GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH
Ministry of Local Government, Rural Development and Co-operatives
Local Government Division
Local Government Engineering Department

Emergency Multi Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762 **IDA Credit No. 5561-BD**

Environmental Screening Report

Under the package no. EMCRP/W20

Improvement of 11 roads and construction of culverts with side drains in Ukhiya & Teknaf Upazila of Cox's Bazar District.

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Contents

ACRONYMS

BOQ	Bill of Quantities
BFS	Brick Flat Soiling
D&SC	Design and Supervision Consultant
DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
ESMF	Environmental and Social Management Framework
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
GRM	Grievance Redress Mechanism
HBB	Herring Bone Bond
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
LGED	Local Government Engineering Department
PIA	Project Influence Area
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SMC	School Management Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UNHCR	The United Nations High Commissioner for Refugees
UNO	Upazila Nirbahi Officer
VAT	Value-Added Tax
WB	World Band

1. INTRODUCTION

1.1 Project background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained social service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. Almost all of these displaced people are hosted in Ukhiya and Teknaf Upazila of Cox's Bazar, in extremely congested settlements in areas having very minimal access to basic infrastructure and services and is prone to natural disasters. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District and improve the social service delivery systems to both the communities. This project will follow a sustainable development pathway that is resilient to disaster and climate change effects.

The objective of the Project is to provide greater protection for the FDMN and host communities through:

- Reducing the vulnerability to natural disasters
- Improving social service delivery system and providing better communication facility through physical interventions
- Improving water and sanitation facilities
- Reducing vulnerability to accidental fire
- Provisioning better educational facilities and
- Strengthening and scaling up of GBV prevention services to the FDMN

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Apart from the interventions in Addressing Gender and Social Inclusiveness and Preventing Gender Based Violence with the Support from UNFPA and building Communication and Awareness among all affected parties through an effective engagement of BCCP (Bangladesh Center for Communication Programs) in the areas, LGED is implementing a good number of infrastructural facilities, namely improvement of hat bazars, roads (both inside and outside of the camps), bridges, culverts, construction of School cum multi-purpose disaster shelters, Satellite Fire Stations, Relief Distribution Center, Community Service Center and many other different types of facilities. Given the project interventions, sensitivity of the areas and volume of people in or around the sites, the project is more likely to trigger certain Operational Policies and Bank Procedures, namely Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forest (OP/BP 4.36) and Physical Cultural Resources (OP /BP 4.11).

[1] ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)
[2] IOM Needs and Population Monitoring round 12 as of October 10, 2018

1.2 Background of the Work Package

EMCRP will support the Government of Bangladesh in addressing the immediate and urgent needs of the displaced people from Myanmar and host communities in Cox's Bazar, within the scope of improving access to basic services and building disaster and social resilience of the displaced population and host communities. Being both a coastal district and host to hilly regions with natural habitats it has high ecological values to count, but with the mass arrival of Dispalced Rohingya Populaiton in the area a critical devastation to natural habitats and resources had already been taken place. Moreover, the district has not been presented with abound and epitomized development on a macro level earlier on, so this massive burden has been consistently pressing effects to the existing support services and infrastructure system across the areas. Therefore, to establish access and develop transmission of services, widening the coverage for both the DRPs and the host groups, resilient structural intervention as BC roads will be constructed in necessary locations. This will increase genres of service availability which will aid establishing socio-economic, environmental and physical infrastructure. Opening paths to supply chain improvements will also play a pivotal role to ameliorate the quality of life both for DRP and Host group.

Under the package of LGED/EMCRP-W20, Improvement of 11 roads and construction of culverts with side drains will be carried out under Cox's Bazar District. The catchment area of these subprojects primarily hosts the local communities.

The objective of this Environmental Screening Report is to screen out the major environmental features of the proposed components' sites and surrounding areas of W-20 assessing the potential impacts in respect to the planned interventions on those areas and also suggest intervention items-specific management plan including appropriate mitigation options.

1.3 Elementary information of Work Package Components

It is imperative to recognize proposed components under Work Package-20 in Ukhiya & Teknaf Upazila in order to assess and verify its interventions according to stipulated screening requisites from WB. Acknowledging this matter, such details are accounted for as given below in Table 1.3.1 along with visual presentation (General Upazila Map) given in Figure 1.3.1. Aerial maps for each sub-project and District map of Ukhiya and Teknaf as well as illustration of all roads under EMCRP initiative is given in **Appendix -5**.

Table 1.3.1: Basic Featured Information of components [Sources of data: Field survey, 2020: DDC & LGED]

SL. NO.	COMPONENT'S NAME UNDER W-20	GPS COORDINATES	DISTANCE FROM UPAZILA HQ	UNION, UPAZILA	WARD	LOCATIONS UNDER PROJECT INFLUENCE AREA	PRE-EXISTING CONDITION OF ROAD	PROPOSED ROAD TYPE	ROAD DIMENSION(M) (LENGTH X WIDTH) = FOOTPRINT (SQ.M)
1.	Karaibuniaa to BDR camp road. Road id:422944084	**Starting Point** 21.273477 N 92.156686E **Ending Point** 21.285645 N 92.162609 E	4km	Ratnapalong, Ukhiya	05	Chakboitha, North Chakboitha	HBB, Earthen	Bituminous Carpeting (BC)	(1675m X 4.9m) = 8,207.5 sq.m
2.	West Jummapara village road. Id:422944085	**Starting Point** 21.274713 N 92.082313 **Ending Point** 21.267632 N 92.075147 E	10km	Jaliapalong, Ukhiya	01	West Jummapara	BFS, Earthen	Bituminous Carpeting (BC)	(1540m X 4.9m) = 7,546 sq.m
3.	Rajapalong UP office - Battali R&H Road id: 422944088	**Starting Point** 21.247395 N 92.135017E **Ending Point** 21.251471 N 92.129350 E	1/2km	Rajapalong, Ukhiya	06	North Hazirpara	HBB, BFS & Earthen	Bituminous Carpeting (BC)	(1816m X 4.9m) = 8,898.4 sq.m
4.	Durongkhali station to Mohajonpara community clinic road. Id: 422944090	**Starting Point** 21.291386 N 92.099477 **Ending Point** 21.294561 N 92.087201 E	8km	Haldiapalong, Ukhiya	08	Dhurumkhali Hazirpara, Notunpara, Mohajonpara & Rumkha Napitpara	BFS, Earthen	Bituminous Carpeting (BC)	(1460mX4.9m) = 7,154 sq.m

5.	Muktijuddha Somshar Alam Choudhury Road. Road id: 422944091	**Starting Point** 21.268869 N 92.114703E **Ending Point** 21.272959 N 92.114086 E	4.5 km	Ratnapalong, Ukhiya	07	Dakhin Ratna Telipara	HBB	Bituminous Carpeting (BC)	(882mX 4.9m) = 4,321.8 Sq.m
6.	R&H road to Md. Ali Vita Road. Road id: 422944093	**Starting Point** 21.236167 N 92.142306 **Ending Point** 21.237861 N 92.147444 E	2km	Rajapalong, Ukhiya	06	South Foliapara	BFS	Bituminous Carpeting (BC)	(1065mX4.9m) = 5,218.5 Sq.m
7.	R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095	**Starting Point** $21^0$14'11.0" N $92^0$08'10.6" E **Ending Point** $21^0$14'09.2" N $92^0$07'56.3" E	1.9 km	Rajapalong, Ukhiya	06	West Foliapara	Partly Earthen and partly Flat Brick Soling (FBS)	Bituminous Carpeting (BC)	(468mX4.9m) = 2293.2 Sq.m
8.	Moheshkhalipara sea beach Road to Mondar Dail Road. Road id: 422904011	**Starting Point** $21^0$50'59.3" N $92^0$16'54.2" E **Ending Point** $21^0$50'28.0" N $92^0$17'16.3" E	7km	Teknaf Sadar, Teknaf	07	Kochubunia Village	BC	Improvement with Bituminous Carpeting (BC)	(2386mX4.9m) = 11691.4 sq. m

