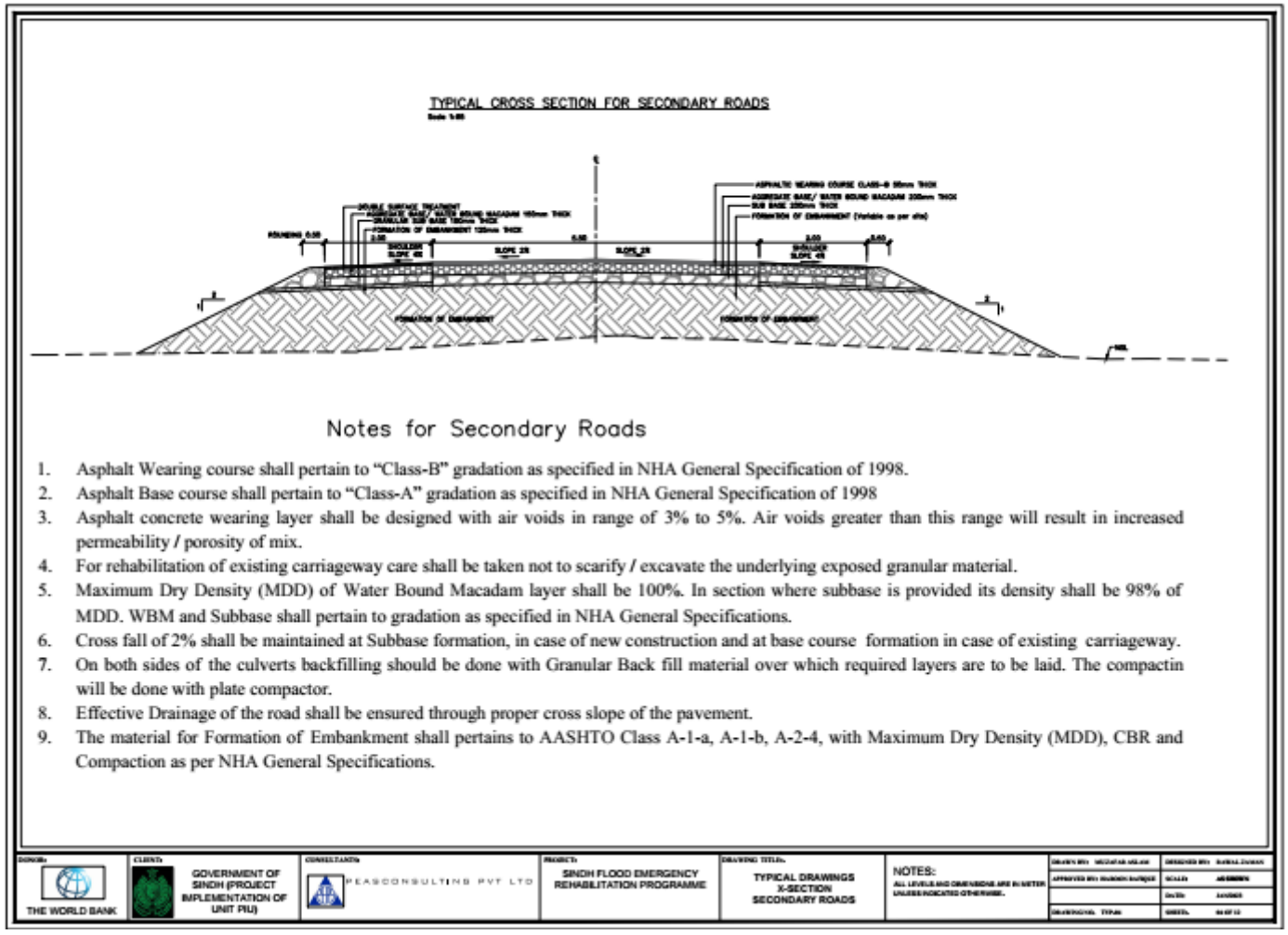
TYPICAL DRAWINGS X-SECTION PRIMARY ROADS
NOTES:


TYPICAL CROSS SECTION FOR SECONDARY ROADS
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 pertains 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.
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TYPICAL DRAWINGS X-SECTION SECONDARY ROADS
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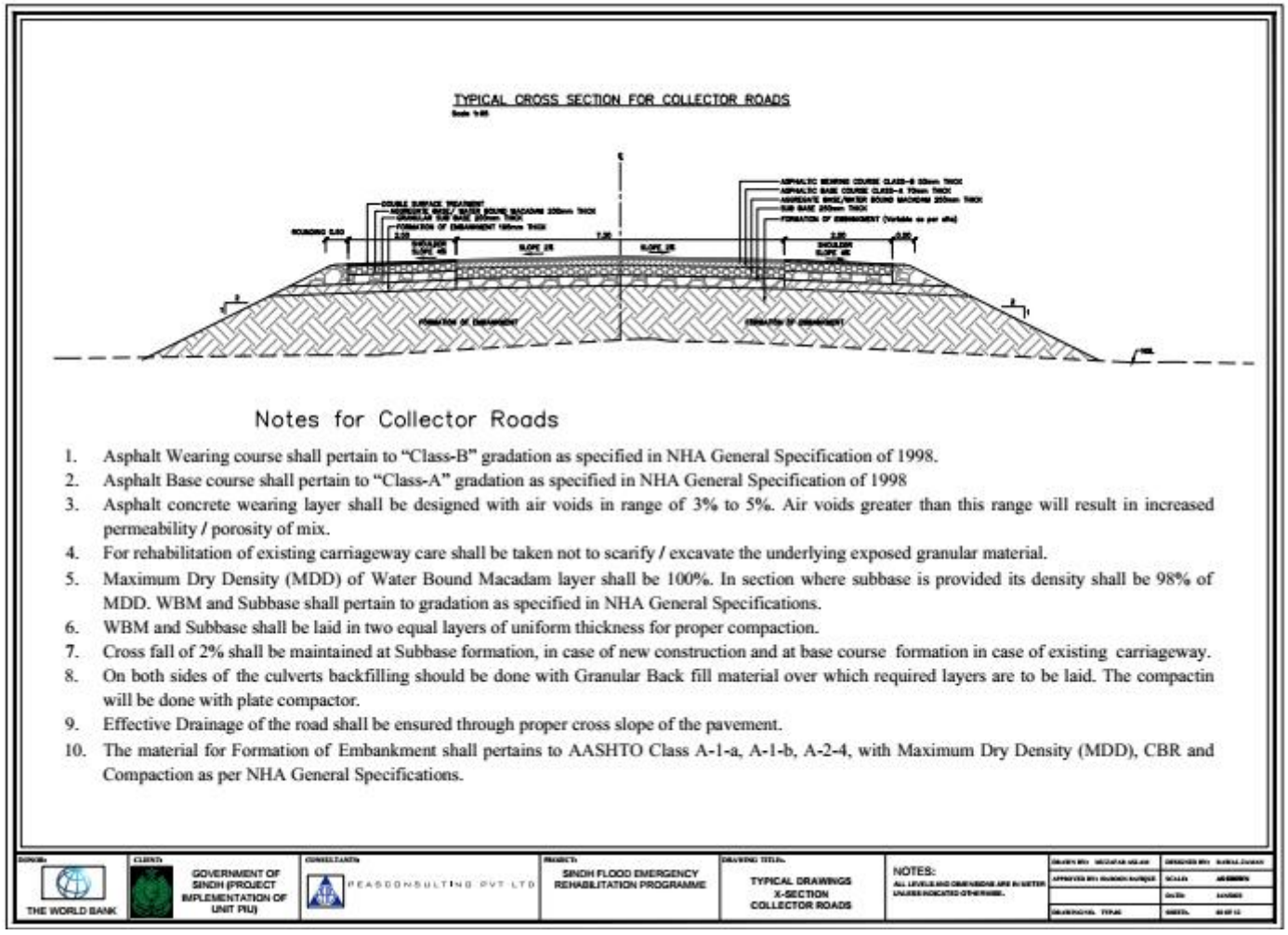
TYPICAL CROSS SECTION FOR COLLECTOR ROADS
Notes for Collector Roads
1. Asphalt Wearing course shall pertain to "Class-B" gradation as specified in NHA General Specification of 1998.
2. Asphalt Base course shall pertain to "Class-A" gradation as specified in NHA General Specification of 1998
3. Asphalt 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. WBM and Subbase shall be laid in two equal layers of uniform thickness for proper compaction.
7. 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.
8. 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.
9. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
10. The material for Formation of Embankment shall pertains 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.
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SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS X-SECTION COLLECTOR ROADS
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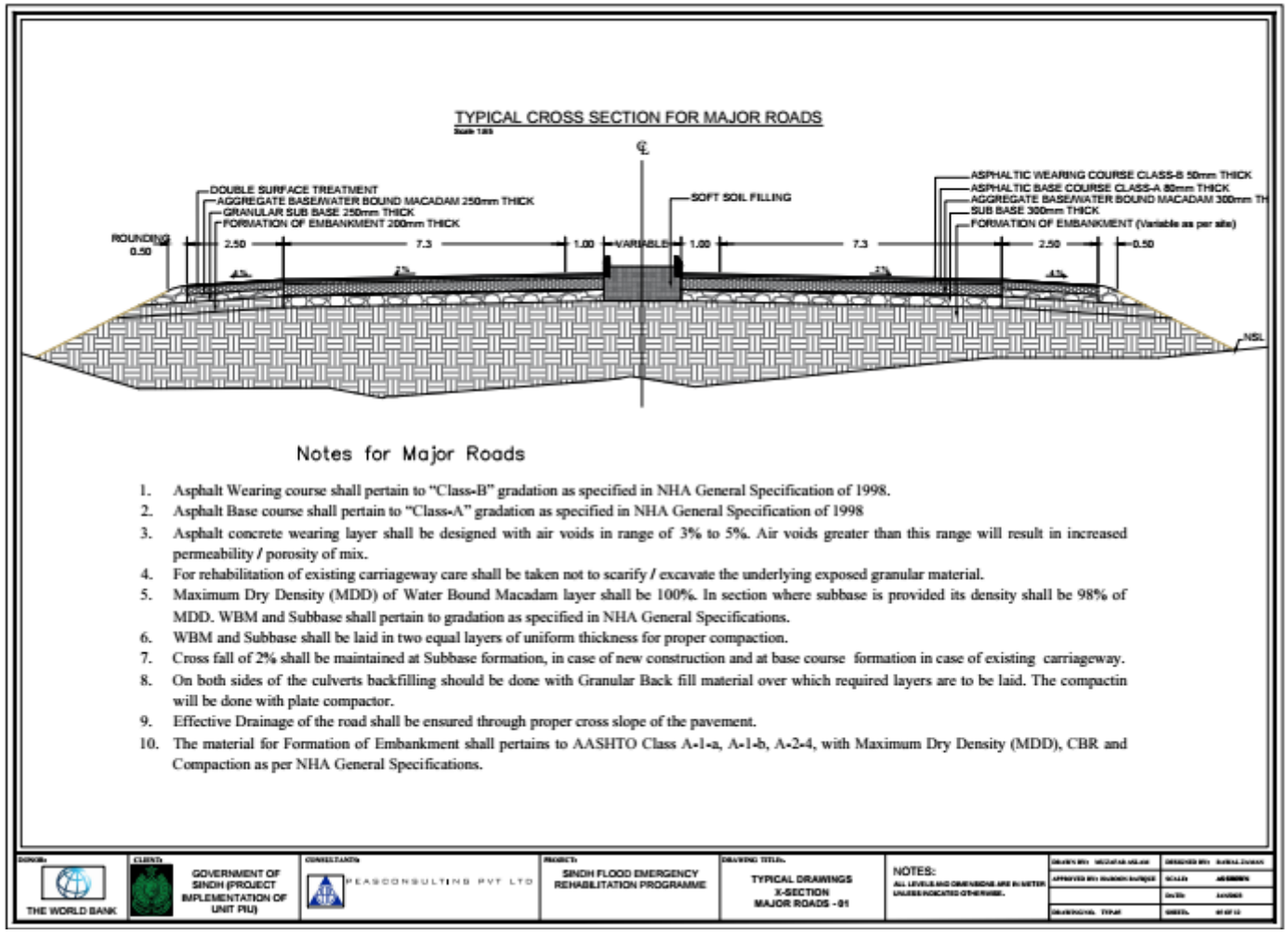

