



DEPARTMENT OF ROADS

Ministry of Public Works and Transport, LAOS

Environmental and Social Management Plan (ESMP) Construction of New Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone Bridge on the NR13S (S3)

National Road 13 South: Implementation Support and Work Supervision
(ISWS) Consultancy Services - Detailed Design for Upgrading of 14 Bridges
(Additional Task under Amendment 2 to the Consultant Contract) LAO PDR
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LEA ASSOCIATES SOUTH ASIA PVT. LTD., *India*

In Joint Venture

PYUNGHWA ENGINEERING CONSULTANTS, *Korea*

in association (as sub-consultant) with

LAO TRANSPORT ENGINEERING CONSULTANT, *Lao PDR*

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ABBREVIATIONS AND ACRONYMS

AF	Additional financing	LFND	Lao Front for National Development
AIB	Asian Infrastructure Investment Bank		
ARAP	Abbreviated Resettlement Action Plan	LRSP-2	Lao Road Sector Project 2
ASEAN	Association of South East Asian Nations	LWU	Lao Women Union
AWPB	Annual Work Plan and Budget	MAF	Ministry of Agriculture and Forestry
BKX	Borikhamxay Province	MCIT	Ministry of Cultural, Information and Tourism
C-ESMP	Contractor-Environment and Social Management Plan	MOH	Ministry of Health
COI	Corridor of impacts	MOF	Ministry of Finance
COC or COC on GBV/VAC	Code of conduct on gender-based violence and violence against children	MONRE	Ministry of Natural Resources and Environment
DCC	Department of Climate Change Management	MPI	Ministry of Public Investment
DMS	Detailed measuring survey	MPWT	Ministry of Public Works and Transport
DNEP	Department of Natural Resources and Environment Policy	NBCA	National Biodiversity Conservation Areas
DOF	Department of Forest	NGOs	None Government Organizations
DONRE	District Office of Natural Resources and Environment	PA	Protected Areas (national, provincial, and district)
DOR	Department of Roads	PFA	Protection Forest Area (national, provincial, and district)
DOT	Department of Transport	NR	National Road
DPI	Department of Planning and Investment	NTFP	None Timber Forest Products
DPWT	Provincial Department of Public Works and Transport	NR13S	Improvement & Maintenance of NR13 South Project from Km71 to Km 346
DRC	District Resettlement Committee	OP/BP	Operation Policy/Bank Procedure
EA	Environmental Assessment	OPBRC	Output- and Performance-Based Road Contract
ECC	Environmental Compliance Certificate	OPWT	District Office of Public Works and Transport
ES COP	Environmental and Social Code of Practice	ODX	Oudomxay Province
EDPD/ PTI	Environmental and Disaster Prevention Division of PTI	O&M	Operations and maintenance
EG	Ethnic Groups	S3	Section 3
EGEF	Ethnic Groups Engagement Framework	PBC	Performance-based contract
EGEP	Ethnic Groups Engagement Plan	PCR	Physical Culture Resources

ESHS	Environmental and Social Health and Safety	PONRE	Provincial Office of Natural Resources and Environment
EHS	Environmental Health and Safety Guideline	PMU	Project management unit
EIB	European Investment Bank	PRC	Provincial Resettlement Committee
ESMF	Environmental and Social Management Framework	PTI	Public Works and Transport Research Institute
ESMP	Environmental and Social Management Plan	RAP	Resettlement Action Plan
EIA	Environment Impact Assessment	RMF	Road Maintenance Fund
ESIA	Environmental and Social Impacts Assessment	RMS	Road Management System
ESS	Environmental and Social Safeguards	ROW	Right of ways
ESU	Environmental and Social Unit of DPWT	RPF	Resettlement Policy Framework
GOL	Government of Lao People's Democratic Republic	SA	Social Assessment
GCLS	Grievance and Complaints Logging System	SS-ESMP	Site specific-ESMP
GRC	Grievance Redress Committee	SIA	Social Impact Assessment
GRM	Grievance Redress Mechanism	SOP	Standard operating procedures
GRMS	Grievance Redress Mechanism Services	TA	Technical assistance
IDA	International Development Association	TOR	Terms of Reference
IEE	Initial Environmental Examination	UNCBD	United Nations Convention on Biological Diversity
INDC	Intended Nationally Determined Contribution	UXO	Unexploded Ordnance
IUCN	International Union for Conservation of Nature and Natural Resources	VRC	Village Resettlement Committee
KM	Khammouane province	WB	World Bank
KM	Kilometer number	WBG	World Bank Group
Km	Kilometers		
MWG	Monitoring working group		

EXECUTIVE SUMMARY

Introduction

The Government of Lao PDR (GOL) has prepared this Environmental and Social Management Plan (ESMP) for the Construction of four new Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges located on the National Road 13 South under Section 3 to be financed by Asian Infrastructure Investment Bank (AIIB) in order to address the potentially adverse environmental and social impacts that may be caused by the proposed project

Project Background

The National Road 13 is the most important highway in Lao PDR, connecting Laos with China in the North and Cambodia in the South, for a total length of 1,500 kilometers (km). The National Road No. 13 South starts from Vientiane Capital to Southern part of Lao PDR ends at Cambodia border. The NR13 South links with other projects of land transport modes, including the expressway project (called Vientiane Hanoi Expressway), and also connects to others east-west corridors and International Mekong Bridges namely NR8 (AH15), NR12 (AH131), Third Mekong Friendship Bridge (Thakhek – Nakhon Phanom), Fifth Mekong Friendship Bridge (Paksane “Laos” – Bueng Kan “Thailand”).

The Government of Lao PDR (GOL) through the Ministry of Public Works and Transport (MPWT) and with assistance from the WB (through IDA), the European Investment Bank (EIB) and the Asian Infrastructure Investment Bank (AIIB) is implementing a project namely Improvement and Maintenance of National Road 13 South (NR13S) from KM71 to KM346 (called in this document as the Project Road, the Project, or NR13S). GOL budget will be provided through the Road Maintenance Fund (RMF). The Project Road is divided into 4 improvement and maintenance contracts.

Presently the improvement works are undergoing to address road capacity constraints, climate resilience, quality, and road safety by OPBRC-DBMOT contract. The implementation of OPBRC-DBMOT Projects will help MPWT to follow objectives like maintaining the roads in an acceptable condition, reduce user costs, improve road safety, ensure efficient utilization of investments, and assist in the development of the local road construction industry. The National Road 13 (NR13) is the most important transport corridor in Lao PDR in terms of both domestic and regional connectivity and its upgrade, rehabilitation and maintenance could result in significant benefits for the country.

The widening of the existing bridges was not considered in the detailed design. Existing roads are getting strengthened and widened; whereas the existing bridges with narrow width will remain same. These are potential blackspots, risking traffic safety, along the Project Corridor. To mitigate this permanent hindrances Ministry of Public Works and Transport (Department of Roads) has decided to conduct Detailed Design of selected fourteen (14) existing bridges located in all the Four Sections of Bolikhamxay and Khammouane Provinces. The four bridges: Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges are located under Section 3 financed by the AIIB.

Key Objective of ESMP

The key aim of this document is to provide details of the environmental and social commitments, management and monitoring requirements that will need to be carried out by the MPWT/DOR and its contractors through the life of the project in order to achieve the following objectives:

- Strive to prevent or mitigate potentially adverse environmental or social impacts that may result from Project implementation;
- To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment;
- Maximize beneficial impacts and minimize unavoidable negative impacts to an acceptable level for the receiving environment and communities;
- Meet environmental and social commitments and measures as well as relevant policies and environmental management systems; and
- Comply with national legislation as well as AIIB Environmental and Social Policy (ESP) and Standards.

Project Description

The construction of new Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges is located on the NR13 South Project, under the Section 3 financed by the Asian Infrastructure Investment Bank (AIIB). All four bridges are located in Pakkading District, Bolikhamxay Province. The Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone Bridge are located in Phonchaleun Village at KM204 (+000), Nakheua Village at KM217 (+600), Namsang Village at KM231 (+200) and Namthone Village at KM239 (+085) respectively. These new bridges will be built with new alignments in parallel with existing bridges in which all four bridges are positioned on the upstream side (left hand side from Vientaine to Thakak) of existing bridges. These four bridges expect to be financed by AIIB. Figure 2.1 shows location of the proposed project bridges.

Mainly, the proposed design of the bridges is based on the TOR and referred Road Design Manual of the Ministry of Public Work and Transport officially issued in August 2018 and the AASHTO-LRFD Bridge Design Specifications. The bridges materials, superstructure components, substructure and foundation components, bridge loading and highway parameters are followed the relevant AASHTO LRFD Bridge Design Specifications/Road Design Manual or any other recognized international codes/specifications and good engineering practice.

The initial proposal of new Houay Xambounnyai, Houay Deua, Nam Sang and Nam Thone Bridge each has a proposed total length (spans) of 25.4 m, 60.90 m, 20.3 m and 78.40 m respectively with suitable option for total deck width of 10.8 m which consists of 8m Carriageway width, 0.5m of crash barrier on both side of the bridge, 0.3m railing, and 1.5m footpath, which is both railing and footpath are on the opposite side of the existing bridge. Other core design of bridges include bridge type, bridge foundation, span, superstructure, substructure and loading capability is discussed in depth in the detail design report.

The proposed features/components of the bridges include drainage spout that will be designed as open drainage system to allow the free fall of water; since all the proposed bridges are crossing

the river and to separate the speeding vehicular traffic and the pedestrians, reinforced concrete solid crash barrier is proposed between the carriageway and footpath. Other proposed features of the bridge are inspection platform and seismic/concrete arrester. Although the seismic intensity of this zone is relatively low but proposed feature will provide the concrete arrester in transverse direction for additional safety and also help the superstructure to be in position in the event of unnatural flooding conditions.

Implementation Arrangements

In line with the existing NR13S implementation arrangement, DOR through the Project Management Unit (PMU) and the Project Implementation Unit (PIU) are responsible for ensuring effective and timely oversee and/or facilitate the implementation of ESMP and ARAP and submit monitoring reports periodically to AIIB and while EDPD/PTI is responsible for providing technical guidance to PMU/DOR and PIUs/DPWTs on the implementation and compliance monitoring of the approved ESMP and ARAP by AIIB including training, capacity building, and management of the ESMP budget. EDPD/PTI will conduct 6-month monitoring of ESS compliance and submit a report to AIIB. EDPD/PTI will also ensure that the Project is also in compliance with GOL requirements regarding ESS. The proposed four bridges are part of the existing NR13S project (Section 3 financed by AIIB), thus the ECC conditions of the NR13S will be applied for the construction of the four new Nam Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges. The SMWG will be chaired by DPWT of BKX and comprise representatives from key agencies responsible for ensuring compliance with GOL regulations during construction including key local communities to affected during construction and those to be involved during operations phase.

The Implementation Support and Monitoring Consultant (ISMC) and/or Field Engineers responsible for supervision and monitoring of works contracts will also be responsible for approval of the Contractor Environmental and Social Management Plan (C-ESMP) and day-to-day supervision and monitoring of contractor compliance with the C-ESMP during the implementation of the Project including ensuring full compliance with the ESS measures as required by the AIIB and GOL.

Overall Impacts

While the existing Project Road NR13 South is getting improved and widened, the existing bridges with narrow width will remain the same in most of the locations except in three locations where new bridges will built in parallel with the existing bridges. The implementation of these bridges will help to reduce travel hazard, to mitigate the problem of narrow bridges in an upgraded and widened road network and to promote shared prosperity of the area overtime.

Despite overall positive impacts (as mentioned above), implementation of the Project could cause negative impacts on local environment and some specific groups of local people during preconstruction, construction, and operation stage of the proposed structures four new Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges in pararell with the existing bridges. However, given the nature and locations of the proposed works, the potential E&S risks and impacts during construction will be localized, temporary, and can be mitigated through effective ESMP implementation. The overall E&S risks are considered “moderate”. Attention

will be given to addressing effectively potential E&S risks and impacts at locations of public concerns, such as land acquisition and disturbance to nearby residents and businesses and community safety (community area, school, and temples) water quality, sedimentation, and aquatic resources, impacts to natural vegetation/trees, short-term and long terms bank erosion, as well as the safety and other disturbance along the transportation routes (road and waterways) to and from the borrow-pits, spoil disposal sites, quarry sites, and the construction areas.

Negative environmental impacts during the construction phase are likely to include noise, dust and air emissions, disposal of solid and hazardous wastes, water contamination, siltation of water bodies, blockage of drainage, soil erosion and contamination, and removal of vegetation, caused by various construction activities, batching and asphalt plants, contraction camps, heavy machinery use, and site management issues related to influx of workers (e.g. hygiene and sanitation, community health and safety), traffic disruption and traffic safety during construction, and occupational health and safety (OHS) risks for the construction workers. Similarly, air and noise emissions due to increased traffic flows, waste generation from road users, traffic safety, and OHS risks for workers are the potential environmental impacts during the O&M phase. Pollution may also be induced by road incidents or accidents during both construction and O&M phases. Given that the Project is going through the catchment of Mekong River and several of its first order tributaries, special attention will be paid to impacts on surface water during both construction and O&M phases. These impacts are likely to be site-specific and limited to the Project areas and surroundings.

Adverse social risks and impacts during the construction phase include temporary business disruption due to land closure or restricted access, temporary restriction of access to houses, shops, temples and graves, temporary disruption of the water and electricity supplies, impacts on schools and healthcare facilities, in terms of noise and vibration, safety and access, potential labour influx and the conduct of road workers during construction, and health and safety issues for the communities along the road. The negative social impacts and risks during the operation and maintenance phase are mostly associated with noise and road accidents.

The present ESMP includes measures to address the above impacts, including a chance finds procedure for archaeological, historical and sacred sites. The ESMP also includes monitoring and reporting requirements, capacity building needs, and stakeholder consultation details.

In addition to ESMP, an ARAP as standalone documents has been prepared to address the involuntary resettlement impacts of the proposed Project.

ESMP Implementation Budget

The ESMP implementation cost will be part of the Project cost. It comprises (a) cost for preparation and implementation of the mitigation measures during road rehabilitation and maintenance (C-ESMP) which will be part of the Project construction cost; (b) cost of land acquisition and/or compensation of assets or relocations (if any); (c) cost of UXO clearance (if required); (d) cost for monitoring and reporting; (e) cost for capacity building and implementation of GRM; (f) cost for PTI consultants and (g) other miscellaneous cost. At present, it has been agreed that the cost for (a) will be incorporated into the works contract cost while the cost for (b) and (c) will be part of GOL cost (RMF). Costs for (d), (e) and (f) have

been allocated as part of ESMP implementation for the on-going NR13S responsible by EDPD/PTI and partially by the CSC and the contractor.

1. INTRODUCTION

1. The Government of Lao PDR (GOL) has prepared this Environmental and Social Management Plan (ESMP) for the Construction of four new Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges located on the National Road 13 South under Section 3 to be financed by the Asian Infrastructure Investment Bank (AIIB) in order to address the potentially adverse environmental and social impacts that may be caused by the proposed project.

2. This ESMP is prepared to be applied under project to manage and mitigate potential environmental and social impacts and risks associated the project works in line with ESMF. The ESMP describes (1) project background; (2) brief description of the four bridges; (3) the AIIB Environmental and Social Policy and GOL legal requirements are to be applied; (4) the general environment and social conditions of the province; (5) the potential negative impacts and mitigation measures; (6) community engagement; (7) grievance redress mechanism (GRM); (8) monitoring arrangement; and ESMP implementation and budget. The ESMP also includes 8 attachments covering:

- Attachment 1: Summary of GOL’s Applicable Regulations
- Attachment 2: Photos of Existing Bridges and E&S Maps
- Attachment 3: Key Issues and Mitigation Measures to be included in the C-ESMP
- Attachment 4: Generic Environment and Social Code of Practices (ESOP)
- Attachment 5: Project Code of Conduct (CoC) on Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH), AND Violence Against Children (VAC)
- Attachment 6: Accident Reporting Procedure and Form
- Attachment 7: Sample Form of Grievance Redress Mechanism Monitoring
- Attachment 8: Contingency Planning for Response to COVID-19

1.1 Project Background

3. The National Road 13 is the most important highway in Lao PDR, connecting Laos with China in the North and Cambodia in the South, for a total length of 1,500 kilometers (km). The National Road No. 13 South starts from Vientiane Capital to Southern part of Lao PDR ends at Cambodia border. The NR13 South links with other projects of land transport modes, including the expressway project (called Vientiane Hanoi Expressway), and also connects to others east-west corridors and International Mekong Bridges namely NR8 (AH15), NR12 (AH131), Third Mekong Friendship Bridge (Thakhek – Nakhon Phanom), Fifth Mekong Friendship Bridge (Paksane “Laos” – Bueng Kan “Thailand”).

4. The Government of Lao PDR (GOL) through the Ministry of Public Works and Transport (MPWT) and with assistance from the WB (through IDA) the European Investment Bank (EIB) and the Asian Infrastructure Investment Bank (AIIB) is implementing a project namely Improvement and Maintenance of National Road 13 South (NR13S) from KM71 to KM346 (called in this document as the Project Road, the Project, or NR13S). GOL budget will be provided through the Road Maintenance Fund (RMF). The Project Road is divided into 4 improvement and maintenance contracts with specific financing by IDA (about \$25M), EIB (about \$35M), and AIIB (about \$30M) while RMF will provide counterpart fund (about \$18M). This Project is approved by IDA as the additional fund (AF) of the second Lao Road Sector

Project (LRSP2-AF) (See Table 1-1 below). A supervision consultant, called the Implementation Support and Works Supervision (ISWS) consultant, responsible for overseeing these works contracts is financed by IDA.

Table 1-1 List of 4 Section

Section No.	From KM to KM	Length (KM)	In the Area of Province
S1	KM 71.30 to KM 111	39.7	Bolikhamxay
S2	KM 111 to KM 190	79	Bolikhamxay
S3	KM 190 to KM 268	78	Bolikhamxay and Khammouane
S4	KM 268 to KM 346	78	Khammouane

5. Presently the improvement works are undergoing to address road capacity constraints, climate resilience, quality, and road safety by OPBRC-DBMOT contract. The implementation of OPBRC-DBMOT Projects will help MPWT to follow objectives like maintaining the roads in an acceptable condition, reduce user costs, improve road safety, ensure efficient utilization of investments, and assist in the development of the local road construction industry. The National Road 13 (NR13) is the most important transport corridor in Lao PDR in terms of both domestic and regional connectivity and its upgrade, rehabilitation and maintenance could result in significant benefits for the country.

6. The widening of the existing bridges was not considered in the detailed design. Existing roads are getting strengthened and widened; whereas the existing bridges with narrow width will remain same. These are potential blackspots, risking traffic safety, along the Project Corridor. To mitigate this permanent hindrances Ministry of Public Works and Transport (Department of Roads) has decided to conduct Detailed Design of selected fourteen (14) existing bridges located in all the Four Sections of Bolikhamxay and Khammouane Provinces. The four new bridges: Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges (See Figure 2-1) are located under Section 3 financed by the AIIB.

1.2 Project Implementation

7. The Department of Roads (DOR), under MPWT, is responsible for implementation of this Project including overall technical oversight, execution, and management of the Project and has appointed a dedicated team (Project Management Unit - PMU) to be responsible for the day to-day implementation, and operation of the project, including contracting and supervision of all consultants. The Environment Research and Natural Disaster Prevention Division (EDPD) of the Public Works and Transport Institute (PTI) under MPWT is responsible for monitoring and supervision of environmental and social safeguards (ESS) and providing technical assistance and capacity building.

8. As part of the LRSP2-AF, to avoid and mitigate the potential negative impacts of the works during construction and maintenance services, an Environment and Social Management Framework (ESMF), an Ethnic Group Engagement Framework (EGEF), and a Resettlement Policy Framework (RPF) were prepared and approved by the EIB and they were publicly disclosed. The ESMF calls for preparation of an Environment and Social Management Plan (ESMP) while the EGEF requires preparation of an Ethnic Group Engagement Plan (EGEP) if

ethnic group minority are present with collective attachment to the project area and the RPF requires for preparation of an Abbreviated Resettlement Action Plan or Resettlement Action Plan (ARAP) when land acquisition and/or relocation is involved. More details are provided in Section 3 and Attachment 1.

1.3 Purpose of this Document

9. The key aim of this document is to provide details of the environmental and social commitments, management and monitoring requirements that will need to be carried out by the MPWT/DOR and its contractors through the life of the project in order to achieve the following objectives:

- Strive to prevent or mitigate potentially adverse environmental or social impacts that may result from Project implementation;
- To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment;
- Maximize beneficial impacts and minimize unavoidable negative impacts to an acceptable level for the receiving environment and communities;
- Meet environmental and social commitments and measures as well as relevant policies and environmental management systems; and
- Comply with national legislation as well as AIIB Environmental and Social Policy (ESP) and Standards.

2. PROJECT DESCRIPTION

2.1 Project Location

10. The constructions of new Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges are located on the NR13 South Project, under the Section 3 financed by the Asian Infrastructure Investment Bank (AIIB). The Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone Bridge are located in Phonchaleun Village at KM204 (+000), Nakheua Village at KM217 (+600), Namsang Village at KM231 (+200) and Namthone Village at KM239 (+085) respectively. All bridges in this Section are in Pakkading District, Bolikhamxay Province. These new bridges will be in parallel with the existing bridge's alignments and all four new bridges are positioned on the upstream side of the existing bridges. These four bridges expect to be financed by AIIB. Figure 2.1 shows location of the proposed project bridges.

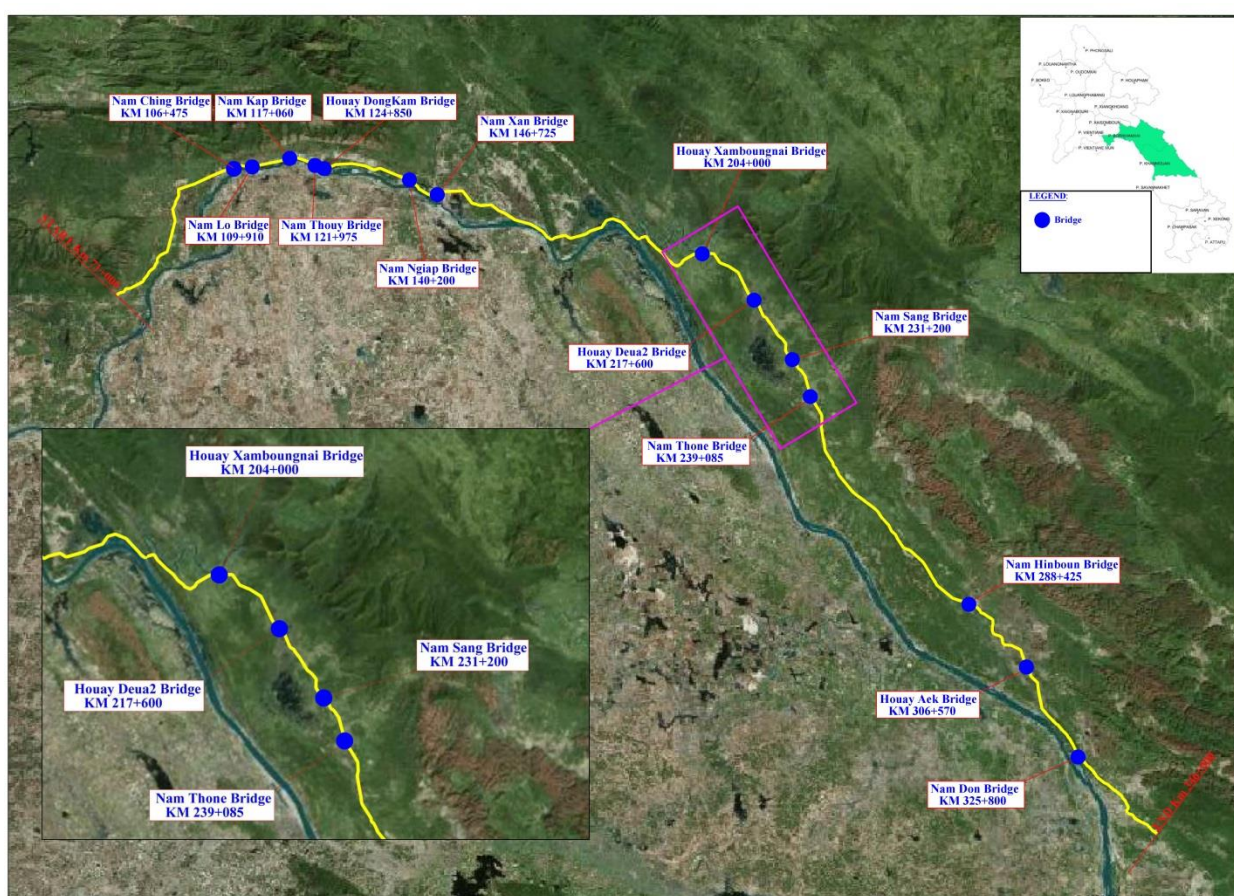


Figure 2-1: Project Location

2.2 Environmental Setting and Condition of Existing Bridges

11. The proposed construction of new Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridges of the NR13S are located in a flat and low-lying zone (called Makong Plain) between the Mekong River and the mountains of the road corridor. They will be in parallel with the existing bridges as will be described in the following.

12. *The existing Houay Xambounnyai Bridge* is located at KM204 (+000) with GPS coordinates (2023646N 405879E) in Phonchaleun Village, Pakkading District, Bolikhamxay Province (Figure 2-1 and 2.2). The bridge is a Steel Composite Girder type with single span and

pile foundation. The length of the bridge is 25.4m long and 7m roadway width, which built in 1994. According to site observation, the expansion joints of the bridge are filled up with overlay. Current bridge has footpath of about 0.45m on both sides. There is a curve on both side of the road before and after approaching the bridge. Slope protection has damaged intermittently on both sides of the bridge. Overall condition of the bridge is good. There are large communities present on both the sides of the bridge with a nearest housing structure about 30m from the bridge. Due to the geometric factor of the road, the proposed upstream side (left hand side) of the alignment is most feasible for heading the right hand side curve. There is no temple, school or market nearby; however, there are two health care centers in the village with a distance of 1.5km and 1.6km to the bridge. See photos of the bridge and surrounding environment and map of schools / health centers / temples in the Attachment 2A (2A-1 and 2A-6).

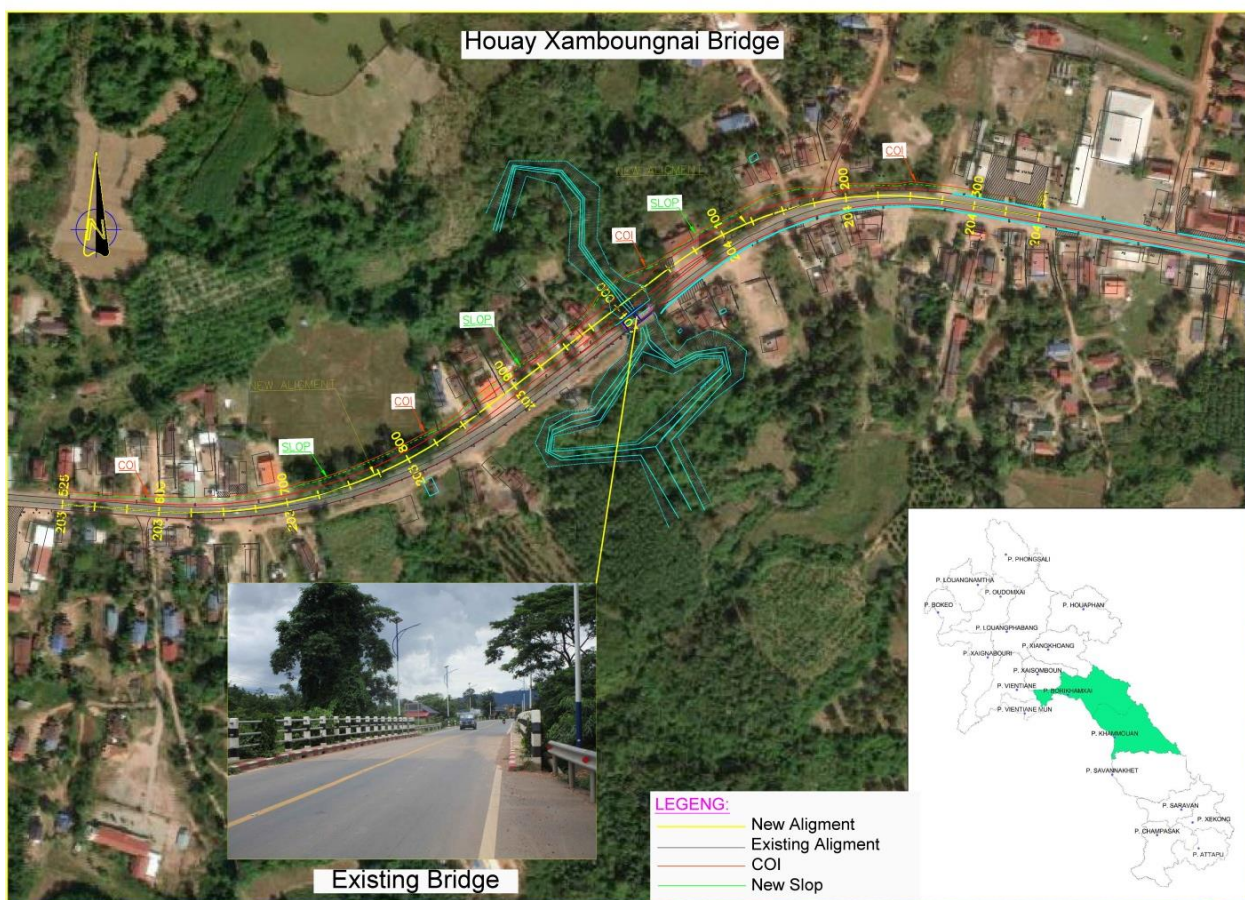


Figure 2-2: Existing Houay Xambounnyai Bridge

13. **The existing Houay Deua2 Bridge** is located in KM217 (+600) at GPS coordinates (2015187N 415192E) in Nakheua Village, Pakkading District, Bolikhamxay Province (Figure 2.1 and 2.3). The bridge is a Steel Composite Girder type with 3 spans and pile foundation. The dimension is 60.90m long and 7m wide. This bridge was built in 1994. Vibration occurred in the bridge during traffic movement and expansion joints are also filled up with overlay. There are large communities observed on the downstream side of the bridge than the upstream; however, there is a village administration building present on the upstream side of the bridge. The river also spreading on the downstream side of the existing bridge. Thus, upstream side alignment is the most feasible for geometric, social, environmental and economic point of view. There is a school nearby the bridge with a distance approximately 200m from the bridge. Refers to Attachment 2A (2A-3 and 2A-6) for photos and map.

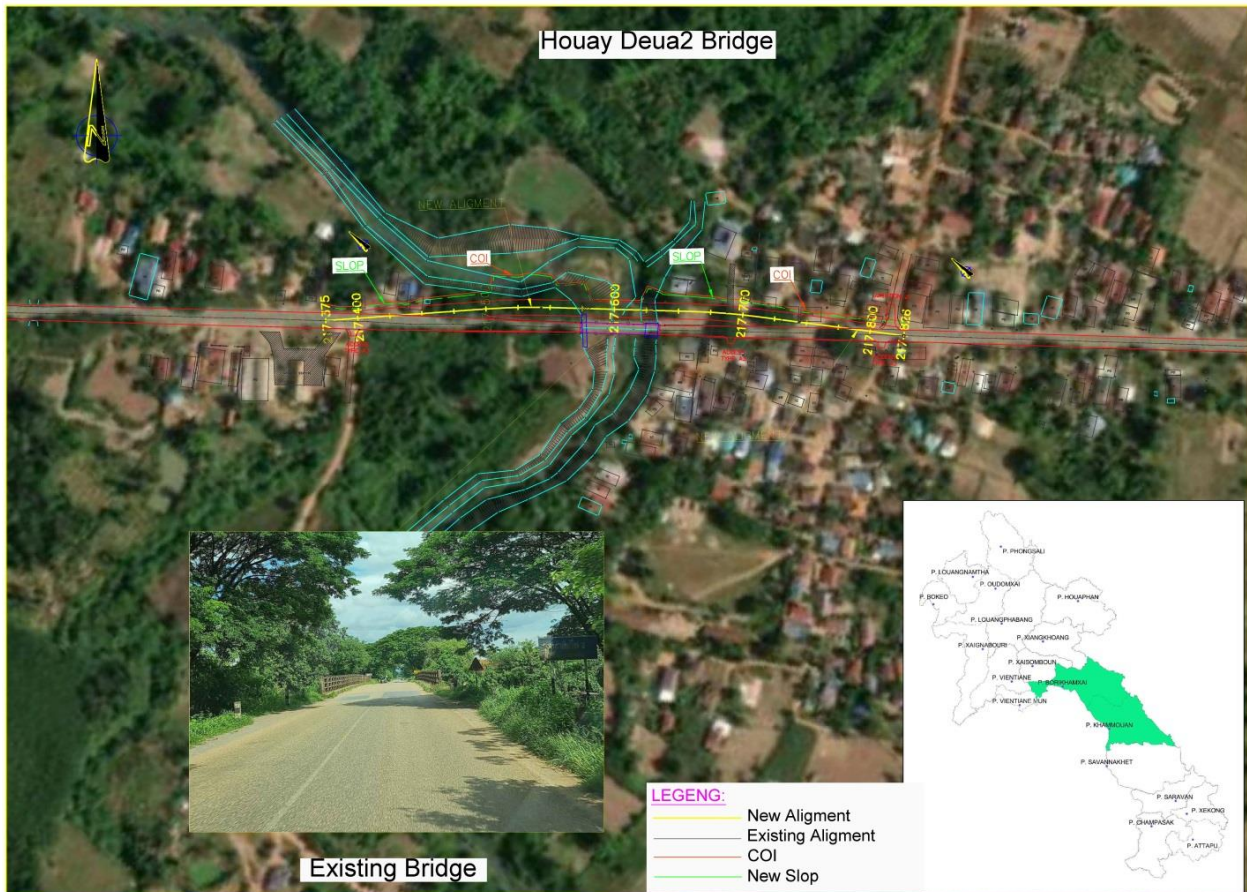


Figure 2-3: Existing Houay Deua2 Bridge

14. *The existing Nam Sang Bridge* is located at KM231 (+200) with GPS coordinates (2004364N 422448E) in Namsang Village, Pakkading District, Bolikhamxay Province (Figure 2.1, 2.4). The bridge is a Steel Composite Girder type with single span and pile foundation. The bridge is 20.3m long and 7m wide. This bridge was built in 1994. Minor crack is present on deck slab and protection works are in moderate conditions. There is more communities and also a village administration office present on the downstream side of the existing bridge. There is one cross road observed on the upstream side. It has been decided that the proposed bridge alignment will be on upstream (LHS) side due to large settlements on the opposite side. The distance from the bridge to the nearest cemetery is about 800m and there is no school or temple nearby the bridge. See photos and map in Attachment 2A (2A-3 and 2A-6).

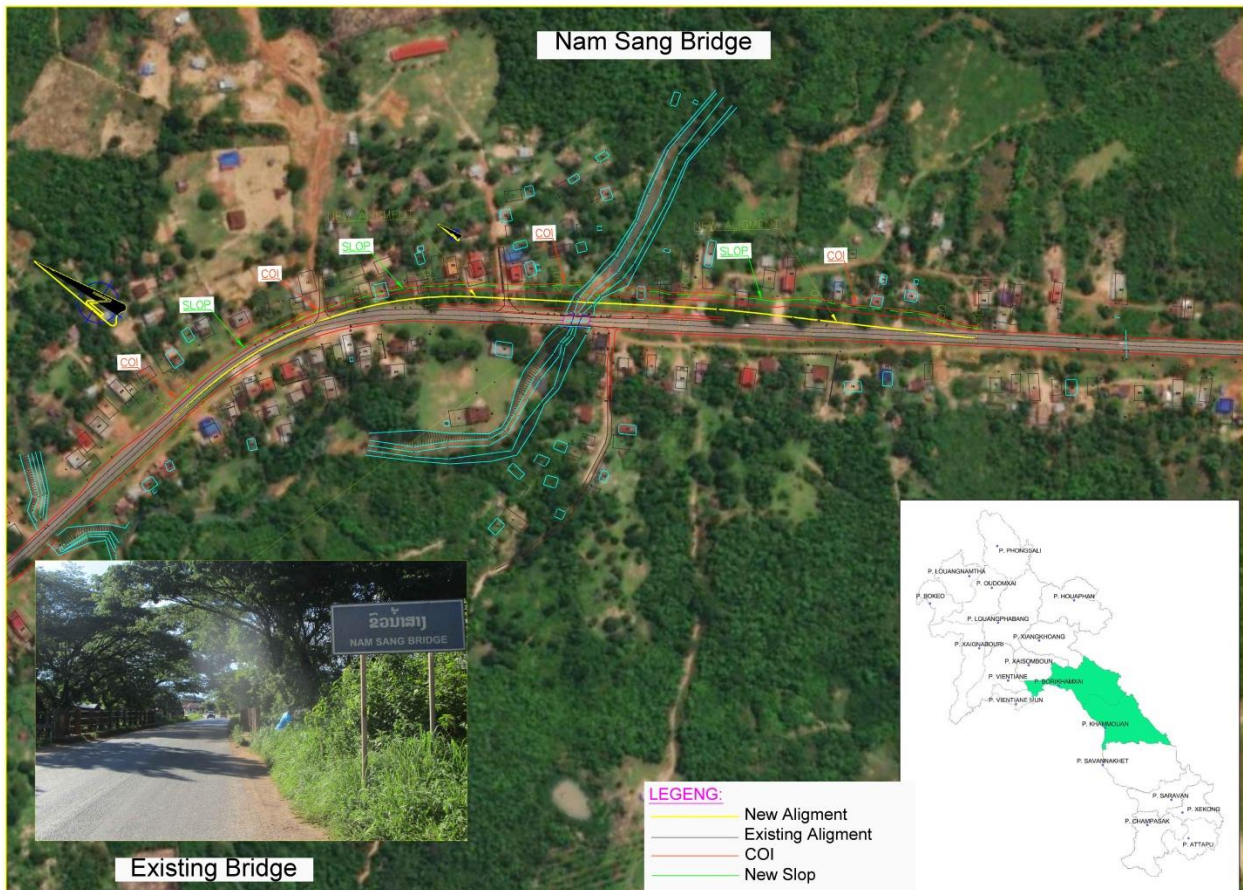


Figure 2-4: Existing Nam Sang Bridge

15. *The existing Nam Thone Bridge* is located at KM239 (+085) with GPS coordinates (1997459N 425903E) in Namthone Village, Pakkading District, Bolikhamxay Province (Figure 2.1, 2.4). The bridge is a PSC I-Girder type with 3 spans and pile foundation. The bridge is 78.40m long and 7m wide. This bridge was built in 1995. Few exposed reinforcement has been found on deck slab. It observed that the road has little curve on Vientiane side and the river also taken turn on both upstream and downstream sides of the bridge. Communities are mainly on right hand side (on Vientiane side). One existing bridge foundation has been observed on upstream side and one village road is present on upstream side. The proposed new bridge will be on upstream (LHS) side. In addition, there is a temple and school nearby the bridge with a respective distance of 115m and 790m to the bridge. See photos and map in the Attachment 2A (2A-3 and 2A-6).

18. Mapping for carrying out pertinent hydrologic and hydraulic analysis, corresponding to the catchment that the drainage for Project Road necessarily entails (Attachment 2A (2A-9) Catchment Map). The topo sheets from which calculations of catchment areas are prepared with the help of Watershed Modeling System (WMS) software by using WGS_1984 UTM_Zone 48N database for DEM file for those particular locations of all bridges. According to the Pakan Meteorological Station indicates the watershed area at Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone Bridge are 4.59 Km², 75.69 Km², 19.71 Km² and 168.08 Km² respectively. Table 2-1 below shows the water discharge and speed of water at these four bridge locations: 15.26m³/s (0.57m/s), 347.25m³/s (1.19m/s), 105.44m³/s (2.91m/s) and 649.73m³/s (1.28m/s) as well as the high and low of water level at each bridge.

Table 2-1: The Hydrologic Data of 4 Bridges

SI. No	Bridge Name	Discharge (m ³ /s)	High Water Level (m)	Low Water Level (m)	Velocity (m/s)
8	Houay Xambounnyai	15.26	155.13	150.20	0.57
9	Houay Deua2	347.25	153.28	146.60	1.19
10	Nam Sang	105.44	157.63	152.90	2.91
11	Nam Thone	649.73	157.41	146.40	1.28

Source: General Arrangement Drawings (GAD), LASA July 2023

19. **Return period and rainfall:** As per Road Design Manual-2018 (Standard Specifications and Code of Practice for Road Bridges of MPWT Lao PDR, Chapter – 5, Hydrology and Hydraulic Design), bridges are designed for a return period of 100 years of Intensity Duration Frequency (IDF) data of each Meteorological Station. A flood of this specified return period should pass easily through the structure, while an extraordinary and rare flood may pass without doing excessive damage to the structure or the road.

20. **Topographic Survey** needs to be conducted on either side of existing alignment/bridge. Cross sections of approach need to be taken along the centerline at 25m intervals and at intermediate points where marked changes in the bridge alignment occurs, if any. Topographic mapping survey of either approach would be done for approximately 1.0 km on either side of bridge approach with 50m width of corridor, so that matching with the existing alignment can be one smoothly. In the bridge location, topographic mapping along the stream/river with grid of spot level spacing of 20mx20m has taken as well as the width and length of the survey. Referes to Attachment 2A (2A-8) for Topography Map.

21. **Cross-Section and Longitudinal section at bridges:** For the calculation of discharge of the stream by the Area-Velocity method, topographical survey including leveling surveys were carried out across and along the water courses to determine the cross-section and longitudinal slope. A number of cross-sections were taken at 50 m intervals with the length 200 m for stream and 300 m for river on both upstream and downstream sides of the proposed structure, as specified in the ToR. The following assumptions shall be made for peak discharge computations: (1) For locations where water spreads over the banks, the cross-sections shall be extended up to the HFL, in order to calculate the effective cross-section of flow and (2) The longitudinal section

to determine the bed slope shall be taken at approximately regular intervals following the channel course, and extending on both the upstream and the downstream sides of the structure. Caution shall be exercised by following the curved flow line for longitudinal gradient, rather than a straight line.

22. In addition, these four bridges in Section 3 will be considered of *climate resilience* in the pattern of precipitation. Which will be increased 15% into the new IDF Curve according to conceptual design phase and as specified in Road Design Manual (MPWT).

23. **Proposed design of the bridge** is based on the TOR and referred Road Design Manual of the Ministry of Public Work and Transport officially issued in August 2018 and the AASHTO-LRFD Bridge Design Specifications. The bridges materials, superstructure components, substructure and foundation components, bridge loading and highway parameters are followed the relevant AASHTO LRFD Bridge Design Specifications/Road Design Manual or any other recognized international codes/specifications and good engineering practice.

24. The initial proposal of new Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone Bridge has a total length of 25.40 m, 60.90 m, 20.3 m and 78.40 m respectively. The proposed suitable option for total deck width of 10.8 m which consists of 8m carriageway width, 1.5m footpath on the opposite side of the existing bridge, 0.5m crash barrier on both sides of the bridge, and 0.3 safety rail (Figure 2-6 to 2-13). For bridge foundation, spans, superstructures and substructures refer to Table 2.2 below.

Table 2-2: General Specification of Four New Bridges

Sl. No.	Chainage	Bridge Name	No. of Span	Span Arrangement (m)	Width (m)	Superstructure Type	Substructure Type	Foundation Type	Proposed Bridge Site
8	204 + 000	Houay Xambounnyai	1	25.4	10.8	Pre cast PSC Girder with cast in situ Deck Slab	Wall type Abutment	Open/Pile	Upstream
9	217 + 600	Houay Deua2	3	20.3 + 20.3 + 20.3 = 60.9	10.8	Pre cast RCC Girder with cast in situ Deck Slab & Deck continuity	Wall type Abutment, Single Circular/Wall type Pier with Hammer Head Pier Cap	Open/Pile	Upstream
10	231 + 200	Nam Sang	1	20.3	10.8	Pre cast RCC Girder with cast in situ Deck Slab	Wall type Abutment	Open/Pile	Upstream
11	239 + 085	Nam Thone	3	26.0 + 26.4 + 26.0 = 78.4	10.8	Pre cast PSC Girder with cast in situ Deck Slab & Deck	Wall type Abutment, Single Circular/Wall type Pier with	Open/Pile	Upstream

SI. No.	Chainage	Bridge Name	No. of Span	Span Arrangement (m)	Width (m)	Superstructure Type	Substructure Type	Foundation Type	Proposed Bridge Site
						continuity	Hammer Head Pier Cap		

25. **Proposed safety features/components** of the bridges include drainage spout that will be designed as open drainage system to allow the free fall of water; since all the proposed bridges are crossing the river and to separate the speeding vehicular traffic and the pedestrians, reinforced concrete solid crash barrier is proposed between the carriageway and footpath. Other features of the bridge are inspection platform and seismic/concrete arrester. Although the seismic intensity of this zone is relatively low but proposed feature will provide the concrete arrester in transverse direction for additional safety and also help the superstructure to be in position in the event of unnatural flooding conditions.

26. **Embankment** shall be designed taking into account slope stability, bearing capacity, consolidation, settlement and safety consideration based on geotechnical and investigation data where the embankment is to be supported on weak stratum appropriate remedial/ground improvement measures shall be taken.

27. **Drainage for High Embankment:** Drainage arrangement will be include provision of kerb with channel at the edges of roadway to channelize the water and cement concrete lined chutes along the slopes at designed interval with energy dissipation basin, side channels at the bottom, protection of slope by turfing or any other suitable type.