9.	Shahporir Dip GC-Beach Road.Id:422904021	**Starting Point** 20.768711 *N* 92.325776 E **Ending Point** 20.767606 N 92.317356 E	12km	Sabrang, Teknaf	07	Shahporir deep	Broken BC	Improvement with Bituminous Carpeting (BC)	(1416mX4.9m) = 6938.4 sq. m
10.	Sabrang Pandal para North Achar bonia road. Road id: 422904023	**Starting Point** 20.823691 *N* 92.303083 E **Ending Point** 20.827028 N 92.308556 E	7km	Sabrang, Teknaf	05	Pandal para, Acharbunia	HBB	Improvement with Bituminous Carpeting (BC)	(650mX4.9m) = 3,185 sq. m
11	South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026	**Starting Point** 20.819513 *N* 92.306107 E **Ending Point** 20.821251 N 92.311190 E	5km	Sabrang, Teknaf	05	Pendalpara, Degillar Bill, South Acharbonia	HBB	Improvement with Bituminous Carpeting (BC)	(2000mX 4.9m) = 9,800 sq. m

*Note: Roads are proposed to have carriage way from 4.9m to 5.5 m and while construction, special conditions may prompt adjustments. However, footprints for roads are calculated considering an average width of 4.9 meters.

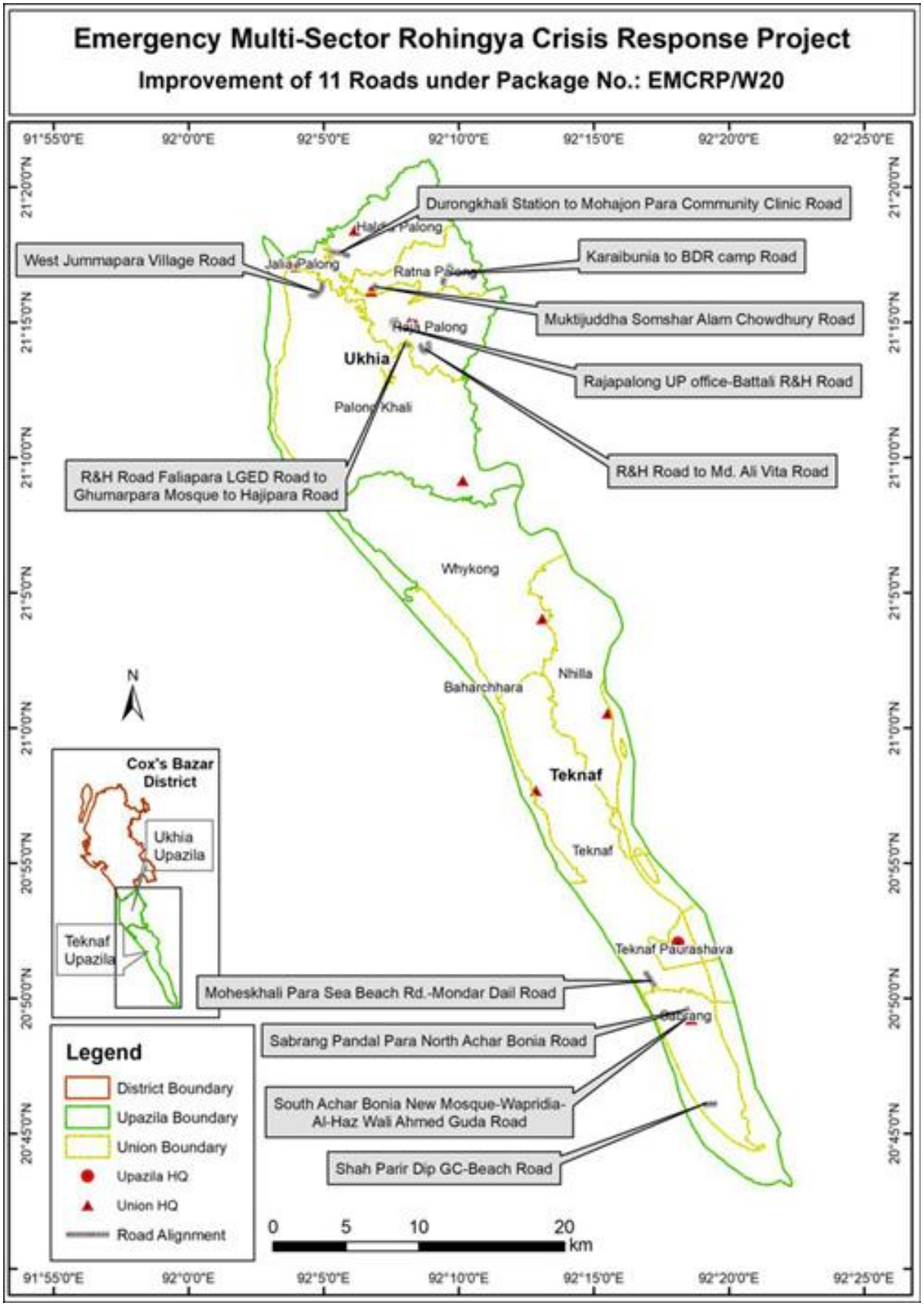

Figure 1.3.1: Map illustrating Roads of Work Package W-20 locations in the Ukhiya & Teknaf Upazila

1.4 Proposed intervention items of sub-projects

The roads under work package 20 have been proposed with specific need base dimensions to accommodate and ensure best quality interventions for local stakeholders and sustaining natural environmental settings. In context of governing environmental circumstances and geo-meteorological conditions, protection work items have been added to construction design for safety and sustainability of each proposed roads. These roads are abutting agriculture fields, vegetable yards and homestead vegetation which are dependent on natural water flow. Hence, construction and improvement works will descent these roads into new circumstances in some parts. These items have been included on the basis of field survey and analysis of these conditions. Please follow the table to acknowledge these items.

Table 1.4.1: Proposed safety interventions of each sub-project

W20-1: Karaibuniaa to BDR camp road. Road id:422944084
16 nos. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 22.0m, Ch. 128.0m, Ch. 162.0m, Ch. 452.0m, Ch. 656.0m, Ch. 700.0m, Ch.763.0m, Ch. 918.0m, Ch. 1010.0m, Ch. 1110.0m, Ch. 1140.0m, Ch. 1195.0m, Ch. 1306.0m, Ch. 1396.0m, Ch. 1500.0m & 1657.0m of chainage and **4 nos. Box Culverts** (dimension: 2vX3.0mX2.5m) at Ch. 256.0m, (dimension: 2.0mX1.50m) at Ch. 544.0m & Ch. 918.0m and (dimension: 2.0mX2.0m) at 1140.0m of chainage, **1010.0 m L-Drain** at different chainage, **10.0m Brick Palisading wall** at Ch. (1296.0m-1306.0m) and **54.0m Guide wall** at Ch. (440.0m-494.0m), **Road safety** work and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-2: West Jummapara village road. Id:422944085
8 nos. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 163.0m, Ch. 432.0m, Ch. 488.0m, Ch. 678.0m, Ch. 973.0m, Ch. 1231.0m, Ch.1441.0m & 1514.0m of chainage, **162.0 m L-Drain** at different chainage, **64.0m Guide wall** at Ch. (960.0m-1012.0m=52m; R/S) and Ch. (1064.0m-1076m=12m; R/S), **Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-3: Rajapalong UP office - Battali R&H Road id: 422944088
2 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 881.0m & Ch. 980.0m of chainage and **2 nos. Box Culverts** (dimension: 2vX2.50mX2.50m) at Ch. 221.0m and (dimension: 4.50mX4.50m) at Ch. 1455.0m of chainage, **235.0 m L-Drain** at different chainage, **105.0m Brick Palisading wall** at Ch. (1350.0m-1455.0m; Both side), 50.0m (2.0m height) Guide wall at Ch. (1200.0m-1209.0m=9.0m) & Ch. (1459.0m-1500.0m=41.0m) of chainage, **242.0m Retaining wall** at different chainage and **198.0m RCC cast in situ wall** at different chainage, **Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-4: Durongkhali station to Mohajonpara community clinic road. Id: 422944090
10 nos. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 77.0m, Ch. 161.0m, Ch. 420.0m, Ch. 468.0m, Ch. 535.0m, Ch. 941.0m, Ch. 1148.0m, Ch. 1223.0m, Ch. 1265.0m & 1352.0m of chainage and **1 no.**