Notes for Major Roads

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.
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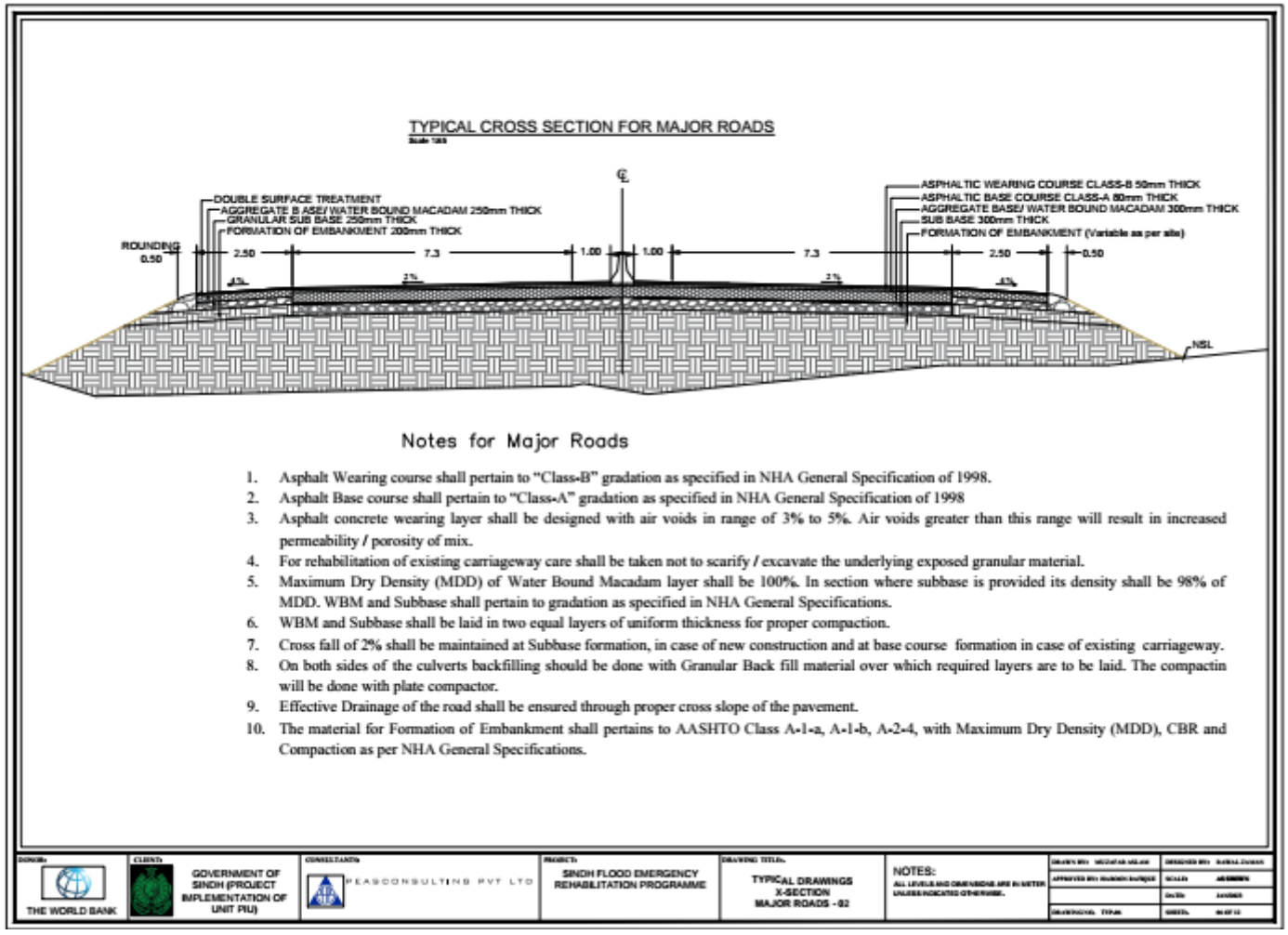
9. Effective Drainage of the road shall be ensured through proper cross slope of the pavement.
10. The material for Formation of Embankment shall pertains to AASHTO Class A-1-a, A-1-b, A-2-4, with Maximum Dry Density (MDD), CBR and Compaction as per NHA General Specifications.