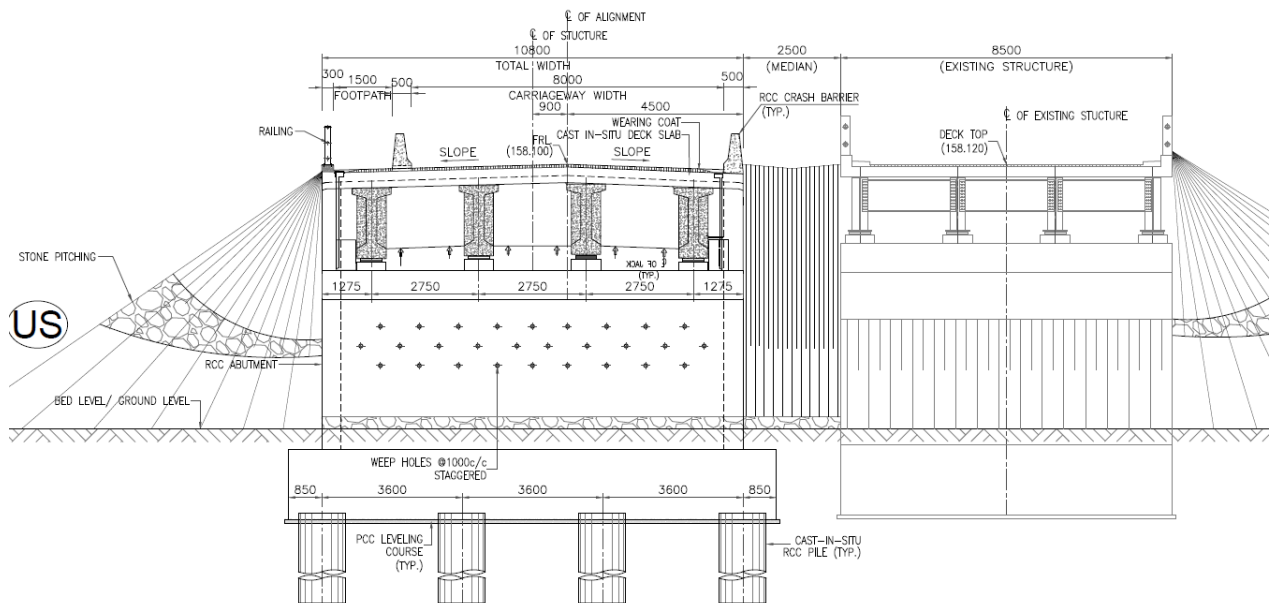


Figure 2-6: Cross-Sections of Houay Xambounnyai Bridge

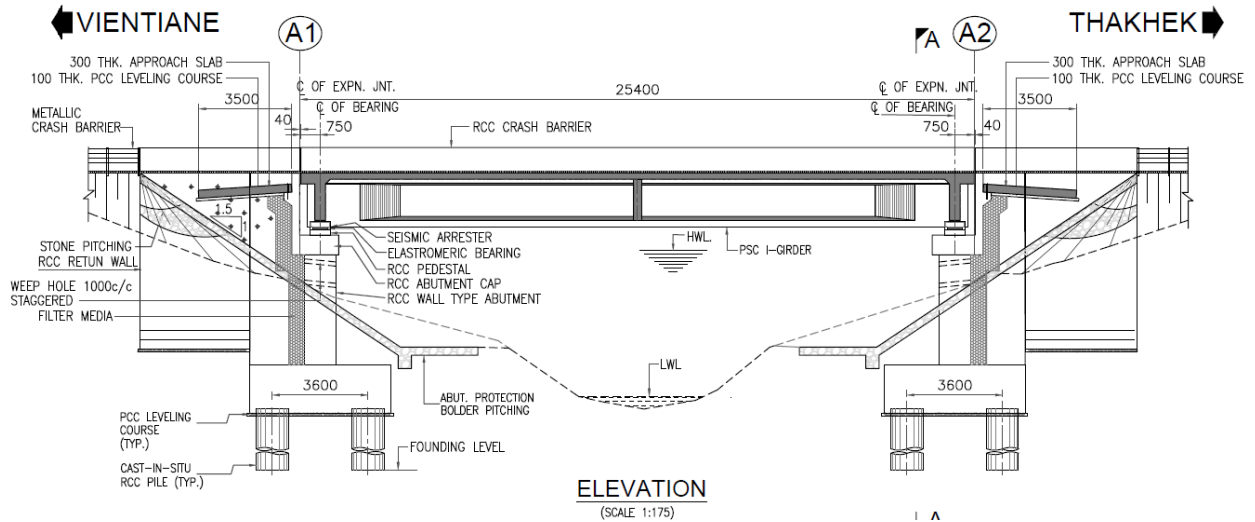


Figure 2-7: Bridge Spans of Houay Xambounnyai Bridge

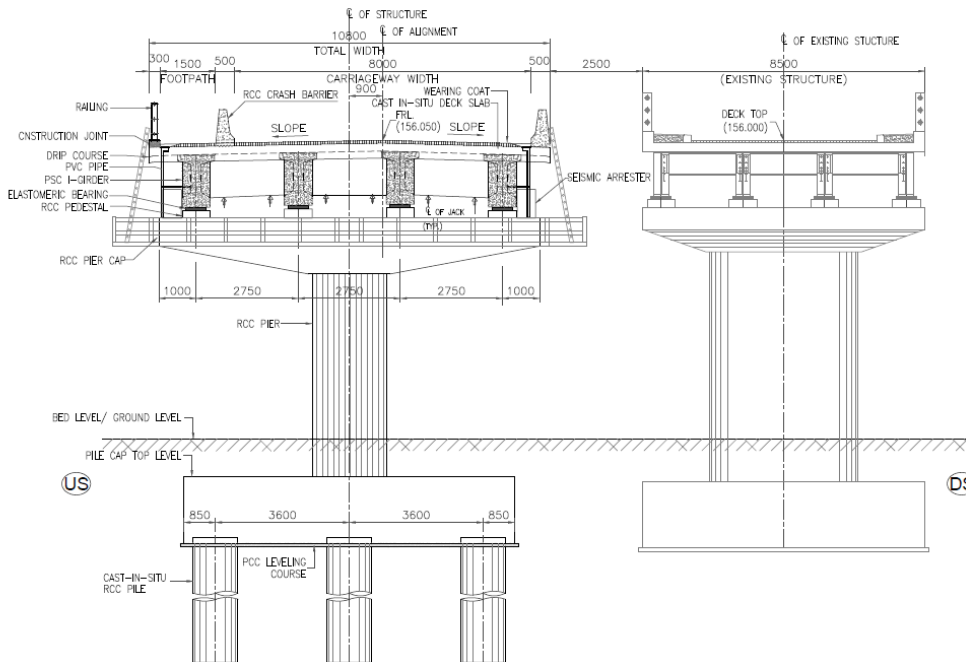


Figure 2-8 Cross-Sections of Houay Deua2 Bridge

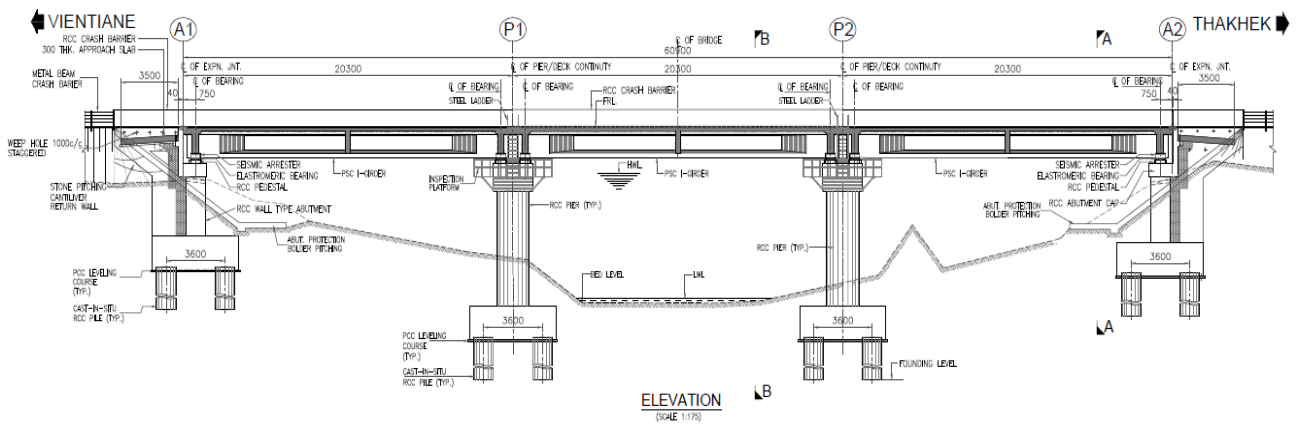


Figure 2-9 Bridge Spans of Houay Deua2 Bridge

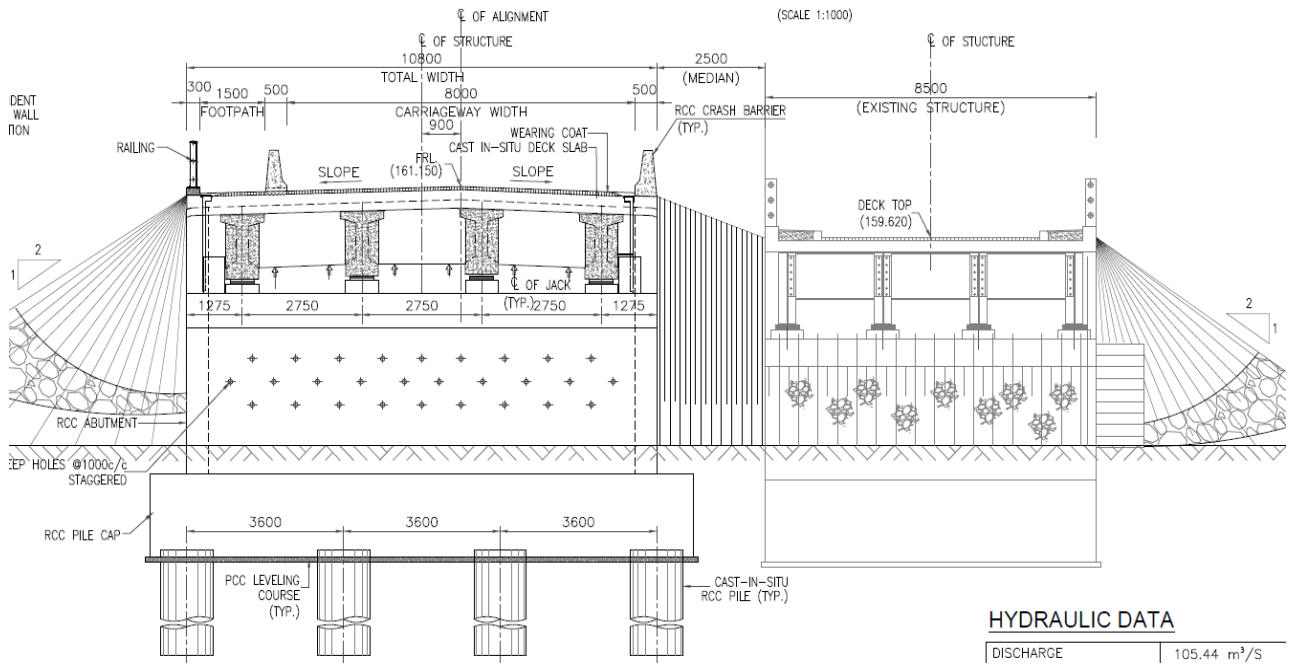


Figure 2-10: Cross-Sections of Nam Sang Bridge

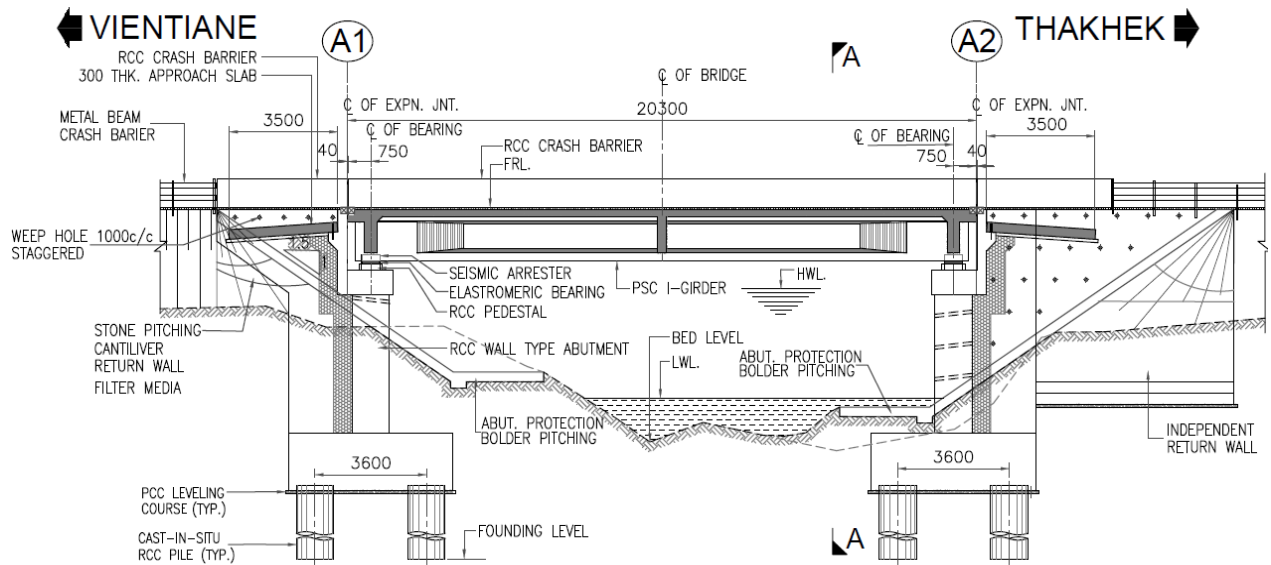


Figure 2-11: Bridge Span of Nam Sang Bridge

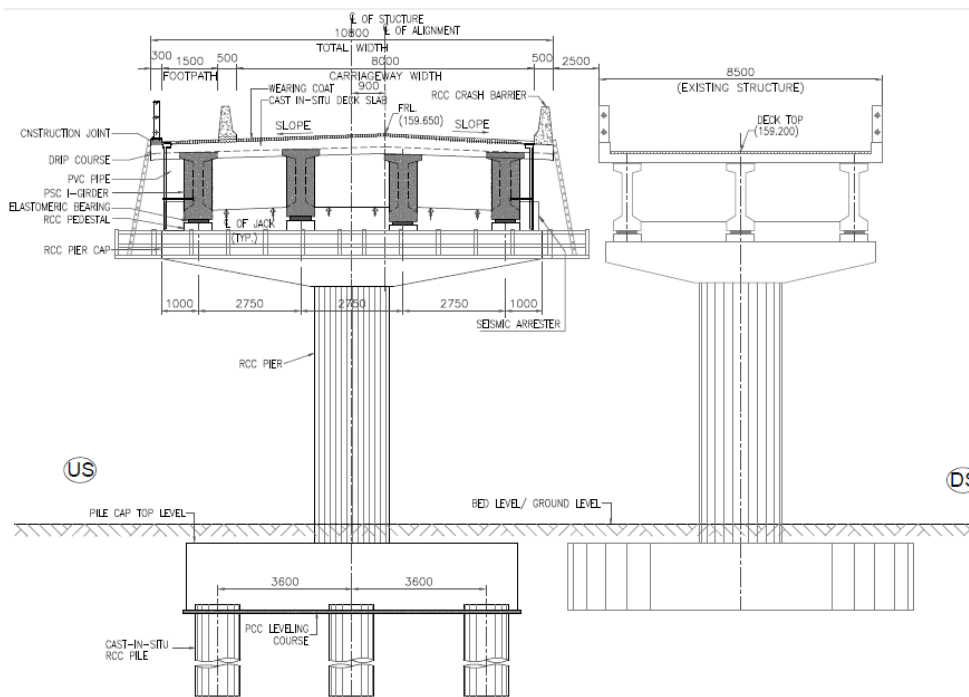


Figure 2-12: Cross-Sections of Nam Thone Bridge

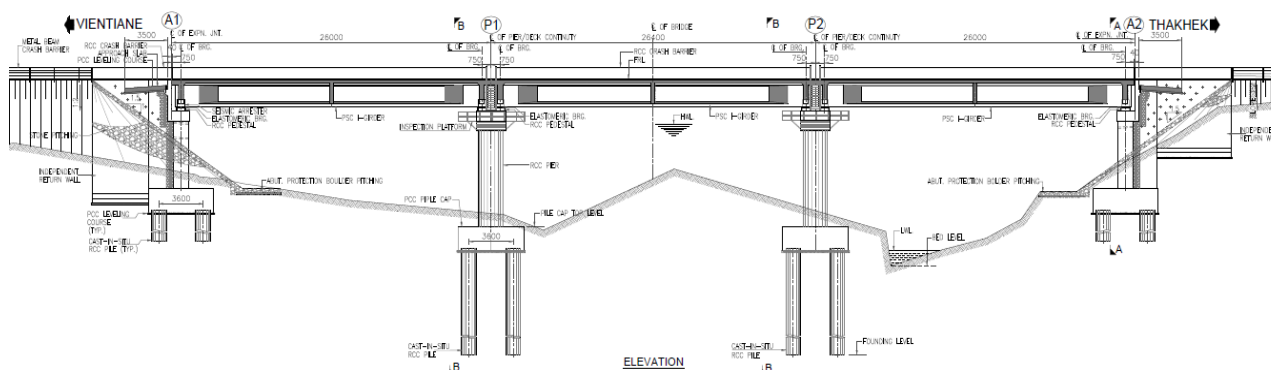


Figure 2-13: Bridge Span of Nam Thone Bridge

2.4 Design of Approach Roads to New Bridges

28. General design should always be justified based on these following criteria: road function and control of access - economic and financial considerations, road safety considerations, environmental considerations, climate change adaptation and topography, land use and physical features.

29. The optimum choice will vary with costs for road construction inclusive of road maintenance costs and road user costs. The construction costs will be related to terrain type and selection of pavement construction, whereas road user costs will be related to level and composition of traffic, journey time, vehicle operation and road accident costs. The most economic design will often not involve the use of minimum design standards.

30. **Cross Sections:** Typical cross sections have been developed for 2 lanes with paved shoulders as per the Geometric design manual, 2018 for the approaches of the bridges. The width of approach roads to and from the bridge is 12m with 7m carriageway and 2.5m of both

shoulders. The approach roads also include drainages and slopes. However, the cross section of bridge approach along with the bridge deck width shall be finalized in consultation with the Client/Bank. The cross section in Figure below is recommended for approach road to Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone Bridge.

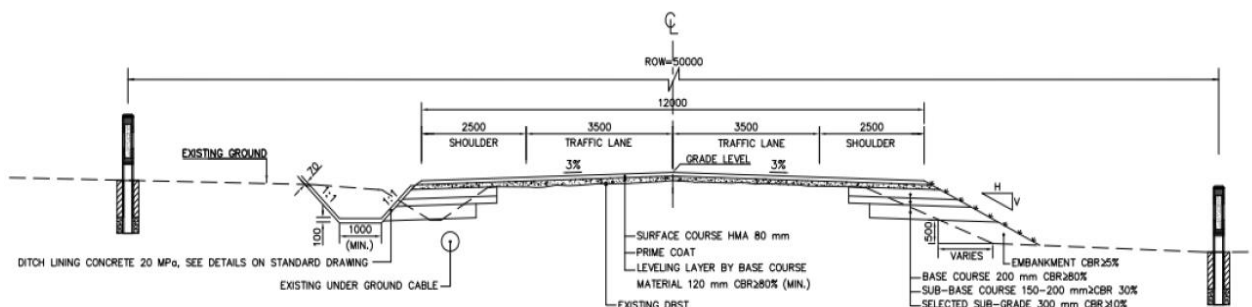


Figure 2-14: Typical Cross Section of Approach Road New Bridges

2.5 Construction Materials, Borrow Pits, and Quarry Site

31. Soil is used as main materials for construction of embankment for bridge's riverbank and road protection. Concrete and relevant materials are mainly used for bridge construction. These materials supplied from designated borrow pits, quarry sites, riversands, river gravels and concrete plant. The laboratories tests have been performed to check the suitability of the materials from selected borrow pits, excavated soils, and quarry sites.

32. **Borrow pits:** It is estimated that construction of these bridges will require about 145,000m³ of borrow material, 2,700m³/day of Quarry, 450m³/day of river sand and 300m³/day of river gravels which can provide the necessary quantity of materials for the project of five bridges. Most borrow pits are located in private lands in Phonchaleun, Thongnamy and NaIn Village along the NR13S which are about 3km to 38km from the project site and 9km to 15km from the nearest National Protection Areas (NPA). There are natural trees and bushes in the borrow pit areas. The riversand and river gravels sites are also located in private land in Phonchaleun and Boungkhouang Village with 6 to 61km distance from the project sites and 3 to 32km to the nearest NPA. **Table 2-3** below provides brief information on the locations and use of materials while location of the borrow pits are provided in **Figure 2A-13 in Attachment 2A**. Main transportation route will be the Nation Road 13 South (NR13S) and the existing local dirt roads connecting NR13S to the materials sites. There are residential located along the NR13S when entering the community area to project/material sites. Agreement with land owner will be obtained and included in the C-ESMP to be submitted to AIIB. DPWT of BKX will facilitate discussion and conduct consultation with land owner and facilitate for agreement between contractor and land owner. The contractor will be responsible for ensuring that the final conditions of the borrow-pit are accepted by the land owner and this condition will be part of the C-ESMP submission. Similar arrangement will be made for soil disposal sites.

33. **Quarry sites:** It is estimated that construction of these bridge projects will require about 2,700m³/day of rock and gravel for rip-rap/embankment or protection works of the bridges, which will be used mainly for construction of the foundation of the riverbank protection structure and toe protection structure will be supplied from quarry sites. Materials will be tested on different criteria such as unit weight, uniaxial compressive strength and etc. to see if they

meet technical requirement for use as construction materials. The quarry sites and batch plant will be sourced from the existing private site located in Namkou Village, Pakkading District, which is about 7km to 42km to the project sites and 4.5km to 12.5km to the nearest NPA (See **Table 2-3 below and Figure 2A-13 in Attachment 2A**). Similar to the transportation route of the materials from borrow pits, the NR13S and the local roads connecting the quarries sites and concrete plants will be used for transportation of construction materials. Arrangement with quarry and concrete mixing plant company is provided in Attachment 2A. The contractor will be responsible for ensuring that the final conditions of the quarry sites are accepted by the land owner and this condition will be part of the C-ESMP submission.

Table 2-3: List of Construction Materials and Disposal Sites

No.	Type of Material	Location and Type of Land	Estimated Quantity (m ³)	Distance (Km)		Potential Use	Transportation Route and No. of Trips
				To project site	To nearest forest		
Borrow Pit=BP			145,000				2,900
BP08	Yellow, clayey gravels	NR13S KM200+700 LT- 50 m B.Phonchaleun, Pakkading District, Using existing Pit from private land.	>20,000	- 3.4km to Houay Xambounnyai Bridge - 16.4km to Houay Deua2 Bridge - 30.6km to Nam Sang Bridge - 38.4km to Nam Thone Bridge	9Km to Phou Pak Bouak Khouay Protected Forest		- The pit is by NR13S and as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 400 trips.
BP09	Reddish yellow, clayey laterites	NR13S KM225+950 RT-1Km B.Thongnamy, Pakkading District, using existing Pit on private land	>80,000	- 23km to Houay Xambounnyai Bridge - 9.3km to Houay Deua2 Bridge - 6.2km to Nam Sang Bridge - 12.1km to Nam Thone Bridge	14Km to Nam Kading National Protected Forest		Using 6m existing dirt road that have several housing structures along the way to the pit and connected to NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 1600 trips.
BP10	Reddish yellow, silty clays some laterites	NR13S KM243+000 LT-100m B. Na In Pakkading District. Use existing pit	>45,000	- 39.1 km to Houay Xambounnyai Bridge - 25.5km to Houay Deua2 Bridge - 11.9km to Nam Sang	15.4Km to Phou Hin Poun National Protected Forest		- The pit is by NR13S and uses NR13S as major transportation route. - Estimates to use 5 trucks (10

No.	Type of Material	Location and Type of Land	Estimated Quantity (m ³)	Distance (Km)		Potential Use	Transportation Route and No. of Trips
				To project site	To nearest forest		
		from private land.		Bridge - 4km to Nam Thone Bridge			wheelers) in number of 900 trips.
Q=Quarry			2,700m³/day				2,430
Q03	Black, lime stones	NR13S KM221+100 LT-7km B. Nam Khou, Pakkading District. Using existing pit of private land	1,500m ³ /day	- 24.1 km to Houay Xambounnyai Bridge - 10.5km to Houay Deua2 Bridge - 17.1km to Nam Sang Bridge - 25km to Nam Thone Bridge	4.5Km to Phou Nam Kading Protected Forest		- Using 8m existing dirt road that have several housing structures along the way to the pit and connected to NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 30trips/day.
Q4	Black, lime stones	NR13S KM245+950 LT-100m B. Nam Khou, Pakkading District. Using existing pit from private land	1,200m ³ /day	- 42km to Houay Xambounnyai Bridge - 28.5km to Houay Deua2 Bridge - 14.9km to Nam Sang Bridge - 7km to Nam Thone Bridge	12.5Km to Phou Hin Poun Protected Forest		- The pit is by NR13S and uses NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 24trips/day.
RS= River sand			450m³/day				270
RS04	Light reddish brown, poorly graded sands	NR13S KM200+900 LT-2.7Km B. Phonchaleun, Pakkading District. Using existing pit from private land	200m ³ /day	- 5.8km to Houay Xambounnyai Bridge - 19.4km to Houay Deua2 Bridge - 33km to Nam Sang Bridge - 40.9km to Nam Thone Bridge	3Km to Phou Park Bouak Khouay Protected Forest		- Using 7m existing dirt road that have no house along the way to the pit and connects to NR13S as major transportation route. - Estimates to use 4 trucks (10 wheelers) in number of

No.	Type of Material	Location and Type of Land	Estimated Quantity (m ³)	Distance (Km)		Potential Use	Transportation Route and No. of Trips
				To project site	To nearest forest		
							4trips/day.
RS05	Light reddish brown, poorly graded sands	NR13S KM248+800 RT-16Km B. Bounkhoang , Pakkading District.Using existing pit from private land	250m ³ /day	- 60.8km to Houay Xambounnyai Bridge - 47.2km to Houay Deua2 Bridge - 33.6km to Nam Sang Bridge - 25.7km to Nam Thone Bridge	32Km to Phou Park Bouak Khouay Protected Forest		- Using 7m existing dirt road that have several house along the way to the pit and connects to NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 5trips/day.
RG = River Gravels			300m³/day				180
RG04	Light reddish brown, poorly graded gravels	NR13S KM200+900 LT-2.7Km B.Phonchaleun, Pakkading District. Uses existing pit from private land	100m ³ /Day	- 5.8km to Houay Xambounnyai Bridge - 19.4km to Houay Deua2 Bridge - 33km to Nam Sang Bridge - 40.9km to Nam Thone Bridge	3Km to Phou Park Bouak Khouay Protected Forest		- Using 7m existing dirt road that have no house on the way to the pit and connects to NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 2 trips/day.
RG05	Light reddish brown, poorly graded gravels	NR13S KM 248+800 RT-16Km B. Bounkhoang , Pakkading District. Uses existing pit from private land	200m ³ /Day	- 60.8km to Houay Xambounnyai Bridge - 47.2km to Houay Deua2 Bridge - 33.6km to Nam Sang Bridge - 25.7km to Nam Thone Bridge	32Km to Phou Park Bouak Khouay Protected Forest		- Using 7m existing dirt road that have several houses on the way to the pit and connects to NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 4 trips/day.
DS=Spoil Disposal Sites			60,097m³				1201

No.	Type of Material	Location and Type of Land	Estimated Quantity (m ³)	Distance (Km)		Potential Use	Transportation Route and No. of Trips
				To project site	To nearest forest		
DS01	Top soil, sand, aggregate, embankment, clearing and grabbing	NR13S KM 222+975 RT-90m B. Nam Khou Pakkading District, Use existing private land	Embankment (18,788m ³) Top soil (4,217m ³) Sand (1,745m ³) Aggregate (2,488m ³) Clearing and grabbing (2,811m ²)	- 20km to Houay Xambounnyai Bridge - 5.4km to Houay Deua2 Bridge - 8.3km to Nam Sang Bridge - 16.2km to Nam Thone Bridge	12Km to Phou Kadding National Protected Forest		Using 5m existing dirt road that have no houses on the way to the site and connects to NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 600 trips
DS02	Top soil, sand, aggregate, embankment, clearing and grabbing	NR13S 230+200 LT-80m B. Nam Sang Pakkading District. Use existing private land	Embankment (18,787m ³) Top soil (4,218m ³) Sand (1,746m ³) Aggregate (2,488m ³) Clearing and grabbing (2,811m ²)	- 26.3km to Houay Xambounnyai Bridge - 12.7km to Houay Deua2 Bridge - 1.1km to Nam Sang Bridge - 8.9km to Nam Thone Bridge	14Km to Phou Kadding National Protected Forest		The site is by NR13S and uses NR13S as major transportation route. - Estimates to use 5 trucks (10 wheelers) in number of 601trips

2.6 Disposal of excavated surplus soils

34. About 60,097m³ of excavated surplus soil and other aggregate that are not suitable to be used as construction materials for the project works will be disposed of in an area assigned as a spoil disposal site. DPWT of BKK (as the PIU) is in the process of identifying suitable locations for spoil disposal. Different factors have been considered such as urban master plan, social and environmental impacts, and costs. The following key criteria have been established by PIU for selection of soil disposal site: (a) The site will be located within the 8km away from the project site; (b) mountainous; areas prone to erosion, environmentally sensitive areas such as water sources, wetland and sensitive forest will not be used as spoil disposal site. Also, removal of trees to establish disposal site will be avoided or minimized; (c) as a priority, if project affected households need surplus excavated soil as fill material for their lands, they will be provided.

35. A selected potential disposal site is located at NR13S KM222+975 RT+90 in Namkhou Village, Pakkading District and at KM230+200 LT+80 in Namsang Village with a distance from disposal to project sites ranging from 1km to 26km and 12km-14km to the nearest national protected forest (Phou Kading National Protected Forest). There are no houses located nearby these sites (See **Table 2-2** above and **Figure A2-14 in Attachment 2A**). To make an agreement between PIU and land owner, the following terms are being used during consultation and negotiation process: (i) contractor will improve the access road to the select disposal site (s) and

(ii) water will be sprayed as needed for dust control, (ii) measures will be taken by Contractor(s) to ensure the site is not accessible by unauthorized people when the site is in use by subproject because of safety reason (iii) safety measures will be taken to ensure Contractor's workers are safe while at work at the disposal site(s), (iv) when disposal sites are closed (no longer used by the subproject), road condition leading to the disposal site(s) will be restored to the pre-subproject condition as a minimum, (v) environmental and social risks and impacts associated to the road(s) leading to disposal site(s) are assessed and measures taken by Contractors to ensure safety for community members using the road(s).

2.7 Transportation Routes

36. The existing local roads and NR13S will be used for transportation of construction materials to the project sites. The borrow pits, quarry sites and disposal site are located about 1km to 60km to the project sites. Based on the estimated quantity of construction materials provided above (about 145,000m³ of borrow material, 2,700m³/day of quarry, 450m³/day of river sand, 300m³/day of river gravels and 60,097m³ of unusable excavated material), an estimated total of 6,981 round trips (RT) of 10 wheelers (3.5-ton) dump truck may be required (roughly 155 RTs per day)¹ during 5am to 7am, 9am to 11am, and 2pm to 3:30pm using the approved route. Potential impacts and proposed mitigation measures are discussed in Section 5. Transportation and specific measures will be confirmed in the Contractor's Environmental and Social management Plan (C-ESMP). There are some small natural trees and bushes in the proposed borrow and disposal areas. In the community area (nearby the project area), and sensitive receptors located along the transportation routes. To mitigate the impacts related to noise, dust, vibration, and risks concerning road safety for local residents along the road (including damage to road due to heavy loads), the contractor will be required to implement the measures provided in **Section 5.3.2** below.

2.8 Proposed Worker Camp Site

37. The selected proposed worker camp sites are located in private owned land in Namsang Village, Pakkading District (1.83Ha) which is located on NR13S at KM229+900 and 1.27km distance to a nearest communities, 15km to a nearest river, and 7.5km to Phou Park Bouak Khouay National Protected Forest. (See **Table 2-4 and Figure 2A-15 in Attachment 2A**). This is a new sites and the site specific impact assessment and consultation with landowner and surrounding communities will be conducted and included in the Contractor Environmental and Social Management Plan which will be prepared by the contractor and submitted to AIIB for comments prior to the approval by PMU and commencement of construction activities.

38. The total number of workers that will likely be engaged during the construction is about 10 people per bridge or total of 40 people (maximum) that will be working on all four bridges. Efforts will be made to hire local workers (including skilled workers). Accommodation will also be arranged sufficiently and come with water and sanitation facilities to both non-local and local workers. Adequate measures will be taken for effective prevention of any unforeseeable disease or pandemic. Regular and close consultation and coordination with temple and surrounding

¹ The number of trucks to be used will be provided in the C-ESMP

households will be conducted (See environmental and social risks and proposed mitigation measures in **Sections 5.3 to 5.6**).

Table 2-4: List of Workers' Camp

No.	Location	Total Area	Type of Land	Distance to communities (Km)	Distance to river (Km)	Distance to Forest (Km)	Estimated No. of Workers
1	229+900, RT B. NamSang Pakkading District	1.83 Ha	Private land	1.27	15	7.5Km to Phou Park Bouak Khouay Protected Forest	40

2.9 Construction Plan and Schedule

39. The construction schedule of the four new bridges expects to start in November 2024 and will take about 24 months to complete.

3. POLICY, LEGAL, AND INSTITUTIONAL SETTINGS

3.1 National Laws and Regulations Related to Safeguards

40. In Lao PDR, there are many laws and regulations govern the utilization and management of natural resources management (land, forest, water, aquatic and wildlife, etc.) established in late 1990's and many have been updated and/or revised. The Environmental Protection Law (EPL) established in 1999 and revised in 2012, describes the principles, regulations and measures for managing, monitoring, restoring, and protecting the environment including the pollution control and the impact assessment processes. In late 2013, two regulations on the Environment and Social Impact Assessment (ESIA) and an Initial Environmental Examination (IEE) were established. However, they have been upgraded to a decree level and the decree has been approved by the Prime Minister (EIA decree No 21, date January 31, 2019) and has been recently revised in October 2022 (No. 389/GoL, dated 20/10/2022). Similarly, the compensation and resettlement decree established in 2005 (Decree 192/PM) was also revised and approved in 2016 (Decree 84/PM) and it has been reviewed in light of the WB's comment and the promulgation of several related laws during 2017-2018. A number of decrees, regulations, and guidelines established and applied during 2000's is being reviewed and revised. In late 2016, GOL also issued an order requiring all investment projects to take actions to reduce risk due to unexploded ordinance (UXO) before commencing the project activities.

41. From institutional aspect, the Ministry of Natural Resources and Environment (MONRE) is the lead ministry responsible for implementation of the EPL and its regulations and/or guidelines. MONRE is also responsible for management of water, land, and environmental management while the Ministry of Agriculture and Forest (MAF) is responsible for management of protected area (PA) and protection forest area (PFA)². The 2012 EPL assigns the provincial office of natural resources and environment (PONRE) and the Vientian Capital to be responsible for review and monitoring of the IEE process while MONRE is responsible for review and monitoring of the EIA. During 2016-2018, significant institutional changes within and between MONRE, MAF, and other sector ministries occurred. However, at present, MONRE is responsible for ensuring effective management of EIA/IEE processes and for ensuring effective management of pollution control and inspection.

42. The Department of Environment (DOE) of Ministry of Natural Resources and Environment (MONRE) is responsible for review of the EIA report and make recommendation for the issuance of an Environmental Compliance Certificate (ECC) while The Department of Natural Resources and Environment Monitoring (DNREM) is responsible for undertaking compliance monitoring. The Provincial Department of Natural Resources and Environment (PoNRE) is responsible for review, issuance of ECC, and monitoring of project that requires an IEE. The new Decision on the List of Projects and Activities Triggered IEE and EIA (No. 0358/MONRE) was issued in February 2023. A summary of relevant GOL regulations is provided in Attachment 1.

² In mid2016 the department of Forest Resources Management (DFRM) was moved from MONRE to MAF.

3.2 AIIB Environmental and Social Policy

43. The proposed project is being financed by AIIB and therefore its Environmental and Social Policy and Environmental and Social Exclusion List will be applicable to the project.

3.2.1 Key Elements of Environmental and Social Policy

44. Overarching Policy. The objective of this overarching policy is to facilitate achievement of these development outcomes, through a system that integrates sound environmental and social management into Projects. The overarching policy comprises Environmental and Social Policy (ESP), and Environmental and Social Standards (ESSs).

Environmental and Social Policy

45. The ESP sets out mandatory requirements for the Bank and its Clients relating to identification, assessment and management of environmental and social risks and impacts associated with Projects supported by the Bank.

Environmental and Social Standards

46. The environmental and social standards (ESSs) set out more detailed mandatory environmental and social requirements, as described below.

47. **Environmental and Social Standard 1 (ESS 1).** The ESS-1 aims to ensure the environmental and social soundness and sustainability of Projects and to support the integration of environmental and social considerations into the Project decision-making process and implementation. ESS 1 is applicable if the Project is likely to have adverse environmental risks and impacts or social risks and impacts (or both). The scope of the environmental and social assessment and management measures are proportional to the risks and impacts of the Project. ESS 1 provides for both quality environmental and social assessment and management of risks and impacts through effective mitigation and monitoring measures during the course of Project implementation. The ESS 1 defines the detailed requirements of the environmental and social assessment to be carried out for any project to be financed by the Bank.

48. **Environmental and Social Standard 2 (ESS 2).** The ESS 2 is applicable if the Project's screening process reveals that the Project would involve Involuntary Resettlement (including Involuntary Resettlement of the recent past or foreseeable future that is directly linked to the Project). Involuntary Resettlement covers physical displacement (relocation, loss of residential land or loss of shelter) and economic displacement (loss of land or access to land and natural resources; loss of assets or access to assets, income sources or means of livelihood) as a result of: (a) involuntary acquisition of land; or (b) involuntary restrictions on land use or on access to legally designated parks and protected areas. It covers such displacement whether such losses and involuntary restrictions are full or partial, permanent or temporary. The ESS 2 defines detailed requirements of resettlement planning of the projects involving involuntary resettlement.

49. **Environmental and Social Standard 3 (ESS 3).** The ESS 3 is applicable if Indigenous Peoples are present in, or have a collective attachment to, the proposed area of the Project, and are likely to be affected by the Project. The term Indigenous Peoples is used in a generic sense to refer to a distinct, vulnerable, social and cultural group possessing the following characteristics in varying degrees: (a) self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; (b) collective attachment to geographically distinct habitats

or ancestral territories in the Project area and to the natural resources in these habitats and territories; (c) customary cultural, economic, social or political institutions that are separate from those of the dominant society and culture; and (d) a distinct language, often different from the official language of the country or region. In considering these characteristics, national legislation, customary law and any international conventions to which the country is a party may be considered. A group that has lost collective attachment to geographically distinct habitats or ancestral territories in the Project area because of forced severance remains eligible for coverage, as an Indigenous People, under ESS 3. The ESS 3 defines the detailed requirements of People planning, in case such groups are present in the project area and are likely to be affected by the project. For this project, the Ethnic Group presents in the Project area but there is no direct impact to ethnic groups as they are not directly affected by land acquisition and hence are not project affected households.

3.2.2 Applicability of ESF for Proposed Project

50. The applicability of ESP and ESSs for the proposed project is presented in Table 3.1.

Table 3-1: The applicability of ESP and ESSs for the proposed project

Environmental and Social Standards		Applicability	Triggering Status
ESS 1	Environmental and Social Assessment and Management	ESS 1 is applicable if the Project is likely to have adverse environmental risks and impacts or social risks and impacts (or both)	Yes, since the proposed project is likely to have negative environmental and social impacts. The present ESMP has been prepared in response to the ESS 1.
ESS 2	Involuntary Resettlement	ESS 2 is applicable if the project is likely to cause involuntary resettlement impacts.	Yes. The project involves land acquisition and disruption of economic activities during the construction phase of the roadway and pavement, which are temporary and reversible in nature. Given such impacts, though low intensity in nature, ESS 2 is triggered.
ESS 3	Indigenous Peoples	ESS 3 is applicable if Indigenous People are present in the project area and they are likely to be affected by the project.	No, Ethnic Group presents in the Project area but there is no direct impact to ethnic groups as they are not directly affected by land acquisition and hence are not project affected households.

3.2.3 Screening and Categorization Requirements

51. All AIIB-financed projects are required to be screened and categorized in order to determine the nature and level of the required environmental and social reviews and assessment, type of information disclosure and stakeholder engagements for the respective project. The

project’s category is determined by the category of the project’s component that presents the highest environmental or social risk, including direct, indirect, cumulative and induced impacts, as relevant, in the project area. AIIB assigns each proposed project to one of the four categories as described in Table 3.2 below.

Table 3-2: Screening and Categorization of AIIB Projects

Category		Applicability for the Proposed Project
Category A	A project is categorized as ‘Category A’ if it is likely to have significant adverse environmental and social impacts that are irreversible, cumulative, diverse or unprecedented.	Not applicable
Category B	A project is categorized as ‘Category B’ when it has a limited number of potentially adverse environmental and social impacts; the impacts are not unprecedented; few if any of them are irreversible or cumulative; they are limited to the project area; and can be successfully managed using good practice in an operational setting.	Considering the potential negative and positive environmental and social impacts of this proposed project and their management, it is appropriate to fit the Project into Category B under AIIB ESF categorization. This is because most of the impacts are temporary, reversible and bound to occur in the Project area and the impacts are manageable with proposed mitigation and monitoring measures.
Category C	A project is categorized as ‘Category C’ when it is likely to have minimal or no adverse environmental and social impacts.	Not applicable
Category FI	A Project is categorized FI if the financing structure involves the provision of funds to or through a financial intermediary (FI) for the project, whereby the Bank delegates to the FI the decision-making on the use of the Bank funds, including the selection, appraisal, approval and monitoring of Bank-financed sub-projects.	Not applicable

52. For Category B Projects, AIIB determines the appropriate environmental and social assessment documentation required on a case-by-case basis. In the case of this project, the present ESMP has been prepared.

53. This Project is a part of the ongoing NR13S Project. The ESMF of the NR13S requires that the Project activities be conducted in accordance to GOL laws and regulations, especially those related to environment and social standards (ESS). According to the the 2022 EIA decree, the preparation of Initial Environmental Examination (IEE) and Environmental Compliance Certificates (ECC) are required (i.e. one from BKX PONRE and one from KM PONRE) and thus preparation of 2 IEE reports had been prepared and submitted to PONRE of BKX and KM provinces for approval and issuance of ECCs in December 2020. The proposed four bridges are part of the existing NR13S project (Section 3 financed by AIIB), thus the ECC conditions of the NR13S will be applied for the

construction of the four new bridges. EDPD/PTI will also be responsible for the overall guidance, supervision, and coordination of the ESS activities of the Project including provision of training on ESS requirements as agreed with AIIB.

4. ENVIRONMENT AND SOCIAL CONDITIONS

4.1 General Environment Profile

4.1.1 Topography, Geology, Climate, River/Stream, Land Use, Geological and Mineral

54. The four new bridges is part of Section 3 located in Bolikhamxay Province (BKX) with the provincial area of 14,863 square kilometres. BKX shares borders with Xiengkoung province to the northwest, Vietnam to the east, Khammoun province to the south, and Thailand to the west. These 2 provinces include the Annamite Range, stretching east to Vietnam, and the flat plain of the Mekong River and along border with Thailand in the west. Lao PDR is considered a centre for ecotourism activities with its two national protected areas and extensive system of wetlands. The altitude ranges from 140-1,588 meter (m).

55. Within the BKX the main catchment for surface water is the Mekong River and several of its first order tributaries including the Nam Ching, Nam Lo, Nam Ngiep, Nam Xane and Nam Kading Rivers. In addition to these and a few smaller rivers, the province has many perennial, seasonal and ephemeral streams, and wetlands. Lao PDR tributaries make large contribution to the seasonal river flow into the Mekong River. Average contributions range from more than 75% during the low-flow months in April and May, to more than 50% during the peak-flow months of July, August, and September (Adamson et al., 2009).

56. BKX are located in a tropical climate. Weather is dominated by monsoons, which divides the year into clearly defined wet and dry periods. The wet season begins from May and extends until October, while the dry season runs from November to April. Geological structures in the BKX seem to indicate joints and fractures of rock formations, which suggest seismic activity in the past. Mineral resources which occur in BKX are tin ore, limestone, gypsum, clay, fossil and minerals.

4.1.2 Physical Environment

Air Quality

57. Due to its distance from major population centers and industry, the baseline air quality between Km 190 – Km 268 is considered good for the majority of the year. Sources of ambient air pollution in this area include vehicular traffic on NR-13S, dust from community unsealed roads and particulates from vegetation burning activities associated with site preparation for agricultural plots. Particulate matters generated from the NR 13 South were low as the existing road is already paved though some main communities (e.g. Ban Thongnamy and Ban Namthone) had experienced higher dust particles. However, particulate concentrations may be quite high for adjacent unsealed roads during the dry season (refer to results below).

58. Smoke due to burning activities for agricultural site preparation in this region can be a major source of respirable particulates PM10 and PM2.5, exceeding international health criteria (WHO, 2013), as can indoor cooking fires and outdoor waste burning.

59. During the two-day consecutive monitoring period in Ban Namthone (km 240), Pakkading District – a sampling location with approximately 15 m from the centerline of the NR

13S, during 21 – 23 December 2019, very high particulate readings were recorded (Figure 4-1 and Table 4-2), which are attributed to high traffic volume passing on the NR 13S . Measured particulates in the Ban Namthone settlement indicate that Total Particulates are comprised of large and smaller diameter particulates, with average PM2.5 concentrations contributing 33% of total particulate matter (TPM) on Day 1 and 21% on Day 2 of monitoring (Table 4-1). For both PM2.5 and PM10, concentrations are above Lao National Ambient Air Quality Standards and WHO Guidelines for periods during each day.

60. Poor air quality at the monitoring site likely reflects the high number of traffic vehicles particularly heavy trucks on the NR 13S (Plate 5 7). Other primary sources of ambient air pollution include dust from unsealed roads. Smoke from agricultural burning and charcoal production can be a major source of respirable particulates PM10 and PM2.5, exceeding international health criteria (WHO, 2013).

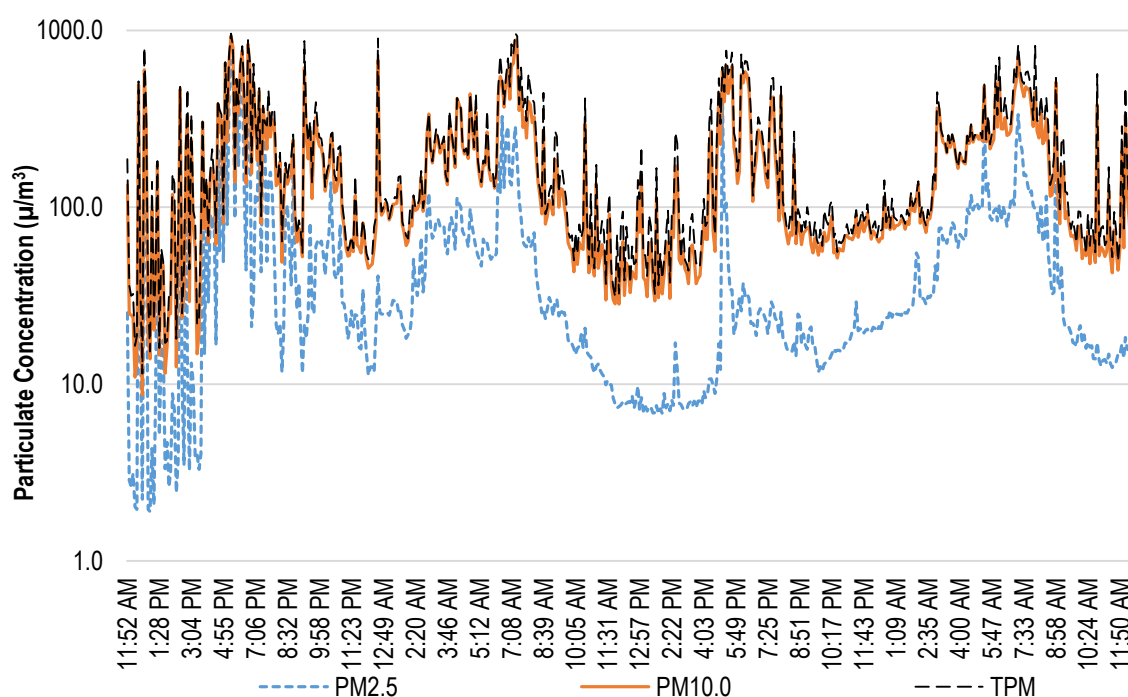


Figure 4-1: Ambient PM_{2.5}, PM₁₀, and TPM concentrations at Ban Namthone, 21-23 December 2019

Table 4-1: PM_{2.5}, PM₁₀, and Total Particulate Matter baseline concentrations at Ban Namthone (Km 240)

Parameters	Measure	Day 1 (21/22 Dec)	Day 2 (22/23 Dec)	Guideline Levels	
				Lao PDR Ambient Air Quality (µg/m ³)	WHO Criteria (µg/m ³)
Particulate Matter <2.5 microns (PM _{2.5})	Minimum	1.9	6.8	50	25
	Mean	73.4	40.2		
	Maximum	674.7	417.5		
Particulate Matter <10 microns (PM ₁₀)	Minimum	8.7	28.3	120	50
	Mean	192.1	160.3		
	Maximum	932.5	713.4		

Parameters	Measure	Day 1 (21/22 Dec)	Day 2 (22/23 Dec)	Guideline Levels	
				Lao PDR Ambient Air Quality ($\mu\text{g}/\text{m}^3$)	WHO Criteria ($\mu\text{g}/\text{m}^3$)
Total Particulate Matter	Minimum	11.4	32.3	N/A	N/A
	Mean	220.4	190.8		
	Maximum	964.3	829.9		

Ambient Noise from NR-13S

61. Monitoring of road noise was conducted between 21 – 23 December 2019, adjacent to and in the vicinity of NR-13S, approximately 15 m and 122 m from the road centerline respectively. The results of noise monitoring are presented in Table 4-3 and Figure 4-2. Noise monitoring results indicate the primary noise source for sensitive receptors is road noise, with the highest noise levels recorded at the monitoring site positioned 6 m from the road centerline. This shows that peak noise emissions are significantly lower for sensitive receptors that are situated more distant from the NR13 (Table 4-3).

Table 4-2: Emissions recorded at variable distances from National Road 13

Distance from NR13	6 meters	15 meters	122 meters
Sampling Duration	10 hours	22 hours	17 minutes
Maximum dB(A)	88.0	81.0	73.4
Average dB(A)*	58.2	45.4	47.8
LAeq (dBA)	70.2	61.8	47.8

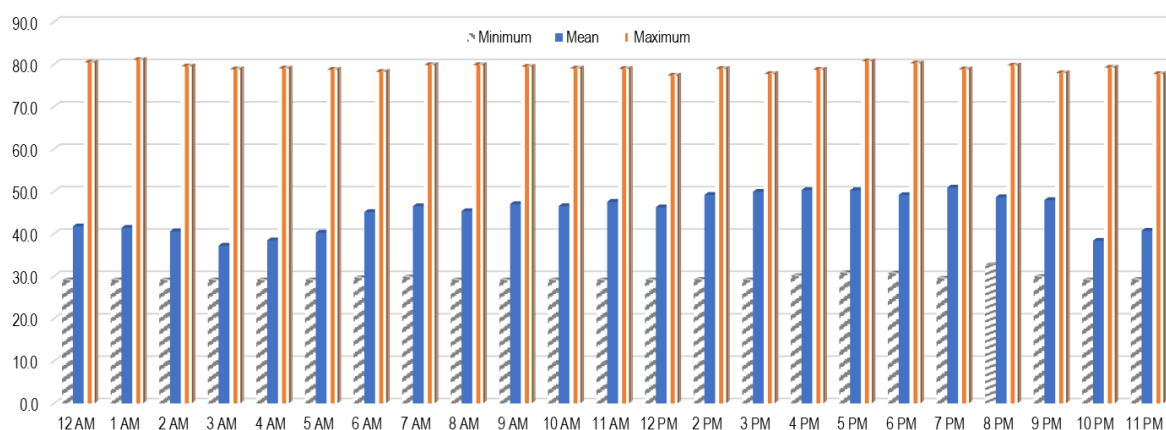


Figure 4-2: Noise emissions (dB(A)) 15 meters from centerline of National Road 13

62. Noise emissions recorded 15 m from the centerline of NR-13S were equal to or greater than 55 dB(A) (IFC daytime noise level guidelines) for 21% of the recordings (Figure 4-3). Average noise emissions from traffic are greater during the daylight hours than night-time hours. However, maximum noise emissions recorded were nearly equal for each hour throughout the day and night, indicating 24-hour road usage (Figure 4-2).

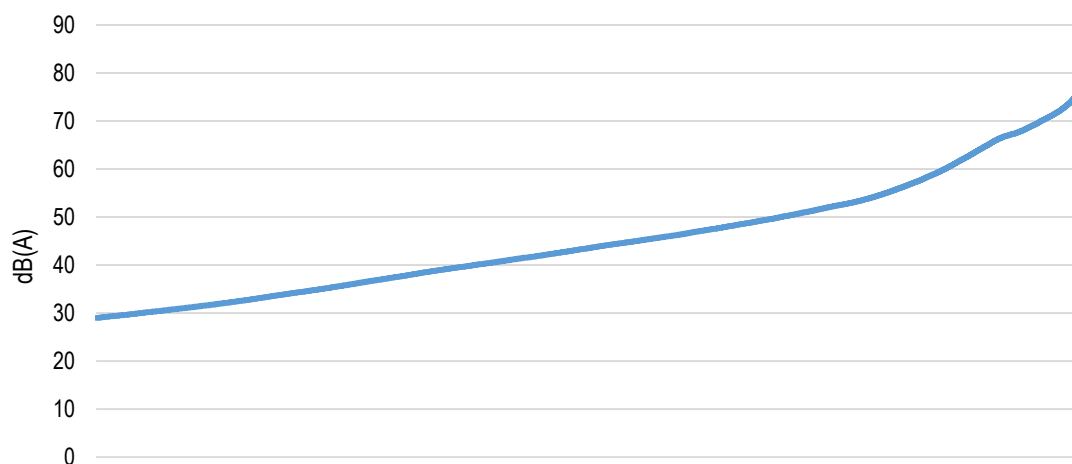


Figure 4-3: Range of noise emissions 15 meters from centerline of National Road 13 (recorded for 22 hours)

Water Quality

63. Water quality monitoring of field parameters was conducted on 21 December 2019. The results for field water quality sampling are provided in Table 4-3. The results of the two Nam Kading (Km 189+040) and Namthone river (Km 239+700) field water quality sampling sites were similar. The notable exception was the rise in water temperature at Namthone sampling site. At the Nam Kading, the sampling site is near the bridge with good riparian vegetation. At each site, pH is moderately neutral to slightly acidic, with low electrical conductivity and dissolved solids. Higher turbidity readings at Nam Kading were the result of some disturbance of the sediment in the shallow sampling site during monitoring. Turbidity values were likely <1 FNU during the sampling event (dry season).