Box Culverts (dimension: 2.00mX1.60m) at Ch. 140.0m of chainage, **631.0 m L-Drain** at different chainage, **67.0m Guide wall** (3.0m Height) at Ch. (610.0m-656.0m=46.0m) & (1.0m Height) at Ch. (1244.0m-1265.0m=21.0m) of chainage, **46.0m Retaining wall** (3.0m Height) at Ch. (610.0-656.0m; R/S), **Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-5: Muktijuddha Somshar Alam Choudhury Road. Road id: 422944091
8 nos. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 1008.0m, Ch. 1249.0m, Ch. 1346.0m, Ch. 1411.0m, Ch. 1430.0m, Ch. 1534.0m, Ch. 1614.0m & Ch. 1718.0m of chainage, **294.0 m L-Drain** at different chainage, **422.0m U-Drain** at different chainage, **112.0m Guide wall** (1.5m Height) at different chainage, **Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-6: R&H road to Md. Ali Vita Road. Road id: 422944093
2 nos. box Culvert (dimension: 2.0mX1.60m) at Ch. 800.0m & Ch. 990.0m of chainage, **1 no. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 937.0m of chainage, **68.0 m L-Drain** at Ch. (903.0m-971.0m; R/S), **38.0m U-Drain** at different chainage, **304.0m Guide wall** at different chainage, **Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-7: R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095
03 no. of **Cross Drain** (Size: .975mmX .975mm), 106 meters of **Guide Wall**, 251 meters of **palisading wall**, 110 meters of **L-drain**, 87 meters of **RCC Cast in Situ Pile, Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-8: Moheshkhalipara sea beach Road to Mondar Dail Road. Road id: 422904011
03 nos. of **Cross Drain** (dimension: 0.750mX0.750m) at identified chainages and (dimension: 0.975mX0.975m) at Ch. 400.0m & Ch. 583.0m, 06 nos. of **Box Culvert** (dimension: 1.0mX1.50m) at Ch. 777.0m, (dimension: 1.5mX2.0m) at 90.0m, (dimension: 4.0mX4.0m) at 705.0m and (dimension: 2.50mX2.50m) at Ch. 981.0m, Ch. 1525.0m & Ch. 2082.0m along the road length. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-9: Shahporir Dip GC-Beach Road.Id:422904021
02 no. of **Cross Drain** (Size: .975mmX .975mm), 278 meters of **Guide Wall**, 40 meters of **palisading wall** and **T-Section** at different chainage, **Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-10: Sabrang Pandal para North Achar bonia road. Road id: 422904023
02 no. of **Cross Drain** (Size: .975mmX .975mm), 42 meters of **Guide Wall**, 446 meters of **palisading wall** and **T-Section** at chainage 88m, **Road safety** works and **Environmental Mitigation and**

Enhancement works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.
W20-11: South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026
08 no. of **Cross Drain** (Size: .975mmX .975mm), 215 meters of **Guide Wall**, 643 meters of **palisading wall**, **T-Section** at chainage 130m, **Road safety** works and **Environmental Mitigation and Enhancement** works. Description of environmental enhancement works can be found in BOQ attached in Appendix-03.

2. PUBLIC CONSULTATION, PARTICIPATION AND SURVEY FINDINGS

2.1 Methodology

Public participation and community consultation have been taken up as an integral part of environmental assessment process of the project. As part of the impact assessment, participatory public consultation was conducted in areas of concern for proposed roads by the field level staffs and consultants from PIU and D&SC. The consultation meeting was attended by disparate social groups representing local habitants of different age groups, social class and occupations. In some cases, IUCN employees in charge of elephant watch tower were present where frequent elephant movements occur. The participants were also selected from different segments of stakeholders, and some of whom will have major active roles before, during and even after the construction works. Therefore, the meeting was organized in an informed, expressive and unbiased manner, wherefrom different views and concerns came across which will be properly taken care of during the design and construction phases. In order to serve the screening process, relevant items were thrown towards the audience to discuss and troubleshoot confusing or worrying matters regarding the proposed interventions under the proposed package work. Impacts in regards to environment and socio-economic matters during pre-construction, construction and post construction phase have been put forth. Possible mitigation measures and relevant needs have turned out during these sessions as well. Moreover, their comprehension as a stakeholder has been up lifted in light of project guidelines.

However, public consultation is a living process as the types of problems/ difficulties, involved parties or stakeholders and mode of settlement or resolution processes are more likely to differ with time. Thus, consultation with different parties or stakeholders will be continued throughout the sub-project implementation period and records of resolutions, whatsoever and wherever possible, will be kept in writing at the site and made available on any enquiries or requests by all parties concerned.

All components under the work package have been put through review for locating impediments or possible adversity affecting future environment and socio-economic conditions. In order to comprehend surrounding features and impacts which may stipulate with it, screening has been acknowledged considering a Project Influence Area (PIA) of 0.5-kilometer radius, with specific items to be dealt with particular care and considered distinctively. Sensitive findings have been identified if any, and relevant mitigation or minimization measures were suggested to subdue such complication

or impacts for over the project life span. Moreover, evaluation was inspired to enhance environmental features and include monitoring initiatives under ESMP budget to ensure exertion of environmental improvement propositions. Contractor's responsibility has been taken into account while identifying possible impacts through sets of intervention accounts. These steps have been initiated strictly following ESMF guidelines and requirements. Environmental screening procedure was motivated by ingredients highlighted in Appendix-2 of ESMF. During survey, detail chainage length of the sub-projects was taken into account for detailing environmental and socio-cultural features within 100 meters buffer zone of both Left and Right side from the center line of the road. Longitudinal intervals of 300 meters have helped to identify positions of located features. These findings are illustrated in **Annexure-01**.

2.2 Important features/establishments around the PIA

Initial screening process is conducted through direct involvement of PIU and D&SC in the influence area of the proposed component, which allows to raise significant questions and ideas towards participants. In combination of both field walk-through and inputs of audience, a register of existing features is formed. Allow the following table to describe such elements in all the work package components.

Table 2.2.1: Important features under Project Influence Area

Sl. No.	Component's name under W-20	Direction	Important features/ establishment (approx. distance from the proposed site)
1.	Karaibuniaa to BDR camp road. Road id:422944084	North	Kurullya mora mosque (300m), Reserve forest (50m), Tulatoli mosque (300m), khal (200m)
		South	Hijolia khal (500m), Chakboitha High School (600m)
		East	Chakboitha mosque (50m), North Chakboitha graveyard (70m), Karaibunia GPS (500m), Bashbunia pahar mosque (1km), Chakboitha Social forest (30m), Hazrapaper hill (500m)
		West	Middle Chakboitha mosque (500m), Chakboitha reserve forest (150m), Sheulerdeba mosque (1km), Chakboitha community clinic (5m), Chakboitha graveyard (50m), North Chakboitha mosque (100m), Chakboitha mosque Tahfijul Quran & Nurani Academy (100m).
2.	West Jummapara village road. Id:422944085	North	Abdur Rahman Badi GPS (300m)
		South	Jaliapalong GPS (1km), Panishia Chorra (500m), Abu Bakar Chiddik & mosque & Forkania Madrasah (50m), Chander Alo Shishu Bikash Kendra (60m)
		East	Panishia graveyard (500m), Abdul Kader Jilani jame mosque & Orphanage (10m), Jummapara hill (30m)