THE WORLD BANK	GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU)	PEASCONSULTING PVT LTD	SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME	TYPICAL DRAWINGS X-SECTION MAJOR ROADS - 01	NOTES: ALL LEVELS AND DIMENSIONS ARE IN METER UNLESS INDICATED OTHERWISE.	



Notes for Major 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
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10. The material for Formation of Embankment shall pertains 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.

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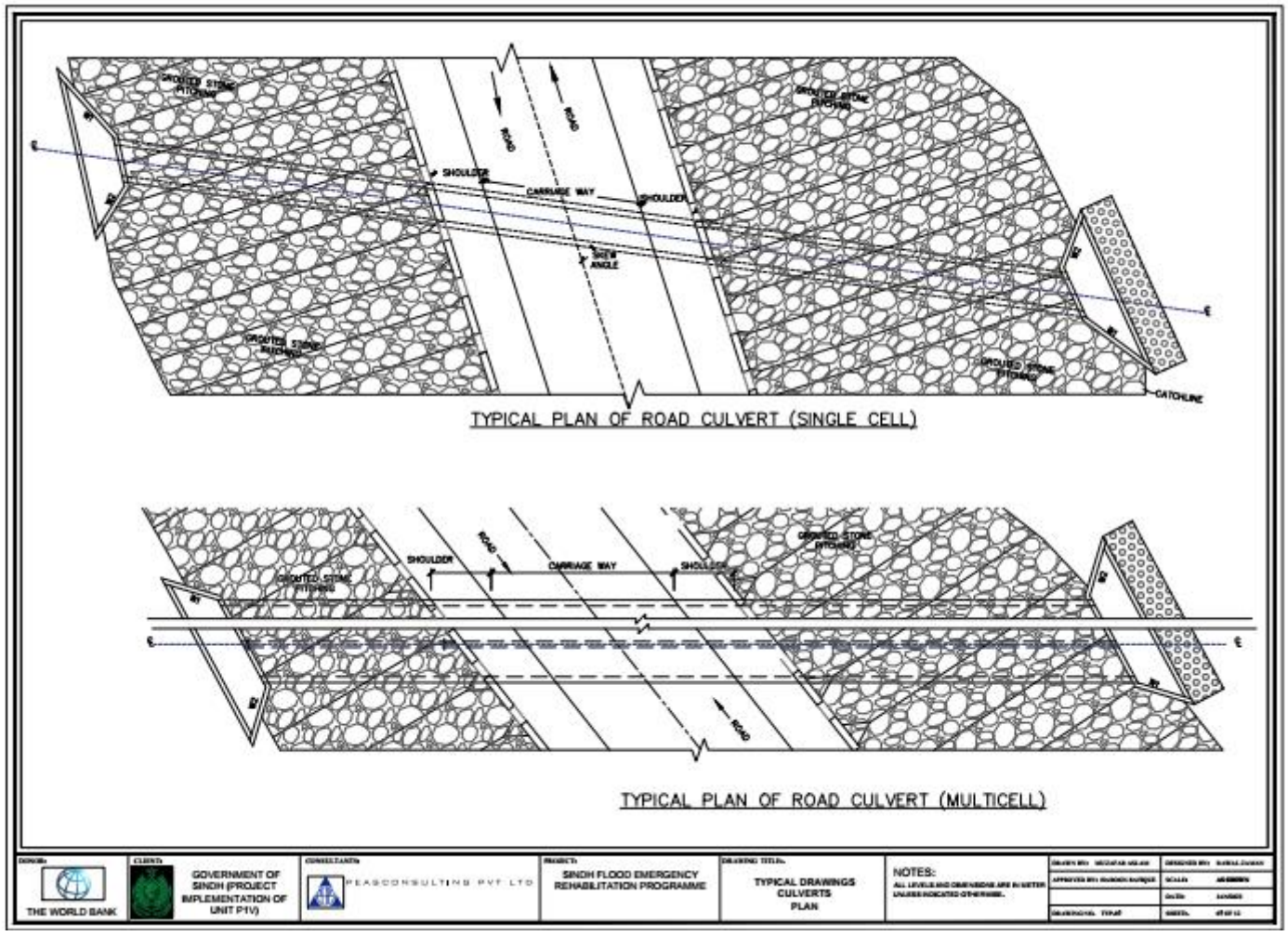
TYPICAL PLAN OF ROAD CULVERT (SINGLE CELL)
TYPICAL PLAN OF ROAD CULVERT (MULTICELL)
GROUTED STONE PITCHING
ROAD
SHOULDER
CARRIAGE WAY
SKEW ANGLE
CATCHLINE
THE WORLD BANK
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TYPICAL DRAWINGS CULVERTS PLAN
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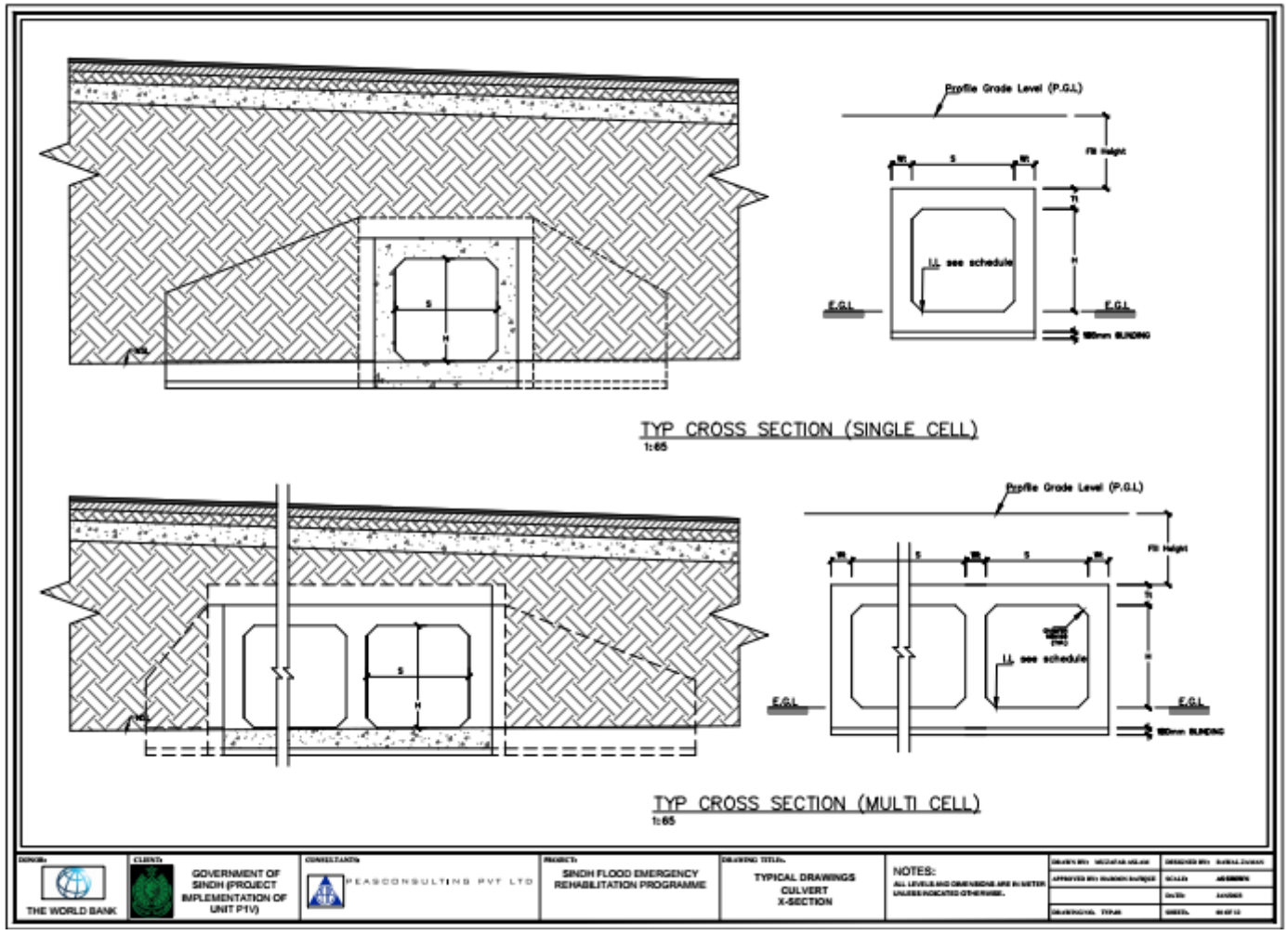
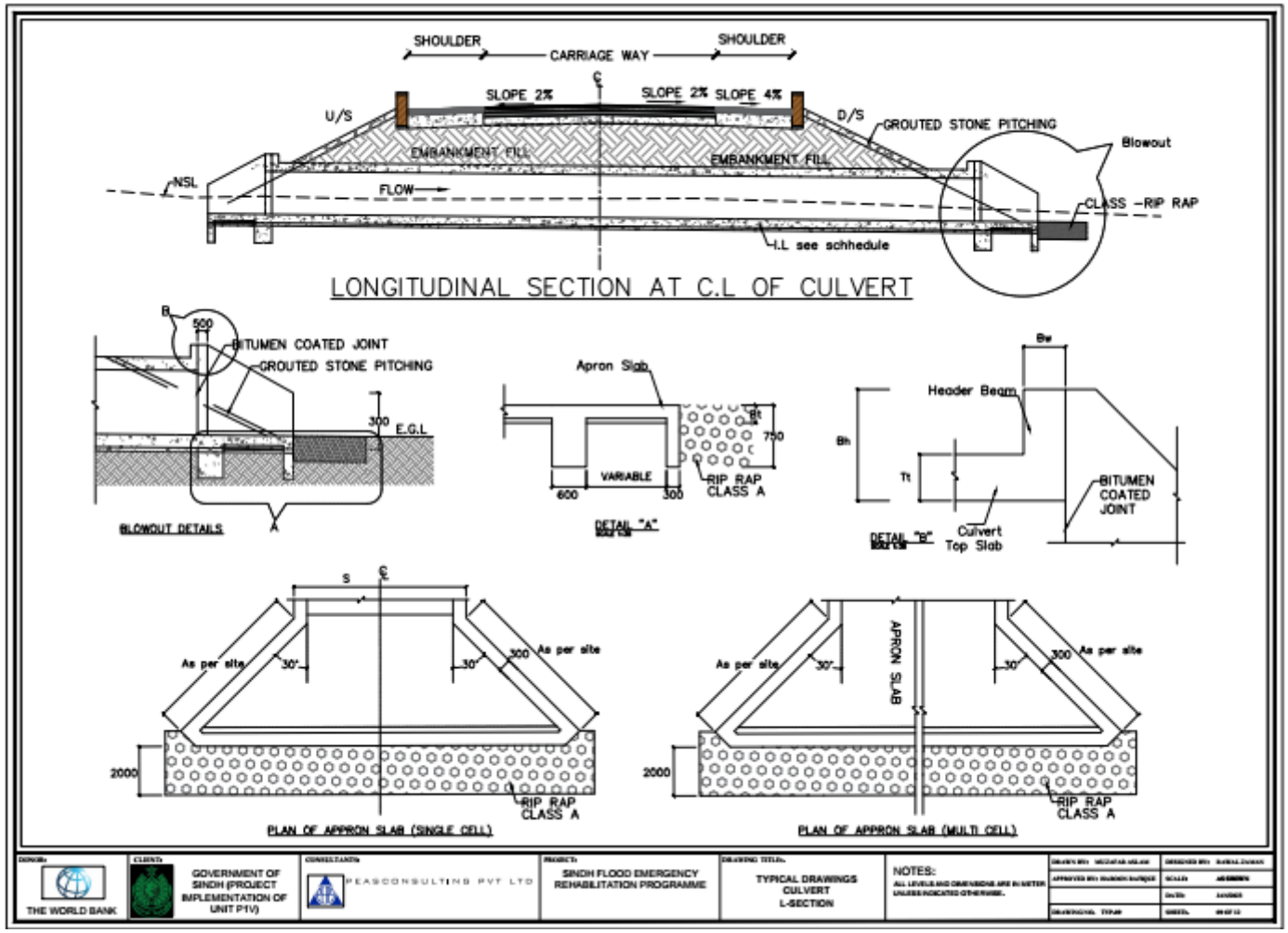