Table 4-3: Field parameter measurements for Nam Kading and Namthone

Parameter	Unit	Sample Values	
		Nam Kading	Namthone
pH	mg/L	6.01	6.78
Electroconductivity	µS /cm	30	31
Total Dissolved Solids	mg/L	15	15
Dissolved Oxygen	ppm	6.06	6.04
Turbidity	FNU	5.5	0.1
Water temperature	mg/L	20.4	29.5
Oxygen Reduction Potential (ORP)	mg/L	158	152

4.1.3 Biological Resources

64. The Project is situated in the Central Indochina Dry Forests ecoregion, which (prior to intensive disturbance) was largely dominated by Deciduous Dipterocarp Forest (also referred to as Semi-Evergreen Dipterocarp Forest) in the lowland positions of the Mekong Corridor with Mixed Deciduous Forest on ridges of small hills in the plain and foothills to the east of the Mekong Corridor.

65. Habitats surrounding the Project footprint are also fragmented and many are degraded by human activities, particularly habitats not afforded protection. Deciduous and Semi-Evergreen Forest located in the vicinity of the Project have been almost entirely degraded and a significant proportion has been converted to modified habitat types including cultivated land (i.e. rice fields). Natural regeneration of Semi-Evergreen Deciduous Forest is slow / non-existent to the extent that high quality examples of this forest type in the vicinity of the Project are extremely limited. Mixed Deciduous Forest has also been highly disturbed throughout the greater Project region, but this forest community regenerates relatively rapidly following disturbance (i.e. from logging and shifting cultivation) and through natural succession, may meet the Lao definition of the forest community within a decade. The entire Project footprint is dominated by modified habitats.

(a) National Protected Area Network

66. Lao PDR has an extensive network of National Biodiversity Conservation Areas (NBCA) covering more than 21% of the country's land cover. The closest and most relevant NBCA to the Project are listed as follows:

- ▶ **Nam Kading NBCA:** Situated in BKKX, about 40 km east of Paksan in central Lao PDR. Approximately 80% of the site is dominated by native forest habitats including Evergreen Forest and Dry Mixed Deciduous Forest and is bisected by the Nam Kading River, a significant tributary of the Mekong River. Nam Kading NBCA supports a wide diversity of aquatic and terrestrial species including 256 plant species, 43 mammal species and 234 birds. Several globally rare and threatened species inhabit this site including red-shanked douc langurs (*Pygathrix nemaeus*; Endangered), rufous-necked hornbill (*Aceros nipalensis*; Vulnerable), pale-capped pigeon (*Columba punicea*; Vulnerable) and crested argus (*Rheinardia ocellata*; Near Threatened). Evidence of large-antlered muntjac (*Muntiacus vuquangensis*; Critically Endangered) has also been found in Nakai–Nam Theun NBCA and the wider region (IUCN, 2017).
- ▶ **Phou Hin Poun NBCA:** Located in Central Lao PDR in KM. The north-western and southern extents of this protected area are dominated by sparsely vegetated limestone formations of the Annamite Range, while the central area (often referred to as the 'central forest area') comprises a mosaic of Semi-Evergreen Forest and Mixed Deciduous Forest on non-calcareous substrate (Timmins, 1997; Thewlis *et al.*, 1998). This diverse landscape supports at least 113 species of mammal, 160 species of bird, 81 species of reptile, 47 species of amphibian and 145 species of fish including the Sooty Babbler (*Stachyris herberti*), which is endemic to areas of limestone karsts. This site supports a number of IUCN (2017) Red List Near Threatened species including Assam Macaque (*Macaca assamensis*), black giant squirrel (*Ratufa bicolor*), Chinese serow (*Capricornis milneedwardsii*). Steinmetz (1998) also recorded Asian elephant (*Elephas maximus*; Endangered) activity in the central forest area.
- ▶ **Phou Khao Khoay NBCA:** located approximately 40 km northeast of Vientiane and covers an area of 2,000 km². Phou Khao Khoay NBCA encompasses a large stretch of mountain range (the Phou Khao Khoay massif) with sandstone cliffs,

river gorges and three large rivers with tributaries which flow into the Mekong River. Dry Dipterocarp Forest and bamboo scrub dominate gentle sloping sandstone shelves and stands of Mixed Deciduous Forest occur near pools and streams. The area is of importance for its bird life and is known to support a significant population of the globally Endangered Green Peafowl (*Pavo muticus*) (Birdlife International, 2017).

(b) Provincial Protected Areas

67. Provincial Protected Areas have been designated for conservation or protection as they provide locally significant watershed or conservation value (ICEM, 2003). Several of these sites are located in proximity to Project corridor as follows:

- BKX – Houay Ngoua, Ph-Ngou, Phou-Kadan, Phou-Kout.

68. Phou-Ngou Provincial Protected Area is located parallel to the NR 13S from Pakkading to Hinboun districts. At Pakkading bridge (km 189+100) the NR 13S cuts through the Phou-Ngou PPA on the left bank of Namkading. From km 190+500 the NR 13S runs parallel to the Phou-Ngou PPA with a distance of 1 km or more.

69. Other national and provincial protected areas identified above are located at least 5 km from the NR-13S.

70. **Attachement 2A (2A-11) shows maps of forests** in BKX and KM provinces.

(c) Important Bird Areas (IBA)

71. In total of 27 Important Bird and Biodiversity Areas (IBAs) have been designated in Lao PDR with a total surface area of 2,384,985 hectare (ha). These sites have been awarded IBA status in recognition of their international significance for the conservation of birds and other biodiversity. Many sites support globally threatened birds, restricted range and biome-restricted birds and congregatory species of bird. Furthermore, a total of 47 Key Biodiversity Areas (KBA) have been designated in Lao PDR which are 'sites contributing significantly to the global persistence of biodiversity', in terrestrial, freshwater and marine ecosystems. IBAs and KBAs are not statutory designated sites and as such are not offer legal protection in Lao PDR unless they overlap nationally protected areas.

72. The Project NR13S from KM71 to KM346 lies entirely outside the boundaries of IBAs and KBAs. The closest and most relevant IBAs and KBAs to the Project are listed as follows:

- ▶ Khammouane Limestone IBA – a Key Biodiversity Area that overlaps the Phou Hinboun National Protected Area;
- ▶ Nakai Plateau IBA - partly included within Nakai-Nam Theun National Protected Area and Key Biodiversity Area;
- ▶ Hin Namno IBA – A Key Biodiversity Area that overlaps Hin Namno National Protected Area;
- ▶ Phou Khao Khoay IBA - located in the south-western periphery of Phou Khao Khoay National Protected Area and designated Key Biodiversity Area;
- ▶ Eastern Bolikhamxay Mountains; and

► Nam Kading Key Biodiversity Area.

(c) Tree species within the COI

73. The entire Project footprint occurs within the existing national road alignment. It is an urban and semi-urban setting with significant changes in land use. No natural habitat occurs within the COI as it has been significantly degraded through urban and historical road development. Most land use types identified within the COI are existing road and road corridor reserve area with a small proportion of wetland and residential land. Natural terrestrial vegetation (e.g. scrub) within the COI are highly degraded and fragmented. All-natural vegetation to be removed has been directly disturbed by anthropogenic sources in some way.

74. At least 33 standing trees of different species have been identified within the COI including planting and natural grow. None of them are identified as Critical and Endangered species as per the IUCN Red List (2017). The construction works will need to remove 15 trees as presented in Table 4-4 to Table 4-6 below.

Table 4-4 Tree species within the COI of Houay Xambounnyai Bridge in Ban Phonchalern

No.	Lao Name	Scientific Name	Family Name	IUCN Red List Status	Comment	Diameter at Breast Height (DBH)	Cut
						(cm)	
1	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	Fabaceae	DD	Natural	80	Yes
2	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	Fabaceae	DD	Natural	60	Yes
3	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	Fabaceae	LC	Natural	30	No
4	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	Fabaceae	LC	Natural	60	No
5	ຕົ້ນໂພ	<i>Ficus religiosa</i>	Moraceae	LC	Natural	10	No
6	ຕົ້ນໂພ	<i>Ficus religiosa</i>	Moraceae	DD	Natural	20	Yes
7	ຕົ້ນໂພ	<i>Ficus religiosa</i>	Moraceae	DD	Natural	100	Yes

Notes= CR = Critical; EN = Endangered; VU = vulnerable; LC = Least Concern; DD = Data Deficient

Table 4-5: Tree species within the COI of Nam Sang Bridge in Ban Nam Sang

No.	Lao Name	Scientific Name	Family Name	IUCN Red List Status	Comment	Diameter at Breast Height (DBH)	Cut
						(cm)	
1	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	DD	Natural	60	Yes
2	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	LC	Natural	80	No
3	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	DD	Natural	30	Yes
4	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	DD	Natural	60	Yes
5	ຕົ້ນລໍາໄຍ	<i>Dimocarpus longan</i>	<i>Sapindaceae</i>	DD	Planted	15	Yes
6	ຕົ້ນ ເກດສະຫນາ	<i>Aquilaria malaccensis</i>	<i>Thymelaeaceae</i>	LC	Planted	20	No
7	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	DD	Natural	100	Yes
8	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	DD	Natural	100	Yes
9	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	DD	Natural	30	Yes

Table 4-6: Tree species within the COI of Nam Thone Bridge in Ban Nam Thone

No.	Lao Name	Scientific Name	Family Name	IUCN Red List Status	Comment	Diameter at Breast Height (DBH)	Cut
						(cm)	
1	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	LC	Natural	50	No
2	ຕົ້ນທອງ	<i>Gmelina asiatica</i>	<i>Lamiaceae</i>	LC	Natural	30	No
3	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	LC	Natural	30	No
4	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	LC	Natural	30	No
5	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	LC	Natural	30	No
6	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	DD	Natural	40	Yes
7	ຕົ້ນເປືອຍ	<i>Lagerstroemia calyculata</i>	<i>Lythraceae</i>	-	Natural	50	Yes
8	ຕົ້ນເປືອຍ	<i>Lagerstroemia calyculata</i>	<i>Lythraceae</i>	-	Natural	50	Yes
9	ຕົ້ນເປືອຍ	<i>Lagerstroemia calyculata</i>	<i>Lythraceae</i>	-	Natural	50	No
10	ຕົ້ນເປືອຍ	<i>Lagerstroemia calyculata</i>	<i>Lythraceae</i>	-	Natural	50	No
11	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	DD	Natural	10	Yes
12	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	DD	Natural	80	Yes
13	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	DD	Natural	15	Yes
14	ຕົ້ນສໍາສາ	<i>Samanea saman</i>	<i>Fabaceae</i>	DD	Natural	25	Yes
15	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	LC	Natural	40	No
16	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	LC	Natural	40	No
17	ຕົ້ນຕີນເປັດ	<i>Alstonia scholaris</i>	<i>Apocynaceae</i>	LC	Natural	40	No

Notes= CR = Critical; EN = Endangered; VU = vulnerable; LC = Least Concern; DD = Data Deficient

4.1.4 Point of Interests and Landscape

75. According to the official website of the government, the following places could be visited https://www.tourismlaos.org/show_province.php?Cont_ID=395:

- ▶ Tad Xai - Cascading over seven steps, Tad Xai is the most beautiful waterfall in the Phou Khao Khouay NBCA. It is particularly attractive during the rainy season, and can be easily reached by a nice boat and trekking tour from Ban Hadkhai village, near Tad Lerk in Thaphabath District of BKX.
- ▶ Tad Lerk – From Wat Phabath 16 kilometres and 20 kilometres in from the South 13 Road in Thaphabath District. Located in Phou Khao Khouay NPA. This beautiful waterfall is the most accessible attraction in the park and ideal for relaxing, swimming, camping and trekking, Tad Lerk had a Visitor Centre and a "Nature Trail".

- ▶ Tad Yog (Yong Rapids) - This fantastic rapids along the Yong River is located in Thaphabath District; near Tad Leuk, from Vientiane capital 99 kilometres to the south and turn left to Phou Khao Khouay NPA 5,4 kilometres, turn left 2,6 kilometres to Yangkheua Village, and take a boat 20 minutes (5,5 kilometres). See views along the Yong River, picnic at the rapids and tourists can swim and trek. This attraction can be easily reached, and is suitable for a one day tour.
- ▶ Tad HeuaHak - Located in Xaisavang Village in Paksan District, there are many waterfalls and rapids surrounded by green nature. Its name means "wrecked boat" which comes from a local tale. Located in 15 kilometres on South 13 Road from Pakxan Town.
- ▶ Tad Nam Pa - Travelling by boat starting from a nice sandy beach on the bank of Ban Nam Pa, a fairly typical Lao Village, you will see the exciting nature view of Tad Nam Pa Waterfall. Ban Nam Pa is just 25 minutes drive from Paksan on the Route 4B in Pakxan Town. The village also has handicraft products made by local people.
- ▶ Tad Thong Waterfall - This significant waterfall in Nam Kading NPA is located in Naphong Village, Pakkading District; trek 7 kilometres start at Naphong Elephant Rock. Suitable for 2 days tour, tourists can choose both trekking tour and camping overnight or taking home-stay in the village and start trek in the morning, it takes 3 hours to reach the waterfall and the last 1 kilometre is quite steep.
- ▶ Tad Kaih waterfall - The waterfall of Nam Mang River is closed to the Route 8, Thabak Village 'Nongkok' Region, 37 kilometres from Khamkeuth District.

76. These natural important landscapes are located at least 10 km from the NR-13S and would not have direct impact from the Project improvement activities. During operations, however they are likely to have indirect impacts through the increased accessibility and potential spin off opportunity on the site development in the future.

4.2 Social and Economic Profile

4.2.1 Socio-Economic Resources

77. Bolikhamxay Province covers a total area of 14,863 km². The region is characterized by high population growth, a growing cash economy, commercialized agriculture, rapid industrial growth, and increasing competition for land resources. Table 4-2 provides a summary of key socio-economic and land use indicators within the Project Districts.

78. Population density in the Project Districts varies widely and is especially high in the capital districts of Paksan (in BKX) and Thakhek (in KM province). The region has developed relatively quickly in the last decade, with most districts having experienced decreased incidences of poverty. Most district family poverty rates are below the national average.

79. The number of people in four affected villages: Phonchaleun, Nakheua, Nasang and Namthone in Pakkading District, Bolikhamxay Province has population of 5,243, 935, 1,342 and 1,008 people respectively with Phonchaleun Village has total area of 13,967Ha, Namkheua Village (1,695Ha), Namsang Village (3,800Ha), and Namthone Village (392Ha). The average of

population in the project affected villages is 2,132 people. Majority of people in the affected villages are above the poverty level; however, there are 7 households (35 people, 14 females) of ethnic Tai Mein in Phonchaleun Village still poor. Two households (6 people, 1 female) and five households (19 people, 10 females) in Namsang and Namthone Village respectively are below the poverty. See map of **project affected villages in Attachment 2A (2A-4)**.

80. Key agricultural areas are located in Paksan, Hinboun and Thakhek Districts where approximately 25%, 75% and 15.3% of land respectively is used for growing rice and cash crops. Large forested areas are more common in Pakkading, and Thaphabath and Mahaxay Districts (70% and 80% of land area respectively) where two large national protected areas (Nam Kading and Phou Khao Khoay) are located. The limestone mountainous region (western Annamite Range) is a key feature of the Project Districts. In the project affected villages, the percentage of total land use of 35% in Phonchaleun Village, 56% in Nakheua, 34% in Namsang and 47% in Namthone Village are used for agriculture. The residential land use in four of affected villages account for 16% of total lands. See **Figure 2A-5 Land use map in Attachment 2A**.

81. The Project alignment passes through four affected villages generally having moderate population density, located within relatively easy access of district centres (<1 hours). Project affected villages residing along the NR13 South in Borlikhamxay Province vary in population size, ranging from 935 people in Nakheua Village to 5,243 people in Phonchaleun Village, with an average village size of 2,040 people in project affected district compares with population average of 2,132 people in four affected villages. This indicates that the population average of the affected villages is larger than the district average, and much larger than affected district in other sections of the project.

82. Most of the population in the Project Area is situated in the lowland zone. Population density is largest in Thakhek and Paksan District compared to less populated density in Thapabath District. For the project affected district, Pakkading District has the population density of 22.

83. Further information on demographic indicators in the Project Area is presented in Table 4.7 and overview of key socio-economic indicators in Project Districts is outlined in Table 4.8.

Table 4-7: Demographic indicators of Project Affected Districts

Province / District	villages surveyed	Population in surveyed villages			Average village size	Average HH size	Sex ratio (males to females)
		No. Households	Population	Females			
<i>Bolikhamxay Province</i>							
Thaphabath	13	3,455	17,500	8,802	1,346.1	5.06	0.98
Paksan	21	4,170	21,058	10,562	1,002.7	5.04	0.99
Pakkading	17	5,997	34,684	17,413	2,040.2	5.78	0.99
<i>Khammouane Province</i>							
Hinboun	19	2,009	21,058	10,562	1,108	10.48	0.99
Thakhek	17	3,725	20,216	10,013	1,189	5.4	1.01

Province / District	villages surveyed	Population in surveyed villages			Average village size	Average HH size	Sex ratio (males to females)
		No. Households	Population	Females			
<i>Total:</i>	<i>89</i>	<i>19,356</i>	<i>104,153</i>	<i>52,332</i>			

Table 4-8: Overview of key socio-economic indicators in Project Districts

Provinces / Districts	Population		No of Villages in District	# HHs	Total Land Area (ha)	Population Density	Main Ethnic Groups	Agro-Ecological Zones (AEZs)	Topography	District Poverty Incidence (2015) (% of families)	Accessibility	
	Total	Female									Major Roads	No of Rural Village with no Road
<i>Bolikhamxay Province</i>												
Thaphabath	27,096	13,596	26	5,217	166,181	16	Majority Lao, 2.8% Khmu	Vientiane Plain	Plains and mountain plateau	<1	National Road No. 13S and No. 4508	0.4
Paksan	46,575	23,450	54	9,007	65,400	71		Vientiane Plain	Most plains	2.2	National Road No. 13S and 4B	-
Pakkading	51,958	25,859	48	9,385	241,000	22	Mainly Lao and Tai, 8% Hmong and 4% Khmu	Northern Lowland Paddy Areas	Mainly plains, some mountain plateau areas	4.38	National Road No. 13S and 8A	-
<i>Khammouane Province</i>												
Thakhek	91,771	46,517	91	17,153	98,000	94	Mainly Lao	Mekong Corridor	Mainly plains	0	National Road No. 13 and No. 12	0.40%
Hinboun	51,252	25,500	103	9,430	201,500	25	Mainly Bor and Yor	Mekong Corridor	Mix of plains, plateau areas and limestone cliffs	<1	National Road No. 13 and No. 11	3.20%

Source: KM-DPI, 2015; BLX's District Government Offices – SEDP, 2016

4.2.2 Economy and Livelihoods

84. The main primary livelihood activities in the Project Districts include a combination of subsistence based and commercial agriculture, livestock raising, industry plantations, natural resource harvesting and cottage industry (e.g. handicrafts). The key cash crops include rice, maize / sweet corn, cassava and sugar cane. Industry plantations include rubber, eucalyptus, teak and agarwood trees.

85. Livelihood systems in the Project corridor are based on lowland rice cultivation, animal husbandry, fishing in nearby rivers and streams, collection of non-timber forest products (NTFPs), timber forest products (TFPs) and a variety of non-agricultural activities.

86. The majority of people in project affected villages are farmers following by family business, state officials, general workers, and private sector employees.

4.2.3 Tradition and Cultural

87. Bolikhamxay Province is also rich in tradition and cultural resources and the key ones nearby the NR13S can be highlighted as follows:

- Phabath Temple - Situated 83 kilometres from Vientiane Capital on the NR13South Road in Thaphabath District. This is an important pilgrimage site as it houses the huge "foot print" of Lord Buddha area is a significant place for all Buddhists in the country. The people in the area believe that when someone is passing this place, one must stop to pray respect to the spirits for a good journey.
- Phonsane Temple - Located Thaphabath District near Wat Phabath. This temple overlooking the Mekong river is well known for "Bang Fai Phayanak" or the "Naga Rocket", a mysterious and still unexplained phenomenon, which occurs every year during the 15th day of the 11th (according to the lunar calendar), when small fire balls in different colours are shot out from the river for about 10 to 15 meters and disappear in the sky.
- Dan Soung Temple - A series of colourful Buddhist buildings on the rocky outcrops surrounded by beautiful nature. There are many large Buddha images, a holy pool, flower gardens, and rocks which have interesting stories Pakxan Town of the old legend 'Nang Sip Song' (The Twelve Ladies) located 5 kilometers on NR4B from Pakxan Town.
- Ai Taeng Tribe in Nong or Village and Napae village - The Tai Teng form a small, but colourful Lao ethnic minority group. Most live around Ban Nong Or and Ban Napae, 17 kilometres from Laksao in Khamkeuth District. as well as rice farming they are well known for their silk handicraft.
- New Phabath (buddha footprint) - Located in Na Xay Village, Thaphabath District, 70 kilometers on NR13 South from Vientiane Capital, this Phabath was found in October 2009.

- There are some ethnic tradition and culture such as “Hit 12 Khong 14 of Lao and Leu” refer to the Buddhist calendar; “Kin Chieng ” of Hmong, Yoa and Kher; “LaPeup” of Kmu; “Boudockdeng and Bounkolor” of Pri, and they are all celebrate after crop harvest.

4.2.4 Ethnic Groups

88. Lao PDR is a multi-ethnic country with 50 ethnic groups divided into four main language family groups including Lao-Tai, Mon-Khmer, Chino-Tibetan and Hmong- Iw Mien. Lao Tai speaking people account for approximately 65% of the population. Other family groups are generally considered ‘ethnic minority’ groups. The largest include Mon-khmer and Hmong-Iw ien making up 30% and 5% of the population respectively.

89. There are two ethnic minority groups: Oy and Yrou which is belong the main minority group Mon-Khmer. Both ethnic groups are living in Nakheua and Namsang Village respectively. Although there are more minority group (Oy) living in Nakheua Village than Lao Tai; however, they are not directly affected by the Project in terms of land acquisition since these minority groups is not part of the PAHs. All PAHs are Lao Tai.

4.2.5 Social Incentive Receptors

(a) Community Area

90. There are several communities with a distance ranging from about 50m to 300m to Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone Bridge. See Table 4-9 for more detail.

Table 4-9: Distance of Community Area to New Bridges

No.	Chainage	Bridge Name	Distance New Bridge to Community (m)
1	KM 203+950 – 204+000	Houay Xambounnyai	50 m
2	KM 217+600 – 217+739	Houay Deua2	139 m
3	KM 231+100 – 231+200	Nam Sang	100 m
4	KM 239+100 – 239+400	Nam Thone	300 m

(b) Education and School

91. There are two schools that close to the bridge. The nearest school is in Namkheua Village with a distance of 200m to Houay Deua2 Bridge and another school is in Nam Thone Village with a distance of 790m to Nam Thone Bridge. See Table 4-10 below for more detail and refers to **Attachment 2A (2A-6)** to see the map.

Table 4-10: Distance of Schools to New Bridges

No.	Chainage	Bridge Name	Distance New Bridge to School (m)
1	KM 217+600 - 217+800	Houay Deua2	200
2	KM 239+085 - 239+875	Nam Thone	790

(c) Health

92. There is no any health center in the project affected village located nearby the bridges. The closest health centers are in Phonchaleun Village with a distance of 1.5km and 1.6km from the Houay Xambounnyai Bridge. See Table 4-11 below for more detail.

Table 4-11: Distance of Health Centers to New Bridge

No.	Chainage	Bridge Name	Distance New Bridge to Health Center (m)
1	KM 204+000 - 205+500	Houay Xambounnyai	1,500
2	KM 204+000 - 205+600	Houay Xambounnyai	1,600

(d) Culteral (temple)

93. Majority of the affected villages has at least one temple in the village. While many temples are far from the project sites; however, the nearest temple to the project site is in Namthone Village with a distance of 115 m to Nam Thone Bridge. See Table 4-12 below for more detail.

Table 4-12: Distance of Temple to New Bridge

No.	Chainage	Bridge Name	Distance New Bridge to Temples (m)
1	KM 239+085 – 239+200	Nam Thone	115

(e) Cemetary

94. There is a cemetery in Namsang Village, Pakkading District, with the nearest distance to the Nam Sang Bridge about 800m. There is no other cemetery nearby the other three bridges. See Table 4-13 below for more detail.

Table 4-13: Distance of Cemetary to New Bridge

No.	Chainage	Bridge Name	Distance New Bridge to Cemetary (m)
1	KM 230+400 – 231+200	Nam Sang	800 m

(f) Impacts

95. There are some housing and shop strudtures will be affected by the Project but the public facilities listed above will be not be affected by the subproject in terms of land requisition. During the consultation with communities, the subproject was recommended not to transport construction materials during the time where students go to schools or go home. Attention should be given to measures to mitigate noise and dust as well as regularly communicate with the school and health officials to inform them of construction activities and schedule.

4.2.6 Gender

96. Similar to the rest of Lao PDR, semi-urban economies in the Project corridor have a gendered division of labour and a gendered division of the income and benefits of labour. Some roles are traditionally undertaken by men (e.g. construction, rubber tapping, etc) and some roles are traditionally undertaken by women (e.g. handicraft, and livestock rearing). Women undertake most household duties (i.e. cooking and cleaning), including the collection of water for

household consumption or usage, and the collection of firewood or fuel and taking care of small livestock.

97. In the surveyed villages, both men and women play a role in agriculture and livelihood activities. Men are generally more involved in the agriculture works; however women also help with the rice paddies. Women undertake the marketing and sale of their agriculture and livestock products, including selling rice, cassava, vegetables, fish, and livestock, which contribute to household income in combination with handicrafts, undertaking petty trade, and wage labour. Handicraft is also one of the main duties of women in the Project area, which includes weaving, and making brooms, sticky rice boxes, and bamboo fences.

98. Men also sell their labour to make an income. The labour consists of construction works, agricultural work, and mining. In villages near the major city of Paksan, such as Phonemongkhoun, both men and women work for the Government of Lao PDR.

4.3 UXO Risks

99. An unexploded ordinance (UXO) is military ammunition or explosive device which has failed to function as intended when initially deployed. Lao PDR is, per capita, the most heavily bombed country in the world and despite clearing efforts, UXO is still present in much of the country, with approximately 25% of Lao PDR's 10,000 plus villages being UXO contaminated (NRA, 2016). The Lao National Regulatory Authority (NRA) estimate there is 80 million UXO scattered throughout the country, the majority of which are cluster munitions. Much of the data on UXO in the country is supplied by the US military. However, these data are not comprehensive, and bombing undertaken by the Thai and Lao governments has not been fully documented or mapped.

100. In Lao PDR, UXO risk continues to have lethal impact on human and livestock (UNDP, 2010). The presence of UXOs can also impede infrastructure development and prohibit access to areas of land and interrupting transport routes. The density of UXOs is unequally distributed across Lao with the majority of UXOs found along the border of Lao and Vietnam in the Khammouane, Savannakhet, Saravane, Sekong and Attapeu Provinces.

101. As the proposed NR13S interventions will focus mostly on surface road upgrade works within the existing ROW, thus the UXO risk is expected to be low. However, there may be some risks during the extraction of materials and new borrow pits and construction sites including the project work camps, thus the contractor will be required to ensure that those sites are free of UXO risk.

4.4 Natural Hazards and Floodings

102. Lao PDR and its inhabitants are highly susceptible to natural hazards including flooding, landslides, storms and typhoon, agricultural pests and infestations, droughts in certain seasons, and epidemics (ADPC, 2016). Table 4-14 shows the frequency, extent, damage and loss of life of recorded natural hazards in Lao PDR from 1960-2018. Note that estimates of total loss of life, number of people affected, and total damages are likely to be an underestimate due to the remote

nature of disaster impacts, uncomprehensive surveys of private asset damage, infrequent national data collection and the possible lack of hospitalisation or record keeping of disaster victims.

Table 4-14: Summary of natural hazards occurrence, damage and people affected in Lao PDR (1960-2018) (EM-DAT, 2018)

Disaster type	Disaster subtype	Events count	Total loss of life	Total number affected	Total damage ('000 US\$)
Drought	Drought	5	0	4,250,000	1000
Epidemic	Bacterial disease	2	534	8,244	0
	Viral disease	4	285	38,000	0
	Other epidemics	3	44	9,685	0
Flood	Flash flood	1	34	430,000	0
	Riverine flood	12	395	2,181,743	158,128
	Other floods	13	85	1,952,868	12,530
Storm	Tropical cyclone	4	64	1,397,764	103,650
	Other storms	2	8	38,435	302,301

103. In 2018, the Tropical Storm Son-Tinh and Tropical Storm Bebinca events during July to August caused severe damages to many provinces and districts across Lao PDR. Road sector in particular, was damaged significantly and accounted for one-fifth of the country's road network (GOL, 2018), with a total estimate of 822.02 billion Lao Kip.

Table 4-15: Annual Loss of Transport Infrastructure Caused by Natural Disaster

Year	Type of Disaster	Affected Properties	Affected Value in Billion LAK (Million USD)
2011	Flood, Landslide	Roads and Bridges	554.27 (68.43)
2012	Flood, Landslide	Roads and Bridges	402.94 (49.75)
2013	Flood, Landslide	Roads and Bridges	323.79 (39.97)
2014	Flood, Landslide	Roads and Bridges	573.95 (70.86)
2015	Flood, Landslide	Roads and Bridges	794.15 (98.04)
2018	Flood, Landslide	Road, Bridges and Culverts	1,607 (198.52)

Source: Mainstreaming Disaster and Climate Risks into the Road Sector in Lao PDR, 2017; Post-Disaster Needs Assessment: 2018 Flood, Lao PDR

104. **Flooding.** Road sections in BKX and KM were also affected by the 2018 flood events. The estimate damage value to the road infrastructure was 29.91 billion Kip (in BKX) and 53.05 billion Kip (in KM). It is estimated that both provinces need short-term and medium-term road maintenance and repair at a total cost of 77.81 billion Kip and 71.74 billion Kip respectively (Lao PDR, 2018). It is expected that the NR13S Project will potentially reduce the flooding of catchments along the ROW and possibly extend further to residential areas outside of the ROW. Currently, many residential areas currently experience seasonal flooding in association with high rainfall events due to a lack of adequate drainage systems and the implementation of backfill of low-lying regions for urban development. Although the exact height of water table is unknown, it can be considered to be close to the surface within the highly-permeable vadose zone, indicating that that a slight alteration to the existing conditions will have adverse effects. The assessment of existing bridges and culverts was conducted by the design consultant (LTEC) hydrological survey team. See **Flood Prone Map in Attachment 2A (2A-10)**.

5. POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

5.1 Overall Impacts

105. While the existing Project Road NR13 South is getting improved and widened, the existing bridges with narrow width will remain the same in most of the locations except in four locations where new bridges will be built in parallel with the existing bridges. The implementation of these bridges will help to reduce travel hazard, to mitigate the problem of narrow bridges in an upgraded and widened road network and to promote shared prosperity of the area overtime.

106. **Safeguards Screening and Risks:** Despite overall positive impacts (as mentioned above), implementation of the Project could cause negative impacts on local environment and some specific groups of local people during preconstruction, construction, and operation stage of the proposed structures four new bridges: Houay Xambounnyai, Houay Deua2, Nam Sang and Nam Thone bridge in parallel with the existing bridges. However, given the nature and locations of the proposed works, the potential E&S risks and impacts during construction will be localized, temporary, and can be mitigated through effective ESMP implementation. The overall E&S risks are considered “moderate”. Attention will be given to addressing effectively potential E&S risks and impacts at locations of public concerns, such as land acquisition and disturbance to nearby residents and businesses and community safety (community area, school, and temples) water quality, sedimentation, and aquatic resources, impacts to natural vegetation/trees, short-term and long term bank erosion, as well as the safety and other disturbance along the transportation routes (road and waterways) to and from the borrow-pits, spoil disposal sites, quarry sites, and the construction areas.

107. This impact assessment and mitigating measures cover the entire cycle of the Project activities, from design, pre-construction, construction and operation and maintenance. The coverage of the project phases is defined as follows:

- ▶ Preparation phase including time for preparation of Project activities and investment, preparation and completion of the ESMP and ARAP, detailed engineering design (DD) and preparation of bidding documents (BD) and contract document (CD) including all AIIB clearances.
- ▶ Pre-Construction Phase is the time before the ‘Notice to Proceed’ is given to the contractor to commence the construction covering the beginning time for bidding and implementation of ARAP including the time when detailed measurement survey (DMS) and determination of compensation is completed as well as the mobilization of construction supervision consultant.
- ▶ Construction Phase is the period from the completion of the Pre-construction activities time until the issuing of the ‘Certificate of Completion’. Payment of compensation for project affected people as per ARAP and the ECC condition, issued for the ongoing NR13S Project, and other necessary approval must be completed before construction can begin. New ECC is not required for this construction of two new bridges as this is part of the ongoing NR13S Project.

- ▶ Operation and Maintenance (O&M) Phase is the time from completion of works (including site clearance) and maintenance activities during the OPBRC period. It is expected that after the OPBRC, the O&M responsibility will be under the responsibility of the DPWT of BKX provinces.

108. Potential impacts of the Project can be classified as:

- ▶ Direct Impacts - i.e., those directly due to the Project itself such as the conversion of land previously used for agricultural purposes to transport use. Direct impacts also include the impact of construction expenditures in the local economy.
- ▶ Indirect Impacts – i.e., those resulting from activities prompted by the Project, but not directly attributable to it. The use of rock for the improved roadbeds, for example, has an indirect impact of increasing the demand for crushed rock and increased borrow operations.
- ▶ Cumulative Impacts – i.e., impacts in conjunction with other activities. A single road improvement may not exert a significant environmental impact, but if several roads comprising a network are developed in the same area, or are combined with agricultural reform programs in the same general area, the cumulative or additive effect could be large.

109. The nature of risks and impacts on local community and local environment is assessed according to key Project activities on physical, biological, and sociological characteristics of local conditions while the level of impacts can be categorized as short-term or long-term. Both short-term and long-term impacts may be either beneficial or adverse. Short-term positive impacts will include, for example, the generation of employment opportunities during construction period. Long-term benefits will include enhanced development opportunities, improved transport services, easier access to commercial and service facilities; faster communications and commodity transport; improved access to markets and growth centers and increased services and commercial facilities.

110. Table 5.1 summarizes the assessment of the potential impacts of the proposed Project during rehabilitation and maintenance works while brief discussion on the key impacts and mitigation measures is provided in Section 5.3 below. Sections 5.4 to 5.6 provide a separate discussion on road/bridge safety assessment and recommendation, construction materials, and management of construction contract.

Table 5-1: Summary of potential Project impact

Aspect	Physical Characteristic					Biological Characteristic			Socio-economic Characteristic							
	Geology	Topography	Soils	Climate and Air Quality	Hydrology	Flora	Fauna	Protected Areas	Infrastructure	Land Use	Waste Management	Socio-economic	Health and Safety	Educational Facilities	PCR	Noise
Land Acquisition										D/L		D/L				
Borrow Pits / Quarries		D/L	D/S	D/S	D/S	D/S			D/S	D/S			D/L			D/S
Asphalt Plants / Blasting Plants			D/S	D/S	D/S	D/S			D/S	D/S	D/S		D/S			D/S
Construction Camps			D/S	D/S	D/S	D/S			D/S	D/S	D/S	D/S	D/S			D/S
Storage / Laydown Areas			D/S		D/S	D/S			D/S	D/S	D/S		D/S			D/S
Haulage Routes				D/S					D/S				D/S	D/S		D/S
Site Clearance			D/L		D/S	D/L	D/L			D/L	D/S				D/L	D/S
Pavement construction				D/S	D/S				D/S		D/S		D/S			D/S
Bridge construction			D/S	D/S	D/S	D/S	D/S				D/S		D/S			D/S
Culverts & Site drains			D/S	D/S	D/S	D/S					D/S		D/S			D/S
Earthworks		D/L	D/L	D/S	D/S	D/L	D/S		D/S	D/S	D/S		D/S			D/S
Removal of Trees			D/L		D/L	D/L	D/L			D/L		D/S				D/S
Relocation of Services									D/S	D/S		D/S				
Increased traffic				D/L								D/L	D/L	D/L		D/L
Road maintenance			D/S	D/S	D/S						D/S		D/S			D/S

D = Direct Impact	S =	Short-term Impact		Potential Positive Impact		Potential Impact	Low/Medium		Potential High Impact
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5.2 Overall Positive Impacts

111. Social benefits: (1) Improvement of the economic conditions and hence, reduce poverty due to (a) Road and bridges are a critical component of a nation's infrastructure for transportation of raw materials and finished goods as well as facilitating travel so consumers can purchase goods and services in their own communities and beyond; (b) Wages earned by bridge construction and maintenance workers have a positive economic impact when used to buy things at local businesses. An investment in wages, and the related consumer spending that results from it, is proven to pay off many times over; (c) Savings on labor, time and local materials for the beneficiary households from the frequent repair of the road/bridge particularly during the wet season; and (d) improve road accessibility, road/traffic safety, flooding resilience and well-being of the local people.

112. The construction of new bridges will also address traffic safety issues through wider bridge and shoulders (e.g., for motorcycle traffic and pedestrian), installation of road signs, road marking, and installation of solar cell street lighting. A crash barrier/railing shall be implemented for all bridges to provide safeguard against errant vehicles.

113. **Individual households (HH) benefits:** Beneficiary households and local people are expected to save time spent to access public services such as health centres, high schools, banks, agricultural technical service centre located in the district and provincial towns. The road users could also benefit from improved access to economic domains as they would transport their agricultural and non-agricultural products (such as cassava, rice, maize, cardamom, jobs tea, galangal, ground nuts and variety of vegetables, non-timber products and animals products) to the districts and the provinces market. Their children also can come back from school in the same day or more quickly to help parent do domestic works due to improved condition of the road. They also can use tracks, bikes or carts to carry to the local markets. All those positive impacts mentioned will contribute HHs improved livelihood and income to finance education for children and HH member health care.

114. In addition, the Project will also support community engagement in road operations and maintenance (O&M) through: (i) establishment and capability development of a road/bridge maintenance group that will be responsible for the rehabilitated/improved road system; (ii) collection of funds for the road O&M; (iii) improved management of the road maintenance; and (iv) institutionalized grievance redress mechanism into GoL system. During the consultation, all the participants agreed that the road upgraded is their dream. They all support this project for many positive reasons such as the new and standard road will show a good image of the community as well as the country, better road equals to better transportation, possibly reduces the issues of road accident and better road safety conditions.

115. Results from consultations suggested that the local authorities and communities, including women, along the project areas expressed full support for the construction of the new bridges as the project will have significant positive impacts on improvement of the local livelihood activities, business and economic, health and well-being such as more convenience and saving time for travelling to other villages, districts, provinces, work, school, agriculture farms, transportation of agriculture products as well as reduction in road accidents, and etc.. Their high expectation is that

the works will happen soon. They expressed their commitment to supporting project implementation by: 1) participation in road/briade project preparation, detailed design; and 2) monitoring the implementation of environment and social management plan by the contractor.

5.3 Negative Impacts and Proposed Mitigation Measures

116. **Overall.** Road rehabilitation works may disrupt the communities in the vicinity of the right of way as there are expected to be an influx of workers, increased traffic of heavy machines and possible conflicts with the local population. Consultations with communities suggested that key concerns are increase in dust, noise, wastes, local traffic, road safety, and nuisance during rehabilitation and road safety during operations. The negative impacts during road rehabilitation will be short-term, localized, and can be mitigated through the application of specific requirements identified in this ESMP. Below briefly discusses the key issues and proposed measures to mitigate the potential risks and negative impacts of the proposed Project during preconstruction, construction, and operations phases while additional details are provided in Attachments 3. Results from the assessment suggested that most of the potential negative impacts are considered direct and short term with some risk on long term impacts on land use, socio-economic, and noise/vibration. This confirms the application of the key issues and mitigations as defined in ESMF (see Attachment 3). Key issues and mitigation measures are discussed below.

5.3.1 Potential negative impacts during preconstruction phase

117. The proposed works to be financed under the Project will be carried on existing road and the location of the proposed new bridges will be located in parrarel with the existing bridges where resettlement impacts and land acquisition are either anticipated but minimal. The impacts will include small land acquisition and compensation of existing and encroaching structures and economic activities being conducted in the ROW announced before or after the original National Road Law, 1996. Preparation and implementation of ARAP will be carried out to address and mitigate potential negative impacts and they can be highlighted as follows:

- **Land Acquisition:** The proposed impacts from the works will mainly be within the existing right of way but will still require land acquisition of private and government land which will be confirmed by the survey team. A detailed measurement survey (DMS) has been conducted and efforts have been made to reduce the width of the Corridor of Impacts (COIs) and section of the new bridges location to minimize impacts. In addition, and as part of the project's resettlement strategy, affected households (AHs) will be provided sufficient time to rebuild their homes and shops prior to the commencement of civil works, aside from being able to continue with their present livelihood activities even during project implementation. An Abrivated Resettlement Action Plan (ARAP) has been prepared and the affected households (PAHs) have been informed. Please refer to ARAP for more details.
- **Ethnic group:** There will be no impact on the ethnic group. All PAPs are Laotai group which is not considered as ethnic group. The Detailed Measurement Survey (DMS) confirmed that there is no direct impact on Indigenous Peoples or Ethic Group (EG) affected by land acquisition including customary rights and use of land and natural

resources. Also, the project will not result in the significant impacts on natural resources and cultural heritage as it is an urban and semi-urban setting with significant changes in land use. No natural habitat occurs within the COI as it has been significantly degraded through urban and historical road development. However, there is risk on road accidents and health hazards as part of community health and safety which will be mitigated as presented in Section 5.3.2.

5.3.2 Potential negative impacts during construction phase

118. Potential negative impacts of the proposed construction of the new bridges on local communities and local environment will be limited to road safety, temporary disruptions of local traffic, and limited impacts on air quality, noise and vibration, water quality, sedimentation and minor change of hydrology/flow patterns. These impacts will be short-term, localized, and can be mitigated through the application of specific requirements identified in this ESMP as described in the site-specific mitigation measures identified in Attachment 3 and the implementation of ESCOP (Attachment 4) and COC on SEA/SH and VAC (Attachment 5) by contractors with close supervision and monitoring of DPWT, PONRE, and local communities.

119. As suggested in Attachment 3, key negative impacts during the proposed construction works will include, but not limited to, the following activities: (i) establishment and operation of worker camps, including disposal of waste generated from the camp; (ii) establishment and operation of construction materials and equipment yards and access roads, including access tracks/haulage routs; (iii) workers safety and hygienic conditions including hiring skilled workers from outside of the locality and other social issues due to workers; (iv) water for staff and workers consumption and construction, including interruption of water supply; (v) storage of hazardous materials (including wastes); (vi) other typical construction activities such as handling of fuels, oil spill and lubricants, cutting of trees in the right of way, excavation of drainage channels, disposal of excavated material, loss of fertile soil and vegetation and impacts on natural vegetation and embankment erosion along the watercourse, dust and smoke emissions, noise pollution, excavation of borrow areas, rehabilitation of borrow pits, encountering archaeological sites during earth works, aesthetic/scenic quality, etc. and (vii) Community health and safety of local communities and general public including but not limited to:

- **Traffic, transportation and road safety:** Haul truck drivers and other staff driving to and from the Project sites may be exposed to traffic conditions, unsafe drivers, poor quality road conditions, pedestrians and other obstacles, etc. that may lead to accidents and injury;
- **Noise and dust** pose risks for impacts ranging from nuisance level to serious health impacts;
- **Injury / death** to local people, road user, pedestrians or bicycle rider in the project section and between settlements along the hauling route for construction materials / disposal of construction wastes.
- Potential for introduction or increased incidences of communicable and infectious diseases resulting from the influx of construction workers into the region.

120. To mitigate these impacts and facilitate effective implementation, the Project ESMP was prepared by identifying key issues, proposed mitigation measures, and monitoring indicator

identifying works activities that can generate negative impacts and they will be applied during the bidding process and preparation and approval of the contractor-ESMP (C-ESMP) (see Attachment 3). In addition, the ESCOP (Attachment 4) identify actions to reduce impacts due to typical works such as generation of dust, noise, vibration, safety, waste, and social aspect including “chance finds procedure” and environmental, social, health, and safety (ESHS) while the COC on SEA/SH and VAC (Attachment 5) provide guidance on management of worker behaviour to avoid gender-based violence and violence against children in compliance with the guidelines provided in the ESMF.

121. The contractors will be required to (a) provide adequate information on the construction period and contact person in case local community want to complain; (b) pay particular attention on reduce road safety risks during rehabilitation and adequate signs/information will be provided in critical area where high risks are anticipated; (c) conduct/maintain a 2-weekly meeting with local communities to explain the rehabilitation plan/activities, and provide temporary crossing facilities to ensure continued accessibility. These mitigation measures will be included in the bidding document (BD) and contract document (CD) for the Project Road. The BD/CD will also require the bidder to submit a strategy and plan to implement these measures³ while the contractor (the one who won the bid) will be required to prepare and submit their contractor-ESMP (C-ESMP) as soon as they are on board (within 28 days after the contract is awarded). The construction supervision consultant (CSC) and field engineer (FE) will be required to approve the C-ESMP and supervise its implementation on a regular basis. DPWTs and local authorities will be required to monitor the C-ESMP and other ESS activities (ARAP) on monthly basis while EDPD/PTI will conduct 6-month monitoring and submit the ESS monitoring report to AIIB.

122. Consultation with local community and implementaiton of grievance redress mechanism (GRM) will also be required. The consultation with local community was carried in July 2023 and the result is presented in the Section 6. During construction, contractor will be required to regularly conduct consultation with local community and report to DPWT as monthly basic. The contractor will also be required to establish and implemented a GRM system. Monitoring and reporting of contractor performance on the GRM implementation and tracking forms (Attachments 7) will be provided in the ESS monitoring report. Grievance related to safeguard issues that result from project activities will be resolved by the Grievance Redress Committee (GRC); however, the complainant also retains the right to bypass this procedure and can address a grievance directly to the EDPD/PTI Office or the National Assembly, as provided for by law in Lao PDR. At each level grievance details, discussions, and outcomes will be recorded in a grievance logbook. The status of submitted grievances and grievance redress will be reported to Project Manager through the monthly report.

123. The potential impacts on flooding during construction will be limted and to prevent damage from flooding during construction, the critical parts of the bridge such as bridge foundation, substructure, etc. or any other bridge components that will be submersed during the rain season need to construct during dry season.

³ This is referred to the ESHS-MSIP in the BD

5.3.3 Impacts on Terrestrial Biodiversity

124. Despite minor re-alignment in some sections, the entire Project footprint occurs within the existing national road alignment. It is an urban and semi-urban setting with significant changes in land use. No natural habitat occurs within the COI as it has been significantly degraded through urban and historical road development. Most land use types identified within the COI are existing road and road corridor reserve area with a small proportion of wetland and residential land. Natural terrestrial vegetation (e.g. scrub) within the COI are highly degraded and fragmented. All-natural vegetation to be removed have been directly disturbed by anthropogenic sources in some way.

125. As per the Table 4-4 to Table 4-6 above, at least 33 standing trees of different species have been identified within the COI including planting and natural grow. None of them are identified as Critical and Endangered species as per the IUCN Red List (2017). The construction works will need to remove 15 trees. Key avoidance, management and mitigation measures for terrestrial biodiversity are include:

- Limit the vegetation clearance to the minimum necessary during construction to prevent the loss of natural habitats and associated species;
- Design Project to strictly minimise disturbance to priority flora species by clearly marking the tree species that need to be retained and liaise with the construction contractor on the requirements;
- Larger sized trees (e.g. *Samanea saman*) will be retained where possible with a consideration of road safety. Regular pruning and trimming of tree branches should be conducted to maintain visibility of road users.
- Contractor prepares and implements plan for site clearance, excavation, restoration, tree replantation, etc. ISMC will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT;
- Removal of trees will need to be consulted with local authorities and impacted households. The District Agriculture and Forestry Office (DAFO) should provide oversight the vegetation clearing activities. The affected households who own these tree species should be given opportunities to transplant or harvest timbers in advance of clearing activities provided that they have appropriate personal safety equipment (PPE); Cleared areas should be progressively revegetated and rehabilitated throughout the life of the Project to restore vegetated areas where possible;
- Support local authorities and communities with seedlings to plant and/or maintain native trees along the Project alignment during the operation to offset biodiversity loss due to the Project. It is recommended to plant more native saplings of the same species for each tree cut; and
- Environmental education and awareness programs should be conducted for Project staff and contractors (e.g. through staff inductions) to ensure that the prohibitions and penalties regarding the collection of forest resources are widely known including hunting, buying or trading of wildlife.

5.3.4 Potential impacts during road operations and maintenance phase

126. Potential negative impacts during O&M phase will mainly focus on increasing risks on road safety and increasing noise, vibration, and traffic density due to an increase in vehicles traffic and driving speeds as well as on potential change of flooding pattern after completion of the rehabilitation works. However, improving road/traffic safety is the main objectives of the proposed Project (construction of the new bridges) and the interventions have been designed to meet the best feasible options to be implemented under the Project. Nonetheless, to further mitigate the potential negative impacts on road/traffic safety risk, additional efforts will be made and the key impacts and mitigation measures can be discussed below.

127. Mitigating potential risk on road/traffic safety during operations. MPWT through the Department of Transport (DOT) and the DPWTs is making efforts to improve road safety and improve asset management (through performance-based maintenance) of the road networks in Lao PDR. As part of the ongoing NR13S Project and safeguard capacity building, EDPD/PTI will make an effort to provide knowledge and support to DPWT of BKX to enhance their capacity on road safety at community level and ensure proper road rehabilitation including clear vegetation within the Corridor of Impact. In addition, efforts will also be made to conduct road safety campaign and pilot activities to promote knowledge and understanding of local road users on road safety regulations and good practices as well as to encourage active participation of local community especially children and women in the road safety activities in area near schools and hospitals located along the NR13S. Safety assessment and recommendations are provided in Section 5.4 below.

128. To mitigate the potential impacts during operations phase, the following measures should be considered during detailed design of the Project:

- The Drainage spouts will be proposed in accordance with AASHTO LRFD Bridge Design Specification. The drainage system of bridges will be designed as Open drainage system i.e. allowing the free fall of water; since all the proposed bridges are crossing the river. There is also a down take pipe up to 150mm below from soffit of the girder so that water will not contact the girder surface. In addition, location of pipe outlets such that a 45 degree cone of a splash will not touch structural component.
- Safety of the structure and safety of user as provided in Section 5.4 below.