Sl. No.	Component's name under W-20	Direction	Important features/ establishment (approx. distance from the proposed site)
		West	Jummapara social forest (300m), West Jummapara hill (10m)
3.	Rajapalong UP office Battali R&H Road id: 422944088	North	North Hazirpara mosque (100m), Ukhiya Girl's School (500m), Katakhali khal (100m), Horinmara GPS (1km)
		South	Green bud Kindergarten (5m), Hazirpara Hafizia jame mosque (100m), Azizia-Hakimia Darul Ulum Madrasah & orphanage (100m), south Hazirpara graveyard (500m)
		East	Ukhiya central sheed Minar (8m), Upazila Parishad (10m), Fish farm (15m), Ukhiya GPS (600m), Ukhiya Govt. High School (650m), Ukhiya Govt. girl's College (1km)
		West	Ukhiya Forkaniya & Nurani Madrasah & Hefjakhana (200m), Khairatipara mosque including grageyard & pond (300m), Khairatipara Buddhist Temple (150m), Dushari Khal (5m)
4.	Durongkhali station to Mohajonpara community clinic road. Id: 422944090	North	Rumkha Boubazar (200m), Chandrabunia playground and mosque & Madrasah (250m), North Napitpara Loknath Mondir (200m), Gunarpara Jagannath Mondir (180m), Muktijoddha Smriti Girl's High School (300m), Moriccha bazar (400m), khal (passing north to south at chainage 300m)
		South	Chowdhurypara graveyard (150m), Rumkha Hazirpara mosque (150m), Chowdhurypara mosque & orphanage (200m), Chowdhurypara GPS (200m), Chemonbahar bokhtiar junior High School (200m), Rumkhapalong Dakhil Madrasah & jame mosque (400m), Sheed A.T.M Jafor Alom Diabetics Hospital (400m), Rumkha Nadborpara graveyard & Cremation (450m), Rumkha bazar (450m)
		East	Hazirpara graveyard (100m), Janab Alipara mosque, graveyard & orphanage (150m), Sabek Rumkha GPS (300m), Dhrumkhali station (100m), Dhrumkhali Hazirpara mosque & Madrasah (350m), Sheed A.T.M Jafor Alom School & College (450m), Classipara Madrasah & orphanage (250m)
		West	Notunpara Mosque & Madrasah (20m), Moddhoswri Mondir (120m), Rumkha Mohajonpara Moitry Bihar (150m), north Dhrumkhali Mohajonpara GPS (200m), Mohajonpara Community clinic (5m), Mohajonpara Swarasati Mondir (40m), Mohajonpara Durga Mondir (200m), Rumkha old Bihar (30m), Ideal Kindergarten & Ideal junior High School (150m), Napitpara Hori Mondir (10m), Napitpara Kali Mondir

Sl. No.	Component's name under W-20	Direction	Important features/ establishment (approx. distance from the proposed site)
			(100m), Rumkha Gunarpara Central Shib Mondir (25m), Khalparpara mosque (40m), Khalparpara cremation & graveyard (50m).
5.	Muktijuddha Somshar Alam Choudhury Road. Road id: 422944091	North	Chengchori chorra (500m), Ratnapalong UP Office (800m), Ratnapalong UP jame mosque (800m)
		South	Reju khal (1km), Jambunia chorra (500m), North Pukuria Mosque & graveyard (500m)
		East	Ruhuler Deba GPS (1km), South Ratna Baytus Sharof mosque including Madrasah, Hafezkhana & graveyard (20m)
		West	Dakhin Ratna Mojaherghona GPS (10m), Telipara Mosque, graveyard & Forkania Madrasah (15m), Shadrikata jame mosque (200m), Cox's bazar-Teknaf Highway (1km)
6.	R&H road to Md. Ali Vita Road. Road id: 422944093	North	Amgastola mosque (50m)
		South	Settlements (5m)
		East	South Foliapara jame mosque (20m), Mahmud Ali Bhita (30m), Moulavi Khata mosque (120m), Nurul Islam Chowdhury Technical School & College (20m), Shilerchora Buddhist Temple (480m)
		West	Foliapara mosque (15m), Alim Uddin GPS (50m)
7.	R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095	North	Foliapara community center (100m), Folia para jame mosque (300m northeast), Dhakkin khairati para mosque (1km northwest)
		South	South folia para mosque (700m), stretch of high land located at 320m to 430m chainage on south
		East	Muhuripara jame mosque (1km)
		West	Chora(800m),
8.	Moheshkhalipara sea beach Road to Mondar Dail Road. Road id:	North	Households adjacent to the subproject within 10-30m
		South	Chanduripara GPS (1km), Baytosh Shorok Madrassa (1km)
		East	Notun Mosque/Mohila Madrassa(50m), Ehsan Shojib Jame Mosque(20m),

Sl. No.	Component's name under W-20	Direction	Important features/ establishment (approx. distance from the proposed site)
	422904011	West	Household located adjacent to the subproject within 10-30m
9.	Shahporir Dip GC-Beach Road.Id: 422904021	North	Households (within 500m)
		South	Jyonti Mosque and Madrasa(100m), North Majorpara Graveyard (30m), Khalid bin Walid (Ra:) Jame Mosque (10m)
		East	Dangapara GPS (30m)
		West	Households (within 500m)
10.	Sabrang Pandal para North Achar bonia road. Road id: 422904023	North	Acharbonia Jame Mosque(400m)
		South	Degillar beel Mosque and Graveyard(150m), Sabrang 4 number union porishad (150m), Hefzokhana/Madrassa(150m)
		East	N/A
		West	New Mosque (20m South-West), Community center GPS (120m), Community Center Mosque (200m to South-West), Adorsho Gram and Gucho Gram(600m)
11.	South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026	North	Households (within 500m), Acharbonia Jame Mosque(500m)
		South	Acharbonia (at starting of road) new mosque and graveyard (10m), Degillar Beel Jame Mosque/ Graveyard (500m), Sabrang Union Porishod (180m)
		East	Households with homestead gardens (within 500m)
		West	Sabrang Community center GPS (180m)

2.3 Issues and Recommendations raised by the Participants in regards to component interventions

After facilitating the consultation sessions with a warm and informed manner at different places in the package areas, the participants and stakeholders drifted delightfully with the sessions and pointed out many issues and suggestions which were taken into account for further inclusion in design, estimation and formulation of ESMP. During the period of consultation, environmental issues and their relevant impacts for the infrastructure development work such as road improvement or maintenance were discussed. The advantages and disadvantages regarding the sub-project activities were also revealed. The participants expected that none of the interventions would worsen their living conditions or surrounding environment and they requested for adopting all measures to reduce/avoid the environmental hazards during the implementation phase. Participants were also informed of the structure and redressing procedure under project Grievance Redress Mechanism (GRM). Some key issues discussed in these parts of assessment are tabulated below to recognize participants' inputs arranged in relevance with each individual components of the sub-project. Consultation meeting summary, attendance sheets and pictures of separate meetings with proposed location for each sub-project component can be found in Table 2.3.2 and Annexure-02 and Annexure-03 respectively.

Table 2.3.1: Issues and Recommendations raised by the Participants

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
1.	Karaibuniaa to BDR camp road. Road id:422944084	•Paricipants are very much concerned with the absence of reliable path route in Chakboitha and North Chakboitha village area. • In case of emergency conditions such as ambulance services cannot reach these locations. • Travelers are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is not present. •Local community wish to have a better drainage system on or along the road length in order to allow water from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. •They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believe this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should not be affected while construction • No trees should be harmed for improvement of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location •Identification of material storage location based on consultation with local communities	available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •On the alongside the road since there are available open private lands are used as labor shed and material storage can be arranged •Bituminous Carpeting (BC) road called Courtbazar-Valukia connecting road is available for Concerning ancillary access
2.	West Jummapara village road. Id:422944085	•They are very much concerned with absence of reliable path route in West Jummapara village area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • In case of emergency conditions such as ambulance services cannot reach these locations. • Heavy transports are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		works. •Elephant movement is not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should not be affected while construction • No trees should be harmed for improvement of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage location based on consultation with local communities	accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •On the alongside of the proposed improvement road since there are available open private lands are used as labor shed and material storage can be arranged • Only HBB road called Jummapara villagerpara connecting road is available for Concerning ancillary access
3.	Rajapalong UP office-Battali R&H Road, id: 422944088	•They are very much concerned with absence of reliable path route in North Hazirpara village area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • In case of emergency conditions such as ambulance services	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		cannot reach these locations. • Heavy transports are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works should be considered. •Safety of children and adults at the sites during construction works. •Elephant movement is not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage location based on consultation with local communities •The proposed road is to cross Katakhali khal which is seasonally streamed with water, Specially in rainy seasons.	provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Bituminous Carpeting (BC) road called Ukhiya-Teknaf connecting road is available for access of material delivering vehicles. •On the alongside of the road since there are available open private lands are used as labor shed and material storage can be arranged