Profile Grade Level (P.G.L)
F.G.L
F.G.L
see schedule
TYP CROSS SECTION (SINGLE CELL)
1:65
Profile Grade Level (P.G.L)
F.G.L
F.G.L
see schedule
TYP CROSS SECTION (MULTI CELL)
1:65
THE WORLD BANK
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT P1U)
PEASCONSULTING PVT LTD
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS
CULVERT
X-SECTION
NOTES:


SHOULDER
CARRIAGE WAY
SHOULDER
SLOPE 2%
SLOPE 2%
SLOPE 4%
U/S
D/S
GROUTED STONE PITCHING
Blowout
EMBANKMENT FILL
EMBANKMENT FILL
NSL
FLOW
CLASS -RIP RAP
I.L see schhedule
LONGITUDINAL SECTION AT C.L OF CULVERT
500
BITUMEN COATED JOINT
GROUTED STONE PITCHING
300
E.G.L
BLOWOUT DETAILS
Apron Slab
750
VARIABLE
600
300
RIP RAP
CLASS A
DETAIL "A"
Bw
Header Beam
Bh
Tt
BITUMEN
COATED
JOINT
Culvert
Top Slab
DETAIL "B"
As per site
30°
300
2000
RIP RAP
CLASS A
PLAN OF APPRON SLAB (SINGLE CELL)
APRON SLAB
PLAN OF APPRON SLAB (MULTI CELL)
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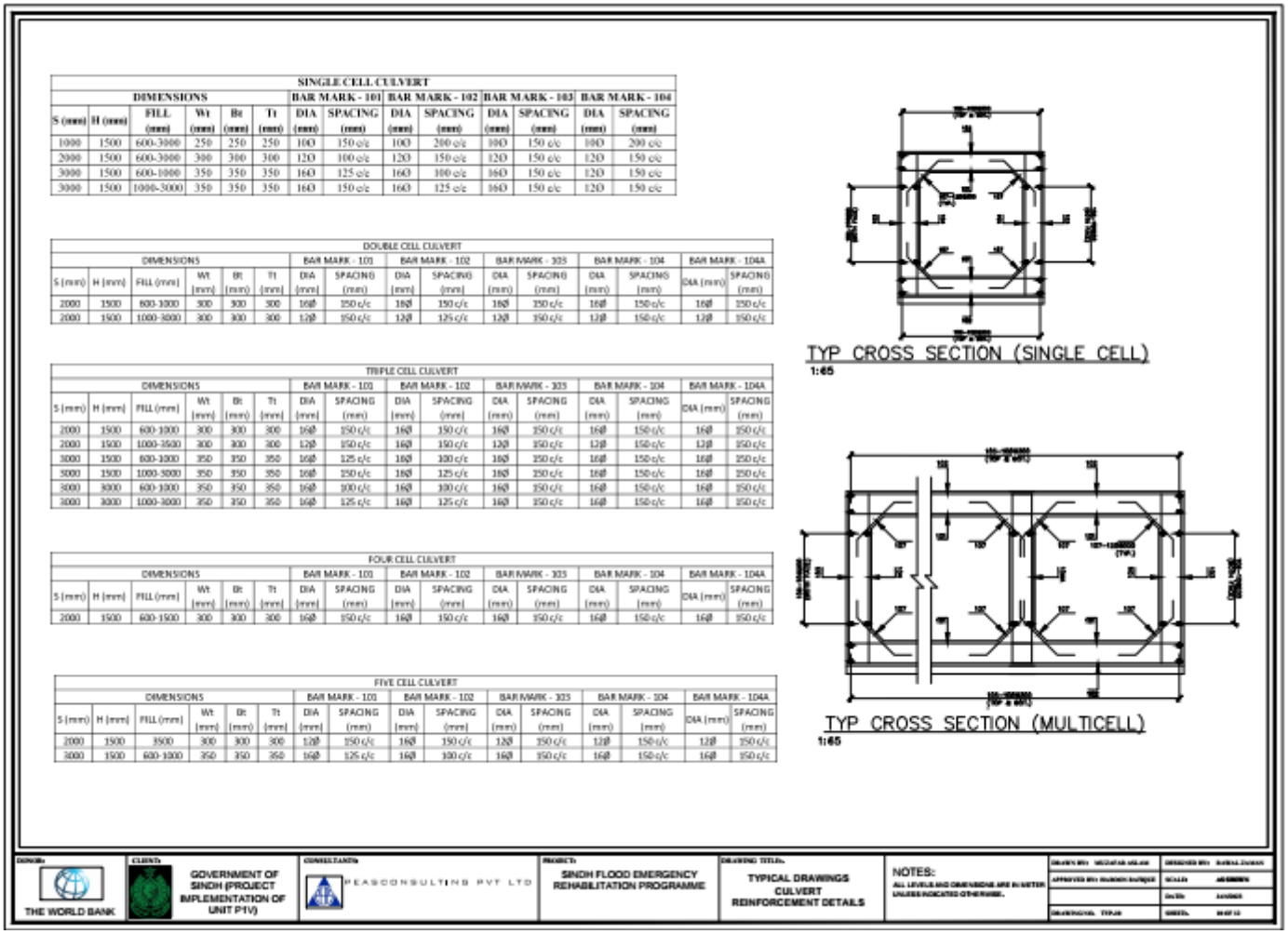
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT P1V)
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS
CULVERT
L-SECTION
NOTES:



SINGLE CELL CULVERT

DIMENSIONS						BAR MARK - 101		BAR MARK - 102		BAR MARK - 103		BAR MARK - 104	
S (mm)	H (mm)	FILL (mm)	Wt (mm)	Bt (mm)	Tt (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
1000	1500	600-3000	250	250	250	10Ø	150 c/c	10Ø	200 c/c	10Ø	150 c/c	10Ø	200 c/c
2000	1500	600-3000	300	300	300	12Ø	100 c/c	12Ø	150 c/c	12Ø	150 c/c	12Ø	150 c/c
3000	1500	600-1000	350	350	350	16Ø	125 c/c	16Ø	100 c/c	16Ø	150 c/c	12Ø	150 c/c
3000	1500	1000-3000	350	350	350	16Ø	150 c/c	16Ø	125 c/c	16Ø	150 c/c	12Ø	150 c/c

DOUBLE CELL CULVERT

DIMENSIONS						BAR MARK - 101		BAR MARK - 102		BAR MARK - 103		BAR MARK - 104		BAR MARK - 104A	
S (mm)	H (mm)	FILL (mm)	Wt (mm)	Bt (mm)	Tt (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	600-1000	300	300	300	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c
2000	1500	1000-3000	300	300	300	12Ø	150 c/c	12Ø	125 c/c	12Ø	150 c/c	12Ø	150 c/c	12Ø	150 c/c

TRIPLE CELL CULVERT

DIMENSIONS						BAR MARK - 101		BAR MARK - 102		BAR MARK - 103		BAR MARK - 104		BAR MARK - 104A	
S (mm)	H (mm)	FILL (mm)	Wt (mm)	Bt (mm)	Tt (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	600-1000	300	300	300	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c
2000	1500	1000-3500	300	300	300	12Ø	150 c/c	16Ø	150 c/c	12Ø	150 c/c	12Ø	150 c/c	12Ø	150 c/c
3000	1500	600-1000	350	350	350	16Ø	125 c/c	16Ø	100 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c
5000	1500	1000-3000	350	350	350	16Ø	150 c/c	16Ø	125 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c
3000	3000	600-1000	350	350	350	16Ø	100 c/c	16Ø	100 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c
3000	3000	1000-3000	350	350	350	16Ø	125 c/c	16Ø	125 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c

FOUR CELL CULVERT

DIMENSIONS						BAR MARK - 101		BAR MARK - 102		BAR MARK - 103		BAR MARK - 104		BAR MARK - 104A	
S (mm)	H (mm)	FILL (mm)	Wt (mm)	Bt (mm)	Tt (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	600-1500	300	300	300	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c

FIVE CELL CULVERT

DIMENSIONS						BAR MARK - 101		BAR MARK - 102		BAR MARK - 103		BAR MARK - 104		BAR MARK - 104A	
S (mm)	H (mm)	FILL (mm)	Wt (mm)	Bt (mm)	Tt (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)	DIA (mm)	SPACING (mm)
2000	1500	3500	300	300	300	12Ø	150 c/c	16Ø	150 c/c	12Ø	150 c/c	12Ø	150 c/c	12Ø	150 c/c
3000	1500	600-1000	350	350	350	16Ø	125 c/c	16Ø	100 c/c	16Ø	150 c/c	16Ø	150 c/c	16Ø	150 c/c

TYP CROSS SECTION (SINGLE CELL)
1:65

TYP CROSS SECTION (MULTICELL)
1:65

THE WORLD BANK

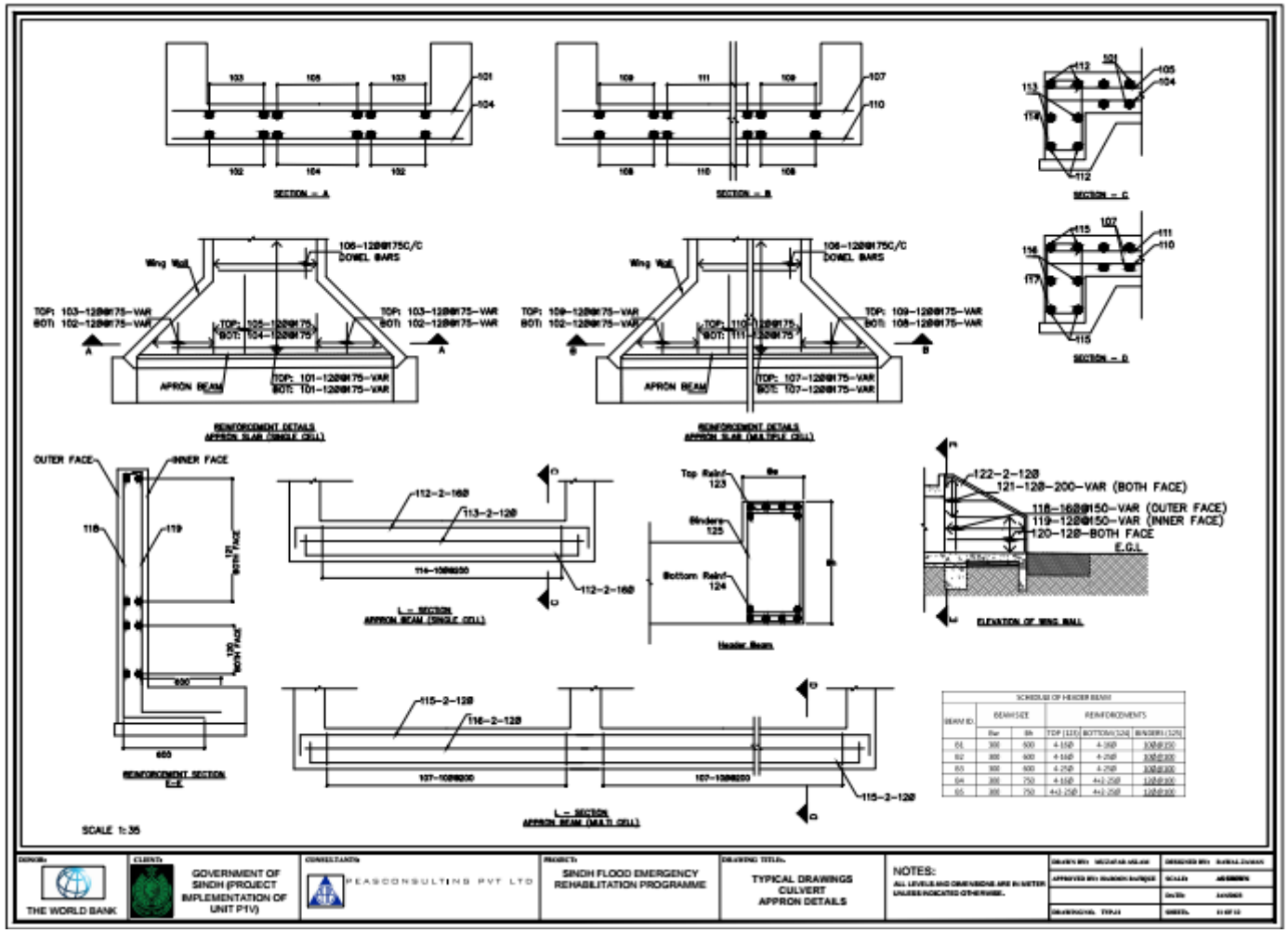
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT P1U)