5.4 Safety Risk Assessment and Proposed Measures

129. **Design:** Design of Superstructure / Substructure and Foundation will follow the AASHTO LRFD Bridge Design Specification/Road Design Manual. Analysis will be done with the help of STAAD/MIDAS Software. Model in STAAD/MIDAS will be prepared according to the type of Structure and Design will be done with standard in-house prepared work sheet.

130. **Loading:** Unit weight for self-weight calculation shall be considered by adopting unit weights as per Clause 3.5 of AASHTO LRFD Bridge Design Specification. The design vehicular live load shall be considered as suggested in Road Design Manual/AASHTO LRFD. As per Code, HL93 load will be considered. All other loading and pressure on the bridges must take into consideration.

131. **Protection Works:** Details of protection works provided in the existing bridges will be studied carefully and new proposals shall be finalized as per provision of AASHTO LRFD Bridge Design Specification/Road Design Manual or any other recognized International Codes/Specifications.

132. **Crash Barrier and Railing:** The Minimum height of railing and crash barrier will be 1100 mm above the roadway surface. Railings are provided for the protection of pedestrian. To separate the speeding vehicular traffic and the pedestrian's reinforced concrete solid Crash Barrier is proposed between the carriageway and footpath.

133. **Seismic/Concrete Arrester:** A seismic arrester is characterized by its function to bear the impact of seismic forces on a bridge structure and the direction of forces it must bear. Depending upon the direction of seismic forces acting upon it, a seismic arrester can be classified into a longitudinal and transverse seismic arrester. Though the seismic intensity of this zone is relatively low but it helps to provide the concrete arrester in transverse direction for additional safety. This will also help the superstructure to be in position in the event of unnatural flooding conditions, if it happens in future.

134. **Bridge approach roadway:** The roadway that approach the bridge on both side will follow Road Design Manual and AASHTO LRFD specification, which also include the standard for highway safety component i.e. street lights, signs, reflection lights, road safeguard barrier, etc.

5.5 Management of Construction Materials

135. The Project road is predominantly located on existing alignment and substantial sections of the first quarter of the alignment will be built using embankments over swamp and soft ground. Considerable amounts of borrow materials will therefore be needed to improve the swamp ground, including replacement of swamp deposits with rock fill, and in areas of embankment to attain the appropriate height of earthworks on which to form the required road grade. Capping layers may also be required to achieve a uniform roadbed support. The materials required to be sourced locally for road construction include:

- ▶ Natural granular material for possible application as subbase;
- ▶ Borrow materials for embankment fill (typically obtained from nearby NR13 South alignment but from private owned/operate borrow areas in some cases);
- ▶ Quarry stone for production of aggregates for asphalt, crushed stone base, concrete and masonry works; and
- ▶ Sand for concrete and mortar.

136. The possible sources of construction material were previously analysed for sections of the alignment. Attachment 1c shows locations of the material sources for sand, gravel, borrow pits, and quarries. It is expected that these sites will supply source materials to the closest section of the alignment to minimise the impact of transporting materials.

137. The excavation of material from all sites has the potential to impact on the local environment of the sites and the proposed alignment. This is highly dependent on the methods used to excavate the material such as blasting, drilling and crushing and the transportation and stockpiling of material along the proposed alignment. The potential impacts of material excavation include:

- ▶ Potential UXO risk;
- ▶ Exposure of soil that has the potential to lead to increased erosion and discharge of sediment into waterways;
- ▶ Exposed faces and slopes that may be at risk of landslide or collapse;
- ▶ The dewatering of some areas within source sites has potential to impact on flow activation of potential plumes;
- ▶ Discharge of effluents from aggregate washing and crushing has potential to impact on water quality; and
- ▶ Increased noise, dust and vibrations in the local area surrounding the source sites.

138. It is recommended that prior to any borrow materials, quarry stone and sand, a quick assessment is undertaken for each site to ensure that UXO risk and impacts on local community and local environment are low and appropriate actions will be made by contractor to mitigate these risks/impacts. Obtaining approval letter from local authorities is required before utilization of each site. Each site should have a clear plan for mitigation of erosion and/or sedimentation measures including construction of drainage controls and sedimentation ponds, daily deployment and maintenance of sediment control devices such as silt fences and jute netting, and planning of quarrying operations to minimise long-term exposure of erosive materials. It is expected that each quarry will also have a rehabilitation plan for the closure of the site after the sourcing of materials.

5.6 Management of Contractor

139. The construction supervision consultant (CSC) and/or field engineer will be responsible for approval and day-to-day monitoring of the C-ESMP implementation and ensure compliance. The implementation cost of the C-ESMP will be part of the OPBRC cost while that for RAP and EGEP will be financed by GOL. The ESS requirements described in this ESMP⁴ as well as GOL requirements/ conditions during approval of the Initial Impacts Examination (IEE) and issuance of the Environment and Compliance Certificate (ECC) of the ongoing NR13S project will be considered during the preparation and approval of the C-ESMP and its subplans.

140. The Project ESMP provided in Attachment 3 will provide guidance for the preparation and approval of the C-ESMP. Following the award of the contract and prior to construction commencing the Contractor will review the issues identified in the ESMP (Attachment 3) and develop detailed mitigation in the C-ESMP including identification of key persons who will be responsible for supervising the work within the Contractor's team. Details can be presented in a series of site plans covering specific site or the whole section during construction phase as agreed with the supervision consultant and/or field engineer (CSC/FE). Attachment 4 (ESCOP) provide guidance for priority plans including but not limited to the followings:

- ▶ Construction Sites Management Plan (CSMP)
- ▶ Community Health Safety Plan (CHSP)
- ▶ Environmental Quality Management Plan (EQMP)
- ▶ Works/Worker Camp Management Plan (WCMP)
- ▶ Site Clearance and Borrow Pit and Quarry Management Plan (SBQMP)

⁴ Attachment 2b (road safety), Attachment 5 (issues and mitigation and the Alignment Sheet, Attachment 6 (ESCOP), Attachment 7 (COC), Attachment 8 (accident report form), Attachment 9 (GRM), and Attachment 10 (community concerns).

- ▶ Waste Management and Recycling Plan (WMRP)
- ▶ Traffic and Transportation Management Plan (TTMP)
- ▶ Labor Management Plan (LMP) –COC
- ▶ Occupational Health and Safety Management Plan
- ▶ Project Change Management Plan/ Adaptive Management Plan
- ▶ Monitoring and Reporting Plan (MRP)

141. These plans will be submitted and approved by the supervision consultant and/or Field Engineer prior to the Contractor taking possession of any work site. The approved C-ESMP and/or specific plans will be submitted to EDPD/PTI for information. EDPD/PTI will provide training to the Superviaion consultants, Field Engineer, and local authorties on the preparation of the C-ESMP and/or specific plans.

142. Attachment 3 Table A3.1 presents the key issues and mitigation measures to be considered during the prepration of C-ESMP which will be included in the BD/CD of the Project.

6. PUBLIC PARTICIPATION, CONSULTATION AND DISCLOSURE

143. Public Consultation and Disclosure (PCD) is crucial for achieving an informed decision making. PCD is also a core requirement of the EIA process in Lao PDR under the Decree on Environmental Impact Assessment (2022). According to the World Bank Group’s Good Practice Manual (2007), PCD is a ‘tool for managing two-way communication between the project sponsor and the public with the goal of improving decision-making and building understanding by actively involving individuals, groups, organizations with a stake in the project’. In addition to these regulatory obligations, an open and consultative approach makes good business sense by reducing costs, reducing risks, and enhancing benefits.

144. Active and ongoing stakeholder engagement ensures the Project’s development, potential impacts, and management measures are communicated to the public while ensuring an avenue for stakeholders to participate in the decision-making process through public meetings, feedback and via grievance mechanisms. Extensive consultations have been undertaken for Project, and build on existing community and government relationships (e.g. line-sectoral agencies) formed through the work completed by LTEC with support from DOR and PTI. Throughout the ESMP and ARAP preparation, consultations and disclosure of Project information has been undertaken with government officials (at local and national levels), the local community, Affected Persons and a range of other key stakeholders.

6.1 Consultation Process and Information Disclosure

145. The project adopts a participatory consultation approach to promote meaningful consultation with project affected households. A focus is placed on consultation with affected vulnerable groups, including female headed households, ethnic minorities, women, youth, the elderly, the poor, and people with disability, etc. Consultation with relevant stakeholders was also hold to understand their perspective and inform project design as well as overall impact mitigation approach.

146. PAPs and PAHs were invited to participate in public meetings in the early stages of the ESMP and ARAP preparation. They were provided with reliable information on the proposed project, its impacts and proposed mitigation measures and economic restoration activities. Information publicly disclosed includes cut-off dates, eligibility criteria and entitlements, modalities of compensation, complaints and grievance redress procedures.

147. Both English language and Lao language versions (executive summary) of ESMP and ARAP will be posted on the MPWT official government website.

6.2 Free, Prior and Informed Consultation (FPICon)

148. Based on Detailed Measurement Survey (DMS) conducted during 16 January – 16 February 2023) has confirmed that the Project will not affected any indigenous people or ethnic groups; thus, the Ethnic Group Engagement Plan (EGEP) is not required for this Project. However, the consultant team has applied FPICon form during consultation with local communities and people.

149. The consultation with local communities and FGD were conducted with village authorities including representatives of the affected people (men and women) in 4 villages in July 2023 with a total of 120 participants (35 females and 85 males). Table 6-1 below provides number of participants while the list of participants and photos of consultations are provided in ARAP. The objectives of the stakeholder engagement activities were to:

- Define corridor of impact, update about Project progress.
- Obtain and verify information related to socio-economic conditions of affected communities and people affected households.
- Collect environmental and social condition/baseline to inform the development of ESMP and ARAP reports.
- Attain feedback or perceptions about the Project development and recommendation for stakeholder groups on the ESMP and ARAP development.
- Get acceptance and support from the government agencies to conduct the survey in the area .

150. Participatory focus group discussion at the village level: After the presentations and open group discussion at the Public /Village Consultation Meeting. The ethnic group participants were divided into two groups (male and female groups) to have in-depth focus groups discussion with male and female groups to ensure that women ethnic group could express their idea freely without intervention of males. Number and a summary of consultation and FGD findings are provided in Table 6-1 and Table 6-2 below.

Table 6-1 Number of Participants

No	Village	Consulted Date	Total Participants	Female	Male
Bolikhambay Province					
Pakkading District			120	35	85
1	Phonchaleun 201+000	7 July 2023	26	7	19
2	Nakheua 218+000	7 July 2023	27	4	23
3	Namsang 229+000	10 July 2023	47	17	30
4	Namthone 238+000	10 July 2023	20	7	13

Table 6-2 Summary of consultation results

Consultations	Positive Impacts	Negative Impacts	Recommendations/ Comments
Village level	<ul style="list-style-type: none"> • Village authorities and villagers are strongly support the project as the project will have significant positive 	<ul style="list-style-type: none"> • However, there are also negative impacts such as acquisition of private land; loss of houses and shops; 	<ul style="list-style-type: none"> • The design shall be designed to minimize the impacts on people lands and properties. • The loss and compensation amount data shall be checked and confirmed with PAPs.

Consultations	Positive Impacts	Negative Impacts	Recommendations/ Comments
	<p>impacts on improvement of the local livelihood activities, business and economic, health and well-being such as more convenience and saving time for travelling to other villages, districts, provinces, work, school, agriculture farms, transportation of agriculture products as well as reduction in road accidents, and etc.</p>	<ul style="list-style-type: none"> • Other issues are construction waste and solid waste from worker camps. • Community health and safety from transportation of construction materials, noise and dust emissions, solid waste and waste water from worker camps, and risks of Covid-19 infection. • Social issues from labour influx such as thieves, drunk, violence including gender and child violence and abuses. • Road safety due to people might drive with high speed. • Improper placement or lack of warning sign during construction may cause accidents. 	<ul style="list-style-type: none"> • Compensation should be paid for all affected lands and assets with fair prices and consultation with PAPs. The compensation shall be completed before starting any construction activities. • Notify village authorities and villagers 2 months in advance of construction takes place. • Recommend not to transport construction materials during the time where students go to schools or go home. Attention should be given to measures to mitigate noise and dust as well as regularly communicate with the school and health officials to inform them of construction activities and schedule. • Implement measures to prevent community health and safety such as control of driving speed limit, water spraying, noise control, and cover the truck when transporting construction materials to prevent falling on the road and so on. • Implement good solid waste and waste water management for worker camp and storage areas. • Implement measures to avoid social issues and risks on COVID-19 infection such as having vaccination to prevent COVID-19 outbreak before coming to work. • Request to recruit local people for construction works both men and women. • Request to not working on Buddha Day “Van Sin”.
FGD Women	<ul style="list-style-type: none"> • All participants 	<ul style="list-style-type: none"> • Request to not 	<ul style="list-style-type: none"> • The loss and compensation

Consultations	Positive Impacts	Negative Impacts	Recommendations/ Comments
	<p>agreed with the project development plan.</p> <ul style="list-style-type: none"> • The project should start as soon as possible. • Easy to travel, more convenient for transportation, safe time to travel to pick up kid and go to work. 	<p>working on Buddha Day “Van Sin”.</p> <ul style="list-style-type: none"> • Loss of income as they might have to close their shops during the construction. • Loss of their properties, fair compensations, road safety, and security during the construction phase. • Road safety after finish the construction, people might drive with high speed. • Waste from the construction and from worker camp. • Waste water from the camp. • Water stagnant during the rainy season. • Difficulty to access the house, shops or village during construction due to construction object blocking or lack of access. • Dust, noise, and vibration create by construction. 	<p>amount data shall be checked and confirmed with PAPs.</p> <ul style="list-style-type: none"> • Compensation should be paid for all affected lands and assets with fair prices and consultation with PAPs. The compensation shall be completed before starting any construction activities. • Notify village authorities and villagers 2 months in advance of construction takes place. • Recommend not to transport construction materials during the time where students go to schools or go home. Attention should be given to measures to mitigate noise and dust as well as regularly communicate with the school and health officials to inform them of construction activities and schedule. • Implement measures to prevent community health and safety such as control of driving speed limit, water spraying, noise control, and cover the truck when transporting construction materials to prevent falling on the road and so on. • Implement good solid waste and waste water management for worker camp and storage areas. • Implement temporary access way to the effected houses, stores and villages. • Regularly watering the road morning, afternoon, evening or as frequently when needed.
FGD Men	<ul style="list-style-type: none"> • All participants agreed with the project 	<ul style="list-style-type: none"> • Should continue the construction and have a clear timeline 	<ul style="list-style-type: none"> • Implement measures to prevent community health and safety such as control of

Consultations	Positive Impacts	Negative Impacts	Recommendations/ Comments
	development plan. <ul style="list-style-type: none"> • Easy to travel; more convenience for transportation • Will help increase trade and livelihood along the main road. • Increase the better living condition for the villagers. 	to complete the construction? <ul style="list-style-type: none"> • Worry about the compensation policy and whether it will be fair and appropriate. How will the house, land, and fence be compensated? • Difficult to access to village and house. • Connection of main drainage to the household drainage. • Install temporarily of connection pipe to village and house. • Dust, noise, and vibration create by construction. • Potholes and improper road warning signs may lead to accidents especially for the motorbikes. 	driving speed limit, water spraying, noise control, and cover the truck when transporting construction materials to prevent falling on the road and so on. <ul style="list-style-type: none"> • Recommend not to transport construction materials during the time where students go to schools or go home. Attention should be given to measures to mitigate noise and dust as well as regularly communicate with the school and health officials to inform them of construction activities and schedule. • Implement good solid waste and waste water management for worker camp and storage areas. • The loss and compensation amount data shall be checked and confirmed with PAPs. • Compensation should be paid for all affected lands and assets with fair prices and consultation with PAPs. The compensation shall be completed before starting any construction activities

6.3 Future Stakeholder Engagement

151. Information disclosure and consultations with the affected communities and other stakeholders will be undertaken continuously throughout the planning, construction and operation and maintenance phases. Consultation report of each consultation shall be prepared with minutes of meeting along with attendance records and the signatures of all participants. The future consultations are listed in Table 6-3 below.

Table 6-3 Future Stakeholder Engagement

No.	Consultation	Methods	Implementing Agency	Timeline
I Pre-construction				
1	Translate draft Executive Summary (ES) of ESMP and ARAP reports in Lao for disclosure in MPWT website	MPWT Website	PMU/PTI and Consultant	Aug 2023
3	Conduct stakeholders' consultation on draft ESMP and ARAP	Open public meeting	PMU/PTI and Consultant	Aug 2023
7	ARAP Implementation: Consultation with concerned authorities and affected households on compensation unit rate, confirmation of loss and compensation amount and payment method. Also develop GRM in BLKX provinces. Separate consultations may need to be conducted with vulnerable households and individuals to ensure that their concerns and needs have been met.	Face-to-face, Meetings and open discussions	PMU/PTI	TBC
8	Development of GRM poster and dissemination of project information and GRM process in all affected villages	Distribution of PIBs to all affected villages	PMU/PTI	TBC
9	Conduct training on ESMP, ARAP including implementation to PIUs, SMWGs and village authorities	Training workshop	PMU/PTI	TBC
II During Construction				
1	CESMP Implementation: Consultation with communities and households that live adjacent to the COI (1.5m buffer zone) to obtain and address their concerns and recommendation on the community health and safety, noise and vibration impacts, damage to structures and block or disturb the access. Incorporate all concerns and recommendations in the	Open meetings, FGD and individual discussion where needed.	Contractor and ISMC	Throughout construction phase

No.	Consultation	Methods	Implementing Agency	Timeline
	CESMP and report back to the communities.			
2	Regular consultations with affected communities including ethnic groups and authorities on project activities, impacts, construction schedule and work plan and to ensure that their concerns and needs have been met during the construction, operation and monitoring phases.	Open meeting	Contractor and ISMC	Throughout construction phase
3	Dissemination of community health and road safety campaigns with affected communities	Open meeting	Contractor and ISMC	Throughout construction phase
4	Ad hoc meetings on a basis where substantial changes have been made or conflict has arisen due to accident, misunderstanding or other causes.	Meeting, Focused Group Discussion and In-depth Interview	Contractor and ISMC	Throughout construction phase
III	During O&M Phase			
1	Consultations with affected communities on project activities, impacts, construction schedule and work plan	Open meeting	Contractor and ISMC	O&M Phase
2	Dissemination of community health and road safety campaigns with affected communities	Open meeting	Contractor and ISMC	O&M Phase
3	Consultation with affected communities on participatory and sustainability road operation and maintenance	Open meeting	Contractor and ISMC	O&M Phase
IV	Monitoring and Reporting			
1	Monitoring and reporting of GRM implementation and submit Bi-annual reports to the AIIB.	Include section on stakeholder engagement activities in the annual self-monitoring report.	PMU/PTI and ISMC	Annually

7. GRIEVANCE REDRESS MECHANISM (GRM)

152. A grievance redress mechanism (GRM) will be established and functioning during the implementation of the ESMP and ARAP. The GRM, covering four types of grievances, is in place since pre-construction until construction and operation of the Project. These include grievances from a) community members including general public; b) households affected by land acquisition (both affected households with land titles and non-land titles); c) SH/SEA victims; and d) contractor's workers. To achieve the above objective, the following key elements are incorporated into the subproject's GRM:

- **Channels.** Different channels are established to enable complainant to submit their grievances, including submission to village committee, as well as district and provincial levels. Grievance can also be submitted to PMU/PIU via designated email or phone administered by PMU/PIU GRM focal points. The project will also establish user friendly and easily accessible means of communication such the hotline phone call, social media, WhatsApp or Facebook, if and where technologically feasible to facilitate efficient GRM process. GRM procedures and contact detail of responsible staff will be provided in a Project Information Leaflet (PIL) to be prepared and distributed to all project affected villages during the GRM training for village mediation committees for their references.
- **Forms.** Grievances can be submitted in writing and verbally, and either directly by the complainants, or by person delegated by the complainant who are sick, the elderly, or people with physical disabilities, or with vision or hearing impairment, etc. See Attachment 7 Form to Submit Grievances.
- **Documentation.** A grievance logbook will be maintained at village, PIU and PMU as well as contractor and Implementation Support and Monitoring Consultant (ISMC) offices to record all Project related grievances registered in writing and verbally. A grievance database will be established and maintained by PMU/PIU (through GRM focal point within PMU/PIU). See Attachment 7 Form for GRM Logs.
- **Disclosure.** GRM procedures are disclosed in public domain (e.g. websites of PMU, or at public notice board located at village hall...). GRM procedure will be explained to people attending consultation meetings, and provided to consultation participants in hard copy (through subproject's information leaflet). The GRM procedures to be followed have been translated into Lao language and it will be prepared in local language as needed so that they are easily accessible to all stakeholders and made available by the PMU. Information on the steps to be followed in handling grievances has been incorporated into the consultation process with local community.
- **Predictability.** Where possible, GRM procedures specify length of time complainant may expect to wait for acknowledgement, response, and outcome for the resolution of their grievances.
- **Transparency.** The grievance procedures include steps, expected time frame grievance resolution for each step, notification to complainants, how decision is made, decision makers, mediation options, and

- **Appeal.** Complainant may resort court of law at any stage of grievance resolution if unsatisfied with grievances resolution decision issued by the agency in charge.
- **Monitoring.** All grievances received are processed in the given timeframe, and are monitored by those in charge of grievance resolutions, and by PMU/PIU.

7.1 GRM for Community Members and General Public

153. Community members who are concerned about any issues related to the subproject construction, such road safety, air pollution, vibration, restriction of access to local public or private facilities, etc., can make verbal or written complaints directly to PMU/ PIU (through PMU/PIU GRM focal points), or through village heads/committee. Complaints directly related to contractors' responsibilities can also be directed to Site Representative of the main Contractor(s). In case complainant is not satisfied with the resolution from the steps above, they can initiate their case to the local court. Contractor shall place a Comment Box with mobile number(s) of ESU/DPWT at all affected communities/villages so that the worker can make complaints to the PMU/DPWTs.

7.2 GRM for individuals/households affected by land acquisition

154. ARAP has established means for affected persons (both with land titles and non-land titles) to bring complaints to the attention of relevant project authorities. GRM is built on the existing national system with Village Mediation Unit/Committee in place in all villages and fiduciary structure from the district to national levels. Grievance procedures should include reasonable performance standards, e.g., time required to respond to complaints, and should be provided without charge to displaced persons. The RP/ARP should also state other avenues available to aggrieved persons if the project-related procedures fail to resolve complaints. Article 23, 24, 25 of the Decree 84/PM requires the Project to establish an effective mechanism for grievance resolution. The Decree requires that the subproject proponent (i.e. DWPT) is responsible for setting up GRM and take actions to solve the issues. More details are provided in ARAP.

7.3 GRM for SEA/SH and VAC

155. Under this Subproject, the GRM for Sexual Exploitation and Abuse/Sexual Harassment and Violence Against children (SH/SEA and VAC) mainly serves to: (i) refer complainants to local Gender-Based Violence service provider; and (ii) record resolution of the complaint. The following principles will be applied. These principles recognize victim as principal decision makers in their own care, and treat them with agency, dignity and respect for their needs and wishes.

- **Multiple channels** are in place for easy access and lodge complaints;
- **SH/SEA victims will be referred to local GBV service provider** for immediate support if they make a complaint directly to PMU;
- **Confidentiality of victims is protected.** GM operator of PMU will keep SH/SEA allegation report confidential;
- **No identifiable information on the victim shall be collected and stored** in subproject Grievance Logbook;

- **Costs of operating the SH/SEA GRM will be financed by the subproject.**

5. Channels for lodging SH/SEA complaints:

- **Channel 1** – AP can submit a complaint, verbally or in writing, to the PMU
- **Channel 2** –Alternatively, AP can lodge their complaint, verbally or in writing, GRM Focal Point of PIU.
- **Channel 2** – AP can submit a complaint to relevant Contractors, if relevant.

156. All SEA/SH and VAC related grievance will be addressed directly by the Lao Women Union (LWU) who will be engaged by PMU to assist in addressing potential grievances on SEA/SH and VAC.

157. The Subproject and organizations resolving PAP complaint and appeal process will not charge any fees. Any expenses incurred due to submission of complaints and/or appeals and phone calls should be classified as unexpected expenses and covered by the subproject.

7.4 GRM for Workers

158. Contractor shall place a Comment Box with mobile number(s) of SMWGs/DPWTs at the worker camp so that the worker can make complaints to the PMU/PIU.

7.5 Submitting Grievances or Complaints

159. The organizations addressing the affected people's complaint and appeal shall not charge any fee. Any expenses incurred due to complaint and appeal should be paid as unexpected expenses by the relevant project implementation agency. To make GRM more efficient and responsive, contact details including phone numbers of responsible site engineers and focal points at PPWTs will be provide in the project information leaflet to be prepared and distributed to all Project Affected Households (PAHs) and Project Affected Villages (PAVs). Experience from road projects in other countries suggest that phone call is more frequently used by affected people as most complaints raised are often related to to-day-to-day issues/impacts from civil work (e.g. dust, noise, road accidents and safety, construction materials and equipment left blocking access to PAHs , work delayed).

160. **AIIB PPM.** The communities and individuals who believe that they are adversely affected by an AIIB supported project may submit complaints to existing project-level grievance redress mechanism or the AIIB's Project-affected People's Mechanism (PPM). The PPM has been established by the AIIB to provide an opportunity for an independent and impartial review of submissions from Project-affected people who believe they have been or are likely to be adversely affected by AIIB's failure to implement its Environmental and Social Policy in situations when their concerns cannot be addressed satisfactorily through Project-level Grievance Redress Mechanisms or AIIB Management's processes. For information on how to make submissions to the PPM, please visit <https://www.aiib.org/en/policies-strategies/operational-policies/policy-on-the-project-affected-mechanism.html>

161. The communities and individuals who wish to submit their complaints to the existing project-level grievance redress mechanism could be done by contacting the relevant staff and organizations using form for submitting complaints or grievances are provided in ARAP.

7.6 Recording Grievances

162. Established and managed by the PMU, a complaints register will be established as part of the project to record any concerns raised by any stakeholder during the implementation of the project. Any serious complaint (such as life-threatening, relating to GBV/SH or criminal) will be advised to the AIIB within 48 hours of receiving the complaint. This register is multi-tier (village, district, province, PMU), with the PMU having overall responsibility for the database.

163. A summary list of complaints received, and their disposition, along with key statistics on the number of complaints and duration taken to close out, must be reported in each regular progress report. Each record is allocated a unique number reflecting year and sequence of received complaint (for example 2021-01, 2021-02 etc.). Complaint records (letter, email, record of conversation) should be stored together, electronically or in hard copy under the responsibility of the PMU.

164. Grievances can be submitted anonymously, or the aggrieved person can also request their name be kept confidential. Responsibility for the Grievance Log will be with the PMU office. Grievances will be recorded in a Grievance Logs (**Attachment 5-5 in ARAP**). This information shall include:

- Stakeholder name and contact details (if not anonymous).
- Details of the nature of the grievance.
- Date received, date investigated, date decided on, who decided on it, what response was provided, date of implementation of decision, etc., and
- How it was submitted, acknowledged, responded to, and closed out.
- Grievances can be submitted anonymously, or the aggrieved person can also request their name be kept confidential. Responsibility for the Grievance Log will be with the Project Management Unit (PMU).

8. MONITORING ARRANGEMENTS

8.1 Compliance Monitoring

165. PMU/DOW (who is responsible for the day-to-day implementation and operation of the Project, including contracting and supervision of all consultants for the Project) is responsible for ensuring effective implementation of the ESMP, ARAP and CESMP including adequate allocation of budget. PMU/DOR will also ensure that the ISMC is responsible for supervision and compliance monitoring of works contracts will also be responsible for supervision, capacity building, day-to-day compliance monitoring of contractor compliance with the C-ESMP. EDPD/PTI with TA from ISMC is responsible for providing technical guidance on the ESS requirements and periodical compliance monitoring of the ESMP and CESMP implementation including management of the ESMP budget for the Project. EDPD/PTI with TA from ISMC will conduct 6-month monitoring of ES compliance and submit a report to AIIB. EDPD/PTI with TA from ISMC will also ensure that the Project is also in compliance with GOL requirements regarding ES requirements and standards (such as ECC conditions).

166. At provincial level, PIUs/DPWTs of BKK will assign specific staff and/or engineer (at least 1 full-time) to be responsible (as the ESU/DPWT) for ensuring full compliance with the E&S safeguard requirements on the ground and prepare E&S safeguard implementation quarterly monitoring report as agreed with EDPD/PTI.

167. The SMWG comprising DPWT, PONRE, LWU, and other related local be responsible for undertaking periodic compliance monitoring of the ESMP and CESMP implementation including GRM tracking and Contractor performance of the approved C-ESMP. For land acquisition and relocation of assets, the PRGCs and DRGCs that have been established will be responsible for the review and oversight of RP implementation. The Village Grievance Committee (VGC) will be established to be responsible for overseeing the GRM implementation using the existing structures with a village mediation committees and fiduciary agencies (District and Provincial Office of Justice, Provincial Assembly, PWTs and District Governor Office). EDPD/PTI with TA from ISMC will also be required to (a) review/adjust the current monitoring and reporting forms to enhance effectiveness of the monitoring and reporting process and (c) ensure that adequate budget can be transferred to the DPWT and the SMWG and timely submission of the ES monitoring report to AIIB.

168. Following approval of the C-ESMP, the Contractor will be required to attend a series of meetings with the ISMC and/or Field Engineers to ensure that all compliance conditions and procedures are clearly understood and actions can be implemented on the ground. As part of the day-to-day supervision of works, ISMC/Field Engineers are also responsible for day-to-day supervision and monitoring of compliance of the C-ESMP and report the results in the progress reports. The Contractor will be responsible for ensuring that all sub-contractors abide by the conditions of the ESMP, C-ESMP, ESCOP, and COC.

8.2 Effects Monitoring

169. ISMC shall be responsible for conducting the instrument monitoring and will engage external service from a certified laboratory for air quality, noise and water quality, as and when

required (see **Table 8-1**). During the O&M phase, ISMC will be responsible for the monitoring; after the expiry of their contract, PTI will be responsible for this task (see **Table 8-2**). The monitoring shall be carried out in compliance with best international practices. The location and number of monitoring sites as well as frequency of monitoring can be adjusted as required.

Table 8-1 Monitoring Plan – Construction Phase

Aspect/Impact	Parameters	Frequency	Location	Responsibility	
				Monitoring ⁵	Checking/ Verification
Air quality	PM _{2.5} and PM ₁₀ , Dust deposition rates	Quarterly	Near key sensitive receptors (schools and health care facilities). Minimum 5 sites along alignment. Sites should be moved progressively along alignment as construction progresses. Sites should also include receptors near quarries and borrow pits.	ISMC	DPWTs/PIU and PMU
	Visual inspect of dust	Daily	All construction sites, access roads and construction materials sites	Contractor and ISMC	DPWTs/PIU and PMU
Noise and vibration	Noise levels in dB(A) LAeq (daytime and night-time), Airblast dB(L), Ground vibration peak particle velocity (PPV)s	Quarterly	Near key sensitive receptors (schools and health care facilities). Minimum 5 sites along alignment. Sites should be moved progressively along alignment as construction progresses. Sites should include receptors near quarries and borrow pits.	ISMC	DPWTs/PIU and PMU
Water Quality	Field water parameters (pH, Redox potential (ORP), Dissolved Oxygen (DO), Electrical conductivity (EC), Total Dissolved Solids (TDS), Turbidity and temperature) Laboratory testing for pH, EC, Total Dissolved Solids (TDS) & Total Suspended Solids (TSS), Total alkalinity	Quarterly; and before, during and after construction of bridges over water bodies	Rivers, creeks and wetlands upstream and downstream of construction areas main watercourses with active construction sites.	ISMC	DPWTs/PIU and PMU

⁵ ISMC to engage external services from a certified laboratory for environmental instrumental monitoring of air quality, noise and water quality

Aspect/Impact	Parameters	Frequency	Location	Responsibility	
				Monitoring ⁵	Checking/ Verification
	(or acidity), bicarbonate alkalinity, carbonate alkalinity & total hardness as CaCO ₃ , Nutrients, Cations & anions, and Total & Dissolved metals				
Wastewater and effluents	Field measurements. Laboratory analyses: Total and fecal coliforms, total nitrogen, total phosphorous, COD, and BOD	Monthly	Waste water discharges from camps and offices	ISMC	DPWTs/PIU and PMU
Erosion and Sediment transport	Bed scour, bank failure, maintenance requirement for erosion / sediment control (visual inspection)	Weekly	Diversion channels, culverts, temporary water diversion structures, outlet protection, construction sites (slop), quarry and borrow pits.	ISMC	DPWTs/PIU and PMU
Waste management (general waste and hazardous waste)	Use of appropriate waste bins, separation and proper disposal of waste (visual inspection)	Weekly	Workers' camps, Construction areas, ancillary facilities, operational infrastructure	ISMC	DPWTs/PIU and PMU
Workers' camp management	General housekeeping, OHS, COC (Visual inspection)	Monthly	Workers' camps	ISMC	DPWTs/PIU and PMU
Implementation of C-ESMP	Compliance with all environmental, occupational, health and safety measures as specify in Attachment 5,6,7	Daily	Construction sites, camps and affected communities, other project sites	ISMC	DPWTs/PIU and PMU
Grievance monitoring	Complaint log book and comment box	Monthly	Affected villages and workers' camps	ISMC	DPWTs/PIU and PMU

Table 8-2 Monitoring Plan (O&M Phase)

Aspect/Impact	Parameters	Frequency	Location	Responsibility	
				Monitoring	Checking/ Verification
Air quality	PM _{2.5} and PM ₁₀ , Dust deposition rates	Six Monthly	Near key sensitive receptors (schools and health care facilities). Minimum 5 sites along alignment.	ISMC / PTI	DPWTs
Noise	Noise levels in dB(A) LAeq (daytime and night-time), Airblast dB(L), Ground vibration peak particle velocity (PPV)s	Six Monthly	Near key sensitive receptors (schools and health care facilities). Minimum 5 sites along alignment.	ISMC / PTI	DPWTs
Water Quality	Field water parameters (pH, Redox potential (ORP), Dissolved Oxygen (DO), Electrical conductivity (EC), Total Dissolved Solids (TDS), Turbidity and temperature) Laboratory testing for pH, EC, Total Dissolved Solids (TDS) & Total Suspended Solids (TSS), Total alkalinity (or acidity), bicarbonate alkalinity, carbonate alkalinity & total hardness as CaCO ₃ , Nutrients, Cations & anions, and Total & Dissolved metals	As required	Rivers, creeks and wetlands near any maintenance works	ISMC / PTI	DPWTs
Wastewater and effluents	Field measurements. Laboratory analyses: Total and fecal coliforms, total nitrogen, total phosphorous, COD, and BOD	Six Monthly	Discharges from camps and offices	ISMC / PTI	DPWTs
Waste management (general waste and hazardous waste)	Use of appropriate waste bins, separation and proper disposal of waste (Visual inspection)	Monthly	Workers' camps, operational infrastructure	ISMC / PTI	DPWTs
Workers' camp management	General housekeeping, OHS, COC (Visual	Monthly	Worker camps	ISMC /PTI	DPWTs

Aspect/Impact	Parameters	Frequency	Location	Responsibility	
				Monitoring	Checking/ Verification
	inspection)				
Implementation of C-ESMP	Compliance with all environmental, occupational, health and safety measures as specify in Attachment 5,6,7	Daily	Construction sites, camps and affected communities, other project sites	ISMC /PTI	DPWTs
Grievance monitoring	Complaint log book and comment box	Monthly	Affected villages and workers' camps	ISMC / PTI	DPWTs

9. ESMP IMPLEMENTATION AND BUDGET

9.1 Institutional Arrangements

170. In line with the existing NR13S implementation arrangement, DOR through the Project Management Unit (PMU)⁶ and the Project Implementation Unit (PIU) are responsible for ensuring effective and timely oversee and/or facilitate the implementation of ESMP and ARAP and submit monitoring reports periodically to AIIB and while EDPD/PTI as member of PMU is responsible for providing technical guidance to PMU/DOR and PIUs/DPWTs on the implementation and compliance monitoring of the approved ESMP and ARAP by AIIB while training, capacity building, and reporting of the ESMP and CESMP are responsible by ISMC. With TA from ISMC, EDPD/PTI will conduct 6-month monitoring of ESS compliance and submit a report to AIIB. EDPD/PTI will also ensure that the Project is also in compliance with GOL requirements regarding ESS. It was determined that an Initial Environment Examination (IEE) and compliance with an Environmental Compliance Certificate (ECC), issued for the ongoing NR13S project, will be monitored by a Safeguard Monitoring Working Group (SMWG) to be established by BKX. The SMWG will be chaired by DPWT of BKX and comprise representatives from key agencies responsible for ensuring compliance with GOL regulations during construction including key local communities to affected during construction and those to be involved during operations phase.

171. For the subproject, the Project Implementing Unit (PIU) (DPWT of BKX) is responsible for ensuring timely and effective implementation of the ESMP during preconstruction, construction, and operations including those related to ARAP planning and implementation and monitoring of the Project and all safety related on the ground while PMU/DOR with TA EDPD/PTI will be responsible for supervision, monitoring, and reporting to AIIB. Key roles and responsibilities can be highlighted as follows:

- During preconstruction, the PIU/DPWT of BKX will establish the provincial resettlement and grievance committee (PRGC) and district resettlement and grievance committee (DRGC) to be responsible for timely implementation of RP as approved by AIIB. PMU/DOR through Road Maintenance Fund (RMF) will provide funds for implementation of RP.
- During construction and O&M, the PIUs/DPWTs and the ISMC/FE will be responsible for the day-to-day compliance monitoring on sites, including ensuring close consultation between contractor and LA/LC and submit quarterly progress reports to PMU/DOR and EDPD/PTI. The PIUs/DPWTs will also liaise with the concerned local agencies and authorities to ensure effective and timely coordination among contractor, ISMC, and local authorities and local communities (LA/LC), and identify issues arising from sites and

⁶ At Project level, the PMU/DOR is responsible for management, procurement, contracting and financial management of the Project as well as monitoring the implementation progress against the agreed performance indicators and produce period progress reports. The PMU/DOR is responsible for managing the detailed design and also provides oversight of Project implementation and consultation with key stakeholders and the public including the management of the supervision consultant (CSC) during Project implementation.

propose solutions to the PMU/DOR and PTI and/or higher-level management. The PIUs/DPWTs will also be responsible for establishment of the SMWGs to ensure compliance monitoring with the ECC and other GOL regulations while PMU/DOR will sign a contract with the ISMC and the contractor and also provide budget for PIUs for the planning and compliance monitoring by the SWMGs and other associated costs while PTI will ensure effective fund flow from PMU/DOR to SMWGs to performance their functions. The member of SMWG consists of DPWT; Provincial Department of Natural Resources and Environment (PONRE); Provincial Lao Women Union (PLWU); Provincial Department of Labour and Social Welfare (DOLSW); the Lao Front for National Development (LFND); and Provincial Assembly (PA).

172. The ISMC and/or Field Engineers responsible for supervision and monitoring of works contracts will also be responsible for approval of the Contractor Environmental and Social Management Plan (C-ESMP) and day-to-day supervision and monitoring of contractor compliance with the C-ESMP during the implementation of the Project including ensuring full compliance with the ESS measures as required by the AIIB and GOL. The tasks include, but not limited to, the followings:

- Review and recommend for approval of the detailed designs as well as the C-ESMP to be prepared and submitted by the contractor (including any adjustments, compliance with design standards and international best-practice in terms of climate resilience, recommendations on road safety from road safety audits, ESS measures especially those related to safety of workers and local communities, etc.) in line with the Project ESMP and ARAP approved by AIIB and GOL;
- Monitor works progress, compliance with minimum requirement of technical specifications of the works and quality control, as well as ensuring compliance with C-ESMP and other ESS requirements during construction and maintenance works;
- Monitor compliance with service levels of the O&M activities from start up till the end of the Assignment, including providing advice to MPWT on technical issues, contract management, and safeguard activities;
- Supervise and monitor the implementation of mitigation measures to reduce potential negative impacts on local environment and local people during construction and maintenance services as required by the AIIB and GOL, including review, approve, and monitor the C-ESMP to be prepared and implemented by Contractor. Special consideration will be given to ensure effective implementation of the ESHS measures to prevent and address occupational and community health and safety issues of workers and local communities and compliance with the Code of Conduct (COC) related to SEA, GBV, VAC, and the campaigns related to HIV/AIDs awareness and road safety;
- Strengthen the capacity of DoR/MPWT to implement and monitor OPBRC contracts and climate resilient roads including those related to ESS measures;
- Arrange management meetings, site inspections and other jobs conferences in liaison with the OPBRC Contractor;

- Engage external service from a certified iRAP (international Road Assessment Programme) consultant to perform baseline and post-construction assessments and star ratings for the Project;
- Other ESS tasks as required in the ISMC’s TOR.

173. Contractor is responsible for preparation, implementation, self-monitoring and reporting of the C-ESMP and submits monthly report to ISMC.

174. Table 9-1 summarizes key institutional responsibilities for the implementation of the ESMP at various stages of the Project.

Table 9-1 Institutional Arrangement for ESMP Implementation

Project Stage	Responsible Institution	Key Responsibilities
Preparation		
Land acquisition and/or relocation of asset (ARAP)	PMU/DOR, EDPD/PTI, and PRC	<ul style="list-style-type: none"> • Secure AIIB clearance of the RAP/ARAP and • Implement/Monitor/Report the implementation progress of the RAP/ARAP
ESMP for AIIB clearance	EDPD/PTI assisted by consultant	<ul style="list-style-type: none"> • Ensure ESMP is cleared by AIIB before bidding
IEE for BKX	EDPD/PTI assisted by the in-house consultant	<ul style="list-style-type: none"> • Ensure approval by PONRE BKX before construction begins. The construction of these four new bridges is part of the ongoing NR13S and ECC conditions of the NR13S will be applied.
Detailed Design and preparation of Bidding (BD) and Contract Documents (CD)	PMU/DOR and EDPD//PTI with the Detailed Design Consultant and its ESS Team (LTEC).	<ul style="list-style-type: none"> • Avoid and minimize the need for land acquisition and relocation of assets. • Incorporate ESMP mitigation measures into detailed engineering design.
	EDPD/PTI	<ul style="list-style-type: none"> • Ensure ESMP is incorporated into the BD/CD.
		<ul style="list-style-type: none"> • Review Contractors proposals to ensure that they are aware of the ESMP requirements and that line items for environmental management as per the ESMP are included in the BOQ.
Site Clearance and Construction	Contractor	<ul style="list-style-type: none"> • Prepare C-ESMP in line with the SS-ESMP • Obtain all necessary environmental and social related permits for construction.
	PMU/DOR, CSC/Field Engineer	<ul style="list-style-type: none"> • Review and approve C-ESMP and send a copy of the approved C-ESMP to EDPD/PTI
	Contractor	<ul style="list-style-type: none"> • Attend periodical meeting on site management and monitoring with CSC/Field Engineer

Project Stage	Responsible Institution	Key Responsibilities
Construction and O&M phases during the OPBRC services	Contractor	<ul style="list-style-type: none"> Daily monitoring of environmental and social issues by the contractor ESSM team. Preparation of weekly environmental and social checklists. Preparation of Monthly environmental and social reports. Preparing Corrective action plans as needed.
	PMU/DOR and EDPD/PTI	<ul style="list-style-type: none"> Periodic site visits (6-months) to monitor Contractors environmental and social performance.
	CSC/Field Engineer	<ul style="list-style-type: none"> Weekly monitoring of the Contractors compliance with ESMP / C-ESMP . Issuing the Contractor with Non-compliance Notices. Monthly reporting to PMU/PTI of Contractors performance based on the review of Contractors weekly checklists and weekly site visits. Quarterly Environmental and Social Reports prepared by the ESS2 and submitted to PMU/PTI and AIIB.
3-month monitoring	ESU/PMU and the Monitoring Working Group	<ul style="list-style-type: none"> Monitor compliance and adequacy of the C-ESMP and ECC to be issued by PONRE of BKK.

9.2 ESMP Capacity Building and Training

175. As part of the LRSP2-AF, through the ESMF implementation budget, about \$0.3M has been allocated for ensuring effective implementation of the ESS requirements for NR13S. Specific budget has been allocated for (a) ensuring effective monitoring, reporting, and training to ensure full compliance including consultation and implementation of EGEP and (b) technical assistance and capacity building and/or priority action research activities on ESS. Implementation experience of the LRSP2 suggested that more detailed specific guidelines and more extensive training and capacity building on environmental, social, and occupational health and safety (ESOHS) will be necessary to enhance performance on the ground. Improving effective site management, effective application of Personal Protection Equipment (PPE), active participation of local communities, and effective application of GRM record will be necessary with proper tracking records.

176. DPWT will also be required to establish a Monitoring Working Groups (MWG) comprising ESU/DPWT, PONRE, LWU, and other related local authorities to be responsible for undertaking periodic monitoring of the ESMP, ARAP, and EGEP implementation including GRM

tracking and Contractor performance of the approved C-ESMP. EDPD/PTI will also provide review the current monitoring and reporting forms to enhance effectiveness of the monitoring and reporting process. EDPD/PTI will ensure that adequate budget can be transferred to the ESU/DPWT and the MWG and timely submission of the ESS monitoring report.

9.3 Reporting System

9.3.1 PMU/PTI Reporting

177. PIUs/SMWGs will conduct monthly/quarterly compliance monitoring and submit a quarterly ESS monitoring to EDPD/PTI. EDPD/PTI with TA from ISMC will compile into Quarterly ES Monitoring Reports and submit to AIIB.

9.3.2 ISMC Reporting

178. The ISMC shall prepare the following reports:

- Inception Report (maximum length of 15 pages, excluding annexes). The Inception Report shall include a work plan for the assignment, team composition, challenges anticipated and comments to the TOR, if any. List of people met and minutes of meetings shall be provided in Annexes, if any. The draft Inception Report and Implementation Work plan to PMU and PTI/EDPD and the AIIB within two weeks after the date of contract signing. The final Inception Report and the implementation Work Plan shall be submitted within one week after receipt of approval from the PMU and EDPD/PTI and the AIIB.
- Monthly ESS Reports: The Consultants shall prepare a concise monthly ESS report, in a format to be agreed with DoR/MPWT. These reports will be sent to DoR/MPWT within one week of the end of the month. Such reports shall summarize the activities of the Consultants including those related to ESS activities, the progress of the OPBRC, all contract variations and design changes, the status of Contractor claims (if any), brief descriptions of the technical and contractual problems being encountered (and solutions recommended) progress and issues related to the implementation of the ESS activities and other relevant information.
- ISMC shall report accidents involving fatality or serious injuries to the owner immediately or no later than within 2 hours they come to know about the accident; PMU to report to the lenders within 24 hours. Other Lost-time accident shall be reported to the lenders within 3 days so the ISMC shall report to PMU accordingly in advance. Investigation shall be carried out by IWMC and submit a Root Cause Analysis report to the PMU within agreed timeframe so that the PMU could submit to the lenders in 45 days.
- The Consultants shall ensure the immediate reporting to DoR/MPWT, DPWT, and EDPD/PTI of complaints related to GBV and/or child abuse, any pollution incident/accident, any fatality and/or bodily harm affecting Project (including contractor) staff or project affected people, any public opposition, and the issuance of any notice or fine for breach of environmental, labor, health or safety laws and regulation.
- ESS Quarterly Monitoring Reports: In close consultation with EDPD/PTI, the Consultants shall prepare and submit to the MPWT, AIIB (within 14 days after the end of the period) a

consolidated semi-annual and annual monitoring report summarizing all environmental and social safeguard activities (ESMP, CESMP including GRM) including progress and records on GRM and other aspects related to road safety, workers OHS, employment, community health and safety, etc. The report shall also summarize the performance of the Consultant's staff in implementing their supervision responsibilities. The quarterly report shall also summarize the performance of the Consultant's staff in implementing their monitoring supervision responsibilities. In addition, the report will also include progress and issues related to the implementation of environmental and social safeguards, as well as works' compliance with AIIB requirements. Preparation of a separate ARAP implementation and/or other monitoring reports may also be required during the Assignment as requested by the GOL and/or AIIB.

9.3.3 Contractor Reporting

179. Contractors Reporting - The Contractor will prepare two levels of environmental and social reports:

- Weekly Environmental and Social Checklists – These will be prepared weekly by the Contractor's ES team and the checklist will be submitted to the ISMC/Engineer on a weekly basis.
- Monthly Environmental and Social Summary Report - in respect of compliance with C-ESMP will be submitted to the PMU/DOR through ISMC/Engineer. The report will be in line with the ESHS requirements as described in the BD Part II Section IX - Particular Conditions of Contract.
- Contractor will report any incidents/accidents that may have impacts on the safety, health, environment or community, or any activity resulting in regulatory non-compliance or breach of GoL or AIIB's ESP/ESS. ISMC/Engineer will need to develop an incident/accident reporting system to document any reportable events such as injury, hazardous spills, or community incidents (e.g. private property damage). The reporting system should record the following events:
 - Injury, illness or accident;
 - Near miss (with serious or major potential for loss);
 - Non-contained fires within or near operational areas;
 - Chemical spills;
 - Uncontrolled gas emissions;
 - Spills of fuel or oil greater than 50 L within bunded workshop or other operational areas (safety and environmental incident);
 - Spills of fuel or oil outside of bunded areas greater than 10 liters (environment incident);
 - Community incidents (e.g. private property damage, injury to livestock);
 - Any other environmental and social incident involving damage to the environment and grievance from the workers and communities or road user's during construction.
- Accidents / incidents will be classified according to their actual and potential safety, environmental or social impacts using a standard consequence matrix to ensure

consistency. The system will need to record the following types of auditable information into a report:

- Description of the incident / accident/event and its causes;
- Risk rating of the event (according to a standard rating system / consequence matrix);
- Root cause analysis
- Description of appropriate corrective and preventative actions and their proposed timeline for implementation;
- Status of corrective actions (to be updated once closed out); and
- Actual or estimated costs of repair, clean-up or other remedial measures.

9.3.4 Non-Compliance Reporting Procedures

180. The Contractor and its subcontractors if any must comply with the ESMP and C-ESMP. To ensure that necessary action has been undertaken and that steps to avoid adverse impacts and/or reoccurrence have been implemented, the Project Manager/ES Manager, and/or the Contractor must advise PMU/DOR, DPWT, EDPD/PTI within 24 hours of any serious incidents of non-compliance that may have serious consequence so that PMU/PTI can advise AIIB within 48 hours. In the event of working practices being deemed dangerous either by the subproject owners, the local authorities, or the other concerned agencies, immediate remedial action must be taken by the Contractors. The Contractor must keep records of any incidents and accident and any corrective/ameliorative action taken. The records of non-compliance that could be practically addressed (not cause serious impacts) will be reported to PMU/DOR and DPWT with a copy to EDPD/PTI on a monthly basis.