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
			•Intervention should consider necessary preparations and mitigation measures so that this water stream is not restrained in any form.
4.	Durongkhali station to Mohajonpara community clinic road. Id: 422944090	•They are very much concerned with absence of reliable path route in Dhrumkhali Hazirpara, Notunpara, Mohajonpara and Rumkha Napitpara villages area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • In case of emergency conditions such as ambulance services cannot reach these locations. • Heavy transports are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works should be considered. •Safety of children and adults at the sites during construction works. •Elephant movement is not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road however some trees will fall for this intervention at several	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise,

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		locations, around 10 trees. • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage •The proposed road is to cross Notunpara khal which is seasonally streamed with water, Specially in rainy season.	solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •HBB, BFS and earthen road called Boubazar, Rumkha Napitpara, Sona market house-Shankar Barua-Boubazar connecting roads are available for access of material delivering vehicles. • In Notunpara, Open space near Jamir Soudagor's & Md. Alam's house, in Mohajonpara, open space near Sang Sharma's house and in Napitpara, open space near Khokhon Sharma's house can be used as labor shed and material storage space. •Intervention should consider necessary preparations and mitigation measures so that this water stream is not restrained in any form. • Participants demand, a new 40m long girder bridge need to be construct over the Notunpara khal
5.	Muktijuddha Somshar Alam Choudhury Road. Road id: 422944091	•They are very much concerned with absence of reliable path route in Telipara & South Ratna villages area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • In case of emergency conditions such as ambulance services cannot reach these locations. • Heavy transports are prone to accidents due to bad road conditions. •Possible dust and noise pollution during the construction works should be considered. •Safety of children and adults at the sites during construction works. •Elephant movement is not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should not be affected while construction • No trees should be harmed for preparation of this road however some trees will fall for this intervention at several locations, around 10 trees. • Available pathway to usher material delivering vehicles • Labor shed availability in the target location was discussed • Identification of material storage was discussed	fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Middle Telipara, West Telipara and Yousuf Ali Chowdhury connecting road of this project site is available for access of material delivering vehicles. •Open space near sub-project side can be used as labor shed and material storage space. •Intervention should consider necessary preparations and mitigation measures so that this water stream is not restrained in any form.
6.	R&H road to Md. Ali Vita Road. Road id: 422944093	•They are very much concerned with absence of reliable path route in South Foliapara village area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • Big vehicles cannot use this road such as delivery trucks. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement is not present in the targeted area.	•Local people considered that the selected site is suitable for the construction of this road from both the technical and socio-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, wider effects can less accident rates, this road is waterproof and also dust free, much more durable) point of view. It will provide better mobility and access to services in due time. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved.

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		•Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household boundary fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage	•Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Md. Ali bhita is an open space to settle material storage and labor shed alongside the road.
7.	R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095	•They are very much concerned with absence of reliable path route in West Foliapara area. •Lack of proper and strong road keeps motor vehicles from accessing these locations. • Big vehicles cannot use this road such as delivery trucks. •Possible dust and noise pollution during the construction works.	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		•Safety of children and adults at the sites during construction works. •Elephant movement is not present in these areas. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Identification of material storage	ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Area in south pukuria is available for material storage and labor shed • A connecting road coming from south side called jamtoli road which connects with Cox'bazar-Teknaf highway is available for material delivery.

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
8.	Moheshkhalipara sea beach Road to Mondar Dail Road. Road id: 422904011	• In Kochubunia Village area, this proposed road is previously BC developed. However, they feel this improvement initiative is highly needed for them to ensure quality road for better communication facility. • Big vehicles cannot use this road such as delivery trucks or eight wheelers. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to nearby households or agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Material storage is available	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
			options should be adopted. •An open space is available of Md. Faruq which can be rented for material storage and labor camp. •A connecting road called Mondar dail road which connects with proposed road is available for material delivery on site. • Electricity is available and existing tube wells can be used in Md. Faruq's house as a rental basis. Contractor can also install tube wells as deemed necessary.
9.	Shahporir Dip GC-Beach Road.Id:422904021	• In Shahporir deep area, this proposed road is previously BC developed although they feel this improvement initiative is highly needed for them to ensure quality road for better communication facility. This road has very unsettling conditions in some parts which makes the road risky for three wheelers to pass. • Big vehicles use this road but gets stuck where shoulders are broken badly. •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement not present. •Local community wish to have a better drainage system along with the road in order to allow waters from undulated terrains to find an uninterrupted pathway not causing harm to nearby households or agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers.	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is not available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		•Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Material storage is available	safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. •An open space is available in the area of Dangapara GPS which can be rented for material storage and labor camp. •A connecting road called Beriband road which connects with proposed road from the west at Shahporir deep Bazar area is available for material delivery. • Electricity is available and contractor can install tube wells as deemed necessary.
10.	Sabrang Pandal para North Achar bonia road. Road id: 422904023	• In Pandal para, Acharbunia area, this proposed road is previously HBB developed. They feel this improvement with BC is highly needed for them to ensure quality road for better communication facility. This road has very unsettling conditions in some parts which makes the road risky for three wheelers to pass. • Big vehicles cannot use this road due to having short crest. In some occasions, big vehicles move over towards open fields adjacent of this road in order to pass through •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement not present.	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		•Local community wish to have a better drainage system along with the road in order to allow waters from higher grounds to find an uninterrupted pathway not causing harm to nearby households or agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming or homestead gardens. Abutting the road, the chainage consists of homestead gardens and paan baraz. These features should not be disturbed in construction period. •The participants have expressed their greater interest for this intervention and believes this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Material storage is available	and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Open spaces are available along the road which can be used for material storage and labor camp. •The main sea beach road of R&HD road from the west at is available for material delivery. • Electricity is available and contractor can install tube wells as deemed necessary.
11.	South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026	• In Pendalpara, Degillar Bill, South Acharbonia area, this proposed road is previously HBB developed. They feel this improvement with BC is highly needed for them to ensure quality road for better communication facility. This road will meet with developed South Acharbonia BC road that will complement each other for smooth road access and they will ensure quality access from south acharbonia to main sea beach	• Local people considered that the selected site is suitable for the construction of this road from both the technical and social-environmental (direct savings in the cost of operating vehicles, time savings by travellers and freight, less accident rates, better road condition - waterproof, dust free, and much more durable) point of view. It will provide better mobility and access to services in the area. •The road should consider water flow during rainy seasons thereby

SL. NO.	COMPONENT'S NAME UNDER W-20	ISSUES RAISED AND DISCUSSED	RECOMMENDATIONS AND COMMENTS
		road. • Big vehicles cannot use this road due to having short crest. In some occasions, big vehicles move over towards open fields adjacent of this road in order to pass through •Possible dust and noise pollution during the construction works. •Safety of children and adults at the sites during construction works. •Elephant movement not present. •Local community wish to have a better drainage system along with the road in order to allow waters from higher grounds to find an uninterrupted pathway not causing harm to nearby households or agriculture fields and wash away top soil of adjacent grounds residing alongside the road. It will protect the top soil for future growth of crops and aid vegetable farming or homestead gardens. Abutting the road, the chainage consists of homestead gardens. These features should not be disturbed in construction period. •The participants have expressed their greater interest for this intervention and believe this will bring nothing but prosperity for the entire catchment dwellers. •Household fences along the road should not be affected while construction • No trees should be harmed for preparation of this road • Available pathway to usher material delivering vehicles • Labor shed availability in the target location • Material storage is available	ensuring the construction is not affected by mass water flow. •Wider pathway is expected for vehicle movement so that easy and comfortable travel is achieved. •Construction site safety should be ensured to avoid any mishaps or accidents during work periods. • They suggested for tree plantation initiatives. •They also requested to involve the local community to construction work and they will welcome any outside key labor. •During construction period, alternate route to pass through this area is available. •Since the road is passing alongside homestead gardens and agriculture fields, the intervention will invite air pollution on moderate level during construction period. However, preventive actions and measures can be taken to keep air quality from degrading. • Women should be given equal priority for job engagement, and their safety should be ensured throughout the engagement period. •Participants, made certain that they will provide surveillance over raw materials and material storage area. •They have also ascertained that the selected site is free from any events related to resettlement and major environmental impacts. The adverse environmental impacts that may come in the way of air quality, noise, solid waste, occupational health & safety during the construction period, and will be of short duration, yet proper management/conservative options should be adopted. • Open spaces are available along the road which can be used for material storage and labor camp. •The main sea beach road of R&HD road from the west at is available for material delivery. • Electricity is available and contractor can install tube wells as deemed necessary.