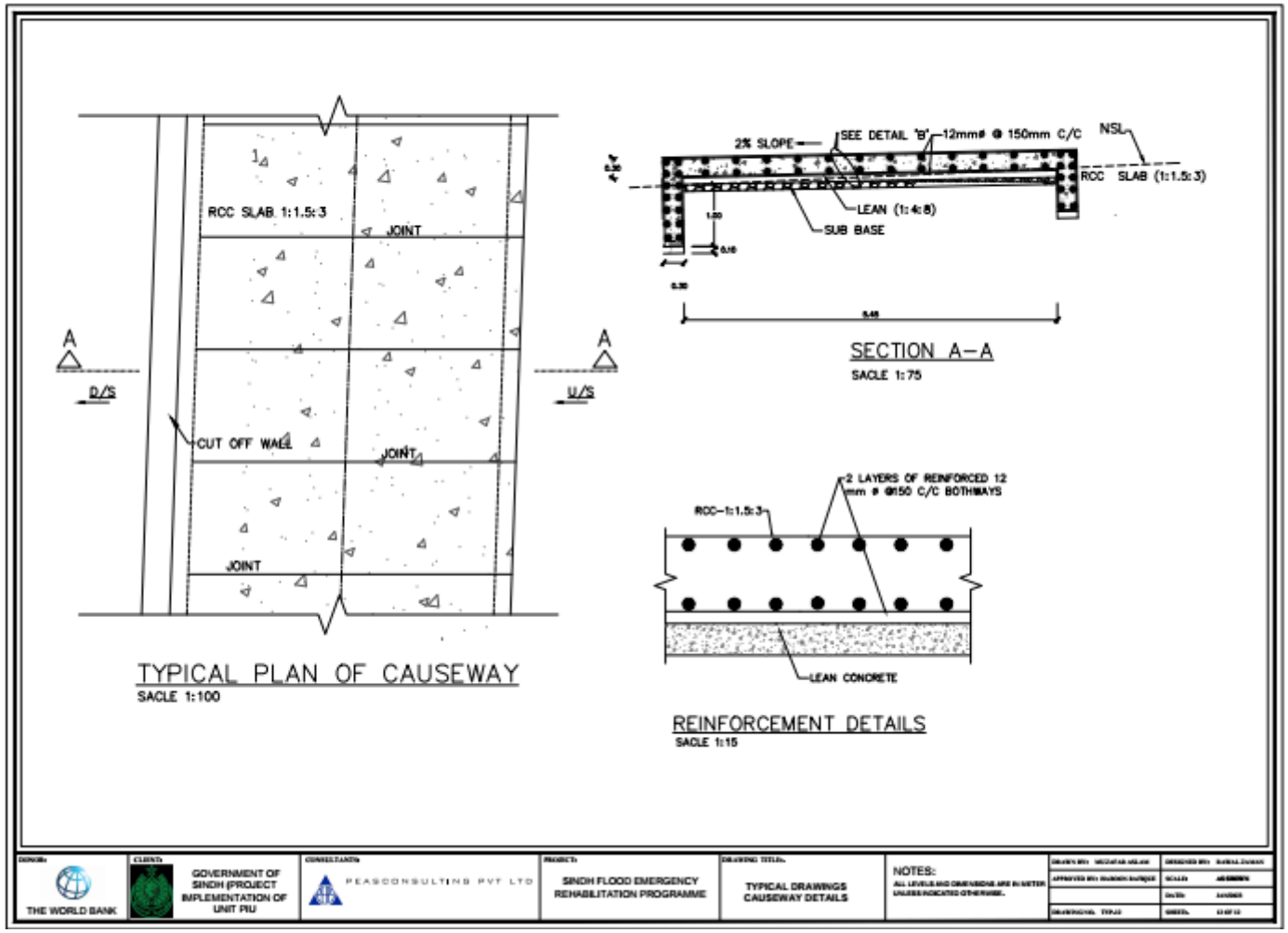
PEASCONSULTING PVT LTD

SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME

TYPICAL DRAWINGS CULVERT REINFORCEMENT DETAILS

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


SECTION – A
SECTION – B
SECTION – C
SECTION – D
REINFORCEMENT DETAILS
APRON SLAB (SINGLE CELL)
REINFORCEMENT DETAILS
APRON SLAB (MULTIPLE CELL)
APRON BEAM
Wing Wall
106–12@@175C/C
DOWEL BARS
OUTER FACE
INNER FACE
REINFORCEMENT SECTION
L – SECTION
APRON BEAM (SINGLE CELL)
L – SECTION
APRON BEAM (MULTI CELL)
Top Reinf.
123
Dividers
125
Bottom Reinf.
124
Header Beam
122–2–12@
121–12@–200–VAR (BOTH FACE)
116–16@@150–VAR (OUTER FACE)
119–12@@150–VAR (INNER FACE)
120–12@–BOTH FACE
E.G.L
ELEVATION OF WING WALL
SCALE 1:35
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU)
THE WORLD BANK
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS
CULVERT
APRON DETAILS
NOTES:


RCC SLAB 1:1.5:3
JOINT
CUT OFF WALL
JOINT
JOINT
A
A
D/S
U/S
TYPICAL PLAN OF CAUSEWAY
SACLE 1:100
2% SLOPE
SEE DETAIL 'B' 12mm# @ 150mm C/C
NSL
RCC SLAB (1:1.5:3)
LEAN (1:4:8)
SUB BASE
SECTION A-A
SACLE 1:75
2 LAYERS OF REINFORCED 12 mm # @150 C/C BOTHWAYS
RCC-1:1.5:3
LEAN CONCRETE
REINFORCEMENT DETAILS
SACLE 1:15
THE WORLD BANK
GOVERNMENT OF SINDH (PROJECT IMPLEMENTATION OF UNIT PIU
PEASCONSULTING PVT LTD
SINDH FLOOD EMERGENCY REHABILITATION PROGRAMME
TYPICAL DRAWINGS CAUSEWAY DETAILS
NOTES:

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

Stage of Contractual Process	Suggested Due Diligence
Before bidding	• 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	• 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	• 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	• 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. Borrower should disclose the approved CESMP. • Supervision Engineers must approve occupational health and safety management plan is approved before contractor is mobilized at site

Annexure IV: 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.

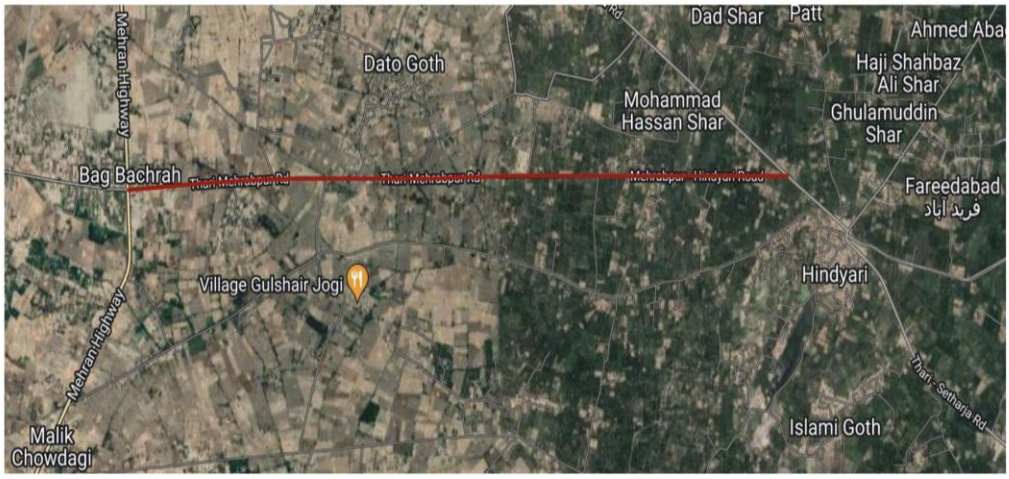
(c) When any heading is inapplicable, enter NIL.