181. The Contractor will be responsible for dealing with any reports/grievance forwarded by the project investment owner, Police or other agencies (by following instruction from the project investment owner representative as appropriate) as soon as practicable, preferably within one hour but always within 24 hours of receipt by either the Contractor. The Project Manager/ES Manager will monitor and ensure that the Contractor has taken appropriate action. Where appropriate, approval remedial actions may require an agreement from the local authorities and/or other Government agencies. Procedures should be put in place to ensure, as far as is reasonably practical, that necessary actions can be undertaken to avoid recurrence and/or serious damage.

9.4 ESMP Implementation Budget

182. The ESMP implementation cost will be part of the Project cost. It comprises (a) cost for preparation and implementation of the mitigation measures during road rehabilitation and maintenance (C-ESMP) which will be part of the Project construction cost; (b) cost of land acquisition and/or compensation of assets or relocations (if any); (c) cost of UXO clearance (if required); (d) cost for monitoring and reporting; (e) cost for capacity building and implementation of GRM; (f) cost for PTI consultants and (g) other miscellaneous cost. At present, it has been agreed that the cost for (a) will be incorporated into the works contract cost while the cost for (b) and (c) will be part of GOL cost (RMF). Costs for (d), (e) and (f) have been allocated as part of ESMP implementation for the on-going NR13S responsible by EDPD/PTI and partially by the CSC and the contractor.

10. ATTACHMENTS

183. This ESMP consists of 8 Attachments as listed below:

- Attachment 1: Summary of GOL's Applicable Regulations
- Attachment 2: Photos of Existing Bridges and E&S Maps
- Attachment 3: Key Issues and Mitigation Measures to be included in the C-ESMP
- Attachment 4: Generic Environment and Social Code of Practices (ESCOP)
- Attachment 5: Project Code of Conduct (CoC) on Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH), and Violence Against Children (VAC)
- Attachment 6: Accident Reporting Procedure and Form
- Attachment 7: Sample Form of Grievance Redress Mechanism Monitoring
- Attachment 8: Contingency Planning for Response to COVID-19

Attachment 1: Summary of GOL’s Applicable Regulations and EIB E&S Requirements

A1.A: Summary of GoL’s relevant Regulations

Table A1.2 summarizes GoL’s relevant regulations to be used for the Project

Table A1.1: Key national policies, strategies laws and regulations relevant to the Project

Instrument / Legislation	Year	Overview	Relevance to the Project
Constitution			
The Constitution of the Lao PDR (amended)	2015	<p>The Constitution, as the supreme law, provides the legal and regulatory framework in the country and provides for all aspects pertaining to land, to the environment and other related aspects.</p> <p>Article 14: The State promotes investment by all domestic economic sectors in production, commerce, and service, to contribute to the industrial transformation and modernisation of, and to develop and strengthen, the national economy.</p> <p>Article 19: The State promotes the protection and restoration of the environment that has been damaged and degraded to improve it so that it may become abundant and sustainable. All organizations and citizens must protect and preserve the biodiversity and use natural resources in line with the direction of ensuring sustainability.</p> <p>Article 21: The State attaches great importance to the development of the economy in conjunction with cultural development and sustainable environment by giving priority to human resource development.</p>	The Constitution, therefore, requires that the Project should be implemented without endangering human health and the environment. The Project will have to be undertaken in line with these constitutional obligations.
National Policies and Strategies			
9 th National Socio-Economic Development Plan (NSEDP) 2021 - 2025	2021	The 9 th NSEDP outlines the country’s medium term development priorities and implementation strategies. It advocates the mining sector by increasing the efficiency of pre-export mineral processing. The Plan encourages the establishment of processing plants or smelters to generate products for domestic consumption and export.	The Project is in line with the priority development area of the NSEDP and is outlined as one of the ‘Priority Project’ for Outcome 5 of the transport sector.
5-year Development Plan 2021 – 2025 of Ministry of Public Works	2021	The Plan sets out overall directions, development goal and priority programs for the public works and transport sector. The Plan determine 44 primary workplans to be achieved by 2025 including rehabilitation, upgrade and construction of new road and bridge infrastructure. The NR13South including	The Project is part of the NR13 South Improvement Project (NR13S). It is in line with the priority development and it will promote the implementation

Instrument / Legislation	Year	Overview	Relevance to the Project
and Transport		Km21 – Km71 is also includes in the Plan.	of this Plan.
National Strategy on Climate Change of the Lao PDR	2022	<p>The strategy is an important policy instrument for addressing climate change in Lao PDR which defines vision, strategy and programs of action on climate change management to 2030 particularly risk prevention and reduction, resilience, adaptation, recovery, build back better from impacts, and mitigation of GHGs which are the main cause of climate change.</p> <p>The strategy advocates the effective and efficient deployment of actions, technologies and opportunities to avoid and reduce GHG emissions and increase carbon capture and storage, and sequestration by ecosystems; and promotes and enhances best practices in product management, processing and waste disposal for environmental protection. The strategy also enhances low-emission waste management practices including promotion of 3Rs of waste management (reduce, reuse, and recycle) and waste-to-energy strategy.</p>	<p>Key GHG emissions are expected during construction and operation of the Project which include those from Scope 1, Scope 2 and Scope 3 emission sources⁷.</p> <p>The GoL is increasingly promoting the use of ecosystem-based approaches to enhance the climate change resilience of infrastructure (e.g. roads, bridges). This sector also allocates budgets for maintenance and build back from disaster on annual basis.</p> <p>The proposed Project must comply with the strategy since activities such as vegetation clearing, earth work movements, construction and operation activities can lead to emission of GHGs. In addition, the transport sector is one of the leading sources of GHG emissions which are key contributors to climate change.</p>
National Green Growth Strategy	2018	<p>The main objectives and goals of this strategy are to develop the potentials to integrate green growth into the formulation and implementation of sector and local strategies and plans in each period to ensure achievement of long-term goals of national socio-economic development set out by the Party and Government, such as: graduating from the status of least developed country (LDC) by 2026 and moving toward becoming a developing country with an upper</p>	<p>The construction and operation of the Project will ensure the following:</p> <ol style="list-style-type: none"> 1. Ensure the protection of the environment, occupational health and safety. 2. Promote the vision,

⁷ Scope 1 Emissions - Direct greenhouse gas emissions e.g. fuel combustion.
 Scope 2 Emissions - Indirect greenhouse gas emissions from the generation of purchased electricity.
 Scope 3 Emissions - Greenhouse gas emissions from the broader project lifecycle including materials used, travel and transport.

Instrument / Legislation	Year	Overview	Relevance to the Project
		<p>middle-income in accordance with green and sustainable direction and achieving the Sustainable Development Goals (SDGs) by 2030 with quality.</p> <p>To ensure the achievement of the long-term goals of national socio-economic development determined by the Party and GOL, this strategy aims to strengthen the balance between economic growth, environmental protection and social development.</p> <p>The strategy promotes the urban transport infrastructure improvement to create favourable conditions and provide facilities for walk, use of non-motorized vehicles and provision of public transportation services.</p>	<p>strategy and policy on urban development and transport development according to green and sustainable direction.</p> <p>3. The Project construction and operation will improve transport efficiency, address traffic congestion and reduce road accident identified as a key challenge in this strategy.</p>
National Pollution Control Strategy and Action Plan 2018 – 2025 with Vision to 2030	2017	<p>The overall objective of the strategy is to promote the sustainable socio-economic development while protecting the environment. Control strategies should meet and maintain applicable national environmental quality including ambient air, water, soil quality and noise standards.</p> <p>The Strategy provides fundamental principles and measures to prevent, control and mitigate pollution risks associated with socio-economic development. Key guiding principles for pollution control include minimizing waste generation and reducing sources of pollution; compliance with laws and regulations; integrated approach; applying market approach; polluters pay; use of best practices; cost-effective; and access to information.</p> <p>The pollution prevention and control measures should be integrated into all development policies, strategies, programs and projects.</p>	<p>The construction and operation of the Project shall promote the implementation of this strategy by ensuring the compliance with the national environmental standards as well as applicable international guidelines for pollution prevention, control and mitigation measures.</p>
National Biodiversity Strategy and Action Plan (NBSAP) for 2016 - 2025	2016	<p>The NBSAP are the primary instruments for implementing the Convention Biodiversity Diversity at the national level. The first NBSAP was developed in 2010 and has been updated in 2016 in response to the Conference of Parties (CoP) which urged Parties to review, revise and update their NBSAPs as appropriate to the Strategic Plan for Biodiversity 2016 – 2025. The updated NBSAP provides overall recommendations to contribute to global, and achieve national, biodiversity targets by 2025.</p> <p>Several mining projects are located within or adjacent to national protected areas which remain high</p>	<p>During the development of the proposed Project, the proponent will ensure that the potential risks and impacts to biodiversity, ecosystem services and sustainable management of living natural resources are evaluated and that the necessary appropriate measures are established as part of an appropriate</p>

Instrument / Legislation	Year	Overview	Relevance to the Project
		biodiversity conservation values.	mitigation hierarchy.
National Policy on Health Impact Assessment	2006	The National Health Impact Assessment (HIA) Policy aims at contributing to poverty alleviation and sustainable development through the timely identification of potential adverse impact on health from development and opportunities for health protection and promotion in the planning, design and operation of projects and programs.	Project will incur short term health issues during construction activities such as increased traffic disruption, dust, noise, vibration and stressed as a result from the loss of land and assets for the Project. In the long run, the Project will improve health care access through better accessibility and lesser air pollution due to the improved road surface. community health and safety will also improve as a result of the road safety design and construction.
National Laws			
Law on National Heritage	2021	The Law on National Heritage set out the principles, regulations and measures for the administration, use, protection, conservation, restoration, and rehabilitation of the national heritage, and also determines the rights and duties of the State, social organisation and individuals to preserve the value of the national cultural, historical and natural heritage significance. The Law was first introduced in 2005, updated in 2013 and more recently amended in 2021 to reflect the current needs for cultural management and protection.	The Project is not expected to have direct impact to nearby local cultural sites such as temples and cemeteries/cremation sites. However, construction activities may cause indirect impacts through nuisance noise, dust and vibration to cultural sites that will need to be managed in accordance with the mitigation measures outlined in the ESMP. Two proposed borrow pits (are located adjacent to cremation sites and operation of these facilities shall be in close consultation with local cultural leaders and community.
Law on Hygiene and Health	2019	The Law aims at promoting health, long life, reducing disease infections, illnesses and mortality among general public. A key principle to ensure hygiene and	The Law is relevant to the Project as it involves significant use of hazardous

Instrument / Legislation	Year	Overview	Relevance to the Project
Promotion		<p>health promotion is the coordination, participation and ownership among sectors, local authorities and relevant organisation including public and private sectors.</p> <p>Article 26 of the Law articulates occupational hygiene which requires employers to create conditions for occupational health and safety for labours and employees as well as nearby communities. The employer shall also provide information regarding occupational safety and health risks of works and provide appropriate and sufficient occupational safety measures to mitigate risks, hazards, diseases, chemicals that can affect workers' health.</p>	<p>materials (e.g. bitumen, paints, hydrocarbons, etc) for the construction and operation of the road, culverts and bridges.</p> <p>The construction and operation of the Project will need to comply with this law by provision and enforcement of PPEs for the construction workforces.</p> <p>Occupational and community health and safety measures are required to be implemented with stringent monitoring of competent authorities (e.g. PTI, DOR, DPWT).</p>
Law on Gender Equality	2019	<p>The GOL value and promote gender equality in all areas by encouraging public and private sectors to develop appropriate policies, strategies, programs, projects, activities and measures to eliminate barriers that impede gender equality through human resources development, creating conditions that foster gender equality.</p> <p>The emphasis of the Law on gender is based on the recognition that “gender” is a development concept useful in identifying and understanding the social roles and relations of women and men of all ages, and how these impact on development.</p> <p>Men and women regardless of age, ethnicity, race, socio-economic status, education, occupation, belief, religion and settlement have equal rights to various aspects of protection and development. The Law also outlines gender equality empowerment strategies that can be elaborated into actions across organizations and the publics.</p>	<p>Gender issues need to be considered in the management of the Project. The construction contractor should seed to empower women to ensure that they are able to take advantage of the benefits and opportunities during construction. Gender issues have been specifically considered in the development of mitigation measures for the construction and operation by engaging them in decision-making process.</p>
Law on Forestry	2019	<p>The amendment Forestry Law set out the principles, regulations and measures for the management, protection, development, use and inspection of forests and forestland, promoting tree plantations, regenerating and increasing forest resources.</p>	<p>This law will guide construction and operations of the proposed Project related to infrastructure development and land clearance requirement and</p>

Instrument / Legislation	Year	Overview	Relevance to the Project
			<p>related biodiversity management. Since the Project will require removal of at least 480 tree species including at least 7 endangered species of IUCN Red List of Threatened Species (<i>Pterocarpus macrocarpus</i>). Competent authorities should be monitor tree clearance.</p>
Law on Disaster Management	2019	<p>This Law outlines disaster risk management through avoidance, prevention, mitigation and management of potential risks associated with natural and/or human-made disasters that have potential significant impacts to health, lives, assets, economy and the environment.</p> <p>Article 20 stipulates that relevant sector shall ensure disaster management and response procedures in place including early warning system, flood prevention measures to avoid and mitigate potential impacts. Entities and/or organizations that build dams must ensure the safety through development and implementation of appropriate control measures.</p>	<p>The PROJECT will promote the implementation of this Law by building road and bridge infrastructure that are resilient to disaster (e.g. floods). Key flood-prone areas and drainage systems (e.g. culverts and bridges) will be improved to ease flow during peak rainfalls and avoid flooding.</p>
Land Law	2019	<p>The Law determines the basic principles, regulations and measures on the management and inspection of land related activities. The main objective of the Law is to ensure the effectiveness of the work to protect, develop and properly use land to improve people's livelihoods; contribute to national socio-economic development while ensuring sustainability and environmental protection.</p> <p>Compensation for the loss of land use rights for development projects is elaborated in many articles of Law.</p>	<p>Widening of the existing road alignment will impact land (~28 ha) and assets of community and public utilities. MPWT/DOR and relevant local authorities shall implement the Project in compliance with this Law. Compensation process will need to be reviewed to ensure that it is robust and meets both legislative and standard requirements.</p> <p>Most of the land users identified within the COI do not have legal land use rights as the ROW has been defined 50m. However, a few households have full land use rights within the COI and full compensation</p>

Instrument / Legislation	Year	Overview	Relevance to the Project
			have to be provided for the loss of land and assets.
Law on Resettlement and Vocation	2017	<p>The Law sets out principles, regulations and measures on the management and monitoring on resettlement and occupation management activities, ensuring the livelihood restoration of resettled / affected people are better off, contributing to poverty reduction and enhancing well-beings of local communities and socio-economic development.</p> <p>Livelihood improvements for individuals and/or households affected by development projects shall be prioritized on the disabled, elderly, poor and vulnerable groups through information collection; livelihood alternative assessment; training and skills development; technical monitoring; access to finance and markets; establishment of model households; monitoring and evaluation.</p>	<p>There are 1,209 affected households and 5,200 people in 21 villages will be directly impacted by the Project through land acquisition. Land and assets will be lost, and fair compensation will have to be provided.</p> <p>Additional livelihood restoration measures will be promoted through employment opportunities and implementation of 'local first' policy to supplies and services particularly during construction and operation.</p>
Law on Water and Water Resources	2017	<p>The key objective of the Law is to enable equitable and sustainable management, use and protection of water and water resources of Lao PDR through supervision, coordination and participation of public and private activities that may impact water availability and quality.</p> <p>Article 40 sets out conditions for water abstractions for small, medium and large scales for consumption, power generation, irrigation and industry.</p> <p>Article 47 articulates of this Law articulates that small-scale groundwater use of less than 20 m³ per day will not require water use permit and will not require payment for water resource use, fees and other service charges but users are required to inform the village authority. Medium groundwater use (>20 – 50m³/day) requires permits from DONRE and fees. Large-scale ground water use (>50m³/day) requires permits from PONRE and fees.</p>	<p>Poor water quality can reduce the quality of downstream surface waters, bio-accumulate contaminants in aquatic ecosystems and negatively impact upon downstream beneficial uses.</p> <p>The construction and operation of the PROJECT will comply with this Law. This Law will specifically be applicable to two aspects of the proposed Project components:</p> <ul style="list-style-type: none"> – Water abstraction for construction activities, camp/office use; – Discharge of process and associated wastewater in watercourses.

Instrument / Legislation	Year	Overview	Relevance to the Project
Law on Urban Plan	2017	<p>The law outlines overall and specific urban development plans that shall include public infrastructure. The aim of this law is to promote a systematic urban development to improve living standards of urban people. The urban development should ensure convenience, security, sanitation, visual amenity, protection of cultural and archaeological significance, ecosystem and the environment.</p>	<p>The PROJECT improvement Project will consider current and future urban development particularly community residing along the road and other major infrastructure development in the region (e.g. special and specific economic zones).</p>
Law on Public Road	2016	<p>The law set out principles, regulations and measures on the management, monitoring and inspection of public road including planning, surveying, design, construction and development to ensure the quality, safety, effectiveness, transparency as well as protection of the environment. The law promote road development to improve accessibility and connectivity between urban and rural areas as well as interconnection with regional countries.</p> <p>The law defines that the national road conservation zone is 25m from center line to each side of the road (Article 22).</p> <p>The law also provides strategic processes for public road development including the feasibility study, design, survey, approval of design and survey documents, bidding, construction, construction supervision, and operation and maintenance.</p>	<p>The proposed Project is an improvement and maintenance of existing national road and such, this law is a critical piece of legislation with respect to the NR13 South as a whole.</p>
Law on Grievance Redress	2016	<p>The Law provides a formal grievance redress mechanism for civilians, individuals, and organizations in accordance with relevant laws to enhance fairness and benefits of the state, collective, legitimate rights and interests of entities and people. The grievance redress procedures prescribed in this Law is managed through formal GOL organizations but encourages concerned parties to address complaints at early stage as possible at local levels.</p> <p>Civilians, individuals, and organizations have the rights to raise grievance to concerned agencies to protect their rights and legitimate interests due to unfair treatment, loss of land and/or assets, and restricted / disturbed access to key livelihood activities.</p>	<p>The implementation of the Project is required to comply with this law through the establishment of grievance committees at villages, district and provincial/capital level in coordination with the compensation management committees. These committees will manage Complaints and Grievance Procedure. The objective of grievance management is to improve the management of community grievances by being pro-active in resolving</p>

Instrument / Legislation	Year	Overview	Relevance to the Project
			complaints before they become grievances.
Law on Chemicals	2016	<p>This Law lays down the principles, regulations and measures on the management, monitoring and inspection of chemical / hazardous materials and activities, ensuring the safety, safeguarding the environment and society.</p> <p>Part III determines the management and safety in relation not chemical transport, storage, handling, and disposal. The safety requirements include training, providing emergency response procedures and equipment.</p> <p>Part IV have provisions for undertaking chemical business activities including the safety and environmental protection measures.</p>	<p>The contractor will need to manage chemicals in compliance with applicable laws, regulations and other obligations or requirements. The contractor should develop and implement SOPs for the management of chemicals to prevent spills, releases, leaks, overflows and unplanned chemical reactions such that environmental impacts are managed and minimized.</p>
Law on Labour Protection	2013	<p>The Law defines the principles, regulations and measures on administration, monitoring, labour skills development, recruitment, and labour protection to enhance the quality and productivity of works, to safeguard the rights and legitimate interests of employees and employers, to promote investments, and national socio-economic development.</p> <p>Section IV has provisions on labour protection including labour regulations, night works & night shifts, internal labour regulations, foreign labour in Lao PDR, and social insurance. Section V also sets out terms for employment contracts, and termination and expiration of employment contracts while Section VI determines requirements for employment of women and youths. Section VIII lays out conditions for occupational health and safety.</p>	<p>The Project's approach to OH&S recognises and is aligned with the GOL's regulatory framework for occupational health and safety for labour which defines OH&S as a joint activity between the employer and the employee.</p> <p>The Project will provide employment opportunities and skills development associated with the construction and operation activities as well as spin off opportunities for supplies and services (e.g. construction materials).</p>
Law on Road Transport	2012	<p>This Law stipulates regulations on road traffic to ensure transport efficiency, road safety, and avoid traffic congestion. The Law recognizes different modes of transport vehicles in public roads including pedestrians, animals, and transport all types of motor vehicles. Article 12 outlines requirements and obligations of the driver who needs to fulfill driving regulations and provides cooperation with local authorities when driving.</p> <p>The Law further provides for construction and</p>	<p>The implementation of Project is critical to meeting the objectives set by the law.</p> <p>The design and construction of the Project will improve considerably road condition and traffic safety for different types of land-based vehicles.</p>

Instrument / Legislation	Year	Overview	Relevance to the Project
		maintenance of road that shall safeguarding community health, safety and environment protection.	The Project will provide safety measures including installation of pedestrian sidewalk/crossing, road signs and other safety measures that road users and drivers need to adhere to in accordance with this law.
Law on Environment Protection	2012	<p>The Environment Protection Law is the most important legal instrument in Lao PDR with respect to environment management, providing for an institutional framework. It also specifies management measures, addresses pollution control and stipulates mechanisms for enforcement of the law. Under Article 22, the Law states that the criteria under which EIA shall be required and the process is further elaborated in the Decree on Environmental Impact Assessment (2022).</p> <p>Chapter 2 prescribes pollution controls which require project operators to develop and implement robust avoidance, mitigation and management measures. The Chapter 3 stipulates hazardous waste management. The Law requires operators to manage hazardous wastes in accordance with procedures and standards.</p>	<p>In accordance with the Article 22 of this law, the Project is triggered for EIA/ESMP.</p> <p>The construction and operation of the Project will consider pollution control and waste management set out by the law.</p>
Law on Construction	2009	<p>Related construction of mining sector is specified in this Law. Concerned authorities and sectors will determine the scales of the construction (e.g. large size, medium size and small size). Construction permit is required for different sizes and types of activities.</p> <p>The operation of construction activities shall be performed with the quality, safety and protection of environment. The Law also safeguard the environmental, social, health as well as archaeological / cultural values through studies and development and implementation of appropriate management and mitigation measures relevant to construction projects.</p>	Article 9 of this law outline the type of construction include roads and bridges. The construction of the Project will adhere to this law in terms of protection of the environment, occupational and community health and safety.
Decrees			
Decree on Public Road Conservation Corridor	2022	<p>The decree sets out principles, regulations and measures on management, monitoring, and inspection of public roads to prevent individuals, entities and/or organisations encroach, occupy or damage public road infrastructure.</p> <p>The decree defines the conservation corridors on</p>	<p>This decree is critical in determining the land and assets that have been established within the conservation corridor.</p> <p>The Project COI lies entirely</p>

Instrument / Legislation	Year	Overview	Relevance to the Project
		surface, underground, on the air, and on water surface areas, including: <ul style="list-style-type: none"> • 25 m from the center line to each side of the road for the existing national road; and 40 – 60 m for new national road; • 15 m from the center line to each side of the road for the provincial level road; • 10 m from the center line to each side of the road for district level road; and • 5 m from the center line to each side of the road for rural rad. 	within the existing conservation corridor. A detailed measurement survey has been conducted to identify land and assets that will be impacted directly by the Project.
Decree on Environmental Impact Assessment	2022	The Decree reinforce the EIA requirements and prescribe procedures to be followed in conducting EIA of projects. The Decree also charge the developer with the responsibility of ensuring that mitigation measures from the EIA are complied with. The Decree further require projects to undertake post assessment environmental monitoring to ensure that predictions made during the assessment are properly managed. Public participation: the Chapter 4 of the Decree prescribes public involvement process throughout the project development in different stages – planning/design, assessment, construction, operation, decommission.	The Project undertakes an ESMP for the improvement of national road in accordance with the Decree. Public consultation is a core element of the Project through the ESMP Preparation process and ongoing stakeholder consultation is provided in this ESMP.
Decree on Road Traffic Regulation	2020	The decree defines principles, regulations and measures on the management and inspection of road traffic to ensure the effectiveness, ease of traffic flow and safety of road users. This decree will also serve as a legal reference for traffic officials to implement traffic safety measures in order to protect the life of people and property of individuals and the public. The decree defines relevant safety requirements such as speed limit, parking, appropriate driving behaviours, respect traffic rules, etc for road users including people and animals, using different mode of transport based on the types and conditions of the road.	The design and construction of the Project will consider road safety as a priority. The implementation of the Project will improve road safety and therefore the decree is a key regulatory piece for the Project.
Decree on Occupational Health and Safety	2019	It makes provisions for the health, safety, welfare and appropriate training of persons employed in workplace. Part 2, requires employers to ensure as far as reasonably practicable that the working environment is kept free from any hazard due to pollution by employing technical and supplementary organisational	The Decree lays out the general safety, health and environmental requirements for workplace safety to be applied during all phases of the project including obligations to inspect

Instrument / Legislation	Year	Overview	Relevance to the Project
		<p>measures.</p> <p>Part 4, it is the employer’s duty to ensure the provision of adequate and appropriate information, instructions, training and supervision necessary to ensure, as far as is reasonably practicable, the safety and health of the employees, and the application and use of occupational safety and health measures, taking into account the functions and capabilities of the different categories of workers in an undertaking.</p> <p>Article 18, it is the duty of the employer to display or provide safety precautions to any person who may be affected by the manner in which the employer conducts his undertaking whether or not that person is his or her worker.</p>	<p>statutory equipment and register workplaces.</p>
<p>Decree on the Endorsement and Promulgation of National Environmental Standards</p>	<p>2017</p>	<p>National environmental standards in Lao PDR were developed based on requirements set out in the Environmental Protection Law (2012). It was first developed in 2009 to minimise impacts to human health, animal life, and the environment from development activities in the country. Revised and updated in 2017, the Standards apply to any relevant person, enterprise or organization and provide a common platform for both ambient environmental standards and common pollution control standards. The Standards determine parameters, indicators and levels of pollutant concentrations as scientific reference, in the monitoring of environmental quality and control of pollution emitted to air, or discharges to soil and water including disturbance that may have impact on human and animal life, health and environment.</p>	<p>The Project will be implemented in line with this decree in order to minimize its environmental footprint and equip contractor’s employees with environmental standards to effectively manage the environmental aspects of its operations.</p> <p>MPWT/DOR aims to ensure compliance with national environmental standards and reduce its legacies through continuous improvement.</p>
<p>Decree on Compensation and Resettlement of People Affected by Development Projects</p>	<p>2016</p>	<p>This revised Decree describes the principles, regulations, and procedures for mitigating adverse social impacts and compensating for any damages resulting from involuntary acquisition or repossession of land and fixed or removal assets, including changes in land use. The Decree aims to ensure that the people affected by the project are compensated for and assisted in improving or, at least, maintaining their pre-project income and standard of living, and are not made worse off than they would without the project. The decree describes the strict principles of compensation, particularly for those project-affected people who do not have legal land title, land use certificate or other acceptable documentation</p>	<p>The construction and operation of the Project need to comply with this Decree through avoidance, management and mitigation of land disturbance and ensure completion of compensation for land acquisition as per the Decree and relevant technical guidelines on compensations.</p> <p>Vientiane Capital and Bolikhamxay Province have</p>

Instrument / Legislation	Year	Overview	Relevance to the Project
		indicating their right to land use.	established compensation committees to oversee the implementation of compensation process including the establishment of compensation rates for land and assets impacted by the Project.
Regulations, Decisions and Guidelines			
Decision on Public Involvement in ESIA Process	2013	The Guidelines have key objectives to ensure the public participation in the ESIA and IEE process as well as the implementation of ESMMP across the project operation phases. The guidelines describe the formal and informal public involvement in IEE and ESIA processes that project proponents shall follow and implement as part of their project operations. Project information disclosure should be implemented through different approaches and tools to ensure that general public and particularly the affected people access the information to support their decision-making.	The Project will be implemented in accordance with this guideline on public involvement in ESMP process and throughout the project construction and operation phases. The Project proponent (MPWT/DOR) has developed a Stakeholder Engagement Plan specifically for this Project. Community in 21 Project villages have engaged comprehensively through the ESMP process.
Decision on Environmental Monitoring of Investment Projects	2021	The Decision provides procedures for the natural resources and environment sectors (MONRE, PONRE & DONRE) to conduct environmental monitoring of invest projects and activities within their jurisdiction. The monitoring is conducted during construction, operation and closure.	MPWT / PTI and PMU will coordinate with PONRE and DONRE to conduct E&S monitoring during construction of the Project as outlined in the ESMP.

Attachment 2: Photos of Existing Bridges and E&S Maps

(2A-1) Photo of Houay Xambounnyai Bridge and Surrounding Area:



(2A-2) Photo of Houay Deua2 Bridge and Surrounding Area:



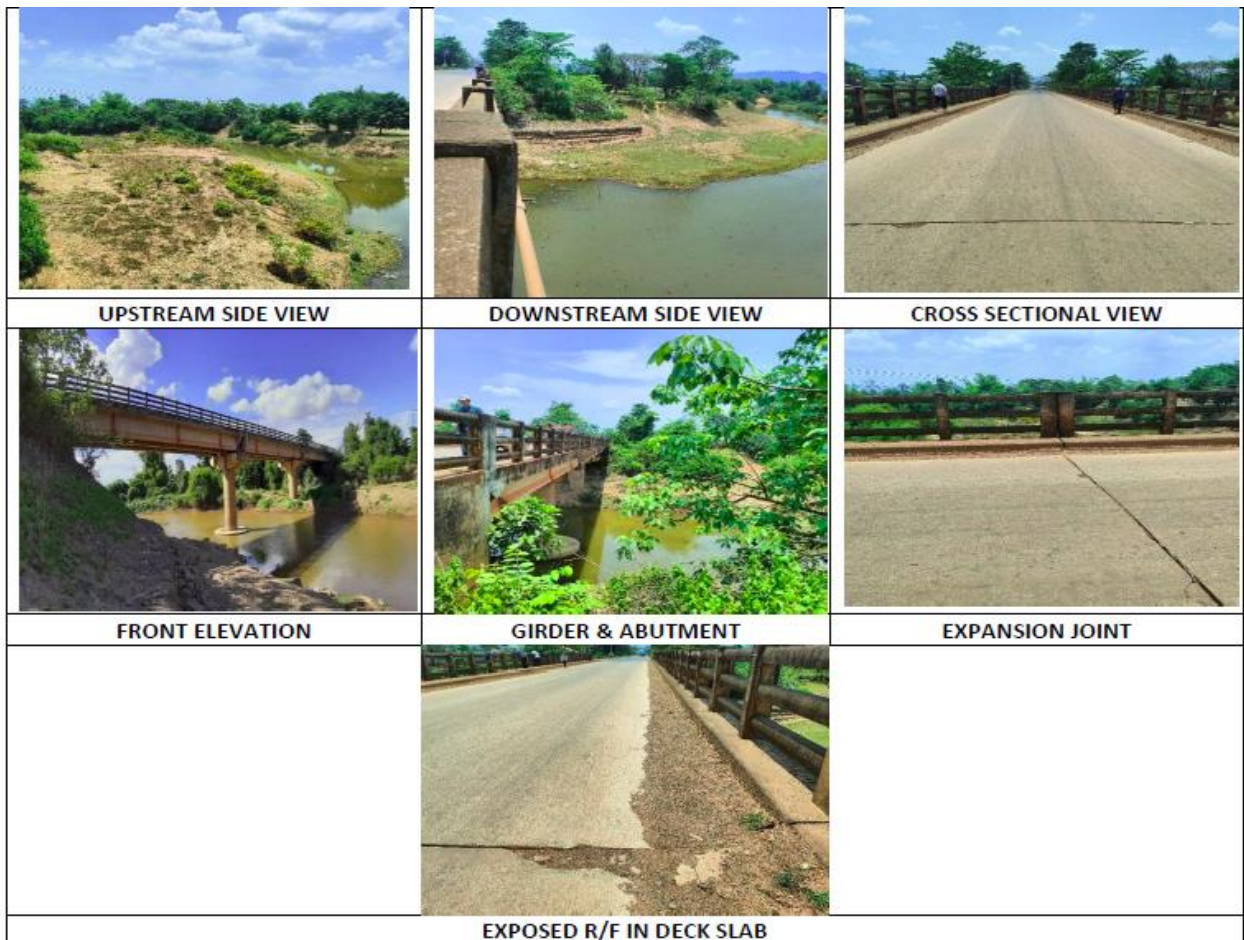


(2A-3) Photo of Nam Sang Bridge and Surrounding Area:



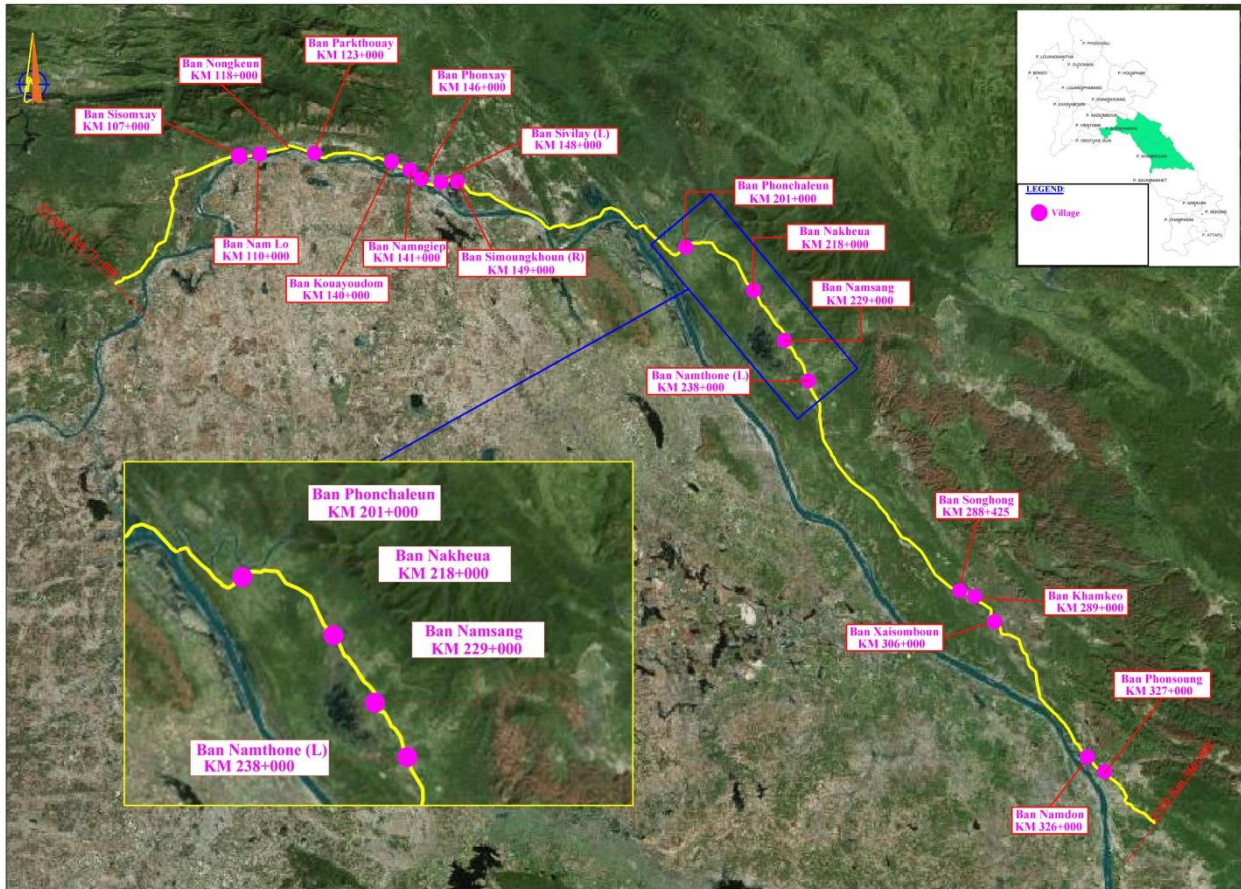


(2A-4) Photo of Nam Thone Bridge and Surrounding Area:

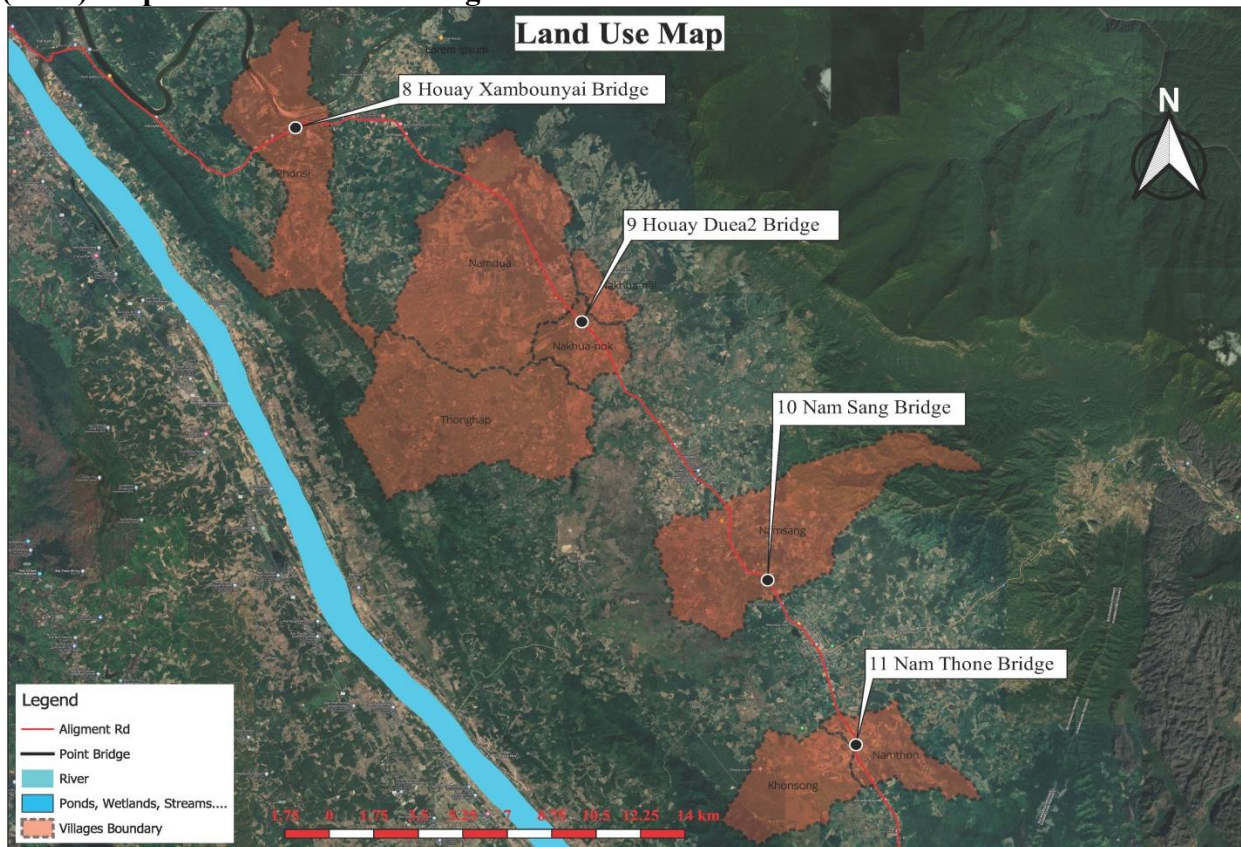




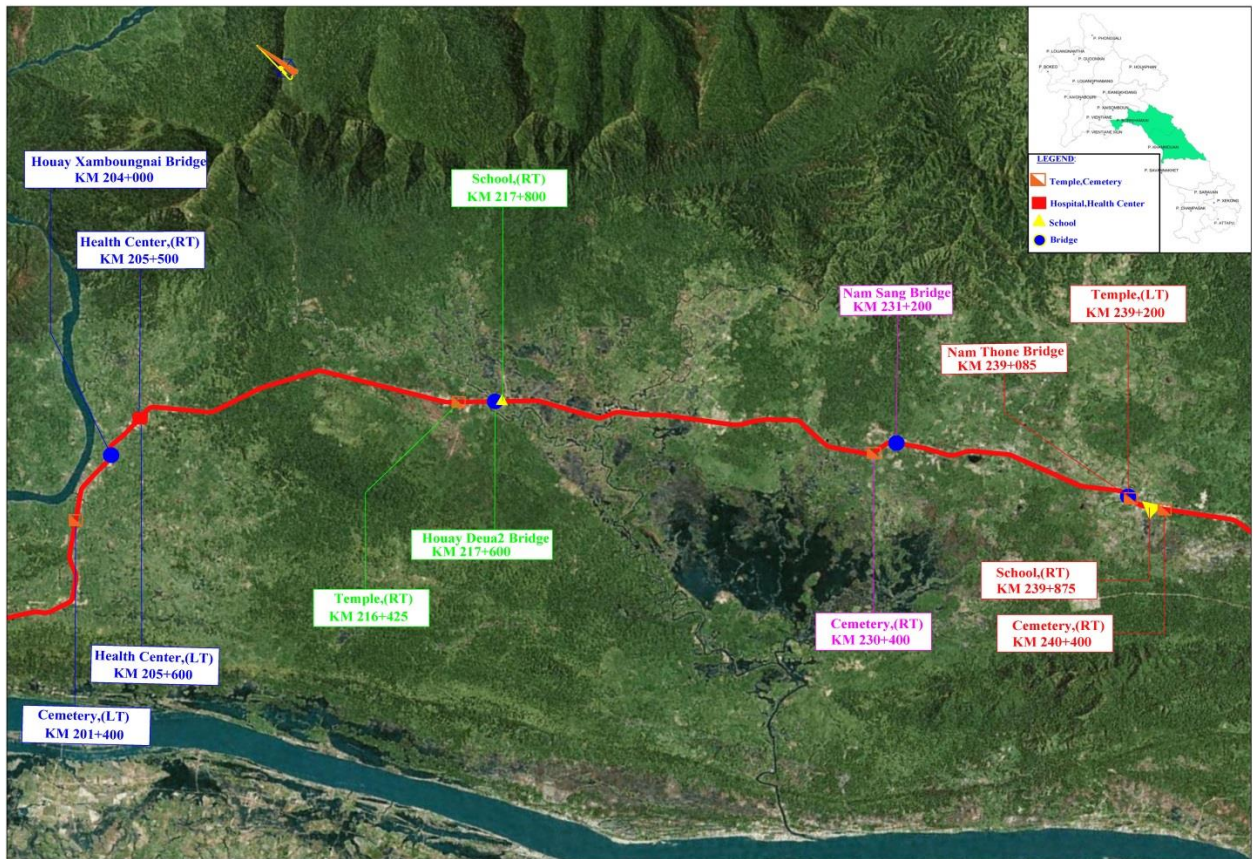
(2A-5) Map of Phonchaleun, Nakheua, Namsang and Namthone Village:



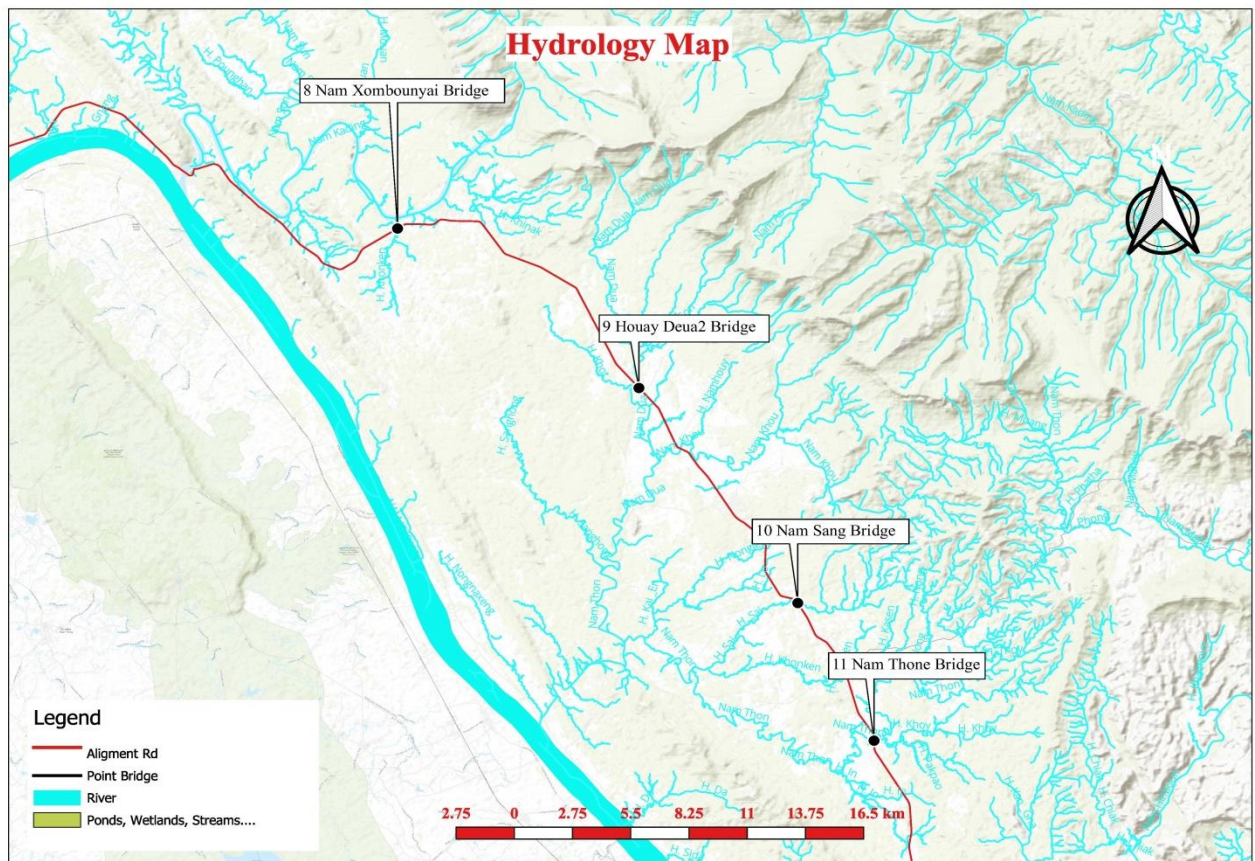
(2A-6) Map of Land Use in 4 Villages:



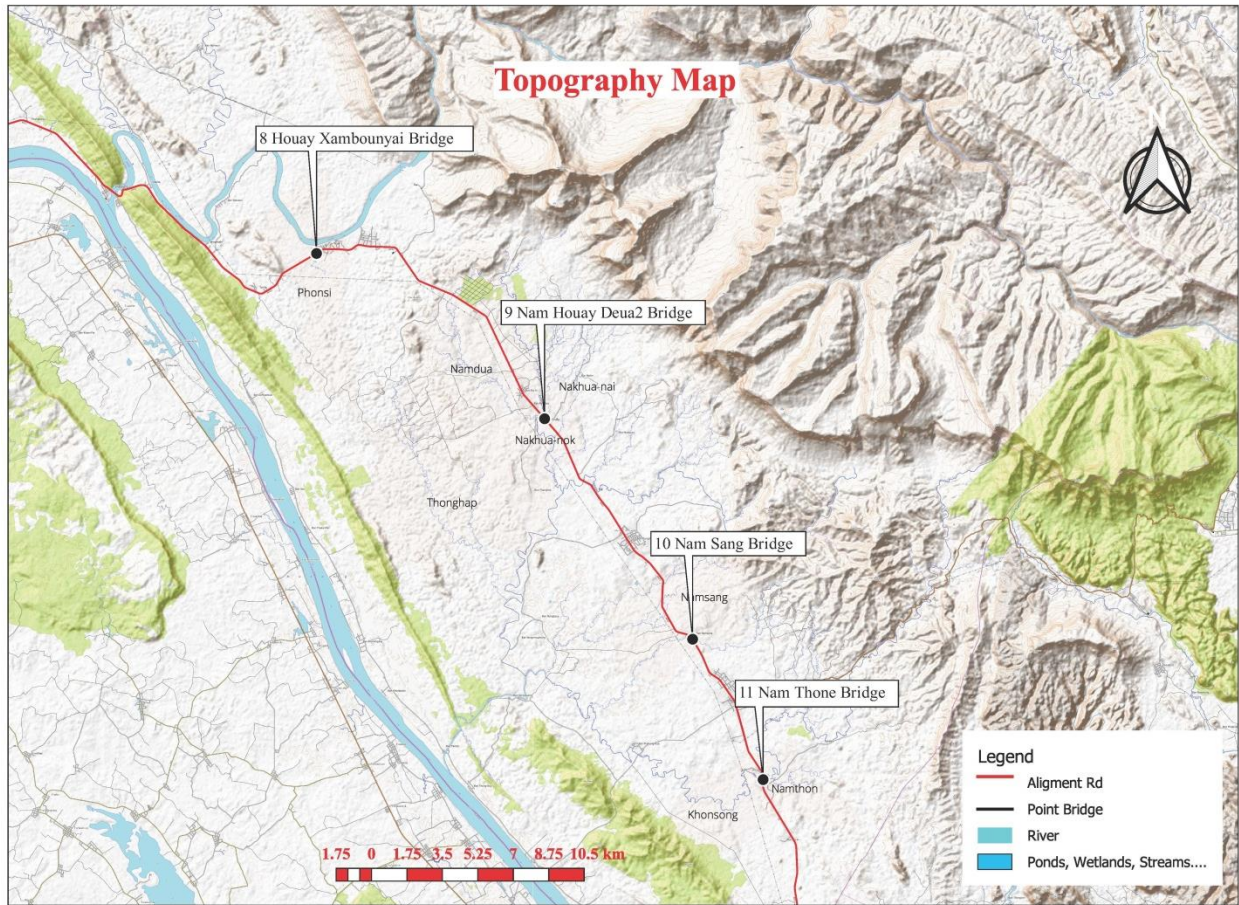
(2A-7) Map of Schools, Health Centers and Temples:



(2A-8) Hydrology Map- 4 Bridges:

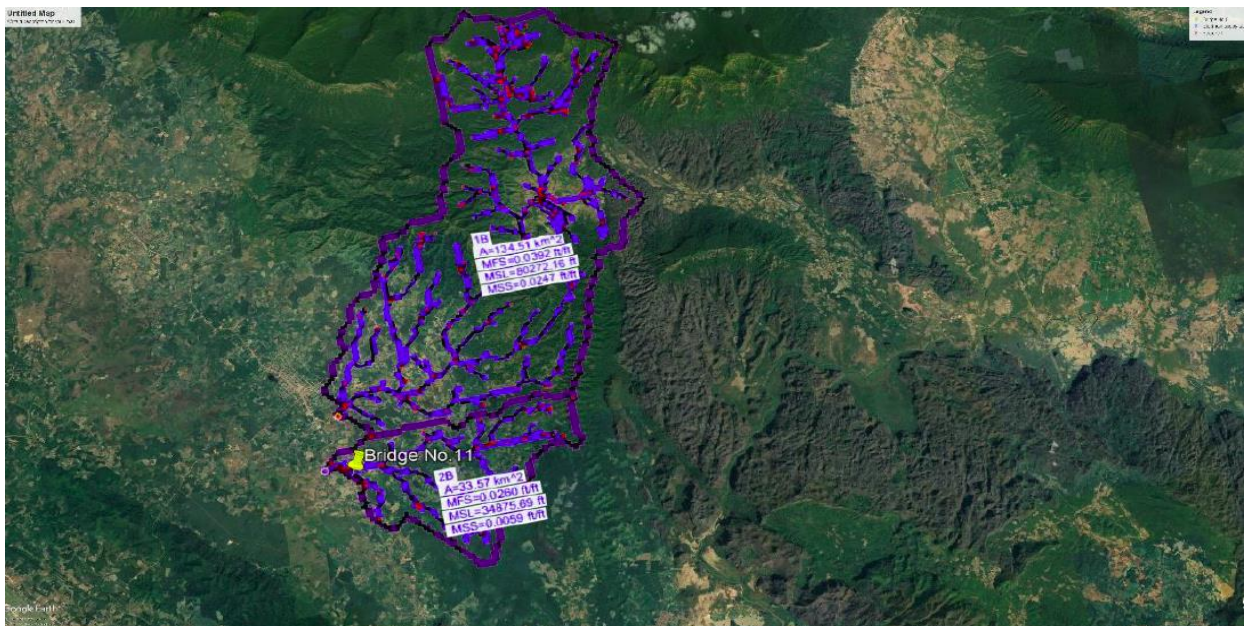
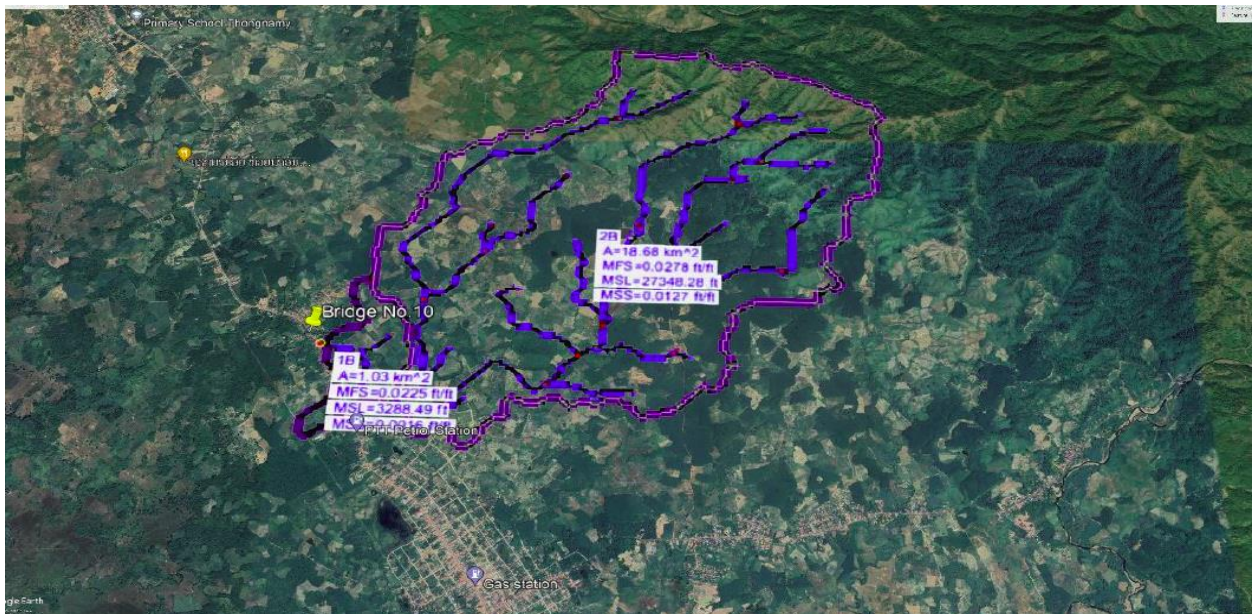


(2A-9) Topography Map- 4 Bridges:

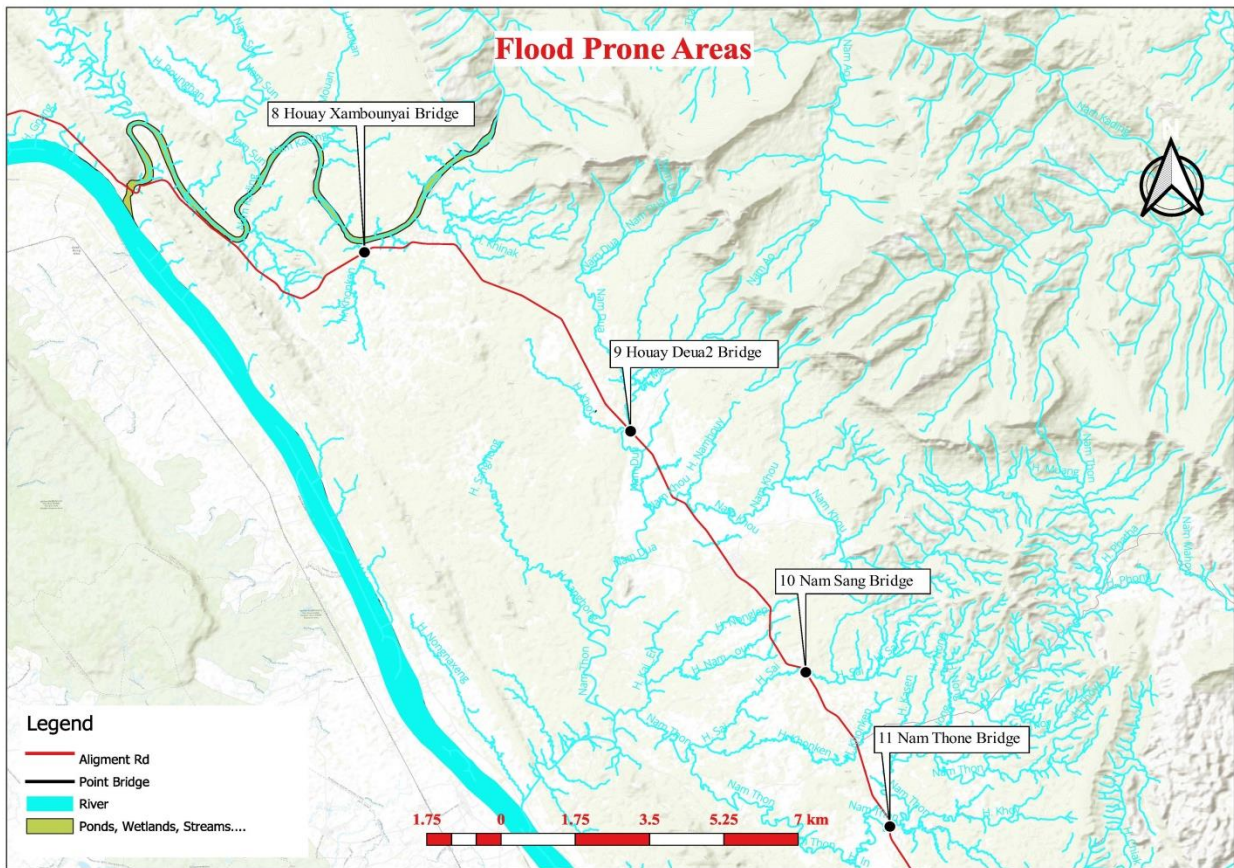


(2A-10) Catchment Area- Houay Xambounnyai (8), Houay Deua2 (9), Nam Sang (10) and Nam Thone (11) Bridges:

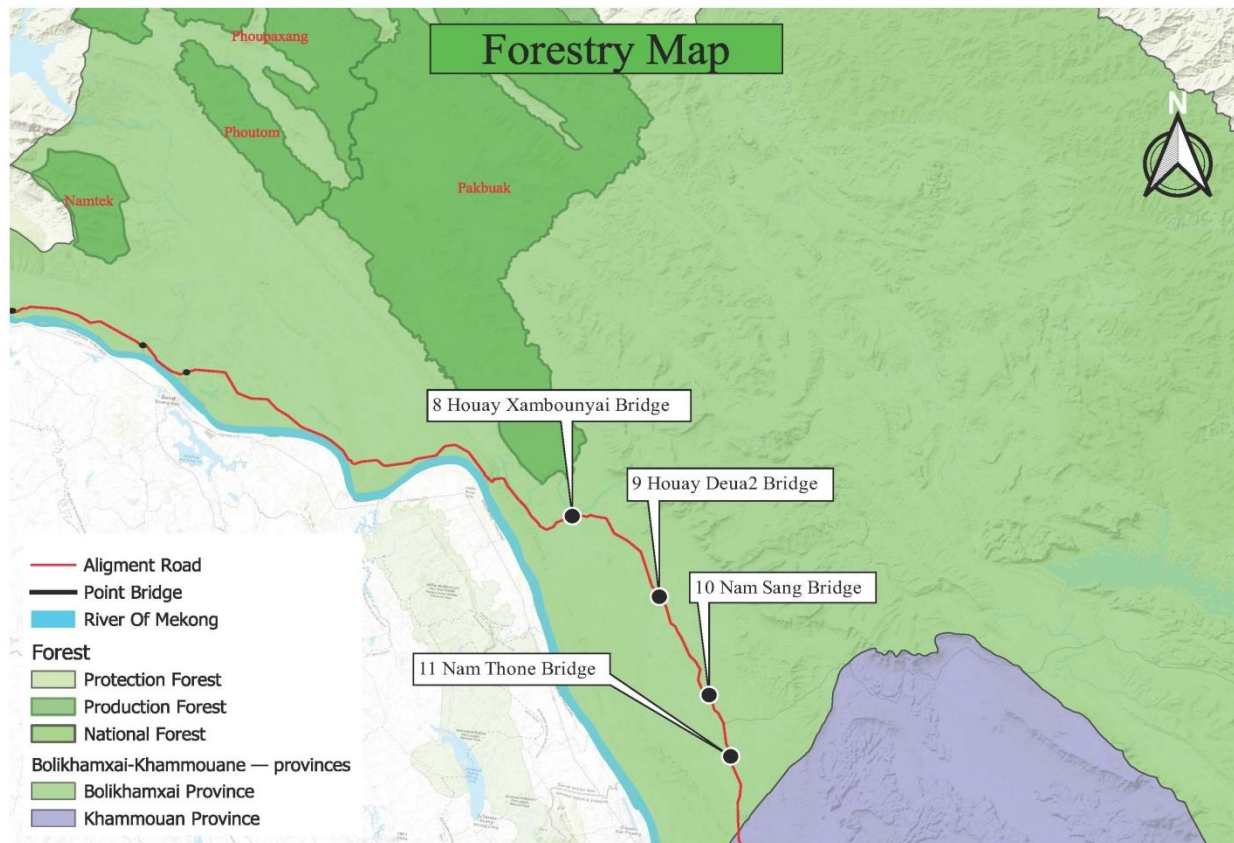




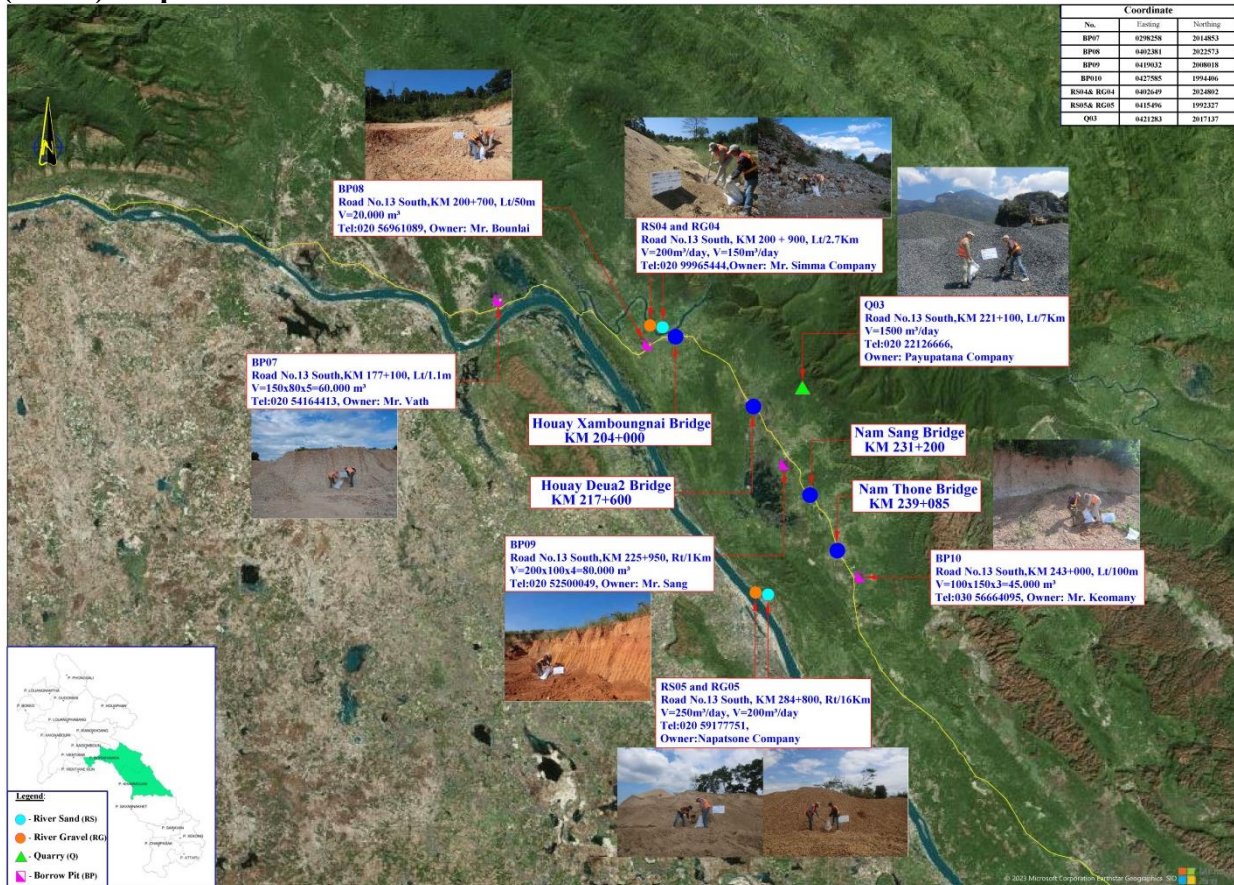
(2A-11) Flood Prone Area Map:



(2A-12) Forestry Map:



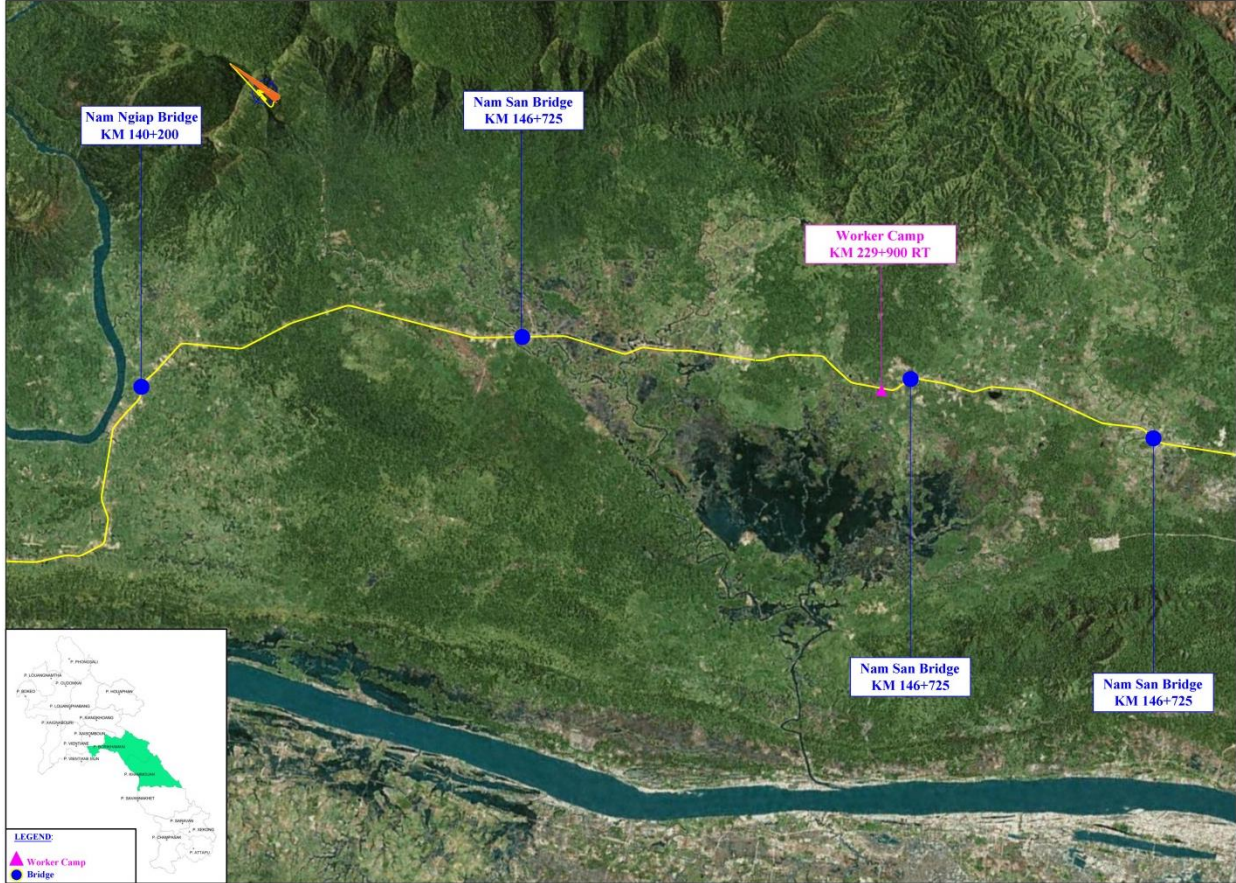
(2A-13) Map of Borrow Pit Sites:



(2A-14) Map of Spoil Disposal Sites:



(2A-15) Map of Workers' Camp:



Attachment 3: Key Issues and Mitigation Measures to be included in the C-ESMP

1. This Attachment presents the Environmental and Social Management Plan (ESMP) of the Construction of two new bridges (Nam Ching and Nam Lo bridges) both in the form of issues and mitigation matrix (Table A3.1)⁸ to be applied for all OPBRC sections. This Attachment provides technical guidance for the preparation, approval, implementation, and monitoring of the contractor's ESMP (C-ESMP).
2. In addition to this Attachment, the Project-ESMP also includes the environment and social code of practices (ESCOPE in Attachment 4); the code of conduct on Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC) (COC in Attachment 5); forms for accident reporting and grievance redress mechanism (Attachment 6 and 7); and other measures described in the ESMP report (Section 5) to be included in detailed design (DD) and bidding/contract documents (BD/CD) and those related to grievance redress mechanism (GRM) and the ESMP implementation and budget arrangement. The contractor will also be required to maintain close consultation with local communities and operationalize its GRM in connection with that of DPWT and EDPD/PTI.
3. This ESMP is also closely connected to the ARAP to be cleared by AIIB as well as the approval conditions of the Government of Lao PDR (GOL) for the Initial Impacts Examination (IEE) and issuance of the Environmental and Compliance Certificate (ECC) and other regulatory authorities attached to any permits or approvals for the Project. These requirements will be considered during the preparation and approval of the C-ESMP and its subplans. Preparation and implementation of the C-ESMP is the contractor responsibility while those for ARAP are the responsibility of GOL.
4. The construction supervision consultant and/or field engineer (CSC/FE) will be responsible for approval of the C-ESMP and day-to-day monitoring of its implementation compliance. The implementation cost of the C-ESMP will be part of the OPBRC cost while that for ARAP will be responsible by GOL.
5. During bidding, the bidder will be required to prepare a Management Strategy and Implementation Plan to manage the key environmental, social, health and safety (ESHS-MSIP) risks and impacts. The ESHS-MSIP will collectively comprise an indicative C-ESMP describing the proposed mitigation measures to address environment and social (E&S) risks and impacts. The final C-ESMP which will be prepared by the contractor and approved by PMU/DOR and/or CSC/FE. The C-ESMP may include a number of plans/subplans as agreed between the contractor and CSC/FE and scope of the plan/subplan is provided in Part 3 of the ESCOP (Attachment 4). The guidelines for preparation of C-ESMP provided in Attachments 3, 4, 5, 6, 7, 8 will be included in the bidding document (BD) and contract document (CD).

⁸ The issues and mitigation measures are prepared in line with the requirements outlined in the Environment and Social Management Framework (ESMF) of the second Lao Road Sector Project additional financing (LRSP2-AF)

Table A3-1: Key Issues and Mitigation Measures during Preconstruction, Construction, and O&M Phases

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
Pre-construction Phase					
P-1	Relocation of small structures and facilities and small land acquisition may cause adverse impacts on local land user and/or local people, especially the vulnerable ethnic groups (VEG)	<ul style="list-style-type: none"> ▶ ARAP has been prepared. AIIB clearance of the ARAP will be required before implementation. ▶ EGEP has been prepared. AIIB clearance of the EGEP will be required before implementation. ▶ Establish and operationalize Project Grievance Redress Mechanism (GRM). ▶ PMU/DOR and EDPD/PTI will assist the local authorities and ensure effective and timely implementation of ARAP. 	<ul style="list-style-type: none"> ▶ PMU/DOR ▶ EDPD/PTI ▶ DPWT 	<ul style="list-style-type: none"> ▶ Number of related complaints. ▶ Number of unresolved complaints. ▶ GRM record 	
P-2	Relocation of public utilities	<ul style="list-style-type: none"> ▶ Early consultation with the public utility owners/organizations and local community since it will involve relocation cost. ▶ PMU/DOR to prepare a Public Utility Relocation Plan (PURP) and take appropriate actions to minimize impacts on local peoples. 	<ul style="list-style-type: none"> ▶ PMU/DOR ▶ CSC/FE ▶ DPWT 	Timely completed and implemented the PURP.	This can be part of the works site clearance plan
P-3	Works execution can increase dust, noise, vibration, and other impacts on local environment and local community	<ul style="list-style-type: none"> ▶ Contractor will prepare C-ESMP and ESCOP and COC. ▶ CSC/FE will approve the C-ESMP 	<ul style="list-style-type: none"> ▶ CSC/FE ▶ PMU/DOR ▶ DPWT ▶ Contractor 	See indicators under construction below	See below and ESCOP
P-4	UXO risk	<ul style="list-style-type: none"> ▶ Even though the risk is low, but consultation with local community/ agency will be made. 	<ul style="list-style-type: none"> ▶ CSC/FE ▶ PMU/DOR ▶ DPWT 	No accident due to UXO	Also see borrow pits plan in ESCOP
P-5	Others	<ul style="list-style-type: none"> ▶ Contractor includes mitigation measures in detailed designs to mitigate potential negative impacts during O&M, esp. those related to road safety risk and local flooding. ▶ The detailed design includes 1) pollution control structures for preventing water contamination by spills from transport accidents or from contaminated 	<ul style="list-style-type: none"> ▶ Contractor ▶ CSC/FE ▶ PMU/DOR ▶ EDPD/PTI ▶ DPWT 	Measures are considered in DD	Also see and ESCOP

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<p>run-off, detention ponds, drainage systems, and any wastes generated during maintenance and operations, and 2) sound barriers for traffic noise control at sensitive receptors.</p> <ul style="list-style-type: none"> ▶ PMU/DOR and EDPD/PTI to ensure that proper measures are included in detailed design (DD). 			
P-6	Safety of the bridge structure and safety of users	<ul style="list-style-type: none"> ▶ Design of Superstructure / Substructure and Foundation will follow the AASHTO LRFD Bridge Design Specification/Road Design Manual. Analysis will be done with the help of STAAD/MIDAS Software. Model in STAAD/MIDAS will be prepared according to the type of Structure and Design will be done with standard in-house prepared work sheet. ▶ Crash Barrier and Railing: The Minimum height of railing and crash barrier will be 1100 mm above the roadway surface. Railings are provided for the protection of pedestrian. To separate the speeding vehicular traffic and the pedestrians reinforced concrete solid Crash Barrier is proposed between the carriageway and footpath. ▶ ▶ Bridge approach roadway: The roadway that approach the bridge on both side will follow Road Design Manual and AASHTO LRFD specification, which also include the standard for highway safety component i.e. street lights, signs, reflection lights, road safeguard barrier, etc. ▶ 	<ul style="list-style-type: none"> ▶ Design consultant 	Approved Design by PMU with AIIB review and comments	
Construction phase					
C-1	Establishment and operation of worker camps could increase waste generation, water pollution, and disturbance and other direct and indirect social impacts to local community	<ul style="list-style-type: none"> ▶ Ensure that the sites for campsite are approved by the Project and local authority; Selection of the camp sites should be made through tripartite consultation including community, Contractor, and the project representative. ▶ Ensure that basic camp facilities are provided including security, septic tanks, latrines, safe water supply, mosquito net, blanket, safe paths, fire 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	<ul style="list-style-type: none"> • Location of the work camp should be shown in the alignment sheet and C-ESMP. • No complaints from local authorities and local residents due 	Also see related plans in ESCOP Part 3

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<p>prevention equipment, etc.</p> <ul style="list-style-type: none"> ▶ Ensure that (a) washing areas, demarcated and water from washing areas and kitchen is released in sumps, (b) septic tanks of appropriate design have been used for sewage treatment and outlets are released into sumps and must not create a pond of stagnant water, and (c) the latrines, septic tanks, and sumps are built at a safe distance from water body, stream, or dry streambed, and the sump bottom is above the groundwater level. ▶ Details will be included in the C-ESMP under the Worker Camp Management Plan (WCMP). ▶ Contractor prepares and implements the plan to management worker camp. ▶ CSC/FE will review and approve the plan and monitor its implementation and report results to PMU/DOR and DPWT. 		<p>to location and activities of the worker camps.</p> <p>*Safe and comfortable living of staff and workers</p>	
C-2	<p>Establishment and operation of construction materials and equipment yards and access roads would increase dust, noise, vibration, safety, and disturbance to local people</p>	<ul style="list-style-type: none"> ▶ Ensure that the locations are far away from residential areas and watercourses, and take actions to mitigate dust, noise, vibration, water pollution, waste, etc. ▶ Implement measures indicated in related subplans described in ESCOP. ▶ Contractor prepares and implements the plan on environmental quality management. ▶ CSC/FE will review and approve the plans and monitor the implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	<p>Proper management of the site and no complaints from local authorities and residents</p> <p>Any related complaint</p>	<p>Also see related plans in ESCOP Part 3</p>
C-3	<p>Disposal of waste generated from project sites may increase health issues to local people and unclean environment</p>	<ul style="list-style-type: none"> ▶ Recycle metallic, glass waste; burry organic waste in impervious pit covered with soil. ▶ Ensure that waste material is properly disposed off in a manner that does not affect the natural drainage. ▶ Properly store and dispose hazardous wastes in accordance with ESCOP. ▶ Contractor prepares and implements the plan on waste management. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	<ul style="list-style-type: none"> • No health issue occurred. • Clean work sites and worker camp • Any related complaint 	<p>Also see related plans in ESCOP Part 3</p>

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
C-4	Access tracks/ haulage routs	<ul style="list-style-type: none"> ▶ The moving machinery should remain within the project boundary. ▶ Ensure that the access tracks, which are prone to dust emissions and disturbance to local resident are managed by water spraying daily and the areas sensitive to noise and vibration are managed through enforcement of speed limit control. ▶ After completion of construction work all the damaged roads / tracks will be restored by the Contractor, as it is Contractor’s obligations. Ensure that surface run-off controls are installed and maintained to minimize erosion. ▶ Restriction on movement of Contractor’s vehicles on designation routes; deploy traffic men at the villages to control the traffic as needed. ▶ Place road safety warning sign visible during the day and the night, and signs marking of the road edge and construction areas. <p>Contractor prepares and implements the plan on traffic and transport management.</p> <ul style="list-style-type: none"> ▶ CSC/FE will review and approved the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	No complaints from local residents regarding dust, noise, vibration, road safety, and the usage of the tracks/access roads	Also see related plans in ESCOP Part 3
C-5	Hiring skilled workers from outside of the locality can create social conflicts with local peoples	<ul style="list-style-type: none"> ▶ Hiring of workers from the local communities as much as possible. ▶ Contractor prepares and implements the plan on labor management. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	Number of local workers at the worksite.	Also see related plans in ESCOP Part 3

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
C-6	Poor workers safety and hygienic conditions may cause accidents and illness of workers and/or create poor health and other social issues to local peoples	<ul style="list-style-type: none"> ▶ Provide personal protective clothing and equipment for workers especially those handling hazardous materials, (helmets, adequate footwear) for concrete works (long boots, gloves), for welders (protective screen, gloves dungaree), etc. ▶ Contractor prepares and implements the plan on occupational and community health and safety. ▶ CSC/FE will review and approved the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	Safe working conditions Number of accidents	Also see related plans in ESCOP Part 3
C-7	Water for staff and workers consumption and construction	<ul style="list-style-type: none"> ▶ Provide adequate and safe water for consumption at sites and work camp. ▶ Contractor prepares and implements the plan on work yard/camp. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	Water tanker and pump provided by the Contractor	Also see related plans in ESCOP Part 3
C-8	Interruption of water supply	<ul style="list-style-type: none"> ▶ Inform residents and provide water supply as needed. ▶ Contractor takes actions 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	No complaint from residents	Also see related plans in ESCOP Part 3
C-9	Social issues	<ul style="list-style-type: none"> • Ensure that conflicts with local authorities and local communities are avoided. • Ensure that consultations and focus group meetings are conducted with both men and women to identify any water related and/or other issues related to the project implementation. • Contractor prepares and implements the Code of Conduct and plan on labor management. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	No social conflicts due to the subproject activities and/or workers. Any related complaint	Also see related plans in ESCOP Part 3

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<ul style="list-style-type: none"> • CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 			
C-10	Storage of hazardous material (including wastes)	<ul style="list-style-type: none"> ▶ Provide hard compacted, impervious and bounded flooring to hazardous material storage areas; Label each container indicating what is stored within; Train staff in safe handling techniques. ▶ Contractor prepares and implements the plan on construction site management. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	No health hazard and water contamination occurred. Record of any accidents Any related complaint	Also see related plans in ESCOP Part 3
C-11	Construction activities; handling of fuels, oil spill and lubricants	<ul style="list-style-type: none"> ▶ Ensure that no contaminated effluent is released to the environment. ▶ Ensure that fuels, oils, and other hazardous substances handled and stored according to standard safety practices such as secondary containment. ▶ Fuel tanks should be labeled and stored in impervious lining and dykes etc ▶ Fire fighting arrangements should be made available ▶ Ensure that vehicle refueling to be planned on need basis to minimize travel and chance spills. ▶ Ensure that operating vehicles are checked regularly for any fuel, oil, or battery fluid leakage. ▶ Contractor prepares and implements the plan on construction site management including an Emergency Response Plan. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	No oil spill observed Record of any accidents	Also see related plans in ESCOP Part 3
C-12	Cutting of trees in the right of way where required	<ul style="list-style-type: none"> ▶ To get agreement of the local community and authority. ▶ Contractor prepares and implements plan for site clearance, excavation, restoration, tree replantation, etc. CSC/FE will review and approve the plan and monitor	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI 	No complaints from local authority and/or residents. Number of trees replanted.	Also see related plans in ESCOP Part 3

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		its implementation and report to PMU/DOR and DPWT.	<ul style="list-style-type: none"> - DPWT - PONRE 		Also see related plans in ESCOP Part 3
C-13	Excavation of channels	<ul style="list-style-type: none"> ▶ Proper compaction and water sprinkling. ▶ Implement erosion control measures. 		Erosion and dust emission minimized	
C-14	Disposal of excavated material	<ul style="list-style-type: none"> ▶ Stockpile the excavated material to non-agriculture and in a minimum area and away from storm water. Dispose in consultation with DPWT and community 		Minimum loss of habitat	
C-15	Loss of fertile soil and vegetation; impacts on natural vegetation and embankment erosion along the watercourse.	<ul style="list-style-type: none"> ▶ Remove top layer of soil of the location, stock in a proper place and once the construction is finished, put the soil back on that place. The leftover spoil soil should be collected and kept aside for rehabilitation of the site at later stage of the work; re-vegetate the embankments with indigenous plant species. ▶ Contractor prepares and implements the plan for site clearance and restoration. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	River banks stabilized and re-vegetated	
C-16	Dust and smoke emissions	<ul style="list-style-type: none"> ▶ Cover all truckloads of loose materials during transportation. ▶ Water spraying at least 3 times per day before commuting to work/schools or any other methods are used by the Contractor to maintain the works areas, adjacent areas, and roads, in a dustless condition, as well the vehicle speed not to be exceeded from 30Km/h. Vehicles will be tuned regularly to minimize the smoke emissions. ▶ Contractor prepares and implements the plan for environmental quality management. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	Dust and smoke controlled Any related complaint	Also see related plans in ESCOP Part 3 (EQMP)
C-17	Noise pollution, Vibration	<ul style="list-style-type: none"> ▶ Conduct vibration risk assessment as part of CESMP where especially where the community structures are located at the adjacent to the COI. 		Excessive noise generation controlled Any related complaint	Also see related plans in ESCOP Part 3 (EQMP)

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<ul style="list-style-type: none"> ▶ Ensure the construction method statement to avoid vibration impacts to the community or/and individual structures and facilities. ▶ Pay compensation to any damages such as crack to the structures or properties. ▶ Vehicles and equipment to be fitted, as applicable, with properly maintained silencers. Restrictions on using vehicle horns, loudly playing radio/tape recorders etc. ▶ Contractor prepares and implements the plan for environmental quality management. ▶ Nighttime construction works near sensitive receptors such as hospitals will be avoided. Liaison with the communities will be maintained for carrying out works near the communities in order the schedule the noise generating works appropriately thus causing least disturbance to the communities. ▶ Noise monitoring will be carried out at sensitive receptors (eg, schools and healthcare facilities) and appropriate/feasible mitigation measures will be considered and integrated into the detailed design in consultation with all the key stakeholders. ▶ It will be ensured that the noise levels remain within relevant standards (eg, AIIB, WHO). ▶ CSC/FE will review and approve the plan and the design of mitigation measures and monitor its implementation and report to PMU/DOR and DPWT. 			
C-18	Excavation of borrow areas	<ul style="list-style-type: none"> ▶ Excavate borrow soil up to maximum depth of 0.5m; with slope boundaries. ▶ Implement erosion control measures. ▶ Contractor prepares and implements the plan for quarry and borrow pit management plan. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	Borrow area rehabilitated as per specification Any related complaint	Also see related plans in ESCOP Part 3
C-19	Rehabilitation of borrow pits	<ul style="list-style-type: none"> ▶ Proper rehabilitation of borrow pits; Removal and storage of top 15 cm topsoil having organic materials and spreading it back during restoration of borrow 		Borrow areas rehabilitated	

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<p>area.</p> <ul style="list-style-type: none"> ▶ Contractor prepares and implements the plan for quarry and borrow pit management plan. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 		Any related complaint	
C-20	Encountering archaeological sites during earth works	<ul style="list-style-type: none"> ▶ The subproject field supervisor (CSC or filed engineer) will halt the work at the site and inform to the regional team leader and Archaeological Department immediately. ▶ Contractor to follow “chance finds procedure” in ESCOP. ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. ▶ Contractor to follow “chance finds procedure” in ESCOP ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	The report from the CSC/FE, community, and contractor	See “chance find procedures” in ESCOP
C-21	Aesthetic/ scenic quality	<ul style="list-style-type: none"> ▶ Carry out complete restoration of the construction sites. ▶ Remove all waste, debris, unused construction material, and spoil from the worksites. ▶ Contractor to follow all ESS requirements in ESCOP ▶ CSC/FE will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	Cleanliness and tidiness of works sites and work camp Any related complaint	See all relevant plans in ESCOP
C-22	Disruption of local businesses and loss of income	<ul style="list-style-type: none"> ▶ Development of a recruitment system that allows for employment opportunities across all project affected communities. ▶ Develop contracts for casual laborer. ▶ Ensure that legal wages are paid to construction and ancillary workers in line with Lao Labor Law and minimum wages set in the Project area. 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT 	<ul style="list-style-type: none"> ▶ Number of local people employed by the Project/contractor in casual and full time jobs; ▶ Compensation and livelihood restoration have been delivered to 	Refer to ARAP

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<ul style="list-style-type: none"> ▶ Implement a transparent and participatory compensation and livelihood restoration process as per the ARAP. 	<ul style="list-style-type: none"> - PONRE 	<ul style="list-style-type: none"> affected households appropriately. ▶ No complaints from local people. 	
C-23	<p>Impacts and/or disturbance on cultural, traditional and heritage sites including secret sites, cemeteries and temples, caused by the construction activities and the influx of construction workers into the region.</p>	<ul style="list-style-type: none"> ▶ Develop control measures (do’s and don’ts) for non-Lao workers, site engineers and consultants ▶ Conduct induction training on Lao culture and traditional for non-Lao workers, site engineers and consultants ▶ Before commencement of construction, consult with village authorities to inform on the potential impacts and seek advice on appropriate procedure and ceremony implemented by different cultures and beliefs especially ethnic groups ▶ Respect Lao/local beliefs and traditional such as no major construction activities nearby community (temple, secret, cemetery) on the Buddha Day. ▶ Implementation of “Chance Find Procedures” as specified in Part (2), Attachment 4. ▶ Application of ESCOP (Attachment 4) ▶ Application of Generic COC on SEA/SH AND VAC (Attachment 5) 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	<ul style="list-style-type: none"> ▶ Complaints received. Number of unresolved complaints regarding cultural resources. ▶ Number of related trainings conducted. ▶ Number of community consultation conducted on cultural issues. 	
C-24	<p>Occupational health and safety (OHS): failure to implement measures to avoid accidents and injuries involving workers and the public; introduction of sexually transmitted or other diseases by non- local workers; outbreaks of diseases such as Covid-19, malaria, diarrhea, etc. in the labor force; gender-based violence (discussed</p>	<ul style="list-style-type: none"> ▶ Appoint an Environmental Health and Safety Officer (EHSO) who shall be responsible for training, monitoring and reporting on EHS concerns and implementing health and safety related-programs. ▶ Conduct orientation for construction workers regarding emergency response procedures and equipment in case of accidents (i.e. head injury from falling, burns from hot bitumen, spills of hazardous substances, etc.), fire, etc.; health and safety measures, such as on the use of hot bitumen products for paving of project roads, etc.; prevention of Covid-19, HIV/AIDS, malaria, diarrhea, and other related diseases, as well as Code of Conduct on SEA/SH and VAC ▶ Provide fire extinguish equipment and appropriate emergency response equipment (based on on-going 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	<ul style="list-style-type: none"> ▶ Complaints received. Number of unresolved complaints regarding OHS ▶ Number of community trainings conducted. ▶ Number of community members involved in training. 	

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
	<p>above), inadequate sanitation in worker’s camp (discussed in section on Worker’s Camp); pressures on existing health systems at the local level. Particular attention should be paid to women and other vulnerable persons.</p>	<p>construction activities) at the work areas and at construction and workers camps.</p> <ul style="list-style-type: none"> ▶ Provide first aid kits at each camp and working sites that are readily accessible by workers. In addition, the contractor shall prepare emergency procedures detailing arrangements with commune health center(s) or nearest hospital(s) to accommodate emergency cases from the work location. ▶ Provide workers with appropriate safety equipment/devices (such as dust mask, safety helmets, safety shoes or boots, goggles, ear plugs, etc.) and strictly require them to use these as necessary. ▶ Install sign boards, lighting system at the construction sites, borrow pits, or places which may cause accidents for vehicle, people and workers. ▶ Strictly impose speed limits on construction vehicles along residential areas and where other sensitive receptors such as schools, pagodas, hospitals, and other populated areas are located. ▶ Educate drivers on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials by providing covers over transporting dump trucks. ▶ Barriers (i.e. temporary fence) shall be installed at construction areas to deter pedestrian access to these areas except at designated crossing points. ▶ Sufficient lighting at night as well as warning signs shall be provided in the periphery of the construction site. ▶ The general public/ local residents, and in particular children, shall not be allowed in high-risk areas, i.e. excavation sites and areas where heavy equipment is in operation. ▶ Provide fencing on all areas of excavation greater than 2m deep. ▶ Ensure reversing signals are installed on all construction vehicles. ▶ Measures to prevent malaria if in areas where malaria is an issue, shall be implemented (i.e. provision of 			

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<p>insecticide treated mosquito nets to workers, spraying of insecticides, installation of proper drainage to avoid formation of stagnant water, etc.).</p> <ul style="list-style-type: none"> ▶ Discharge of untreated sewage shall be prohibited. ▶ Conduct road safety trainings for workers and roadside community. ▶ Conduct trainings on Covid-29, HIV/AIDS and STDs with workers and the community (separately). ▶ Conduct trainings on SEA/SH and VAC with workers and the community (separately). ▶ Ensure particular attention is provided to the needs of women and other vulnerable persons, for instance conducting specific trainings for them led by appropriate trainers (i.e. women-only training on HIV/AIDS and/or SEA/SH and VAC led by a woman). ▶ Ensure access to grievance redress mechanism. ▶ Ongoing consultations and awareness raising of local communities. ▶ Free testing for Covid-19 and HIV/AIDS. ▶ Establish health facilities at worker’s camps and/or take measures to support or enhance existing health centers at the village, commune or district level. ▶ Application of ESCOP (Attachment 4) ▶ Application of Generic COC on SEA/SH AND VAC (Attachment 5) ▶ Implementation of CESMP 			
C-25	Community health and safety and damages to community facilities/individual structures that may be caused by noise, dust, vibration, and other risks concerning boat and road	<ul style="list-style-type: none"> ▶ Prepares and implements Community health and safety plan. ▶ Implement a project grievance mechanism to record and respond to community complaints. ▶ Implement community health and safety awareness activities. ▶ Working hour limit for the civil works. ▶ All trucks used for the subproject shall be in full compliance with GOL regulations on speed limit, load permit, vehicle safety, etc.), and are properly 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	<ul style="list-style-type: none"> ▶ Complaints received. ▶ Number of unresolved complaints regarding community health and safety and damages to community facilities and structures and/or individual structures ▶ Number of community trainings conducted. 	

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
	<p>safety to the local residents, businesses and temples along the road (including damage to road due to heavy loads)</p>	<p>maintained to reduce noise/vibration/dust generation;</p> <ul style="list-style-type: none"> ▶ When passing through the residential and sensitive receptors areas, the speed limit should be slower (within 25-30km/hr.) than national road and watering the road and construction sites at least 3 times daily during dry season; ▶ Properly cover the transport trucks to prevent the risk of being blown off or jumping out of the trucks during transport; ▶ Develop and follow a vehicle maintenance program. ▶ Ongoing consultations with and provide notification to local communities on construction schedule and activities. ▶ Provide sufficient watchmen during the construction activities especially where the community. ▶ Install proper fence at where the community structures are located at the adjacent to the COI ▶ Provide access over ditches at construction sites to community facilities and install fall protection fences. ▶ Require driver training for all personnel that is specific to the type of vehicle that will be driven; ▶ Not allow overloading of trucks used for all project-related activities. ▶ Immediately repair any damage or pay compensation caused by the Project to community and/or private facilities such as water supply, power supply, irrigation canals, drainage, structures, trees, etc. The contractor to pay adequate compensation to affected parties, as necessary. ▶ Access roads damaged during transport of construction materials and other project- related activities shall be reinstated upon completion of construction works. ▶ All affected communities shall be made aware of the project grievance redress mechanism and will be provided information in advance on construction activities that may cause public nuisance and disturbance. ▶ C-ESMP shall include measures to ensure safety for 		<ul style="list-style-type: none"> ▶ Number of community members involved in training. 	

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<p>local people, business who are involved in fishing, and other use of waterways, including the place where barges are harbored for offloading the materials, safety for barge operator, and to ensure that boats and barges do not release fuel/oil, pollutants into the water and have adequate mooring or anchoring facilities for material delivery to subproject sites;</p> <ul style="list-style-type: none"> ▶ All vehicles used for the subproject should have subproject sticker that provides information on name of the subproject and contact person who are in charge of the car operation; ▶ Conduct air, noise and vibration monitoring at least on a 3 month quarterly basis or as needed; ▶ Application of ESCOP (Attachment 4) ▶ Application of Generic COC on SEA/SH AND VAC (Attachment 5) ▶ Implementation of CESMP 			
C-26	<p>Traffic Disruption:</p> <ul style="list-style-type: none"> ▶ Bridge construction works are expected to cause traffic disruption and congestion and obstruction of access to roadside properties and establishments. ▶ Lack of proper traffic warning signs and other safety measures could cause accidents. ▶ Limit/block access to shops, schools, hospitals, restaurants, etc, and lose of incomes. 	<ul style="list-style-type: none"> ▶ Contractor develops the plan on traffic and transport management for construction to identify and minimize risks associated with road transport. ▶ Require driver training for all personnel that is specific to the type of vehicle that will be driven; ▶ Identify suitable speed limits for the primary and ancillary roads and require strict driver adherence, particularly through settlements. ▶ Develop and follow a vehicle maintenance program. ▶ In cooperation with the local traffic authorities, properly organize transport of materials for the project to avoid congestion. ▶ Set up clear traffic signal boards and traffic advisory signs at the roads going in and out the road and bridge construction sites to minimize traffic build-up. ▶ Regularly monitor traffic conditions along access and Project roads to ensure that project vehicles are not causing congestion. ▶ Provide sufficient lighting at night within and in the vicinity of construction sites. ▶ Implement suitable safety measures to minimize risk of adverse interactions between construction works 	<ul style="list-style-type: none"> ▶ Implementing by contractor ▶ Monitoring by: <ul style="list-style-type: none"> - CSC/FE - PMU/DOR - EDPD/PTI - DPWT - PONRE 	<ul style="list-style-type: none"> ▶ Complaints received. ▶ Number of unresolved complaints regarding traffic disruption ▶ Number of community trainings conducted. ▶ Number of community members involved in training. 	

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		<p>and traffic flows through provision of temporary signals or flag controls, adequate lighting, fencing, signage and road diversions.</p> <ul style="list-style-type: none"> ▶ Provide temporary accesses to properties and businesses affected by disruption to their permanent accesses. ▶ Reinstate good quality permanent accesses following completion of construction. ▶ Provide safe vehicle and pedestrian access around construction areas. ▶ Provide adequate signage, barriers and flag persons for traffic control. ▶ If necessary, traffic will be diverted for safe and smooth movement of vehicles to ensure smooth traffic flow and minimize accidents, traffic hold ups and congestion. ▶ Temporary by-passes should be constructed and maintained (including dust control) during the construction period particularly at bridge crossings. Location of temporary bypasses shall be agreed with local authorities and such sites shall be reinstated upon completion of works. ▶ Limit the activities to non-business hours (if possible) and complete the works soonest possible. A timeframe must be developed and consulted with affected parties before starting the works. ▶ Provide appropriate temporary access (wood/steel platform) with handrails ▶ Clear all construction material/equipment from the access path ▶ At school, hospitals/referral hospitals, provided traffic signs and flagmen to facilitate traffic ▶ Application of ESCOP (Attachment 4) ▶ Application of Generic COC on SEA/SH AND VAC (Attachment 5) ▶ Implementation of CESMP 			
C-27	▶ At least 33 standing trees of different species have	▶ Limit the vegetation clearance to the minimum necessary during construction to prevent the loss of	▶	▶	

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
	<p>been identified within the COI including planting and natural grow. None of them are identified as Critical and Endangered species as per the IUCN Red List (2017). The construction works will need to remove 15 trees. Key avoidance, management and mitigation measures for terrestrial biodiversity are include:</p>	<p>natural habitats and associated species;</p> <ul style="list-style-type: none"> ▶ Design Project to strictly minimise disturbance to priority flora species by clearly marking the tree species that need to be retained and liaise with the construction contractor on the requirements; ▶ Larger sized trees (e.g. Samanea saman) will be retained where possible with a consideration of road safety. Regular pruning and trimming of tree branches should be conducted to maintain visibility of road users. ▶ Contractor prepares and implements plan for site clearance, excavation, restoration, tree replantation, etc. ISMC will review and approve the plan and monitor its implementation and report to PMU/DOR and DPWT; ▶ Removal of trees will need to be consulted with local authorities and impacted households. The District Agriculture and Forestry Office (DAFO) should provide oversight the vegetation clearing activities. The affected households who own these tree species should be given opportunities to transplant or harvest timbers in advance of clearing activities provided that they have appropriate personal safety equipment (PPE); Cleared areas should be progressively revegetated and rehabilitated throughout the life of the Project to restore vegetated areas where possible; ▶ Support local authorities and communities with seedlings to plant and/or maintain native trees along the Project alignment during the operation to offset biodiversity loss due to the Project. It is recommended to plant more native saplings of the same species for each tree cut; and ▶ Environmental education and awareness programs should be conducted for Project staff and contractors (e.g. through staff inductions) to ensure that the prohibitions and penalties regarding the collection of forest resources are widely known including hunting, buying or trading of wildlife. 			