Table 2.3.2: Consultation Meetings Summary

Road Package Number	*Date DD-MM-YYYY*	*Venue*	*Main Participant Groups*	*No. of Participants*	*Remarks (If any)*
W20-1	29-01-2020	Chakboitha Chattra & Juba Kallyan Parishad Office	Host Community	19	The local individuals, chairman and/or member of Union Parishad, representatives from different agencies, elites participated in those consultation events.
W20-2	24-01-2020	West Jummapara Babul's Shop	Host Community	20	Ó
W20-3	23-01-2020	North Hazirpara Shahabuddin's Shop	Host Community	21	Ó
W20-4	25-01-2020	Mohajonpara Community Clinic	Host Community	27	Ó
W20-5	27-01-2020	Telipara Nur Alom's (Munu Mia) Shop	Host Community	20	Ó
W20-6	27-01-2020	Foliapara Mor	Host Community	10	Ó
W20-7	27-01-2020	Foliapara	Host Community	14	Ó
W20-8	31-01-2020	Moheshkhali para sea beach road (Anwar's Shop)	Host Community	12	Ó
W20-9	31-01-2020	Shah Porir Dip GC Mor	Host Community	15	Ó
W20-10	31-01-2020	Sabrang Pondol para	Host Community	16	Ó
W20-11	31-01-2020	Md. Shafiq's shop (beside south acharbonia new mosque)	Host Community	14	Ó

Note: Here, Meeting number column correspond toSerial Number column in Table 2.3.1

3. ENVIRONMENTAL SCREENING

3.1 General

This section identifies the potential impacts that the various elements of the proposed Project may have on the physical, biological and socio-economic environment within half a kilometer of the radial distance around the site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological, socio-economic and environmental impacts of the proposed sub-project sites and the influence area in regards to the implementation measures, an extensive field visit was carried out in each proposed sub-project PIA. Environmental Screening form, as adopted in **Appendix 2** of the Environmental and Social Management Framework of EMCRP, was administered for identifying the impacts and their extents. The screening data and information for each sub-project under this work package and details screening summary have been formulated and shown in **Appendix-01.**

3.2 Major Findings

A complete view of current environmental conditions of individual sub-projects in relation to interested queries has been congregated in order to understand the degree of impacts corresponding with marked interventions. Interestingly, most sub-projects have correspondence with its surrounding features and uphold interchangeable impacts. However, the degree is not an interchangeable factor since scale is not parallel to each of these components which is where, mitigation measure differentiation is implied. There are some cases where unique circumstances have been met with while environmental screening took place which is also accounted for and should be a matter of concern for other parts of the ESMF initiative. The significant issues observed in each sub-project are enlisted in following Table 3.2.1 with pertaining impacts. Moreover, impacts that are adventitious have also been embraced for promoting best practices.

Table 3.2.1: Concerning environmental issues relating to each proposed subproject and influence area.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
1.	Karaibuniaa to BDR camp road. Road id:422944084	The proposed site is not located within any major environmentally sensitive area.	Will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		Agricultural land as paddy land, pond and significant vegetation coverage, boundary fences, trees, betel leaf yard, settlements and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from mixing or grinding, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Chakboitha social forest on hill (Forest department) is located left side of the proposed sub-project may cause adverse impacts.	May trigger harmful disturbances to local forest fauna species (birds, reptiles etc.).
		Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Kurullya mora mosque (300m), Reserve forest (50m), Tulatoli mosque (300m) and khal(200m) at south side Hijolia khal (500m), Chakboitha High School (600m), at east side Chakboitha mosque (50m), North Chakboitha graveyard (70m), Karaibunia GPS (500m), Bashbunia pahar mosque (1km), Chakboitha Social forest (30m), Hazrapaper hill (500m) and west side Middle Chakboitha mosque (500m), Chakboitha reserve forest (150m), Sheulerdeba mosque (1km), Chakboitha community clinic (5m), Chakboitha graveyard (50m), North Chakboitha mosque (100m), Chakboitha mosque Tahfijul Quran & Nurani Academy (100m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
2.	West Jummapara village road. Id:422944085	The proposed site is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		Paddy land, boundary fencing and significant vegetation coverage, trees, small hill (tila) and homestead gardens are also found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from mixing or grinding, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Abdur Rahman Badi GPS (300m), at south side Jaliapalong GPS (1km), Panishia Chorra (500m), Abu Bakar Chiddik mosque & Forkania Madrasah (50m), Chander Alo Shishu Bikash Kendra (60m), at east side Panishia graveyard (500m), Abdul Kader Jilani ® jame mosque & Orphanage (10m), Jummapara hill (30m) and west side Jummapara social forest (300m), West Jummapara hill (10m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
		The proposed site is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
3.	Rajapalong UP office - Battali R&H Road, id: 422944088	Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		Agricultural land, water body and significant vegetation coverage, boundary fences, settlements and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing water body and frustrate the water quality which will be acute however.
		Fair amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	No impact is expected here
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side North Hazirpara mosque (100m), Ukhiya Girl's School (500m), Katakhali khal (100m), Horinmara GPS (1km), at south side Green bud Kindergarten (5m), Hazirpara Hafizia jame mosque (100m), Azizia-Hakimia Darul Ulum Madrasah & orphanage (100m), south Hazirpara graveyard (500m), at east side Ukhiya central sheed Minar (8m), Upazila Parishad (10m), Fish farm (15m), Ukhiya GPS (600m), Ukhiya Govt. High School (650m), Ukhiya Govt. girl's College (1km) and west side Ukhiya Forkaniya & Nurani Madrasah & Hefjakhana (200m), Khairatipara mosque including grageyard & pond (300m), Khairatipara Buddhist Temple (150m), Dushari Khal (5m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
4.	Durongkhali station to Mohajonpara community clinic road. Id: 422944090	This subproject component is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	This will be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		Some agriculture fields, boundary fences, electric pole, trees and homestead gardens are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing water bodies and frustrate the water quality which will be acute however.
		Moderate amounts of bush (sapling) clearings may need cutting at different	Low amount of damage to habitats might occur. It can be managed by