……

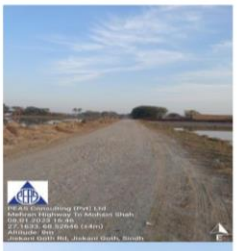
Employer's signature	Witness
……	……
Employee's signature	Witness
……..	……
Date	Date

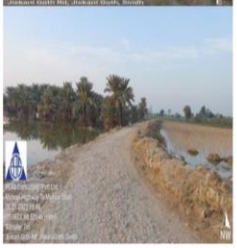
Annexure V: Photolog

Road 01 – Rehabilitation of road from Mehran Highway to Hindyari

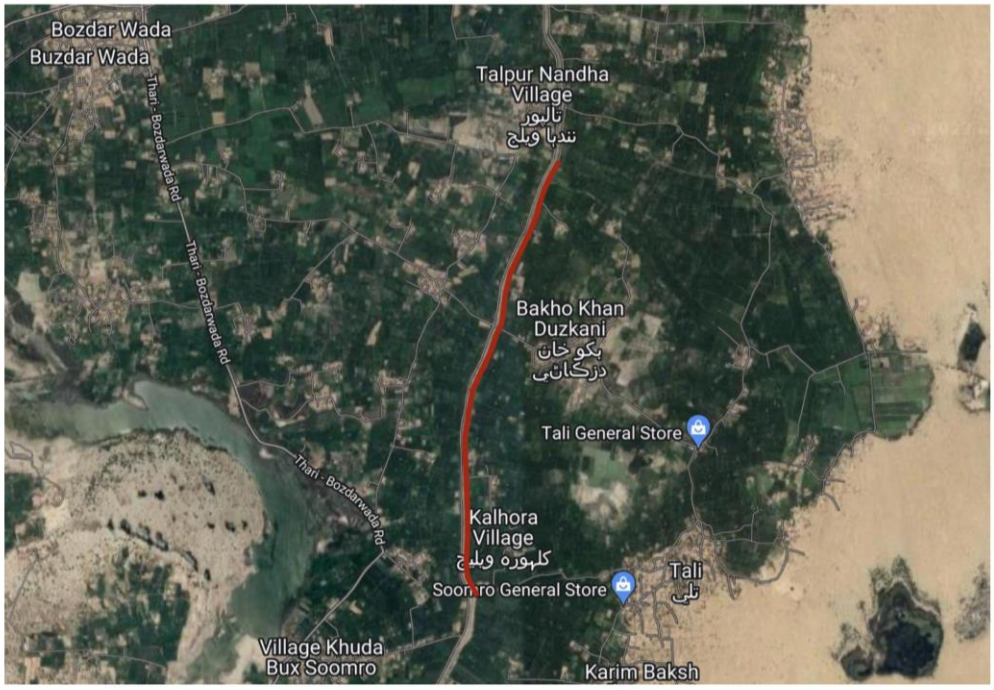


Road 02 – Rehabilitation of road from Mehran highway to Mohsin Shah


Road 03 – Road from Makhdoom Chowk to ustad Jamauddin Kalhoro

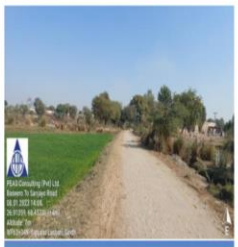


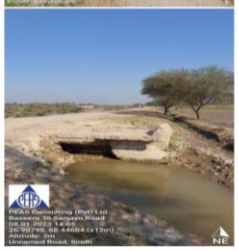


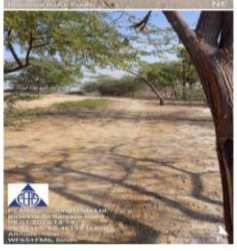



Road 04 – Rehabilitation of road from N.H. Way Bagh Bachra Mehrabpur to Balo jo Kharo

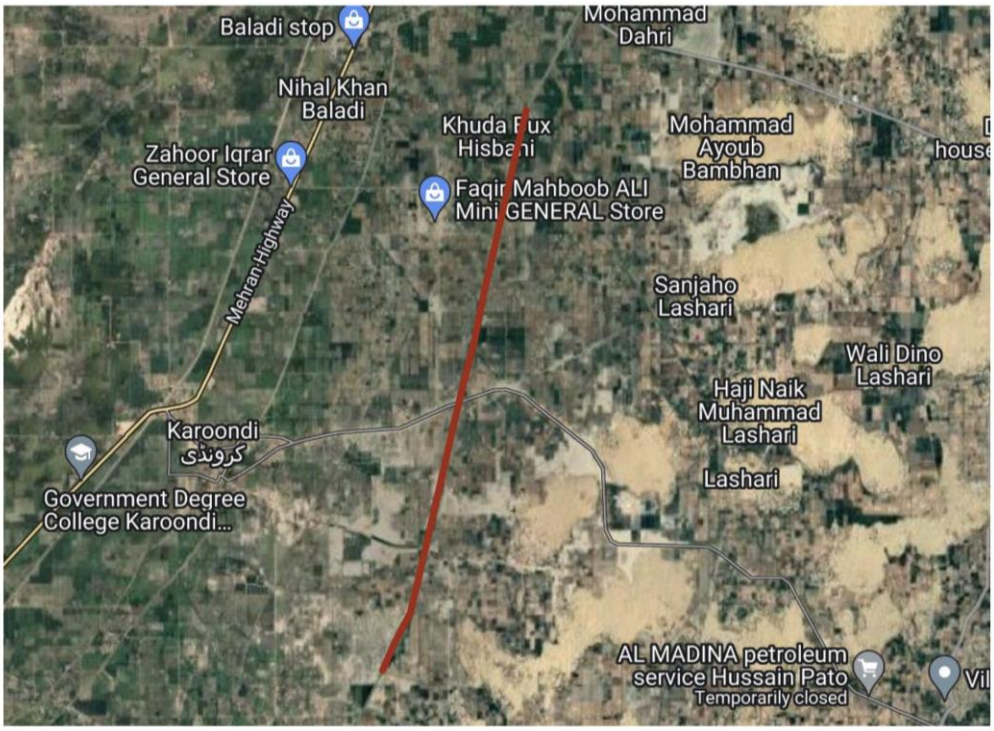
Road 05 – Rehabilitation of road from Baseero to Sanjayo

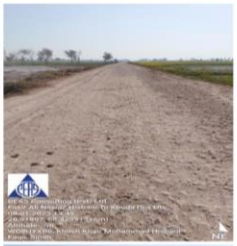




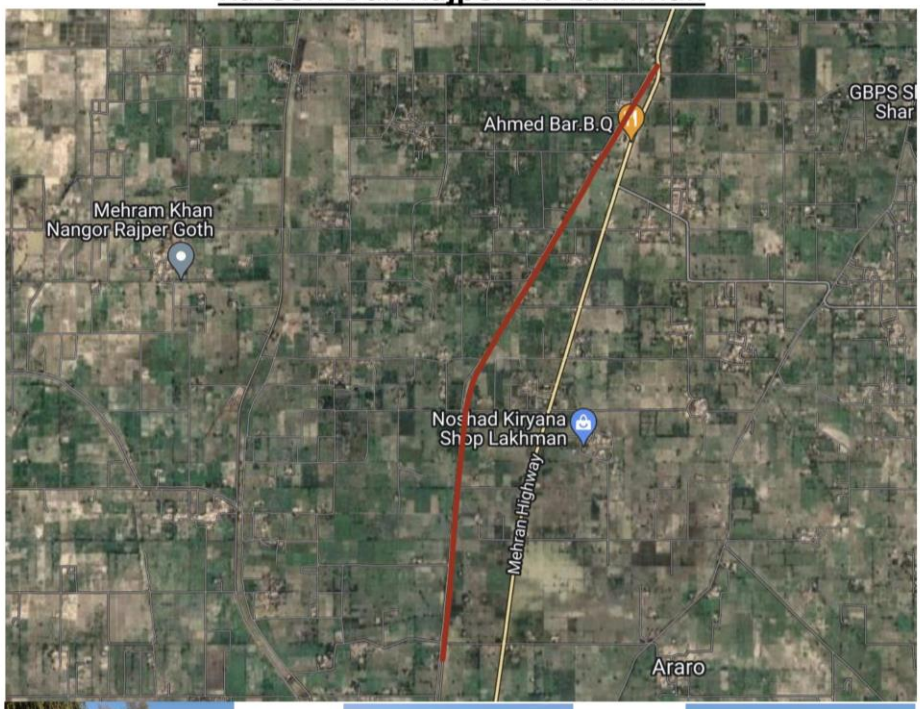
Road 06 – Rehabilitation of road from Fakir Ali Nwaz Hisbani to Khuda Bux Hisbani