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
Operation Phase					
O-1	Air emissions	<ul style="list-style-type: none"> ▶ CSC/FE supervises the operation and maintenance and reports to PMU/DOR and DPWT in the first 1-2 years of O&M phase. PMU/DOR and DPWT will supervise the maintenance afterwards. ▶ Introduce/encourage use of modern, efficient vehicles. ▶ Introduce encourage use of low emission fuels. ▶ Do not overload heavy trucks. ▶ Implement an air quality public liaison and complaints procedures. ▶ Regularly monitor air quality. 	<ul style="list-style-type: none"> ▶ Contractor ▶ CSC/FE ▶ PMU/DOR ▶ DPWT ▶ Road Users ▶ General Public 	Air quality parameters of interest are within the National Environmental Standards.	National Environmental Standards (2017) – Air Quality
O-2	Decongestion of the existing road network	<ul style="list-style-type: none"> ▶ Beneficial impact, therefore no management measures are proposed. 	▶ N/A	N/A	Positive
O-3	Improvement in regional accessibility and connectivity	<ul style="list-style-type: none"> ▶ Implement appropriate signage on the NR13 South for urban areas bypassed by the project to identify these urbans as stop-overs for fuel supplies, accommodation etc and to support the demand for goods and services in these areas. 	<ul style="list-style-type: none"> ▶ Contractor ▶ CSC/FE ▶ PMU/DOR ▶ DPWT ▶ 	Appropriate traffic and road signs have been installed and maintained.	N/A
O-4	Time travel reduction	<ul style="list-style-type: none"> ▶ Beneficial impact, therefore no management measures are proposed. 	▶ N/A	N/A	Positive
O-5	Traffic related noise and vibration impacts from traffic on communities	<ul style="list-style-type: none"> ▶ Road safety programs should be developed and delivered to road side community and other frequent road users (such as schools). Special attention to villagers travelling by foot along road, including women, and children should be delivered. ▶ Strengthening local enforcement mechanisms, such as additional support to local-level government to monitor road safety and implement road safety awareness activities. ▶ Conduct operational noise monitoring within a year of operations to compare the actual noise performance of the project against predicted noise performance and review model and management measures if required. This should also include a review of the grievance 	<ul style="list-style-type: none"> ▶ Contractor ▶ CSC/FE ▶ Department of Transport, DOR/MPWT ▶ DPWT 	No complaint on noise pollution.	N/A

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		register for any noise complaints. ▶ Maintain the bridges. ▶ Prohibit use of truck hydraulic braking in community areas ▶ Implement a noise and vibration public liaison and complaints procedure. ▶ Regularly monitor noise and vibration.			
O-8	Waste management	▶ Install ‘No littering’ signs along roadway and provide waste bins at rest areas. ▶ Install drainage litter traps along the ROW. ▶ Conduct regular litter collection activities along the roadside and embankments to prevent the accumulation of domestic waste (e.g. water bottles, packaging, vehicle waste (e.g. tyre material, wheel hub caps).	▶ Contractor ▶ CSC/FE ▶ Department of Transport, DOR/MPWT ▶ DPWT	The NR13 South has been maintained and cleaned.	National Road Maintenance Fund may apply
O-9	Water pollution	The following road maintenance measures should be applied to minimize water quality impacts of spills from transport accidents or from contaminated run-off, as part of a regular program: ▶ Inspect barriers, fences, erosion and sediment control devices. ▶ Maintain retaining walls to minimize cracks and water damage. ▶ Repair pot-holes and shoulder erosion to minimize risk of vehicle accidents. ▶ Maintain stormwater energy dissipaters and velocity controls on open drains to lower runoff velocity and control soil erosion. ▶ Dispose of accumulated sediment collected from detention ponds, drainage systems, and pollution control structures, and any wastes generated during maintenance operations in accordance with appropriate government requirements. ▶ Use techniques during bridge maintenance such as suspended tarpaulins, vacuum collection or booms to prevent paint spills, solvents and scrapings from becoming waterborne pollutants.	▶ Contractor • CSC/FE • Department of Transport, DOR/MPWT • DPWT	The NR13 South has been maintained and cleaned.	National Road Maintenance Fund may apply

	Activities causing impacts	Mitigation Measures	Responsible Entities	Monitoring Indicators	Remarks
		▶ Keep drainage ditches free from accumulated debris.			

Attachment 4: Generic Environment and Social Code of Practices (ESCOP)

1. This attachment presents a generic Environment and Social Code of Practices (ESCOP) to be applied during the preparation of the contractor's Environmental and Social Management Plan (C-ESMP) to be prepared and implemented by contractor. This ESCOP is considered part of the Project-ESMP and it will be incorporated into the bidding document (BD) and contract document (CD) while the implementation cost will be part of the contract cost (OPBRC). The ESCOP will be implemented in connected with the code of conduct on SEA/SH and VAC provided in Attachment 5 and the generic forms provided in Attachments 8 and 9. It has also taken into account the recommendations provided on the road safety (Attachment 2b) and other mitigation measures described in the ESMP report (Section 5) and results from the consultation meetings in late 2019 (Section 7).
2. The Project Management Unit of Department of Road (PMU/DOR) will assign the Construction Supervision Consultant (CSC)⁹ and/or Field Engineer (CSC/FE) to supervise and monitor Contractor's compliance with ESCOP on a day-to-day basis while assigning at least one full time staff (the Environment and Social Unit, ESU/DWPT) to be responsible for conducting monthly monitoring and reporting. The Department of Road (DOR), the Environment Research and Disaster Prevention of the Public Works and Transport Institute (EDPD/PTI), the local authorities (PONRE/DONRE), and local communities will conduct periodic (quarterly and semi-annual) monitoring of contractor performance, as needed. DPWT assisted by CSC/FE will be responsible for review and approval of the C-ESMP and its subplans to be prepared and submitted by contractors and ensuring its compliance during implementation of road maintenance works.
3. *Objective and scope of ESCOP:* The ESCOP aims to mitigate the potential negative impacts of road maintenance works such as increased in air, noise, vibration, waste generation, safety risks, local traffic, etc. which could be mitigated through good environmental and social management and construction practices in general. Site-specific measures and/or plan/subplan can be prepared to address site-specific issues that require specific actions as requested by local authorities, local communities, PMU/DOR, AIIB and/or other financing agencies during the preparation and clearance of the C-ESMP and other safeguard documents (ARAP). In summary, the ESCOP comprise the following three parts¹⁰:
 - a. **Part (1) General Provision and Planning.** This part describes general provision and basic principles on contract management including roles and responsibility of the project owner (PMU/DOR), contractors, CSC/FE, EDPD/PTI, and local authorities. It has also incorporated the mitigation measures for the pre- construction phase as proposed in the ESMP report (Section 5).
 - b. **Part (2) ESS Specific Requirements.** This part describes specific environment and social safeguard (ESS) requirements and/or actions as required by AIIB, GOL, and

⁹ For NR13S, the CSC will be the Implementation Support and Works Supervision Consultant (ISWS) and this responsibility will be included in the TOR of the ISWS.

¹⁰ The ESCOP has taken into account the requirements described in generic ECOP of the ESMF of LRSP2-AF.

key measures to be considered during detailed design and preparation of bidding and contract documents as well as those that may be requested by local authorities/communities during implementation and/or supervision.

- c. **Part (3) Works Management and Monitoring.** This describes the mitigation measures to reduce potential negative impacts on air, noise, vibration, water, etc. to be implemented during works execution through the preparation and implementation of specific management plans/subplans taking into account the activities, potential impacts, and mitigation measures proposed in the ESMP Section 5.

6. This ESCOP Part (2) has incorporated specific requirements of the AIIB regarding the “chance find procedures” and the “occupational and community health and safety (OCHS)” including other social obligations to ensure safety of workers and local communities. The concerns/suggestions expressed by local authorities and communities during consultation have also been considered.

Part (1): General Provision and Planning

Section (1.1) Contractor responsibility

7. The Contractor is responsible for making best effort to reduce and mitigate the potential negative impacts on local environment and local resident including making payment for all damages that may occur. Performance of the Contractor will be regularly supervised and monitored by the CSC/FE as well as periodic monitored by PMU/DOR (through the ESU/DPWT) and EDPD/PTI. Results of the ESCOP compliance monitoring will be included as part of the project progress report. Compliance with ESCOP will be required throughout the construction period.

8. For clarity, the term “works” and/or “construction” in this document includes all site preparation, demolition, spoil disposal, materials and waste removal and all related engineering and construction activities.

9. Since this is a 10-year OPBRC, the contractors will be responsible for implementation of the mitigation measure during the first 2-3 year construction phase as well as the following 7-8 year operations and maintenance (O&M) while the construction supervision consultant (CSC) and/or field engineer will be responsible for approval and day-to-day monitoring of the C-ESMP implementation and ensure compliance. The implementation cost of the C-ESMP will be part of the OPBRC cost while that for ARAP will be responsible by GOL. The ESS requirements described in The Project-ESMP¹¹ as well as GOL requirements/ conditions during approval of the Initial Impacts Examination (IEE) and issuance of the Environment and Compliance Certificate (ECC) will be considered during the preparation and approval of the C-ESMP and its subplans.

Section (1.2) Non-compliance reporting procedures

¹¹ This include Attachment 2b (road safety), Attachment 5 (issues and mitigation and the Alignment Sheet, Attachment 6 (ESCOP), Attachment 7 (COC), and Attachments 8 and 9 (accident report and GRM forms).

10. The Contractor (and its subcontractors if any) must comply with this ESCOP. To ensure that necessary action has been undertaken and that steps to avoid adverse impacts and/or reoccurrence have been implemented, the CSC/FE, the ESU/DPWT, and/or the Contractors must advise the PMU/DOR and EDPD/PTI within 24 hours of any serious accidents and/or incidents of non-compliance with the ESCOP that may have serious consequence. In the event of working practices being deemed dangerous either by the CSC/FE, PMU/DOR, EDPD/PTI, the local authorities, or the other concerned agencies, immediate remedial action must be taken by the Contractors. The Contractors must keep records of any incidents and any corrective action taken. The records on non-compliance that could be practically addressed (not cause serious impacts) will be reported to the CSC/FE and PMU/DOR on a monthly basis.

11. The Contractor will be responsible for dealing with any reports/grievance requested by the CSC/FE, PMU/DOR, EDPD/PTI, Police, or other agencies as soon as practicable, preferably within 24 hours of receipt. The CSC/FE will monitor and ensure that the Contractor has taken appropriate action. Where appropriate, approval of remedial actions may require an agreement from the local authorities and/or other Government agencies. Procedures should be put in place to ensure, as far as is reasonably practical, that necessary actions can be undertaken to avoid recurrence and/or serious damage (also see form in Attachment 8).

12. In case the Contractor does not comply with local regulations, PMU/DOR and/or the local authorities will have the power to suspend the construction operations. The Contractor will be responsible for mitigating and/or compensating for any damage and/or adverse environmental impacts during the construction caused by the Contractor.

Section (1.3) Liaising with local authorities and the public

13. Prior to the commencement of project and throughout the construction duration, the Contractor will work closely with the local authorities and other agencies to ensure full compliance with Government regulations and will also provide adequate information on the Project to the general public, especially those that may cause public safety, nuisance, and sensitive areas and the locations of storage and special handling areas. The Contractor will provide information and reporting telephone “Hot Line” staffed at all times during working hours. Information on this facility shall be prominently displayed on site hoardings.

Section (1.4) Community relations

14. The Contractor will assign one community-relation personnel, who will be responsible for building relations with local community and to provide appropriate information and be the first line of response to resolve issues of concern. Contractor will take reasonable steps to engage with residents of ethnic minority backgrounds and residents with disabilities (or other priority groups as appropriate), who may be differentially affected by construction impacts.

15. The Contractor will ensure that local residents nearby the construction sites will be informed in advance of works taking place, including the estimated duration. In the case of work required in response to an emergency, local residents shall be advised as soon as reasonably practicable that emergency work is taking place. Potentially affected residents will also be notified of the ‘Hotline’ number, which will operate during working hours. The “Hotline” will

be maintained to handle enquiries regarding construction activities from the general public as well as to act as a first point of contact and information in the case of any emergency. All calls will be logged, together with the responses given and the callers' concerns action and a response provided promptly. The helpline will be widely advertised and displayed on site signboards.

16. The Contractor will respond quickly to emergencies, complaints or other contacts made via the 'Hotline' or any other recognized means and liaise closely with the emergency services, local authority officers and other agencies (based on established contacts) who may be involved in incidents or emergency situations.

17. The Contractor will manage the work sites, work camps, and workers in a way that is acceptable to local residents and will not create any social impacts due to workers. Any construction workers, office staff, Contractor's employees, or any other person related to the Project found violating the "*prohibitions*" activities listed in Section (1.5) below may be subject to disciplinary actions that can range from a simple reprimand to termination of his/her employment depending on the seriousness of the violation.

Section (1.5) Prohibitions

18. The following activities are prohibited on or near the Project sites:

- Cutting of trees for any reason outside the approved construction area; Hunting, fishing, wildlife capture, or plant collection; Buying of wild animals for food; Having caged wild animals (especially birds) in camps; Poaching of any description; Explosive and chemical fishing; Disturbance to anything with architectural or historical value;
- Building of fires; Use of unapproved toxic materials, including lead-based paints, asbestos, etc.; Use of firearms (except authorized security guards); Use of alcohol by workers in office hours; Driving in an unsafe manner in local roads; and
- Washing cars or machinery in streams or creeks; Maintenance (change of oils and filters) of cars and equipment outside authorized areas; Creating nuisances and disturbances in or near communities; Disposing garbage in unauthorized places; Indiscriminate disposal of rubbish or construction wastes; Littering the site; Spillage of potential pollutants, such as petroleum products; Collection of firewood; Urinating or defecating outside the designated facilities; and Burning of wastes and/or cleared vegetation.

Part (2) ESS Specific Requirements

Section (2.1) Implementation of "Chance Find Procedures"

19. If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor will carry out the following steps:

- Stop the construction activities in the area of the chance finds;
- Delineate the discovered site or area;

- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the National Culture Administration take over;
- Notify the project engineer, supervisor, the project owner (PMU/DOR), and/or DPWT and EDPD/PTI who in turn will notify the responsible local authorities and the provincial Culture Department immediately (within 24 hours or less);
- Responsible local authorities and the provincial Culture Department would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists of National Culture Administration. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
- Decisions on how to handle the finding shall be taken by the responsible authorities and the provincial Culture Department. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities; and
- Construction work could resume only after permission is given from the responsible local authorities or the provincial Culture Department concerning safeguard of the heritage.

Section (2.2) Implementation of the Environmental, Health, and Safety (EHS) guideline

20. The Contractor is required to comply with the WB's Environmental Health and Safety Guidelines (EHSG)¹². For the Project, the Contractor will prepare a number of management plans/subplans to protect the local environment and ensuring safety of workers and local peoples. On the latter, an occupational and community health and safety plan (OCHSP) will be prepared and incorporated into the Contractor's own Standard Operating Procedures (C-SOPs). At a minimum the following rules will be strictly followed, however, more comprehensive measures may be required:

Site Environment and OCHS Rules

- Daily and weekly OCHS orientation sessions before starting work;
- Wearing of personal protective equipment (PPE) such as gloves, helmets, safety shoes, dungarees, goggles etc.;

¹² The WB's EHSG provides general guidance on the pollution prevention and abatement measures and workplace and community health and safety guidelines. The EHSG are divided in two parts: general guidelines on health and safety and pollution prevention and abatement, including general standards for air and water quality, and a set of sector-specific guidelines for various types of development projects.

- Follow the messages and instructions displayed on the environmental management plans and OCHS notice boards installed on site;
- Promptly reporting all accidents to the concerned authority;
- Maintain appropriate barricades of dangerous areas, as required;
- Vehicles must be driven at a safe speed, observing speed limits of 30 Km/h in sensitive areas and use only the designated routes as mentioned in the Traffic and Transport Management Plan (TTMP);
- Drivers must have a valid driving license for the class of vehicle they are operating;
- Vehicles should only be parked in designated parking areas; and
- Land mines/UXO clearance of the project area as needed.

Health and Hygiene: The measures should include:

- Provision of adequate medical facilities to the staff;
- Provision of hygienic food to the employees;
- Provision of cooling and heating facilities to the staff; and
- Provision of drainage, sewerage and septic tanks in camp area.

Security: Security measures should include:

- Regular attendance and a controlled time keeping of all employees;
- Restriction of un-authorized persons to the work areas and/or worker camps;
- Restriction of carrying weapons and control hunting by employees; and
- Provision of boundary walls/ fences with proper exits to the camp.

Section (2.3) ESS Requirements before Commencement of Construction

20. Before construction begins (at each Project site), all the following requirements will be completed, checked and approved by DWPT, PONRE, and EDPD/PTI:

- Within 28 days after contract awarded, submission of the C-ESMP with adequate measures to mitigate potential negative impacts described in this ESCOP. The C-ESMP will be prepared in line with the Project-ESMP and it will be reviewed and approved by PMU/DOR and/or the CSC/FE. The approved C-ESMP will be sent to EDPD/PTI, DPWT, and/or PONRE.
- Recruitment of key ESS staff of the contractor to be responsible for environmental, social and safety aspects.
- Establishment of worker camps with quality health services and sanitary equipment and all required supporting facilities and workshop/material storage area in comply with the ESS requirements related to the labor management, worker camp and storage area described in Part 3. Worker camps and storage areas will be checked and approved by DPWT and PONRE before moving or utilization of the area.

- Development of Code of Conducts (COC) and Company Project Rules regarding health and safety of workers and local communities to prevent and address potential risks and issues associated with possible labor influx including SEA, GBV and VAC (see Attachment 7). The Contractor will provide training to all Contractor's staffs and workers working for the Project. Code of Conducts and Company Project Rules will be signed and stamped by company management team and all staffs and workers.
- Provision of a list of Contractor's key staff, engineers, and worker to be working on site. The information will be included, but not limited to, personal data, criminal check and health data to ensure that all employees are free of the following diseases: liver cancer and sexually transmitted diseases (STDs) with the following information: names and surnames, ages, address (village, district, province, contact details, status (single, married), health (good), family information (number of children, name of wife, address and contact details) and among others. The list of employees will need to be attached in C-ESMP and distribute to all project affected communities/villages.
- Consultation with affected communities/villages on Project activities, risks/ impacts, prevention and mitigation measures and other community health and safety information. The consultation reports will be submitted to DWPT and EDPD/PTI with list of participation and minutes of consultation.

21. The Contractor will (a) install signs and signals on works in progress to ensure safety both during day and night time; (b) ensure no blockage of access to households during construction and/or provide alternative access, provide footbridges and access of neighbors; and (c) endure construction of proper drainage on the site. The measures recommended in the Safety Risk Assessment (see Attachment 2b) should be considered and the key ones are highlighted as follows:

- Project sign board will be installed at the beginning and the end sections of the Project.
- Speed limit signs will be installed at both edges of village, communities, schools, hospitals and other sensitive areas with speed limit between 20-25km/hr or any speed issued by local authorities;
- Speed limit and caution signs at both edges of each active construction area;
- Install signs indicating way to work camps, borrow pits, quarries, etc.,
- Bypass signs, reflection, etc.,
- Ensuring that local communities are active involve in the planning and installation of these signs and help preventing damages and/or loss as much as possible.

22. The Contractor will also be required to complete the environmental management subplans and the OCHS Plan and complete at least one training for all contractor staff and workers working for the Project with records of any training and induction. Periodic and follow-up trainings will be conducted at least once in every three months.

Section (2.4) ESS Requirements during Construction and Project-Site Closure

23. The ESS requirements during Construction is provided in Part 3. The Contractor will also be required to manage all activities in compliance with laws, rules and other permits related to site construction regulations (what is allowed and not allowed on work sites) and will protect public properties. Degradation and demolition of private properties will be avoided. Paying compensation to damage to the public facilities and/or private property will be required. The Contractor will inform PMU/DOR and DPWT on issue and/or damages that may unexpectedly occur.

24. As part of the ESCOP, the Contractor is responsible for protection of local environment against dust, air, noise, vibration, exhaust fuels and oils, and other solid wastes generated from the work sites. The Contractor will manage waste properly and do not burn them on site and will also provide proper storage for construction materials, organize parking and displacements of machines in the site. Used oil and construction waste materials must be appropriately disposed-off and adequate waste disposal and sanitation services will be provided at the construction site next to the generated areas. In order to protect soil, surface and ground water the Contractor will avoid any wastewater discharge, oil spill and discharge of any type of pollutants on soils, in surface or ground waters, in sewers and drainage ditches. Compensation measures may be required.

25. *Construction site closure.* Before each Project site is considered completed, the following actions will be undertaken:

- Clean up all wastes and disruption and removal of construction equipment, construction waste and general wastes from the Project ROW and all location used by the Project during construction such as worker camps, parking bays, and storage areas, borrow pits, quarries and ancillary facilities.
- Stabilize all borrow pits or implement all agreed measures in accordance with agreements stipulated in minutes or documents signed between the Contractor and landowners. If needed, signing of a handover documents for borrow pits will be required.
- Stabilize and/or rehabilitate all project sites to ensure community safety and erosion control.
- Together with DPWT and PONRE, provide training on road safety to all affected community. All training will be recorded and affected communities will sign the training received sheet.
- Submission of ESS Site Closure Report to DPWT and EDPF/PTI one month before project completion inspection. Any potentially defects to the works will be fixed to ensure good conditions before completing the contract.

Section (2.5) GOL Regulations and Comments from Local Communities

26. It is expected that EDPD/PTI will prepare two IEEs including consultation for the Project (one for Bolikhamxay and one for Khamouane) as agreed with PONREs and that an Environment and Compliance Certificate (ECC) will be issued before commencement of construction. The Contractor will be required to comply with the ECC approval conditions as

well as to be responsive to the concerns and/or the requests made by local authorities and/or local communities throughout the contract period.

Part (3) Works Management and Monitoring

27. This section provides technical guidance on the ESS requirements during construction phase. At a minimum, the Contractor is required to prepare and submit to CSC/FE the following, but not limited to, plans/subplans: (i) Construction Site Management Plan (CSMP) including site safety, spill prevention, and emergency response, (ii) Occupational and Community Health and Safety Plan (OCHSP), (iii) Environmental Quality Management Plan (EQMP), (iv) Site Clearance and Borrow Pit Management Plan (SCBMP), (v) Waste Management and Recycling Plan (WMRP), (vi) Works/Worker Camp Management Plan (WCMP), (vii) Traffic and Transportation Management Plan (TTMP), (viii) Labor Management Plan (LMP), and (ix) Monitoring and Reporting Plan (MRP). Scope of these plans are described below.

Section (3.1) Construction Sites Management Plan (CSMP)

28. *This plan aims to mitigate potential impacts at the construction sites in general.* Key requirements are related to working hours, site layout and appearance and good housekeeping as well as operations of equipment and vehicles including prevention of spill and emergency response. Monthly inspection/meeting should be conducted to ensure that these procedures are adhered to. The Contractor must follow a ‘good housekeeping’ policy at all times. Preparation of contractor SOP (C-SOP) may be required by CSC/FE. All Project sites should be cleared by the Contractor on completion of the construction.

(a) General requirements on construction sites

29. The Contractor is required to minimize, as far as reasonably practicable, any adverse environmental impact of their construction activities. All appropriate licenses and consents in respect of site operations will be timely secured. A construction site should satisfy the following requirements:

- *Working hours:* Core working hours will be from 0800 to 1800 on weekdays and 0800 to 1300 on Saturday and this should be established in close consultation with local authorities and local resident. Noisy operations will not take place outside these hours without prior approval from the CSC/FE. All construction related traffic can be adjusted according to the agreed working hours for each site. Any exemption will require an agreement with the PMU/DOR, CSC/FE, and/or local authorities.
- *Site layout.* The overall site layout must be designed and approved under regulations to suit the construction location, the site’s area, natural and climate conditions in the place of construction, facilitate the construction and ensure safety for human, machines and equipment at the construction site and the surrounding areas affected by construction activities.
- *Site arrangement.* Supplies and materials are placed neatly according to the approved overall plan design. Supplies, materials and obstacles are not placed on roads, emergency exits or fire entrances. Flammable and explosive material warehouses are not arranged near the place of construction and tents. Waste materials are removed and discharged in prescribed places. Water drainage systems are regularly cleared to ensure that the construction ground is always dry.
- *Signs.* At the construction site, appropriate signs must be installed. At the main entrance, a plan of the overall ground of the construction site and working regulations

is displayed. Safety measures and rules are publicized at the construction site for compliance. At dangerous places at the construction site, such as areas going through local community with limited space and/or dangerous operations, installation of temporary fences, warning signs and instructions for accident prevention (including installation of light/reflection) must be provided.

- *Good housekeeping:* The Contractor will follow a ‘good housekeeping’ policy at all time for the workers and the surrounding environment. This will include, but not necessarily be limited to the following: dust and noise control; waste treatment, keeping the site clean and tidy. To sites located near residential areas, wastes must be covered and collected and properly disposed-off. Construction and waste materials during transportation must be properly covered to ensure safety and environmental sanitation.
- *Training of staff and workers.* Before starting construction, an approved design of construction measures including those related to transportation of construction materials are required. The measures will include those to ensure safety of workers, construction machines and equipment for each job, and/or local people. Training of workers and/or drivers on technical and use instructions, etc. will also be required. During construction, the approved design as well as regulations, standards and technical processes are complied with. Jobs dependent on the quality of previous jobs are performed only after the previous jobs have been tested to meet quality requirements under regulations.

(b) Local cultural and traditional sites

30. The Contractor is required to respect local cultural/historical sites, including temples and other spiritual sites/resources for ethnic peoples and ensuring security and privacy of women and households in close proximity to the camps. Measures can be included in an appropriate management plan described in this ESCOP.

(c) Fire, spill, and emergency plan

31. The Contractor to set up specific measures for prevention of fire and spill of toxic/hazardous chemicals and provide appropriate facilities and equipment that could help fighting fire at the construction site, which has its own working regulations on its specific duties and powers. A subplan on to prevent fire and toxic/hazardous chemical spill will be prepared and approved under regulations including preparation of emergency response. This will include assignment of specific staff and/or team to be responsible for ensuring safety and organizes training on these procedures. In/near urban area, at the construction site, local fire-fighting equipment are arranged (if possible). At fire-prone places, inflammable signboards and fire-fighting and alarm equipment are installed to promptly detect fires and take remedies.

Section (3.2) Community Health Safety Plan (CHSP)

32. *This plan aims to ensure safety and the protection of community safety.* Experience of road rehabilitation and maintenance works in Lao PDR suggested that safety of worker and local community are high priority, especially when the activities are conducted in rural and/or mountainous areas due to limited space/area for operations of heavy equipment and vehicles.

33. The Contractor is required to take the following actions:

- Conduct a safety risk assessment of all construct sites and identify the area and type of safety risks and prepare/implement measures to mitigate them effectively. Electric

equipment should be safely insulated during the construction process while the workers knowledge on safety techniques and ways to give first aid to persons who get electric shock and/or accident should also be provided.

- Ensure that key managers and workers are fully capable in the jobs they perform under regulations. Operators of construction machines and equipment and performers of jobs with strict labor safety requirements are trained in labor safety and possess labor safety cards under regulations. Workers at the construction site are provided with medical checks-up and safety training and adequate personal safety equipment under the labor law.
- Construction machines and equipment with strict labor safety requirements are inspected by and registered with competent agencies under regulations for operation at the construction site. During operation, they comply with safety processes and measures. If construction equipment is operated outside the construction site, the investor approves safety measures for construction-affected people, machines, equipment and works inside and outside the construction site. If due to construction conditions, equipment have to be placed outside the construction site and while not in operation, if they operate outside the construction site, such is permitted by authorized agencies under local regulations.
- *Unexploded Ordnance (UXO)*: Although the risk is considered low, but due consideration and actions will be required. The response process needs to be included in emergency procedures. The emergency procedures will be prepared and carried out if UXO risk is identified at the construction site.

34. The Contractor is also responsible for maintaining good hygiene, safety, and social welfare security of the work sites, including protection of and health and safety of staff and workers. The Contractor will prevent standing water in open construction pits, quarries or fill areas to avoid potential contamination of the water table and the development of a habitat for disease-carrying vectors and insects. Safe and sustainable construction materials and construction method should be used.

Section (3.3) Environmental Quality Management Plan (EQMP)

35. *This plan aims to reduce potential impacts on air, noise, vibration, and water quality.* During construction, the Contractor will specifically take serious actions on the following:

- To control dust by using water or through other means and the construction site will be cleaned on a daily basis;
- To work with local authority and management local traffic effectively and ensure traffic access of road safety of local residents and road users during the works. Speed limit at work sites and community area will be applied to all vehicles and cars. All vehicles and their drivers must be identified and registered, and the drivers are properly trained;

36. ***Dust, noise, and vibration.*** The Contractor must make efforts to control dust, noise, and vibration levels from the site, as far as is reasonably practicable. Excessive noise/vibration generation activities must be in accordance with GOL standards. For critical areas, the Contractor may be required to conduct noise measurement in close consultation with the local residents and establish appropriate measures to control and manage noise level. Measures for reducing dust and other air pollution, noise, and vibration are provided as follows:

- *Inform the residents:* Prior to commencement of work at any site, the Contractor will be required to inform the local authority and residents regarding the construction plan and potential noise and vibration that may occur from the construction activities, including measures to reduce noise and vibration.
- *Dust control:* The Contractor will ensure that no burning of waste materials on site; adequate water supply is available on site; dry sweeping of large areas is not allowed; Cover all trucks carrying loose or potentially dusty materials (soil, mud, etc.) to and from construction site; Water or sprinkle the construction areas periodically, especially at site located near residential area; avoid overloaded of trucks; routinely clean public roads and access routes; Ensure vehicles working on site have exhausts positioned such that the risk of re-suspension of ground dust is minimized (exhausts should preferably point upwards), where reasonably practicable; Control driving speed on un-surfaced haul routes and work areas; Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; Mix large quantities of cement, grouts and other similar materials in designated areas; Store materials with the potential to produce dust away from site boundaries where reasonably practicable; Minimize the amount of excavated material held on site; Sheet, seal or damp down unavoidable stockpiles of excavated material held on site, where required; Seal or re-vegetate completed earthworks as soon as reasonably practicable after completion.
- Care must be undertaken during the transportation of construction materials to and from the construction site; the spoil must be covered at all time. Fly-tipping will not be permitted. Loads must only be deposited at designated sites. The Contractor will be responsible for all the trucks delivering to, or exiting from, a worksite and will clean up all damage that may occur to public road and other public facilities. Care should be taken when loading or unloading vehicles or dismantling scaffolding or moving materials to reduce impact noise. Loading or unloading bays may have to be housed in suitable acoustic enclosures.
- Noisy plant or equipment including will be sited as far away as is practicable from noise sensitive buildings. The use of barriers, (e.g. soil mounds), site huts, acoustic sheds or partitions to deflect noise away from noise sensitive areas should be employed wherever practicable.
- The Contractor will be obliged to comply with the vibration levels according to GOL standards. Due attention will be given to minimize human exposure (1 Hz to 80 Hz) and protection of damage to nearby structures.

37. **Water quality.** The Contractor must take all the efforts to prevent wastes (solid and liquid) discharge into all rivers and to protect surface and groundwater from pollution and other adverse impacts including changes to water levels, flows and general water quality. Discharge of engine oil and oily waste from dredgers and construction machines to the rivers will be strictly prohibited. Engine oil, used oil, and other toxic substances and hazardous wastes must be properly collected, stored, treated, and/or disposed-off. Key measures are as follows:

- *Used oil/engine oil:* The oil container at the construction site (especially when the site is located less than 10 meters from the waterways) must be of sufficient strength to ensure to prevent leakage. The container must be situated within a secondary containment system (bunded), which will prevent the release of any leaked oil. The Contractor must make provisions to ensure that all hazardous substances including oil

drums or containers on site are properly labeled and properly stored and that no oil or other contaminants are allowed to reach water courses or groundwater.

- *Wastewater from sites:* Whenever possible, the Contractor must minimize the amounts of wastewater that need to be discharged and find alternative means of disposal. The Contractor will ensure that any seepage and wastewater arising from the works and camp sites must be collected and discharged via a settlement tank. The standards for wastewater treatment prior to discharge must be agreed in advance with the ESA. Contaminated water or water of an uncertain quality must be discharged into sewers by tankers or other approved means of disposal.
- *Drainage.* Water drainage must be designed to avoid stagnant conditions that could create bad smell and unsanitary condition. The Contractor must agree with the ESA in advance, details of the methodology to be employed, prior to commencement of the construction. Particular attention must be given to regular pest control treatment (particularly rats and flies); removal of sludge and other debris after drainage; reducing smell nuisance from sludge and algae by measures including deodorizing, hosing down etc. Safety measures must also be taken to protect both the general public and employees and to prevent fly-tipping and illegal access during the development works.

Section (3.4) Works/Worker Camp Management Plan (WCMP)

38. *This plan aims to mitigate negative impacts due to establishment and operations of work yard and worker camps including storage site management.* The Contractor will carry out, but not limited to, the following:

- The Worker Camp and workshop storage area will be located on areas far enough from water points, houses and sensitive areas in consultation with the community and the subproject owner. Worker camps shall not be located within 500 meters of any sensitive receptors, urban area and at least 200 meters from any surface water course and not within 2 km of any protected area.
- Worker camps, cooking facilities, and toilets will be provided with roofs, walls and wooden floors or paved with concrete while the camp yards and storage can be compacted or paved with gravels. If possible, the worker camps should be fenced and provided with entrance gates to prevent unauthorized entry. In addition, the worker camps will be provided with storm water drainage system around the camp facilities to prevent flooding, mud, erosion and sediment transport to natural environment.
- Worker camps will be provided with basic facilities and utilities including but not limited to: office, notice boards and regulations of the company and about the Project, beds, mosquito nets, blankets, clean drinking water and safe portable water, sufficient waste bins, first aid kits and necessary medicines, fire extinguishers, etc.
- For bathing and toilets, the Contractor will ensure that (1) separate toilets for males and females and sewage and wastewater will be retained in sediment pond(s); (2) Toilet chambers will be designed appropriately to be able to treat sludge and sewage prior to discharge to closed retention ponds without exposure to vectors and/or diseases; (3) building of toilet rooms, sewage chambers and retention ponds will be

away from natural water bodies, streams, and wetland areas. The floor of retention chambers will be above the aquifer layer.

- Material storage facilities and workshop will be in proximity or within work camp area with fences, compacted ground or paved with gravel and drainage system.
- Hazardous material storage area will be provided with roof, walls and concrete floor and bunds, storm water drainage and oil traps. Engine oil change requires steel trays on the floor to prevent hydrocarbon spills on soils. If spill is found, immediate cleaning is required by collecting contaminated soil and to a temporary container and maintained in hazardous storage area.

40. The Contractor will consult with local authority regarding the location of the worker camps and will provide appropriate water supply, garbage collection, toilets, mosquito net, and other health protection measures to all workers. Fishing, wildlife hunting, and other social disturbance to local societies are prohibited. Training of workers on safety, good hygiene, and prohibitions activities is required. Detail measures as follow:

(a) During the preconstruction stage:

- Contractor will consult with local authority and subproject management unit regarding the location of the worker camps
- Once work camp location is identified, the Contractor will set up temporary accommodation for all the workers throughout the construction or maintenance period. In terms of supply and storage of domestic water at the work camp area, the Contractor will comply with the following requirements: (a) Provide adequate drinking water supply for the work camps in appropriate tanks/containers. The Contractor will identify appropriate public water source for drinking in consultation with the local authority; (b) in case no appropriate source of water is identified, the Contractor will take water from other sources which will be tested and treated before supplied to the work camps; (c) All water supply and storage areas must be away from the wastewater storage area, drainage system or other sources of contamination according to the regulations. Water from drains or contaminated water must not be used as domestic water at the site.
- At all construction sites, facilities for washing and necessary and appropriate tools must be provided by the Contractor. Bathrooms must be provided separately for male and female workers. Such facilities must ensure convenience for use and cleaning.
- Waste discharges, wastewater must be properly collected and disposed-off.
- First aid/Emergency aid kit. The first/emergency aid kit must be available at the work camp area and managed by a responsible person. This person must be trained on emergency/first aid. Injured or seriously sick people must be taken to the nearest hospital.
- *Community relations.* The Contractor will ensure that conflicts between the workers and local population are avoided.

(b) Construction stage:

- Work camps must be kept clean and tidy, unaffected by oil spill and construction wastes. Any oil spilt or leaked must be cleaned immediately to avoid soil and water contamination. Some actions to carry out are as follow: (a) avoid oil leakage into

surface water or groundwater; (b) wastewater must not be disposed directly to natural water areas; (c) solid waste materials are removed and discharged in prescribed places at frequent intervals; (d) First/Emergency aid supplies and materials and cleaning tools are regularly provided.

- PMU/DOR and/or CSC/FE will monitor the housekeeping of work camp areas and ensure these areas are kept clean throughout the construction period.

(c) Construction completion.

- During this stage, all work camps and facilities will be cleared away and removed from the site. The site will be rehabilitated to ensure the operation of the works.

Section (3.5) Site Clearance and Borrow Pit and Quarry Management Plan (SBQMP)

41. *This plan aims to mitigate negative impacts due to excavation, site clearance, tree cutting in ROW, stockpiling, quarries, and borrow pits including the needs for revegetation and/or rehabilitation of the work sites* (see locations in Attachment 1c). The Project road is predominantly located on existing alignment and substantial sections of the first quarter of the alignment will be built using embankments over swamp and soft ground. Considerable amounts of borrow materials will therefore be needed to improve the swamp ground, including replacement of swamp deposits with rock fill, and in areas of embankment to attain the appropriate height of earthworks on which to form the required road grade. Capping layers may also be required to achieve a uniform roadbed support.

(a) Tree cutting, quarry and borrow pit

42. Tree cannot be cut without approval from CFC/FE. The Contractor will use a quarry of materials according to the regulations and compensate by planting of trees in case of deforestation or tree felling. When possible, the Contractor should develop maintenance and reclamation plans, protect soil surfaces during construction and re-vegetate or physically stabilize eligible surfaces, preserve existing fauna and flora and preserve natural habitats along streams, steep slopes, and ecologically sensitive areas.

43. The materials required to be sourced locally for road construction include: Natural granular material for possible application as subbase; Borrow materials for embankment fill (typically obtained from nearby NR13 South alignment but from private owned/operate borrow areas in some cases); Quarry stone for production of aggregates for asphalt, crushed stone base, concrete and masonry works; and Sand for concrete and mortar. Locations of these materials have been identified nearby the Project road (see locations in Attachment 1c). It is expected that these sites will supply source materials to the closest section of the alignment to minimize the impact of transporting materials.

44. Commercial quarries and borrow pits approved by local environmental agencies should be used as much as possible. If non-commercial quarries and/or borrow pits are newly opened or expanded and used, in consultation with the CSC/FE, the Contractor will comply with the following requirements:

- Large-scale borrow pits or stockpiles will need site-specific measures that may go beyond those required in this ESCOP.
- All locations to be used must be previously identified in the approved construction specifications. Sensitive sites such as scenic spots, areas of natural habitat, areas near sensitive receptors, or areas near water should be avoided.

- When water pollution is expected, an open ditch will be built around the stockpile site to intercept wastewater.
- Stockpile topsoil when first opening a borrow pit and use it later to restore the area to near natural conditions.
- If needed, disposal sites will include a retaining wall.
- If the need for new sites arises during construction, they must be pre-approved by the responsible local authorities.
- If landowners are affected by use of their areas for stockpiles or borrow pits, they must be included in the project resettlement plan and proper agreement and record will be secured.
- For any stockpile, quarry, or borrow pit sites opened for this project should be used only for the project activities and it should not to be used afterwards, unless it has been authorized by local authorities.
- If access/rescue roads are needed, actions to mitigate all negative impacts described in this ESCOP will also be applied. The alignment for each of these roads must be clearly determined with its impacts and mitigation measures.

(b) Earth excavation and demolition materials

46. During site physical clearance, earth excavation must be carefully handled to reduce dust and possible obstruction and causing nuisance and health impacts to local residents. Excavation that affects existing traffic and public utilities (such as pipeline, water supply, and bridges) must be properly planned in consultation with local authority and informed to the residents in advance. All excavation materials and old road surface will be reused for dike/road construction and/or land filling at or nearby the work site. Demolition materials must be properly disposed-off. The Contractor must consult PMU/DOR and/or CSC/FE on the final selection of disposal sites and methods.

47. To mitigate potential impacts of material excavation include: Potential UXO risk; Exposure of soil that has the potential to lead to increased erosion and discharge of sediment into waterways; Exposed faces and slopes that may be at risk of landslide or collapse; The dewatering of some areas within source sites has potential to impact on flow activation of potential plumes; Discharge of effluents from aggregate washing and crushing has potential to impact on water quality; and Increased noise, dust and vibrations in the local area surrounding the source sites. The Contractor will consult local authorities and communities on UXO risks at all borrow materials, quarry stone and sand site, a quick assessment is undertaken for each site to ensure that UXO risk and impacts on local community and local environment are low and appropriate actions will be made to mitigate these risks/impacts. Obtaining approval letter from local authorities is required before utilization of each site. Each site should have a clear plan for mitigation of erosion and/or sedimentation measures including construction of drainage controls and sedimentation ponds, daily deployment and maintenance of sediment control devices such as silt fences and jute netting, and planning of quarrying operations to minimize long-term exposure of erosive materials. It is expected that each quarry will also have a rehabilitation plan for the closure of the site after the sourcing of materials.

(d) Protection of natural habitats.

48. The Contractor must observe the national and local regulations and policies related to protected areas/species, wildlife sanctuaries. No trees in nearby sensitive areas can be cut

without obtaining prior agreement with the authorities. When possible, organize training courses to improve environmental protection awareness of the staff and local communities. When the construction activities are carried out near and/or within sensitive areas (such as conservation and protection areas), the Contractor will ensure that the workers will not be involved in fishing and wildlife hunting and/or collection of plants, biodiversity and the activities (such as borrow pit) will not be located in the sensitive area without permission of local authorities.

49. *Site restoration.* The Contractor will use a quarry of materials according to the regulations and compensate by planting of trees in case of deforestation or tree felling. When possible, the Contractor should develop maintenance and reclamation plans, protect soil surfaces during construction and re-vegetate or physically stabilize eligible surfaces, preserve existing fauna and flora and preserve natural habitats along streams, steep slopes, and ecologically sensitive areas.

Section (3.6) Waste Management and Recycling Plan (WMRP)

50. *This plan aims to mitigate potential negative impacts due to generation of construction wastes and operations of works and worker camps (construction, hazardous, domestic) including recycle and reuse plan to be conducted during road construction and maintenance.*

(b) Construction and hazardous wastes.

51. Preconstruction and construction activities may generate large amount of construction wastes including those generating from resurfacing and excavation of soil, old road surface and/or concrete structure and other surplus materials (oily wastes, miscellaneous woods, steel, etc.). Although most of these wastes are not toxic or dangerous (except for some oily wastes such as oily cloths after cleansing machines and equipment, etc.), proper measures for waste collection and treatment are required to avoid contaminating local environment (water quality, soil, natural habitats, land scape, and scenery) and local residents. The Contractor will prepare and implement a plan to reduce the generation of these wastes. When possible, these wastes should be properly reused and/or recycle. Bags and other solid wastes will be collected for recycling while appropriate arrangement will be made if a temporary disposal area will be required. Appropriate final disposal sites must be identified and implemented.

(c) Domestic solid wastes

52. Generation of these wastes (food wastes and garbage including plastic) will be minimized and/or reused when possible. The Contractor must carry out appropriate measures for waste collection and treatment. The domestic wastes will be collected in plastic or wooden bins with lids placed in convenient places and in worker canteens. Periodically, at appropriate time, transport those bins to the disposal sites (the sites should be approved by local authorities). The Contractor must sign a contract with the Urban Environmental and Construction Company to collect and treat these wastes during construction. In case the wastes cannot be transported to the dumping site (for example, due to lack of appropriate transport route), wastes must be buried at temporary dumps in the project area in a sanitary way – a waste layer covered by a layer of soil, and when the dump is filled, it is covered by a soil layer about 50 cm thick. Temporary dump sites must be located at least 500 m away from residential areas, 200 m away from work camps and surface water sources, and not in the prevalent wind direction of the area. Upon completion of works, cover the entire temporary dumps with soil, ensure land, and landscape restoration for the subproject area.

Section (3.7) Traffic and Transportation Management Plan (TTMP)

53. *This plan aims to address negative impacts due to increase in traffic and transportation of construction materials especially those related to road safety, traffic congestions, dust, noise, and vibration.* Key requirements are as follows:

- The Contractor will be required to use designated construction traffic routes as agreed and/or directed by the local authorities and the Police. The number of truck movements, hours of operation and any truck holding areas will be agreed in advance with the local authority and the Police. Plans will be required for each site showing the site entrances/exits and the agreed access roads for use to the nearest main road, and the routes to be used by truck to and from the strategic road network.
- The Contractor will maintain an up to date log of all drivers that will include a written undertaking from them to adhere to the local authority's approved routes for construction traffic. In the case of non-compliance, the Contractor and/or their sub-contractor(s) would be in breach of contract, necessitating disciplinary action against individual drivers.
- The Contractor may be required to provide truck stickers uniquely identifying the group of construction sites included in each contract, details of which shall be submitted to the local authority for approval. For identification purposes the Contractor will fix these in a prominent position on all trucks frequently serving the construction site. The identification will need to be sufficiently large to be easily read from a distance of 20 meters. Trucks waiting to enter or leave the site must switch off their engines to avoid unnecessary engine noise and emissions. Restrictions on the size and weight of vehicles accessing each site may be imposed depending on agreed access routes.

54. For construction that interference with a carriageway or footway, the Contractor will inform the local authorities, responsible agencies, and local residents before commencing the works and proposed measures to minimize the safety risk and inconvenience to the public. All necessary consents and licenses must be obtained in advance. The safety of the public must be ensured. In the case of temporary footways, reasonable access shall be provided for people in accordance with the following requirements:

- Any temporary footways and carriageways will be constructed to the reasonable requirements of the local authorities and should have uniform surfaces as much as possible;
- Clear signing must be provided at all times for pedestrian routes with the minimum number of changes to all temporary layouts in order to reduce confusion. Advance warning should, if possible, indicate alternative existing wheelchair-accessible routes;
- After completion of the works all materials arising from the works will be cleared from the highway leaving the same in a clean and tidy condition to the reasonable requirements of the local authorities; and
- The Contractor will be responsible for any damage caused by their activities to the roads and public facilities in the vicinity of the worksite. Any defects caused by the Contractors must be rectified immediately if dangerous or otherwise within 24 hours.
- Any street furniture (electrical or non-electrical) cannot be removed or relocated by the Contractor or any of its sub-contractors without written agreement from the responsible agencies.

55. Road safety campaign in the high risks area will be prepared and implemented as agreed with DPWT and/or CSC/FE (see also Attachment 2b).

Section (3.8) Labor Management Plan (LMP) -COC

56. This plan aims to minimize potential direct and indirect social impacts of contractor's staff and workers including their behaviors on local communities. The Contractor will be required to have appropriate contract arrangement with staff and workers as well as to prohibit actions that may cause negative social impacts (direct and indirect) due to labor influx and possible health impacts (STDs, AIDS, etc.) to local peoples. The Contractor is required to implement and comply with Occupational Health and Community Safety Plan (OHCSPP) as one of main part of overall ESHS requirements. The Contractor is encouraged to hire local labor including community and female workers to extent possible. Where local labor are not adequately available in the Project sites, labor or camp site management plan and is required to be prepared and implemented and monitored potential external labor influx and associated risks including SEA, GBV and VAC. Code of Conducts (COC) and Company Project Rules regarding health and safety of workers and local communities will be applied by the contractors and their sub-contractors and workers to be hired under the Project to manage the risks anticipated.

57. The Contractor will also be responsible for maintaining good hygiene, safety, and social welfare security of the work sites, including protection of and health and safety of staff and workers. The Contractor will prevent standing water in open construction pits, quarries or fill areas to avoid potential contamination of the water table and the development of a habitat for disease-carrying vectors and insects. Safe and sustainable construction materials and construction method should be used.

Section (3.9) Occupational Health and Safety Management Plan

The objectives for occupational health and safety (OHS) management for the Project include:

- ▶ Avoid or minimise potential OHS risks to personnel and contractors of the Project; and
- ▶ Comply with applicable Lao PDR's road and traffic laws and decrees and align with international standards and guidelines regarding OHS.

MPWT/DOR and PMU are committed to building a workforce that is motivated, healthy and has a good working ability, and to creating healthy and safe workplaces that are free from accidents and work-related disease, in compliance with the Lao PDR's Occupation Safety and Health (No. 22/GoL, 2019). The OHS program for the Project will also take into account the World Bank Group Environmental, Health and Safety Guidelines (ESHGs).

Workers on the Project will be exposed to many risks from dust, noise, blasting activities, traffic, and handling of hazardous materials. Appropriate precautions will need to be taken to avoid work-related accidents, injuries or illness. PMU and the Contractor will work to (i) identify potential hazards to workers, particularly those that may be life threatening; (ii) provide preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) train workers; (iv) document and report occupational accidents, diseases, and incidents; and (v) organise for emergency prevention, preparedness, and response.

Section (3.10) Project Change Management Plan/ Adaptive Management Plan

Adaptive management aims to continually improve environmental and social management processes by monitoring and evaluating their effectiveness and implementing strategies and actions to incorporate learnings quickly and proactively into operational implementation of

monitoring and management and in future planning for the NR13SE (the Project). Monitoring associated with adaptive management as described in this plan will focus on monitoring changes to the environment against established (including but not limited to regulatory) thresholds, beyond which the implementation of action will be necessary to reduce observed impacts where changes are reasonably associated with the Project. Adaptive management will take place within the context of an industrial project, which will operate in an environmentally responsible manner but by nature cannot operate without any effects.

This Adaptive Management Plan (AMP) for NR13SE provides an overview of the management mechanisms established to identify where mitigation measures may not sufficiently address potential adverse effects, and to address uncertainty or conditions that may occur during operations that were not anticipated during the planning phase. A precautionary approach to managing the Project inclusive of this adaptive management plan acknowledges uncertainties exist while developing systems and approaches for responding to changing conditions, with the goal of avoiding adverse effects by taking action before these occur or, at minimum, responding quickly and meaningfully to observed changes that may be partially to wholly attributable to the Project.

The Project-wide adaptive management process begins with a planning phase, followed by iterative phases of implementing and monitoring the actions included in the plan(s), evaluating the effectiveness of actions included in the plans based on results of monitoring and other feedback mechanisms, and adjusting management strategies and actions and responses based on monitoring.

Section (3.11) Monitoring and Reporting Plan (MRP)

58. *This plan aims to ensure that the mitigation measures are conducted timely and effectively.* The Contractor will be required to submit the Contractor ESS monitoring report to DPWT and PONRE (with a copy to EDPD/PTI) on every 25th of each month. The report can be submitted electronically as agreed. Key monitoring subplan and/or indicators (also see Attachment 5 Table A5.1).

(a) Site Management and Monitoring

59. Following approval of the C-ESMP, the Contractor will be required to attend a series of meetings with the CSC and/or Field Engineers to ensure that all compliance conditions and procedures are clearly understood and actions can be implemented on the ground. As part of the day-to-day supervision of works, the CSC/FE are also responsible for day-to-day supervision and monitoring of compliance of the C-ESMP and report the results in the progress report. The Contractor will be responsible for ensuring that all sub-contractors abide by the conditions of the Project-ESMP.