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		chainage.	introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	None
		Earth excavation work will be involved in small scale on the different part of the chainage	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place. Both Solid and Liquid waste will be produced.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Rumkha Boubazar (200m), Chandrabunia playground and mosque & Madrasah (250m), North Napitpara Loknath Mondir (200m), Gunarpara Jagannath Mondir (180m), Muktijoddha Smriti Girl's High School (300m), Moriccha bazar (400m), khal (passing north to south at 300m chainage) at south side Chowdhurypara graveyard (150m), Rumkha Hazirpara mosque (150m), Chowdhurypara mosque & orphanage (200m), Chowdhurypara GPS (200m), Chemonbahar bokhtiar junior High School (200m), Rumkhapalong Dakhil Madrasah & jame mosque (400m), Sheed A.T.M Jafor Alom Diabetics Hospital (400m), Rumkha Nadborpara graveyard & Cremation (450m), Rumkha bazar (450m), at east side Hazirpara graveyard (100m), Janab Alipara mosque, graveyard & orphanage (150m), Sabek Rumkha GPS (300m), Dhrumkhali station (100m), Dhrumkhali Hazirpara mosque & Madrasah (350m), Sheed A.T.M Jafor Alom School & College (450m), Classipara Madrasah & orphanage (250m) and west side Notunpara Mosque & Madrasah (20m), Moddhoswri Mondir (120m), Rumkha Mohajonpara Moitry Bihar (150m), north Dhrumkhali Mohajonpara GPS (200m), Mohajonpara Community	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		clinic (5m), Mohajonpara Swarasati Mondir (40m), Mohajonpara Durga Mondir (200m), Rumkha old Bihar (30m), Ideal Kindergarten & Ideal junior High School (150m), Napitpara Hori Mondir (10m), Napitpara Kali Mondir (100m), Rumkha Gunarpara Central Shib Mondir (25m), Khalparpara mosque (40m), Khalparpara cremation & graveyard (50m).	
5.	Muktijuddha Somshar Alam Choudhury Road. Road id: 422944091	This subproject component is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		Homestead garden, settlements, boundary fences, bamboo bushes, electric pole falls found beside the road side. No fish farming and significant vegetation coverage is located in the ROW or does it stand over such items.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place. Both Solid and Liquid waste will be produced.
		Earth excavation work will be involved where high grounds area present. Vibration effects generated from this activities.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only. Any vibration would result in nuisance effects to nearby faunal species, but will be localized and temporary and will unlikely to result in structural damages to buildings or

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
			walls of the adjacent private properties.
		Elephant Movement is not present in the vicinity of the subproject location.	None
		Few amounts of trees will be cut down during construction period at different chainage.	Mostly these trees are fruit bearing species. This will not cause several impacts to the habitats or locals around this areas. These trees are not directly used for economic returns. It will be managed by plantaton of trees around the proposed location after construction period.
		sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Chengchori chorra (500m), Ratnapalong UP Office (800m), Ratnapalong UP jame mosque (800m), at south side Reju khal (1km), Jambunia chorra (500m), North Pukuria Mosque & graveyard (500m), at east side Ruhuler Deba GPS (1km), South Ratna Baytus Sharof mosque including Madrasah, Hafezkhana & graveyard (20m) and at west side Dakhin Ratna Mojaherghona GPS (10m), Telipara Mosque, graveyard & Forkania Madrasah (15m), Shadrikata jame mosque (200m), Cox's bazar-Teknaf Highway (1km).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
6.	R&H road to Md. Ali Vita Road. Road id: 422944093	This subproject component is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless shops, electric pole, trees, boundary fences, tila and homestead gardens are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve biochemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing water body and frustrate the water quality which will be acute however.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement is not present in the vicinity of the subproject location.	N/A
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from mixing or grinding, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives.	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Amgastola mosque (50m), at south side Settlements (5m), at east side South Foliapara jame mosque (20m), Mahmud Ali Bhita (30m), Moulavi Khata mosque (120m), Nurul Islam Chowdhury Technical School & College (20m), Shilerchora Buddhist Temple (480m) and at west side Foliapara mosque (15m), Alim Uddin GPS (50m).	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
		This subproject component is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
7.	R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095	No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement not present	No impact
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives. Vibration effects generated from pilling, drilling or other construction works	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer. Foliapara community center located at 100m north of the subproject. There are 4 mosques located within 1km radial distance of the subproject. These are Folia para jame mosque (300m northeast), Dhakkin khairati para mosque (1km northwest), South folia para mosque (700m south) and Muhuripara jame mosque (1km east) of the subproject. A chora located at 800m west of the subproject. A stretch of higher land located at 320m to 430m chainage on south side along the subproject.	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
8.	Moheshkhalipara sea beach Road to Mondar Dail Road. Road id: 422904011	This subproject component is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement not present	No impact
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives. Vibration effects generated from pilling, drilling or other construction works	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including household (adjacent to the subproject within 30m) at north. Notun Mosque/Mohila Madrassa(50m), Ehsan Shojib Jame Mosque(20m), to the east. Chanduripara GPS (1km), Baytosh Shorok Madrassa (1km) to the south. Households (adjacent to the subproject within 300m) to the west.	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
9.	Shahporir Dip GC-Beach Road.Id:422904021	This sub-project component site is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement not present	No impacts
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
			equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives. Vibration effects generated from pilling, drilling or other construction works	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Dangapara GPS (30m) to the east. Jyonti Mosque and Madrassa(100m), North Majorpara Graveyard (30m), Khalid bin Walid (Ra:) Jame Mosque (10m) to the south. Households (within 500m) to the west and households (within 500m) to the north.	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
10.	Sabrang Pandal para	This sub-project component site is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and homestead gardens/forest are found beside the road.	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
	North Achar bonia road. Road id: 422904023	Elephant Movement not present	No impacts
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives. Vibration effects generated from pilling, drilling or other construction works	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes Acharbonia jame mosque (400m) to the north. Degillar beel Mosque and Graveyard(150m), Sabrang 4 number union porishad (150m), Hefzokhana/Madrassa(150m) to the south. New Mosque (20m South-West), Community center GPS (120m), Community Center Mosque (200m to South-West), Adorsho Gram and Gucho Gram(600m) to west.	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.
		This sub-project component site is not located within any major environmentally sensitive area.	It will not cause any severe negative effects to the environmental settings of the area neither to important environmental features.
		Construction period will induce air pollution while preparing for bitumen and loading-unloading raw materials. Impacts on air quality during the construction phase may turn to negative. The main impacts include dust generation from crushers, vehicles and the transportation of all types of construction materials.	It will invite waste production which may in turn cause minor air pollution due to deposited dust and airborne particles less than PM_{10}. Dust pollution may slightly suffocate photosynthesis however this can be minimized through regular water sprinkling as suggested in ESMP.
		Noise emission from construction machineries and equipment can cause nuisance to local residents and workers.	The ambient noise level might have potential to increase temporarily and intermittently in the close vicinity of active construction fronts.
		No agriculture, fish farming and significant vegetation coverage is located in the ROW nor does it stand over such items. Nonetheless agriculture fields and	No agriculture land or any forest coverage will get degraded or lost for construction. Liquid waste such as left-over oils or chemicals might run

SL. NO.	COMPONENT'S NAME UNDER W-20	FINDINGS IN REGARDS TO ENVIRONMENTAL CONCERNS	RELEVANT IMPACTS
11.	South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026	homestead gardens/forest are found beside the road.	into these adjacent features.
		Construction works will involve chemical usage and preparation of on-site add-ons to the road. Generating scraps and residues.	The runoff from work site may enter existing pond and frustrate the water quality which will be acute however.
		Few amounts of bush (sapling) clearings may need cutting at different chainage.	No severe damage will occur or damage to habitat will be faced. It can be managed by introducing small plantation incentives around the proposed location.
		Elephant Movement not present	No impacts
		No heavy earth excavation work will be involved.	Consequently air, noise and dust pollution will be occurred within a small-scale during construction period only.
		Construction related activities and setting up of labor camps along with associated facilities and their management can cause adverse impacts.	Noise pollution from pilling or drilling, air pollution caused by dust or gaseous emissions from vehicle movement, running of motorized equipment and land clearing, odors and soil pollution from leaking of latrines and fecal sludge, will more likely to take place.
		Chemical spills or improper disposal of construction waste materials due to lack of worker training and misconduct of contractor's safety initiatives. Vibration effects generated from pilling, drilling or other construction works	During the construction period, soil may get contaminated from activities such as handling of hazardous construction materials (such as fuel, lubricants, paints, and solid waste and sewage).
		Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes Households with homestead gardens (within 500m) to the east. Acharbonia (at starting of road) new mosque and graveyard (10m), Degillar Beel Jame Mosque/ Graveyard (500m), Sabrang Union Porishod (180m) to the south. Households (within 500m), Acharbonia Jame Mosque(500m) to the north. Sabrang Community center GPS (180m) to the West.	No disturbance to all these establishments/features is anticipated due to construction activities for the sufficient distance from the construction site, and strict construction site management system- including restrictive work schedule during the daytime only, water-sprinkling twice a day on and around the site, safe storage of materials, etc.