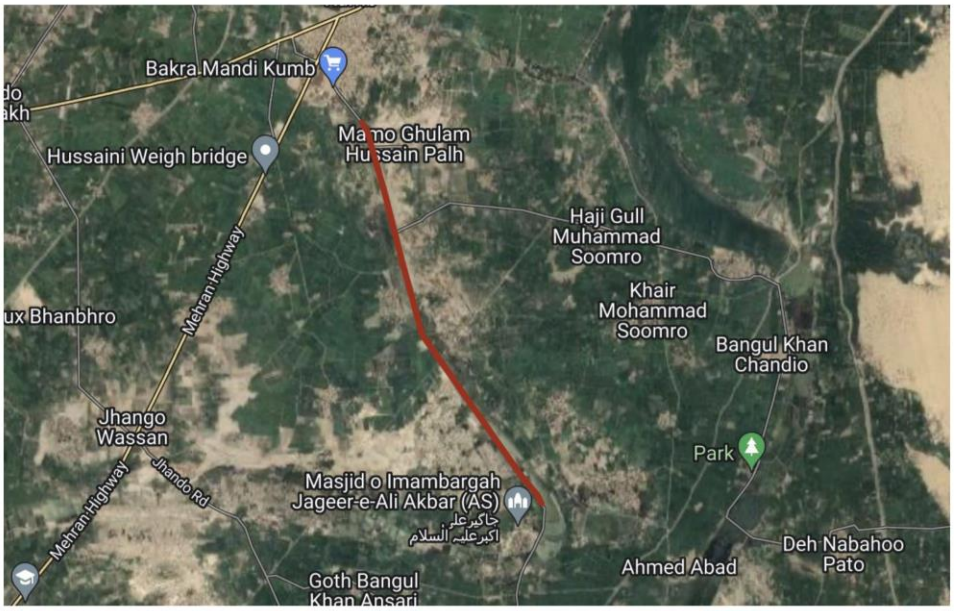





Road 07 – Rehabilitation of road from Mehran Highway to Haji Kareem Bux Rajper via Lakhman

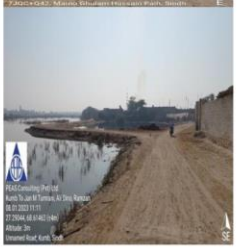


Road 08 – Reconditioning of road from Kumb babar road to village Haji Jan Muhammad Tumrani, Ali Dino Tumrani, Muhammad Ramzan Mehrani & Roshal Palleh

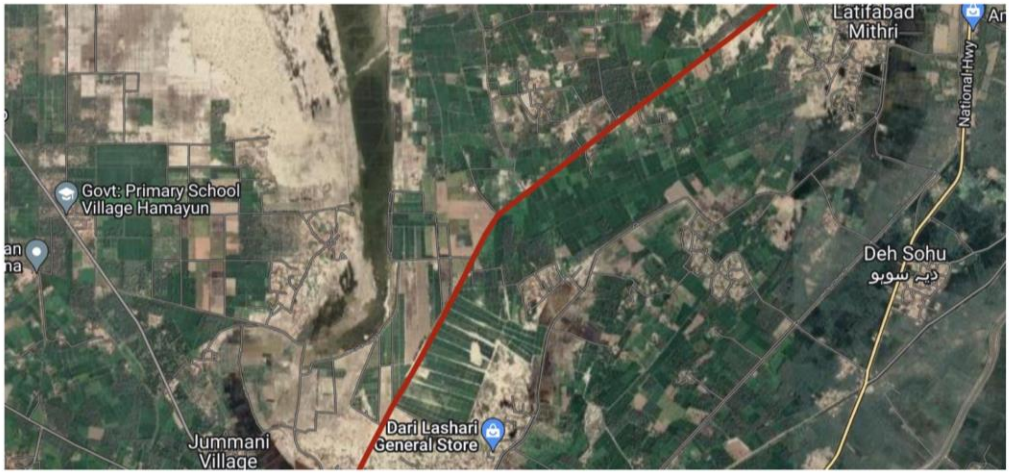









Road 09 – Rehabilitation of road from Mithri to Hussainabad Narodhoro Road

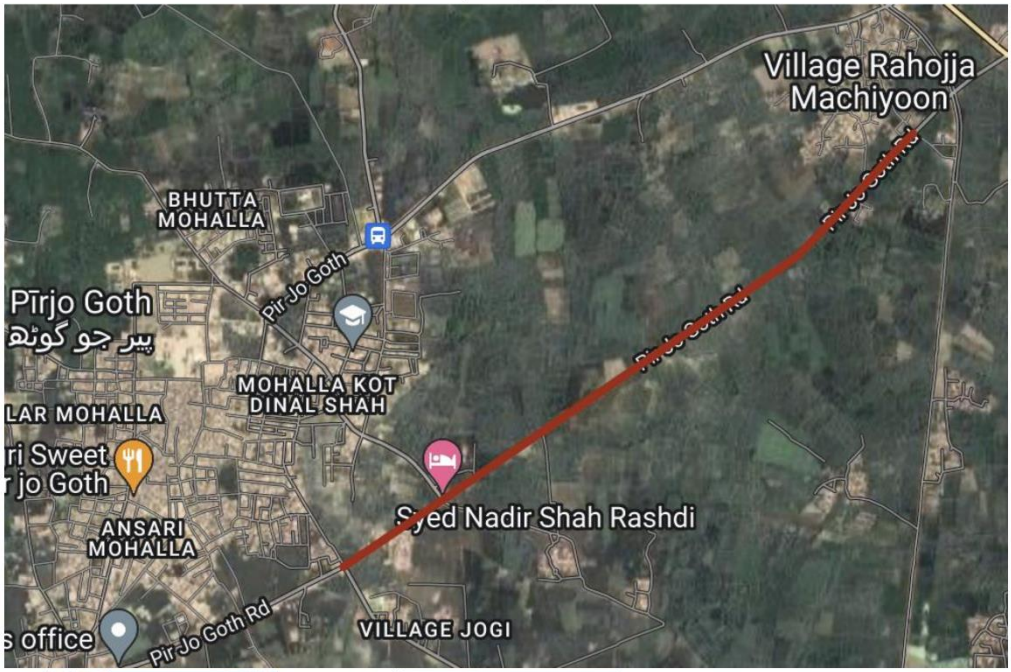


Road 10 – Rehabilitation of road from Kotdiji Tando Masti road to village fateh Ali Lashari via Raheem Bux Lashari





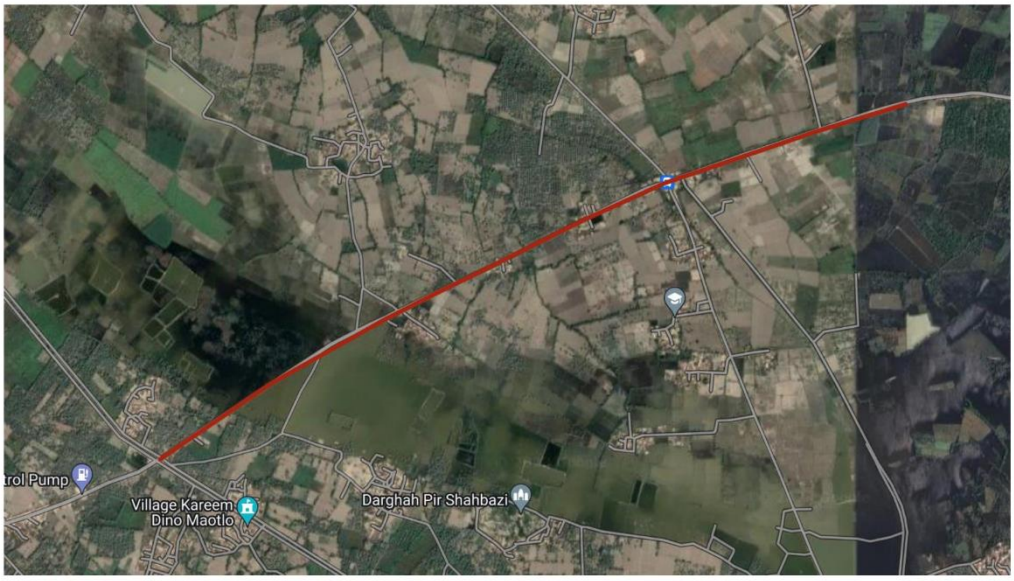

Road 11 – Rehabilitation of road from Pir Jo Goth Old Gate to Kingri








Road 12 – Rehabilitation of road from Ahmedpur Bye Pass Road



Road 13 – Rehabilitation of road from Khairpur Machi Road to pir Jo Goth Bye Pass Road