(b) M&E Plan

60. During construction, the Contractor will specifically take serious actions on the following:

- To control dust by using water or through other means and the construction site will be cleaned on a daily basis;
- To work with local authority and management local traffic effectively and ensure traffic access of road safety of local residents and road users during the works. Speed

limit at work sites and community area will be applied to all vehicles and cars. All vehicles and their drivers must be identified and registered, and the drivers are properly trained;

- To respect the cultural sites, ensure security and privacy of women and households in close proximity to the camps and the use of asbestos containing materials is not allowed;
- To conduct daily monitoring and inspection of construction activities to ensure environmental and social impacts are managed and mitigated appropriately in local communities. These potential impacts include wastes, discharge, dust, community health and safety, OCHS, construction waste contaminated on private land, social issues and social security, etc.;
- To implement and maintain a good community-relations in comply with requirements in the section on Community Relation below; and
- To comply with Non-compliance Reporting Procedures as specified in Part 1 of the ESCOP.

(c) Contractors Reporting

61. Contractors Reporting - The Contractor will prepare two levels of environmental reports:

- Weekly Environmental Checklists – These will be prepared weekly by the Contractor’s ESS management (ESSM) team and the checklist will be submitted to the CSC/Engineer on a weekly basis. EDPD/PTI will provide a sample for the checklist.
- Monthly Summary Report - in respect of compliance with C-ESMP will be submitted to the PMU/DOR through CSC/Engineer. The report will be in line with the ESHS requirements as described in the BD Part II Section IX - Particular Conditions of Contract.
- CSC will report any incidents/accidents that may have impacts on the safety, health, environment or community, or any activity resulting in regulatory non-compliance or breach of GoL or AIIB ESS policy, standards or commitments. CSC/Engineer will need to develop an incident/accident reporting system to document any reportable events such as injury, hazardous spills, or community incidents (e.g. private property damage). The reporting system should record the following events:
 - Injury, illness or accident;
 - Near miss (with serious or major potential for loss);
 - Non-contained fires within or near operational areas;
 - Chemical spills;
 - Uncontrolled gas emissions;
 - Spills of fuel or oil greater than 50 L within bunded workshop or other operational areas (safety and environmental incident);
 - Spills of fuel or oil outside of bunded areas greater than 10 liters (environment incident);
 - Community incidents (e.g. private property damage, injury to livestock);
 - Any other environmental incident involving damage to the environment.

- Accidents / incidents will be classified according to their actual and potential safety, environmental or social impacts using a standard consequence matrix to ensure consistency. The system will need to record the following types of auditable information into a report:
 - Description of the incident / accident/event and its causes;
 - Risk rating of the event (according to a standard rating system / consequence matrix);
 - Root cause analysis
 - Description of appropriate corrective and preventative actions and their proposed timeline for implementation;
 - Status of corrective actions (to be updated once closed out); and
 - Actual or estimated costs of repair, clean-up or other remedial measures.

Attachment 5: Project Code of Conduct (CoC) on Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH), AND Violence Against Children (VAC)

1. This section provides guidance on sample of requirements to be included in contract to address the issues related to Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC) which is a new requirement to be applied to all projects with AIIB financing. These samples are used in road projects in Cambodia (RAMP-II) and Lao PDR (LRSP2 and NR13N) starting 2018. Sections A3-1, A3-2, A3-3, A3-4, A3-5, and A3-6 presents (i) Table of contents, objectives, scope, and definitions; (ii) Samples code of conduct; (iii) Action plan; (iv) GRM; (v) Services providers; (vi) SEA/SH and VAC Focal Point; and (vii) Appendix 1 - Potential Procedures for Addressing SEA/SH and VAC.

2. Table of Content, Objective, Scope, and Definitions are as follows:

1. Background
 2. Scope
 3. Definitions
 4. Sample Codes of Conduct
 - (a) Company Code of Conduct
 - (b) Preventing Gender Based Violence and Violence Against Children
 - (c) Manager’s Code of Conduct
 - (d) Preventing Gender Based Violence and Violence Against Children
 - (e) Individual Code of Conduct
 - (f) Preventing Gender Based Violence and Violence Against Children
 5. Action Plan
 - (a) The SEA/SH and VAC Compliance Team
 - (b) Making Complaints: SEA/SH and VAC Allegation Procedures
 - (c) Addressing Complaints about SEA/SH or VAC
 6. GRM
 7. Service Provider
 8. SEA/SH and VAC Focal Point
 - (a) Accountability Measures
 - (b) Monitoring and Evaluation
 - (c) Awareness-raising Strategy
 - (d) Response Protocol
 - (e) Survivor Support Measures
 - (f) Perpetrator Policy and Response
 - (g) Administrative Sanctions
- Appendix 1 - Potential Procedures for Addressing SEA/SH and VAC
-

A5-1. Background

3. The purpose of these *Codes of Conduct and Action Plan to prevent Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC)* is to introduce

a set of key definitions, minimum standard sample Codes of Conduct, and guidelines that establish mechanisms for preventing, reporting and addressing SEA/SH and VAC within the work site and in its immediate surrounding communities. The application of the SEA/SH and VAC Codes of Conduct will help prevent and/or mitigate the risks of SEA/SH and VAC on the project.

4. Mutual respect and fair treatment between those working on the project and local communities is critical to a safe, respectful, and productive workplace and operating environment. SEA/SH and VAC can be one of the most serious violations of respect and fair treatment which can harm the local community, and significantly damage trust and cooperation between parties.

5. These Codes of Conduct are to be adopted by those working on the project and are meant to: (i) create common awareness about SEA/SH and VAC; (ii) ensure a shared understanding; and, (iii) create a clear system for identifying, responding to, and sanctioning SEA/SH and VAC incidents.

6. Ensuring that all project staff understand the values of the project, understand expectations for all employees, and acknowledge the consequences for violations of these values, will help to create a smoother, more respectful and productive project implementation thereby helping ensure that the project's objectives will be achieved.

A5-2. Scope

7. [use what is in draft bidding documents]

A5-3. Definitions

8. The following definitions apply:

- *Gender-Based Violence (GBV)*: is an umbrella term for any harmful act that is perpetrated against a person's will and that is based on socially ascribed (i.e. gender) differences between males and females. It includes acts that inflict physical, sexual or mental harm or suffering, threats of such acts, coercion, and other deprivations of liberty. These acts can occur in public or in private.
- *Violence against Children (VAC)*: is defined as physical, sexual or psychological harm of minor children (i.e. under the age of 18) including using for profit, labor, sexual gratification, or some other personal or financial advantage.
- *Accountability Measures* are the measures put in place to ensure the confidentiality of survivors and to hold contractors, consultants and the client responsible for instituting a fair system of addressing cases of SEA/SH and VAC.
- *Child* is used interchangeably with the term 'minor' and refers to a person under the age of 18.¹³ This is in accordance with Article 1 of the United Nations Convention on the Rights of the Child.

¹³ The Kingdom of Cambodia is party to this convention. <http://www.pseataaskforce.org/uploads/tools/1478613357.pdf>

- *Child Protection (CP)*: is an activity or initiative designed to protect children from any form of harm, particularly arising from VAC.
- *Consent*: is the informed choice underlying an individual's free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the AIIB considers that consent cannot be given by children under the age of 18¹⁴, even in the event that national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.
- *Consultant*: is as any firm, company, organization or other institution that has been awarded a contract to provide consulting services in the context of the RAMP-II, to the project, and has hired managers and/or employees to conduct this work.
- *Contractor*: is any firm, company, organization or other institution that has been awarded a contract to conduct infrastructure development works in the context of the RAMP-II project and has hired managers and/or employees to conduct this work. This also includes sub-contractors hired to undertake activities on behalf of the contractor.
- *Employee*: is as any individual offering labor to the contractor or consultant within country on or off the work site, under a formal or informal employment contract or arrangement, typically but not necessarily in exchange for a salary (e.g. including unpaid interns and volunteers), with no responsibility to manage or supervise other employees.
- *Employer*: Ministry of Public Works and Transport
- *SEA/SH and VAC Allegation Procedure*: is the prescribed procedure to be followed when reporting incidents of SEA/SH or VAC.
- *SEA/SH and VAC Codes of Conduct*: The Codes of Conduct adopted for the project covering the commitment of the company, and the responsibilities of managers and individuals with regards to SEA/SH and VAC.

¹⁴See UN Resolution 62/214. United Nations Comprehensive Strategy on Assistance and Support to Victims of Sexual Exploitation and Abuse by United Nations Staff and Related Personnel; UN Secretariat (2003) ST/SGB/2003/13 Special measures for protection from sexual exploitation and sexual abuse; IOM (2016) Policy and Procedures for Preventing and Responding to Sexual Exploitation and Abuse.

- *SEA/SH and VAC Compliance Team (GCCT)*: a team established by the project to address SEA/SH and VAC issues.
- *Grievance Redress Mechanism (GRM)*: is the process established by the RAMP-II project to receive and address complaints.
- *Grooming*: are behaviors that make it easier for a perpetrator to procure a child for sexual activity. For example, an offender might build a relationship of trust with the child, and then seek to sexualize that relationship (for example by encouraging romantic feelings or exposing the child to sexual concepts through pornography).
- *Manager*: is any individual offering labor to the contractor or consultant, on or off the work site, under a formal employment contract and in exchange for a salary, with responsibility to control or direct the activities of a contractor's or consultant's team, unit, division or similar, and to supervise and manage a pre-defined number of employees.
- *Online Grooming*: is the act of sending an electronic message with indecent content to a recipient who the sender believes to be a minor, with the intention of procuring the recipient to engage in or submit to sexual activity with another person, including but not necessarily the sender¹⁵.
- *Perpetrator*: is the person(s) who commit(s) or threaten(s) to commit an act or acts of SEA/SH or VAC.
- *Response Protocol*: is the mechanisms set in place to respond to cases of SEA/SH and VAC.
- *Survivor/Survivors*: is the person(s) adversely affected by SEA/SH or VAC. Women, men and children can be survivors of GBV; children can be survivors of VAC.
- *Work Site*: is the area in which infrastructure development works are being conducted, as part of the project.
- *Work Site Surroundings*: is the 'Project Area of Influence' which are any area, urban or rural, directly affected by the project, including all human settlements found on it.

A5-4. Sample Codes of Conduct

9. This section presents three sample Codes of Conduct as the minimum standard for use under civil works contracts for the Project (RAMP-II). These codes will be confirmed and agreed upon prior commencement of works and cleared by the Supervision Consultant.

- *Company Code of Conduct*: Commits the company to addressing SEA/SH and VAC issues;

- *Manager's Code of Conduct*: Commits managers to implementing the Company Code of Conduct, as well as those signed by individuals; and,
- *Individual Code of Conduct*: Code of Conduct for everyone working on the project, including managers.

(a) Company Code of Conduct: Preventing Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC)

10. In the context of the Project, the company is committed to creating and maintaining an environment in which gender-based violence (GBV) and violence against children (VAC) have no place, and where they will not be tolerated by any employee, associate, or representative of the company. Therefore, in order to ensure that all those engaged in the project are aware of this commitment, and in order to prevent, be aware of, and respond to any allegations of SEA/SH and VAC, the company commits to the following core principles and minimum standards of behavior that will apply to all company employees, associates, and representatives including sub-contractors, without exception:

1. The company—and therefore all employees, associates, and representatives—commit to treating women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status. Acts of SEA/SH and VAC are in violation of this commitment.
2. Demeaning, threatening, harassing, abusive, culturally inappropriate, or sexually provocative language and behavior are prohibited among all company employees, associates, and its representatives.
3. Acts of SEA/SH or VAC constitute gross misconduct and are therefore grounds for administrative sanctions, which may include penalties and/or termination of employment. All forms of SEA/SH and VAC, including grooming are unacceptable, regardless of whether they take place on the work site, the work site surroundings, at worker's camps or at worker's homes.
4. In addition to company sanctions, legal prosecution of those who commit acts of SEA/SH or VAC will be pursued if appropriate.
5. Sexual contact or activity with children under 18—including through digital media—is prohibited. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
6. Sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior are prohibited.

7. Unless there is full consent¹⁶ by all parties involved in the sexual act, sexual interactions between the company's employees (at any level) and members of the communities surrounding the work place are prohibited. This includes relationships involving the withholding/promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered “non-consensual” within the scope of this Code.
8. All employees, including volunteers and sub-contractors are highly encouraged to report suspected or actual acts of GBV and/or VAC by a fellow worker, whether in the same company or not. Reports must be made in accordance with SEA/SH and VAC Allegation Procedures.
9. Managers are required to report suspected or actual acts of GBV and/or VAC as they have a responsibility to uphold company commitments and hold their direct reports responsible.
10. Comply with all relevant local legislation, including labor laws in relation to child labor.
11. To ensure that the above principles are implemented effectively the company commits to ensuring that:
12. All managers sign the ‘Manager’s Code of Conduct’ detailing their responsibilities for implementing the company’s commitments and enforcing the responsibilities in the ‘Individual Code of Conduct’.
13. All employees sign the project’s ‘Individual Code of Conduct’ confirming their agreement not to engage in activities resulting in SEA/SH or VAC.
14. Displaying the Company and Individual Codes of Conduct prominently and in clear view at workers’ camps, offices, and in public areas of the work space. Examples of areas include waiting, rest and lobby areas of sites, canteen areas, health clinics.
15. Ensure that posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.
16. An appropriate person is nominated as the company’s ‘Focal Point’ for addressing SEA/SH and VAC issues, including representing the company on the SEA/SH and VAC Compliance Team (GCCT) which is comprised of representatives from the client, contractor(s), the supervision consultant, and local service provider(s).

¹⁶**Consent** is defined as the informed choice underlying an individual's free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the AIIB considers that consent cannot be given by children under the age of 18, even in the event that national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

17. Ensuring that an effective Action Plan is developed in consultation with the supervision consultant and which includes as a minimum:
 - a. *SEA/SH and VAC Allegation Procedure* to report SEA/SH and VAC issues through the project Grievance Redress Mechanism (GRM);
 - b. *Accountability Measures* to protect confidentiality of all involved; and,
 - c. *Response Protocol* applicable to SEA/SH and VAC survivors and perpetrators.
18. That the company effectively implements the Action Plan, providing feedback to the GCCT for improvements and updates as appropriate.
19. All employees attend an induction training course prior to commencing work on site to ensure they are familiar with the company's commitments and the project's SEA/SH and VAC Codes of Conduct.
20. All employees attend two mandatory training courses per year for the duration of the contract starting from the first induction training prior to commencement of work to reinforce the understanding of the project's SEA/SH and VAC Code of Conduct.

Company name: _____

Signature of Company's Representative: _____

Printed Name: _____

Title: _____

Date: _____

(b) Manager's Code of Conduct: Preventing Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC)

11. Managers at all levels have particular responsibilities to uphold the company's commitment to preventing and addressing SEA/SH and VAC. This means that managers have an acute responsibility to create and maintain an environment that prevents SEA/SH and VAC. Managers need to support and promote the implementation of the Company Code of Conduct. To that end, managers must adhere this Manager's Code of Conduct and also sign the Individual Code of Conduct. This commits them to supporting and developing systems that facilitate the implementation of the Action Plan and maintain a GBV-free and VAC-free environment at the workplace and in the local community. These responsibilities include but are not limited to:

Implementation

1. To ensure maximum effectiveness of the Company and Individual Codes of Conduct:
 - a. Prominently displaying the Company and Individual Codes of Conduct in clear view at workers' camps, offices, and in public areas of the work space. Examples of areas include waiting, rest and lobby areas of sites, canteen areas, health clinics.

- b. Ensuring all posted and distributed copies of the Company and Individual Codes of Conduct are translated into the appropriate language of use in the work site areas as well as for any international staff in their native language.
2. Verbally and in writing explain the Company and Individual Codes of Conduct to all staff.
3. Ensure that:
 - a. All staff members sign the ‘Individual Code of Conduct’, including acknowledgment that they have read and agree with the Code of Conduct.
 - b. Staff lists and signed copies of the Individual Code of Conduct are provided to the GCCT and the client.
 - c. Participate in training and ensure that staff also participate as outlined below.
 - d. Staff are familiar with the Grievance Redress Mechanism (GRM) and that they can use it to anonymously report concerns of SEA/SH or VAC incidents.
 - e. Staff are encouraged to report suspected or actual SEA/SH or VAC through the GRM by raising awareness about SEA/SH and VAC issues, emphasizing the staff’s responsibility to the Company and the country hosting their employment, and emphasizing the respect for confidentiality.
4. In compliance with applicable laws and to the best of your abilities, prevent perpetrators of sexual exploitation and abuse from being hired, re-hired or deployed.
5. Ensure that when engaging in partnership, sub-contractor or similar agreements, these agreements:
 - a. Incorporate the SEA/SH and VAC Codes of Conduct as an attachment.
 - b. Include the appropriate language requiring such contracting entities and individuals, and their employees and volunteers, to comply with the Individual Codes of Conduct.
 - c. expressly state that the failure of those entities or individuals, as appropriate, to take preventive measures against SEA/SH and VAC, to investigate allegations thereof, or to take corrective actions when SEA/SH or VAC has occurred, shall constitute grounds for sanctions and penalties in accordance with the Individual Codes of Conduct.
6. Provide resources to the GCCT to create and disseminate internal sensitization initiatives through the awareness-raising strategy under the Action Plan.
7. Ensure that any SEA/SH or VAC issue warranting police action is reported to the client and the AIIB immediately.

Training

8. All managers are required to attend an induction manager training course prior to commencing work on site to ensure that they are familiar with their roles and responsibilities in upholding the SEA/SH and VAC Codes of Conduct. This training

will be separate from the induction training course required of all employees and will provide managers with the necessary understanding and technical support needed to begin to develop the Action Plan for addressing SEA/SH and VAC issues.

9. Ensure that time is provided during work hours and that staff attend the mandatory project facilitated induction training on SEA/SH and VAC required of all employees prior to commencing work on site.
10. Ensure that staff attend the mandatory refresher training course required of all employees. Ensure satisfaction surveys to evaluate training are conducted by the service provider.

Response

11. Managers will be provided input to the SEA/SH and VAC Allegation Procedures and Response Protocol developed by the GCCT, as needed as part of the final cleared Action Plan.
12. Once adopted by the Company, managers will uphold the Accountability Measures set forth in the Action Plan to maintain the confidentiality of all employees who report or (allegedly) perpetrate incidences of SEA/SH and VAC (unless a breach of confidentiality is required to protect persons or property from serious harm or where required by law).
13. If a manager develops concerns or suspicions regarding any form of SEA/SH or VAC by an employee, or by an employee working for another contractor on the same work site, s/he is required to report the case.
14. Once a sanction has been determined, the relevant manager(s) is/are expected to be personally responsible for ensuring that the measure is effectively enforced, within a maximum timeframe of 14 days from the date on which the decision to sanction was made.
15. Managers failing to report or comply with such provision can in turn be subject to disciplinary measures, to be determined and enacted by the company's CEO, Managing Director or equivalent highest-ranking manager. Those measures may include:
 - a. Informal warning.
 - b. Formal warning.
 - c. Loss of up to one week's salary.
 - d. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
 - e. Termination of employment.
16. Ultimately, failure to effectively respond to SEA/SH and VAC cases on the work site by the company's managers or CEO may provide grounds for legal actions by authorities.

I do hereby acknowledge that I have read the foregoing Manager's Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to SEA/SH and VAC. I understand that any action inconsistent with this

Manager’s Code of Conduct or failure to take action mandated by this Manager’s Code of Conduct may result in disciplinary action.

Signature: _____
Printed Name: _____
Title: _____
Date: _____

(c) Individual Code of Conduct: Preventing Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) and Violence against Children (VAC)

I, _____, acknowledge that preventing gender-based violence (GBV) and violence against children (VAC) is important. The company considers that SEA/SH or VAC activities constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. All forms of SEA/SH or VAC are unacceptable be it on the work site, the work site surroundings, or at worker’s camps. Prosecution of those who commit SEA/SH or VAC may be pursued if appropriate.

I agree that while working on the project I will:

- Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
- Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
- Not participate in sexual contact or activity with children—including grooming, or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
- Not engage in sexual favors—for instance, making promises or favorable treatment dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
- Unless there is the full consent¹⁷ by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit

¹⁷**Consent** is defined as the informed choice underlying an individual’s free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained through the use of threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the AIIB considers that consent cannot be given by children under the age of 18, even in the event that national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

(monetary or non-monetary) to community members in exchange for sex—such sexual activity is considered “non-consensual” within the scope of this Code.

- Attend and actively partake in training courses related to HIV/AIDS, SEA/SH and VAC as requested by my employer.
- Consider reporting through the grievance redress mechanism or to my manager any suspected or actual SEA/SH or VAC by a fellow worker, whether employed by my company or not, or any breaches of this Code of Conduct.

With regard to children under the age of 18:

- Wherever possible, ensure that another adult is present when working in the proximity of children.
- Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.
- Not sleep close to unsupervised children unless absolutely necessary, in which case I must obtain my supervisor's permission, and ensure that another adult is present if possible.
- Use any computers, mobile phones, or video and digital cameras appropriately, and never to exploit or harass children or to access child pornography through any medium (see also “Use of children's images for work related purposes” below).
- Refrain from physical punishment or discipline of children.
- Refrain from hiring children for domestic or other labor which is inappropriate given their age or developmental stage, which interferes with their time available for education and recreational activities, or which places them at significant risk of injury.

Use of children's images for work related purposes

12. When photographing or filming a child for work related purposes, I must:

- Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images.
- Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film will be used.
- Ensure photographs, films, videos and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner.
- Ensure images are honest representations of the context and the facts.
- Ensure file labels do not reveal identifying information about a child when sending images electronically.

Sanctions

13. I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

- Informal warning.
- Formal warning.
- Loss of up to one week’s salary.
- Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
- Termination of employment.
- Report to the police if warranted.

I understand that it is my responsibility to avoid actions or behaviors that could be regarded as SEA/SH or VAC or breach this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to SEA/SH and VAC. I understand that any action inconsistent with this Individual Code of Conduct or failure to take action mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

A5-5. Action Plan

(a) The SEA/SH and VAC Compliance Team

14. The project shall establish a ‘SEA/SH and VAC Compliance Team’ (GCCT). The GCCT will include, as appropriate to the project, at least four representatives (‘Focal Points’) as follows:

- a. A safeguards specialist from the client;
- b. The occupational health and safety manager from the contractor¹⁸, or someone else tasked with the responsibility for addressing SEA/SH and VAC with the time and seniority to devote to the position;
- c. The supervision consultant; and,
- d. A representative from a local service provider with experience in SEA/SH and VAC (the ‘Service Provider’).

¹⁸ Where there are multiple contractors working on the project each shall nominate a representative as appropriate.

15. It will be the duty of the GCCT with support from the management to inform workers about the activities and responsibilities of the GCCT. To effectively serve on the GCCT, members must undergo training by the local service provider prior to the commencement of their assignment to ensure that they are sensitized on GBV and Child Protection.

16. The GCCT will be required to:

- a. Approve any changes to the SEA/SH and VAC Codes of Conduct contained in this document, with clearances from the Supervision Consultant for any such changes.
- b. Prepare the Action Plan reflecting the Codes of Conduct which includes:
 - i. SEA/SH and VAC Allegation Procedures (See 4.3)
 - ii. Accountability Measures (See 4.4)
 - iii. An Awareness raising Strategy (See 4.5)
 - iv. A Response Protocol (See 4.6)
- c. Obtain approval of the Action Plan by company management;
- d. Obtain client clearances for the Action Plan prior to full mobilization;
- e. Receive and monitor resolutions and sanctions with regard to complaints received related to SEA/SH and VAC associated with the project; and,
- f. Ensure that SEA/SH and VAC statistics in the GRM are up to date and included in the regular project reports.

17. The GCCT shall hold quarterly update meetings to discuss ways to strengthen resources and SEA/SH and VAC support for employees and community members.

18. The Action Plan and Code of Conduct shall be submitted for review to the ISWS Consultant within 90 days from the contract signature date. Works will not commence unless the Engineer is satisfied with measures in place, including plan and codes. Failure to comply with such obligation should provide ground for contract suspension cancellation – this shall be determined at the sole discretion of the contracting entity, whilst intention to cancel the contract shall be notified to the AIIB team within 60 days from the proposed cancellation date.

(b) Making Complaints: SEA/SH and VAC Allegation Procedures

19. All staff, volunteers, consultants and sub-contractors are encouraged to report suspected or actual SEA/SH or VAC cases. Managers are required to report suspected or actual GBV and/or VAC cases as they have responsibilities to uphold company commitments and they hold their direct reports accountable for complying with the Individual Code of Conduct.

20. The project will provide information to employees and the community on how to report cases of SEA/SH and VAC Code of Conduct breaches through the Grievance Redress Mechanism (GRM). The GCCT will follow up on cases of GBV, VAC and Code of Conduct breaches reported through the GRM.

(c) Addressing Complaints about SEA/SH or VAC

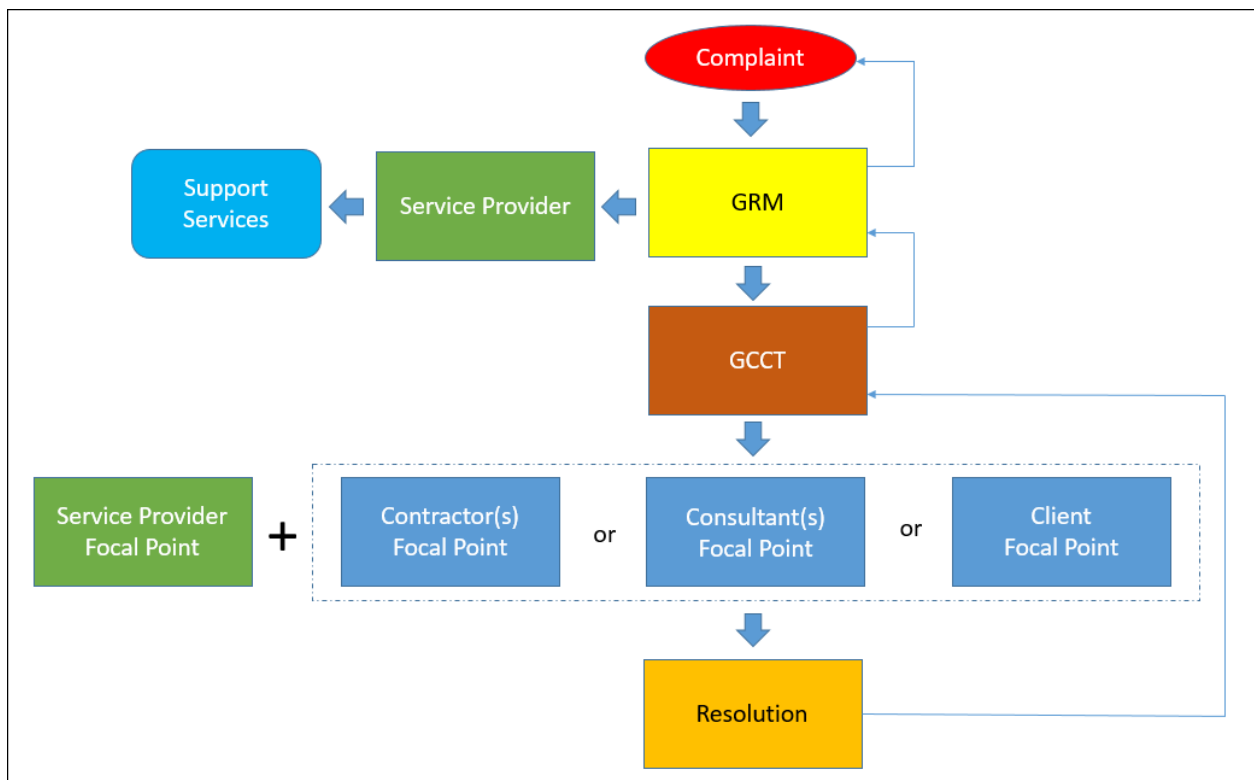
21. The figure below shows the process for addressing complaints.

A5-6. GRM

22. The project operates a grievance redress mechanism (GRM). Reports of SEA/SH or VAC, other complaints, or other concerns may be submitted online, via telephone or mail, or in person.

23. The GRM operator will refer complaints related to SEA/SH or VAC to the GCCT to resolve them. In accordance with the Action Plan, the GCCT through the Service Provider and Focal Point(s) will investigate the complaint and ultimately provide the GRM operator with a resolution to the complaint, or the police if necessary. The GRM operator will, upon resolution, advise the complainant of the outcome, unless it was made anonymously. Complaints made to managers or the Service Provider will be referred by them to the GRM for processing.

24. If the complaint to the GRM is made by a survivor or on behalf of a survivor, the complainant will be directly referred to the service provider to receive support services while the GCCT investigates the complaint in parallel.



A5-7. Service Provider

25. The Service Provider is a local organization (possibly an NGO) which has the technical experience and ability to provide training to staff and to support survivors of SEA/SH or VAC. The contractor(s) will contract the services of a Service Provider, so that SEA/SH and VAC cases can safely be referred to them. The Service Provider will also provide support and guidance to the SEA/SH and VAC Focal Points as necessary. The Service Provider will have a representative

on the GCCT and be involved in resolving complaints related to SEA/SH or VAC. The service provider will develop and conduct the mandatory training to employees on SEA/SH and VAC.

A5-8. SEA/SH and VAC Focal Point

26. The GCCT will refer the complaint to the appropriate Focal Points for resolution (i.e. issues with contractor's staff will be for the contractor to resolve; consultant's staff the consultant; and client staff the client) and will advise the GCCT on potential resolutions, including referral to the police if necessary. They will be assisted by the Service Provider as appropriate.

27. All the Focal Points on the GCCT must be trained and empowered to resolve SEA/SH and VAC issues. It is essential that all staff of the GRM and GCCT understand the guiding principles and ethical requirement of dealing with survivors of SEA/SH and VAC. All reports should be kept confidential and referred immediately to the Service Provider represented on the GCCT¹⁹. In SEA/SH and VAC cases warranting police action, the Focal Points must appropriately refer the complaint to: (i) the authorities; (ii) the Service Provider; and, (iii) management for further action. The Employer and the AIIB are to be immediately notified.

(a) Accountability Measures

28. All reports of SEA/SH or VAC shall be handled in a confidential manner in order to protect the rights of all involved. To ensure that survivors feel confident to disclose their experience of SEA/SH or VAC, the client, contractor and consultant must maintain the confidentiality of employees who notify any acts or threats of violence, and of any employees accused of engaging in any acts or threats of violence (unless a breach of confidentiality is required to protect persons or property from serious harm or where required by law). The contractor and consultant must prohibit discrimination or adverse action against an employee on the basis of survivor's disclosure, experience or perceived experience of SEA/SH or VAC (see Attachment 1 for examples of actions to maintain accountability).

(b) Monitoring and Evaluation

29. The GCCT must monitor the follow up of cases that have been reported and maintain all reported cases in a confidential and secure location. Monitoring must collect the number of cases that have been reported and the share of them that are being managed by police, NGOs etc.

30. These statistics shall be reported to the GRM and the Supervision Engineer for inclusion in their reporting.

31. In SEA/SH and VAC cases warranting police action, the client and the AIIB are to be immediately notified.

(c) Awareness-raising Strategy

32. It is important to create an Awareness-raising Strategy with activities aimed to sensitize employees on SEA/SH and VAC on the work site and its related risks, provisions of the SEA/SH

¹⁹Survivors of SEA/SH and VAC may need access to police, justice, health, psychosocial, safe shelter and livelihood services to begin on a path of healing from their experience of violence.

and VAC Codes of Conduct, SEA/SH and VAC Allegation Procedures, Accountability Measures and Response Protocol. The strategy will be accompanied by a timeline, indicating the various sensitization activities through which the strategy will be implemented and also the related (expected) delivery dates. Awareness-raising activities may be linked with trainings provided by Service Provider.

(d) Response Protocol

33. The GCCT will be responsible for developing a written response²⁰ protocol to meet the project requirements, in accordance to national laws and protocols. The response protocol must include mechanisms to notify and respond to perpetrators in the workplace (See 4.8 for Perpetrator Policy and Response). The response protocol will include the GRM process to ensure competent and confidential response to disclosures of SEA/SH and VAC. An employee who discloses a case of SEA/SH or VAC in the workplace shall be referred to the GRM for further action.

(e) Survivor Support Measures

34. Appropriately respond to the survivor’s complaint by respecting the survivor’s choices to minimize the potential for re-traumatization and further violence against the survivor. Refer the survivor to the Service Provider to obtain appropriate support services in the community—including medical and psychosocial support, emergency accommodation, security including police protection and livelihood support—by facilitating contact and coordination with these services. The contractor may, where feasible, provide financial and other supports to survivors of SEA/SH or VAC for these services (see Annex 1 for examples of financial support).

35. If the survivor is an employee, in order to ensure the safety of the survivor and the workplace in general, the contractor, in consultation with the survivor, will assess the risk of ongoing abuse, to the survivor and to the workplace, and make reasonable adjustments to the work schedule and work environment as deemed necessary (see Annex 1 for examples of safety measures). The contractor will provide adequate leave to survivors seeking services after experiencing violence (see Annex 1 for details).

(f) Perpetrator Policy and Response

36. Encourage and accept notification through the GRM from employees and community members about perpetrators in the workplace. Through the GCCT and/or the Service Provider, oversee the investigation of these grievances, ensuring procedural fairness for the accused, and within the local laws. If an employee has breached the Code of Conduct, the contractor will take action which could include:

- a. Undertake disciplinary action up in accordance with sanctions in the SEA/SH and VAC Codes of Conduct;
- b. Report the perpetrator to the Police as per local legal paradigms; and/or

²⁰ Develop appropriate protocol for written recording of SEA/SH issues and VAC raised in case the notes are subpoenaed. Develop processes for record keeping including activities undertaken by the GCCT.

- c. If feasible, provide or facilitate counselling for the perpetrator.

(g) Administrative Sanctions

37. In accordance with the Code of Conduct, any employee identified as a potential SEA/SH or VAC perpetrator shall be considered for disciplinary measures in line with sanctions and practices as agreed in the Individual Code of Conduct (see Annex 1 for examples of sanctions). It is important to note that, for each case, disciplinary sanctions are intended to be part of a process that is entirely internal to the employer, is placed under the full control and responsibility of its managers, and is conducted in accordance with the applicable national labor legislation.

30. Such process is expected to be fully independent from any official investigation that competent authorities (e.g. Police) may decide to conduct in relationship to the same case, and in accordance with the applicable national law. Similarly, internal disciplinary measures that the employer's managers may decide to enact are meant to be separate from any charges or sanctions that the official investigation may result into (e.g. monetary fines, detention etc.).

Appendix 1 - Potential Procedures for Addressing SEA/SH and VAC

Accountability Measures to maintain confidentiality can be achieved through the following actions:

1. Inform all employees that confidentiality of SEA/SH/VAC survivors' personal information is of utmost importance.
2. Provide the GCCT with training on empathetic and non-judgmental listening.
3. Take disciplinary action, including and up to dismissal, against those who breach survivor's confidentiality (this is unless a breach of confidentiality is necessary to protect the survivor or another person from serious harm, or where required by law).

SEA/SH and VAC Allegation Procedures should specify:

1. Who survivors can seek information and assistance from.
2. The process for community members and employees to lodge a complaint through the GRM should there be alleged SEA/SH or VAC.
3. The mechanism for how community members and employees can escalate a request for support or notification of violence if the process for reporting is ineffective due to unavailability or non-responsiveness, or if the employee's concern is not resolved.

Financial and Other Supports to survivors can include:

1. No/low interest loans.
2. Salary advances.
3. Direct payment of medical costs.
4. Upfront payments for medical costs to be recouped from the employee's health insurance.
5. Providing or facilitating access to childcare.

6. Providing security upgrades to the employee's home.
7. Providing safe transportation to access support services or to and from accommodation.

Survivor Support measures to ensure the safety of the survivor can include:

1. Changing the employee's span of hours or pattern of hours and/or shift patterns.
2. Redesigning or changing the employee's duties.
3. Changing the employee's telephone number or email address to avoid harassing contact.
4. Relocating the employee to another work site/ alternative premises.
5. Providing safe transportation to and from work for a specified period.
6. Supporting the employee to apply for an Interim Protection Order or referring them to appropriate support.
7. Taking any other appropriate measures including those available under existing provisions for family friendly and flexible work arrangements.

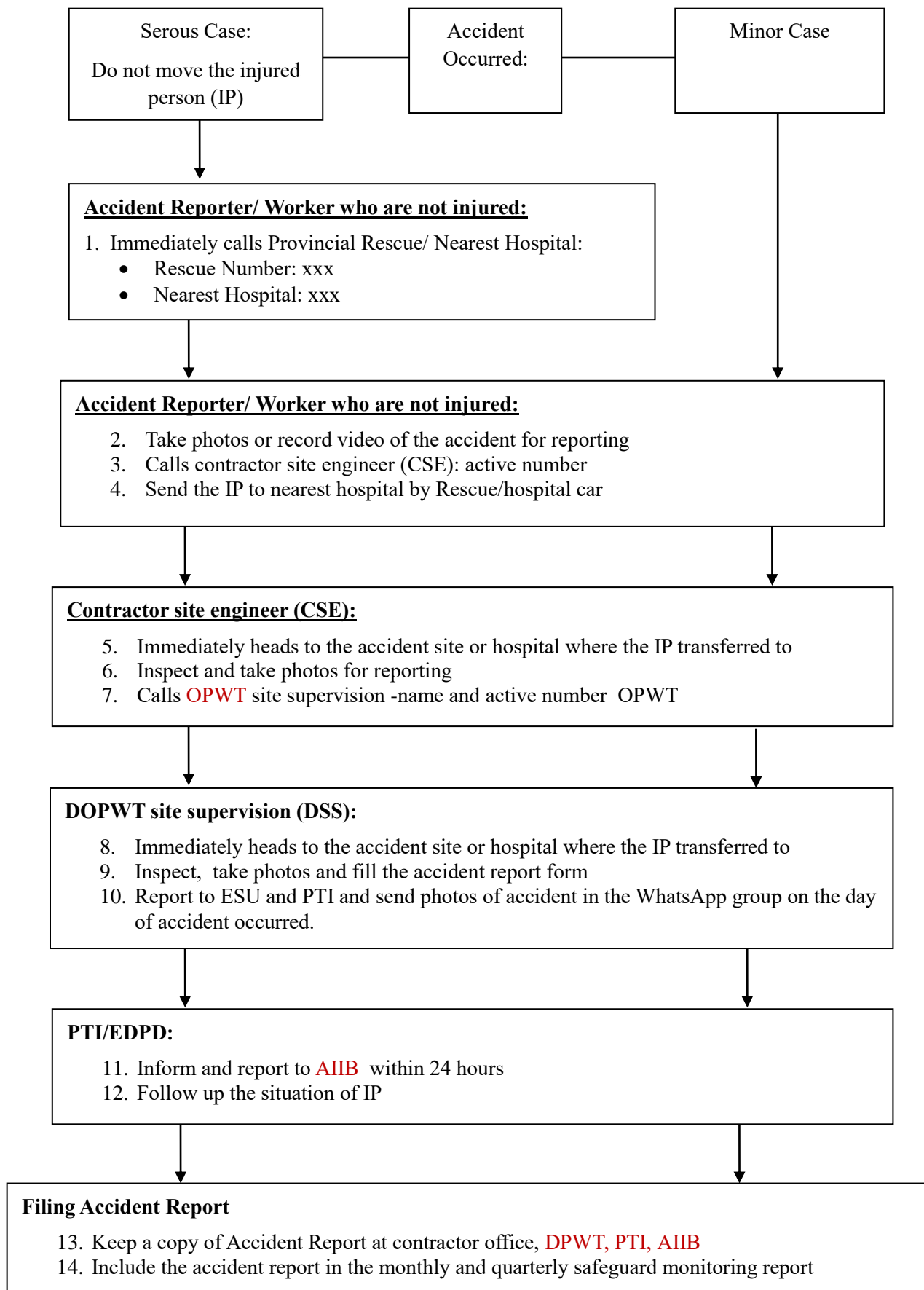
Leave options for survivors that are employees can include:

1. An employee experiencing GBV should be able to request paid special leave to attend medical or psychosocial appointments, legal proceedings, relocation to safe accommodation and other activities related to GBV.
2. An employee who supports a person experiencing SEA/SH or VAC may take carer's leave, including but not limited to accompanying them to court or hospital, or to take care of children.
3. Employees who are employed in a casual capacity may request unpaid special leave or unpaid carer's leave to undertake the activities described above.
4. The amount of leave provided will be determine by the individual's situation through consultations with the employee, the management and the GCCT where appropriate.

Potential Sanctions to employees who are perpetrators of SEA/SH and VAC include:

- Informal warning
- Formal warning
- Additional Training
- Loss of up to one week's salary.
- Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
- Termination of employment.
- Referral to the Police or other authorities as warranted.

Attachment 6: Accident Reporting Procedure and Form



ACCIDENT REPORT

Date of the Accident: _____ **Time:** _____

Location: _____

Type of Accident: _____

Detailed Description of the Accident:

Responses / Corrective Actions Taken:

Possible Causes(s) of the Accident:

Suggested Preventive Measures:

Submitted by:		Position:	
Signature:		Date:	

Reviewed by : _____ **Date :** _____

Attachment 7: Sample Form of Grievance Redress Mechanism Monitoring

Form to Submit Grievances

Grievance Form ID Number: _____ Date Received: _____

Complaints Received by (please check (√) the appropriate box):

MPWT/PMU DPWT/PIU SMWG DGC VDC

Complaint made via (please check (√) the appropriate box):

In person Phone E-mail SMS Website

Complaint Box / Other advice Community/Village Meeting

Others _____

FULL NAME AND LAST NAME of Complainant (or Anonymous):

GENDER: Male Female

AGE: _____

CONTACT DETAILS (by post, by telephone, by e-mail):

STATEMENT OF GRIEVANCE (Reason for complaint and activity leading to complaint. Please include as much details as possible to answer the following questions: (i) what happened, (ii) when did it happen, (iii) who did it happen to, (iv) what was the impact of what happened. Include additional information as needed/desired.

REMEDY REQUESTED BY COMPLAINT:

SIGNATURE: _____ DATE: _____

FOR ADMIN USE ONLY:

Grievance _____ Received _____ by: _____

Action taken or required:

Grievance Log Form

Province: _____ District: _____ Village: _____

Name of Complainant (or anonymous)	Sex (M/F)	Contact info	Date Received	Details of the nature of the grievance (Environmental impacts, social impacts, labour, health, SEA/SH, etc.)	To whom was grievance submitted	Actions to resolve grievance	Date grievance was settled (and what stage)	How was the response provided?

Attachment 8: Contingency Planning for Response to COVID-19

1. In a situation when there is a spread of COVID-19, contractor has to apply or comply with the government guidelines launched in line with WHO. It is worth noting that the WBG Response to COVID-19 Advisory note may be updated from time to time. Where there is a conflict with government or WHO guideline, the government or WHO guideline prevail.

(a) Preparing for Covid-19

- Contractor's senior manager or project manager should inform PMU/DOR and DPWT and/or EDPD/PTI details of the preparations being made on site. PMU/DOR, DPWT and/or EDPD/PTI will, as necessary assist the projects with these preparations. The senior manager should be taking the advice of their healthcare team and their health and safety specialists in preparing the site, although the PMU/DOR, DPWT, and/or EDPD/PTI may also need to assist, for example with coordinating responses and/or connecting project sites with national/local healthcare official and/or specialists.
- Contractor should put in place measures to minimize the chances and contain the spread of the virus as a result of the movement of workers, ensure their sites are prepared for an outbreak, and develop and practice contingency plans so that personnel know what to do if an outbreak occurs and how treatment will be provided. These preparation measures should be communicated not only to the workforce but also the local community, to reassure them that the movement of staff is controlled, and to ensure that stigma or discrimination is reduced in the event of an outbreak.

(b) Movement of Staff

- Movement of staff can increase the risk of transmission of Covid-19 to a work site and the local community. Overseas, international and transient workers should adhere to government requirements and guidelines with respect to Covid-19 when travelling to or from worksites.
- Workers coming from or passing through countries/regions with cases of the virus²¹ (a) Should not return if displaying symptoms and (b) Should self-isolate for 14 days following their return.

Self-Isolation arrangements: For self-isolation, the following actions should be considered (as appropriate):

- Workers should be provided with a single room that is well-ventilated (i.e., with open windows and an open door). If a single room is not available for each worker, adequate space should be provided to maintain a distance of at least 2 meters and a curtain to separate workers sharing a room. Men and women should not share a room. A dedicated bathroom should be provided for the isolation facilities and there should be separate bathroom facilities for men and women.
- Workers in isolation should limit their movements in areas which are also used by unaffected workers shared areas), and should avoid using these areas when unaffected workers are present. Where workers in isolation need to use shared spaces (such as kitchens/canteens), arrangements should be made for cleaning prior to and after their use of the facilities. The number of staff involved in caring for those in isolation,

²¹ WHO also updates information on countries reporting Covid-19 infection.

including providing food and water, should be kept to a minimum and appropriate Personal Protection Equipment (PPE) should be used by those staff.

- At a minimum, isolation areas should be cleaned daily and healthcare professionals should visit workers in the isolation areas daily. Cleaners and healthcare professionals should wear appropriate PPE and ensure good hygiene when visiting workers in isolation. Further information is provided by WHO in [*Home care for patients with suspected novel coronavirus \(COVID-19\)*](#)
- Visitors should not be allowed until the worker has shown no signs and symptoms for 14 days.

(c) Preparing for an Outbreak

2. Medical staff at the facilities or medical service personal for the facilities should be trained and be kept up to date on Country and WHO advice (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance>) and recommendations on Covid-19. They should take stock of the equipment and medicines that are present on site and ensure that there are good supplies of any necessary treatments, including paracetamol/acetaminophen and other medicine in line with country and WHO guideline.
3. The following measures should be considered (as appropriate):
 - Ensure medical facilities or camp site are stocked with adequate supplies of medical Personal Protective Equipment (PPE), as a minimum: (a) Gowns, aprons; (b) Medical masks and some respirators (N95 or FFP2); (c) Gloves; and (d) Eye protection (goggles or face screens).
 - Cleaners also need to be provided with PPE and disinfectant. Minimum PPE to be used when cleaning areas that have been or suspected to have been contaminated with Covid-19 are: (a) Gowns, aprons; (b) Medical masks; (c) Gloves; (d) Eye protection (goggles or face screens); and (e) Boots or closed work shoes. Cleaners should be trained in how to safely put on and use PPE by medical staff, in necessary hygiene (including hand washing) prior to, during and post cleaning duties, and in waste control (including for used PPE and cleaning materials).
 - The medical staff should run awareness campaigns, training and arrange for appropriate posters, signs and advisory notices to be posted on site to advise workers on how to minimize the spread of the disease, including: (a) to self-isolate if they feel ill or think they may have had contact with the virus, and to alert medical staff; (b) to regularly wash hands thoroughly with soap and water – many times per day; (c) how to avoid disease spread when coughing/sneezing (cough sneeze in crook of elbow or in a tissue that is immediately thrown away), and not to spit; and (d) to keep at least 2meters or more away from colleagues.
 - Hand washing stations should be set up at key places throughout site, including at entrances/exits to work areas, wherever there is a toilet, canteen/food and drinking water, or sleeping accommodation, at waste stations, at stores and at communal facilities. Each should have a supply of clean water, liquid soap and paper towels (for hand drying), with a closed waste bin (for used paper towels) that is regularly emptied and disposed off following government guideline.
 - Where wash stations cannot be provided (for example at remote locations), alcohol-based hand rub should be provided.

- Enhanced cleaning arrangements should be put in place, to include regular and deep cleaning using disinfectant of catering facilities/canteens/food/drink facilities, latrines/toilets/showers, communal areas, including door handles, floors and all surfaces that are touched regularly. Worker accommodation will be in good state for keeping clean and hygienic, and for cleaning to minimize spread of infection.
- Working methods should be reviewed and changed as necessary to reduce use of PPE, in case supplies of PPE become scarce or hard to obtain. For example, water sprinkling systems at crushers and stock piles should be in good working order, trucks covered, water suppression on site increased and speed limits on haul roads lowered to reduce the need for respiratory (N95) dust masks.

(d) Contingency Planning for an Outbreak

4. The contingency plan to be developed by contractor should set out what procedures will be put in place in the event of Covid-19 reaching the site and it should be developed in consultation with national and local healthcare facilities and PMU/DOR, DPWT and/or EDPD/PTI, to ensure that arrangements are in place for the effective containment, care and treatment of workers who have contracted Covid-19.
5. The contingency plan should also consider the response if a significant number of the workforce become ill, when it is likely that access to and from a site will be restricted to avoid spread. The following measures should be considered, as appropriate:
 - Contingencies should be developed and communicated to the workforce for: (a) Isolation and testing procedures for workers (and those they have been in contact with) that display symptoms; (b) Care and treatment of workers, including where and how this will be provided; and (c) Getting adequate supplies of water, food, medical supplies and cleaning equipment in the event of an outbreak on site, especially should access to the site become restricted or movements of supplies limited. The contingency plan shall be align with the government guideline.
 - Specifically, the plan should set out what will be done if someone is suspected to become ill with Covid-19 at a worksite. The plan should: (a) Set out arrangements for putting the person in a room or area where they are isolated from others in the workplace, limiting the number of people who have contact with the person and contacting the local health authorities; (b) Consider how to identify persons who may be at risk (e.g. due to a pre-existing condition such as diabetes, heart and lung disease, or as a result of older age), and support them, without inviting stigma and discrimination into your workplace; and (c) Consider contingency and business continuity arrangements if there is an outbreak in neighboring communities.
 - Arrangements for the storage and disposal arrangements for medical waste, which may increase in volume and which can remain infectious for several days (depending upon the material). The support that site medical staff may need, as well as arrangements for transporting (without risk of cross infection) sick workers to intensive care facilities or into the care of national healthcare facilities should be discussed and agreed.
 - How to maintain worker and community safety on site should works be suspended or illness affect significant numbers of the workforce at any point. It is important that worksite safety measures are reviewed by a safety specialist and implemented prior to work areas being suspended.

(e) Communicating the plans

6. In order to reduce the risk of social stigma²² or discrimination, and to ensure that individuals roles and responsibilities are clear, the preparation measures and contingency plans should be communicated widely. Workers, sub-contractors, suppliers, adjacent communities, and local healthcare authorities should all be made aware of the preparations that have been made.
7. When communicating to the workforce, their roles and responsibilities should be outlined clearly, and the importance for their colleagues, the local communities and their families that the workers follow the plans should be stressed. Workers may need to be reassured that they there will be no retaliation or discrimination if they self-isolate as a result of feeling ill, and also with respect to the compensation or insurance arrangements that are in place. Further guidance on preventing social stigma as a result of Covid-19 is available in WHO guidelines.

²² Social stigma in the context of health is the negative association between a person or group of people who share certain characteristics and a specific disease.