There is no evidence of presence of elephants in the subproject area. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities

and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g. trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the ERTs and they will be called if there appears any minute possibility to recur. **Appendix-4** presents a map of elephant routes of Ukhiya Upazila which is prepared by the IUCN.

In order to offset the loss or attenuating the environmental degradation, a set of mitigation measures will be adopted, on top of general practice of standard construction procedure or following the relevant codes of practices.

3.3 Climate Change Impact Screening

3.3.1 General Overview of the area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the[4] risk of hill collapse by destabilizing the terrain. Also deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones, as forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above-mentioned hazardous situation, again due to sudden extraction of huge amount of groundwater, availability of potable water from shallow tube wells that pump water up from about 150 feet has already reached to a critical level. Averting the problem requires new tube wells to be plumbing deeper into the poorly mapped aquifer, but going deeper than 700 feet in some places may cause salt water to contaminate freshwater resources.

In this case, it is possible that a stationary position of the freshwater-saltwater transition zone can be established via proper management of pumping in the confined aquifer. The groundwater resource is seen to suffer more from the climate change impact. The impact on groundwater due to climate change impact include

- Sea-level rise could result in a transgression of the sea and a loss of land area. This could also lead to the secondary effect of population migration in the new coastal band due to migration of the coastal population from the encroaching sea, thereby increasing domestic water needs in the new coastal area.

- A higher sea-surface elevation would change the base level for all groundwater gradients in the basin. In many aquifers, this would lead to shifts in local hydraulic gradients, inland hydraulic heads, and the rate of groundwater flow.

- A higher sea level will result in an increase in pressure in the subsea aquifer, resulting in inland movement of saltwater (aquifer seawater intrusion).

[3] https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf
[4] "Implications of Climate Change for Fresh Groundwater Resources in Coastal Aquifers in Bangladesh", World Bank report.2010

- Transgression of the coast implies that saline storm surges of 1 or more meters depth would penetrate beyond the new coast to new land areas. Storm surges transport saline water far inland of the coast and much of this floodwater may infiltrate the ground in areas where the aquifer is not fully saturated. Even where the aquifer is saturated, denser saline water may sink into the aquifer during the flood and later from pools of saltwater that remain following the flood.

Considering the general climate change effects in Cox's Bazar area and offsetting the aggravating environmental situation due to the mass arrival of Rohingya communities, several specific measures including tree planation in sub-project areas, rainwater harvesting from every disaster shelter, construction of drainage facilities along the road length and installing thunder arrester across the areas, have been suggested and will be implemented.

3.3.2 Site Specific Screening and outcome

Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time.

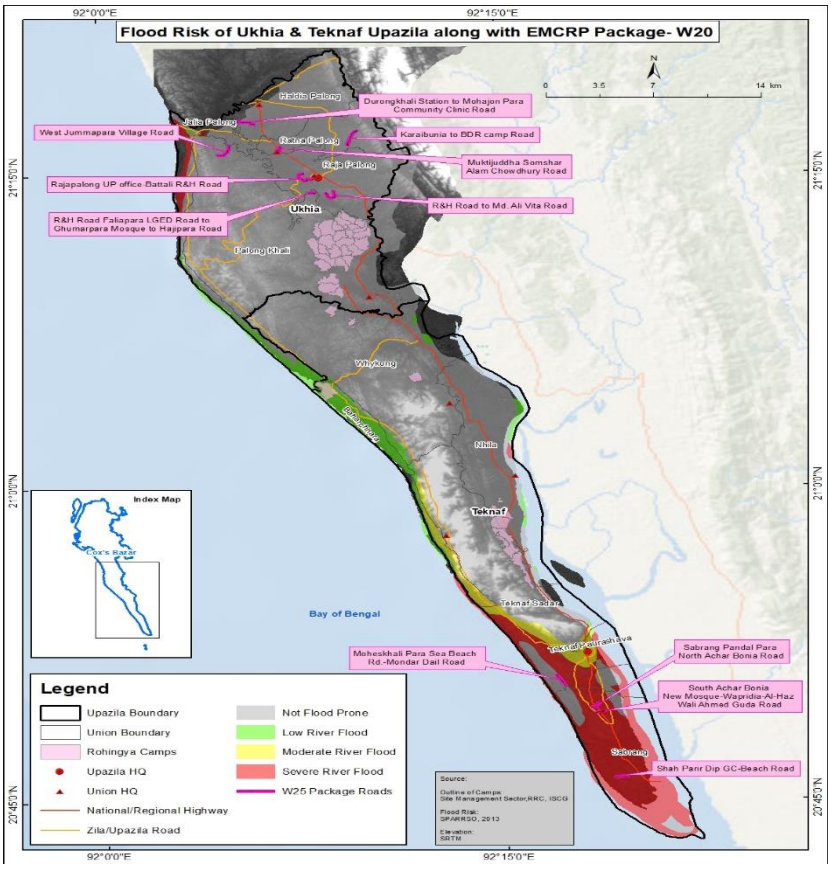

Figure 3.3.2.1: Flood inundation risk map near the subprojects (Road)

Site specific climate change impacts are often not so easy to measure or deduce plausibly while the site is confined to a narrow strip of roadways, and associated mitigation or offsetting measures are really hard to plot on the impact areas, though an overall set of measures are often considered in practical aspect. Fig: 3.3.2.1 shows the inundation risk map of the subprojects under W-20, none of

the Roads are in vicinity of the severe river flood inundation area. So the risk of flooding is low around the sub-project area. Groundwater Depletion has been reported by the host community.

Tree planation on the road slope is also suggested to sooth the temperature effect and increase the water retaining capacity of soil, at the same time.

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

4.1 General

Considering the environmental settings of the sub-project area, it can be assumed that possible impacts would be largely construction-related, and could be addressed through adoption of good engineering practices; good housekeeping; better *in-situ* construction materials management; and observance of health and safety protocols during the implementation period.

Table 4.1.1: Component Specific Impact and Mitigation Plan under package W20

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
1.	Karaibuniaa to BDR camp road. id: 422944084	Reserve forest (50m) to the north, Chakboitha mosque (50m), North Chakboitha graveyard (70m) and Chakboitha Social forest (30m) to the east and Chakboitha community clinic (5m), Chakboitha graveyard (50m), North Chakboitha mosque (100m), Chakboitha mosque Tahfijul Quran & Nurani Academy (100m) to the west and some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 16 nos. Cross Drain (dimension: 0.975mX 0.975m) at different chainage and 4 nos. Box Culverts (dimension: 2vX3.0mX2.5m) at Ch. 256.0m, (dimension: 2.0mX1.50m) at Ch. 544.0m & Ch. 918.0m and (dimension: 2.0mX2.0m) at 1140.0m of chainage, 1010.0 m L-Drain at different chainage, 10.0m Brick Palisading wall at Ch. (1296.0m-1306.0m) and 54.0m Guide wall at Ch. (440.0m-494.0m), Road safety work and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So, L-Drain will be constructed for drainage high land eel water during rainy season. Some low land is found beside the proposed road so protection work (Brick Palisading wall and Guide wall) will be constructed during construction period for used to "correct" the natural slope.
		Abu Bakar Chiddik mosque & Forkania Madrasah (50m), Chander Alo Shishu Bikash Kendra (60m) to the south, Abdul Kader Jilani jame mosque & Orphanage (10m), Jummapara hill (30m) to the east and West Jummapara hill (10m) to the west and some settlements located adjacent to the sub-project area might get	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
2.	West jummapara village road Id: 422944085.	affected during the construction period with the generated debris and dust, though for the time being.	and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 8 nos. Cross Drain (dimension: 0.975mX 0.975m) at different chainage, 162.0 m L-Drain at different chainage, 64.0m Guide wall at Ch. (960.0m-1012.0m=52m; R/S) and Ch. (1064.0m-1076m=12m; R/S), Road safety work and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So, L-Drain will be constructed for drainage high land eel water during rainy season. Some low land is found beside the proposed road so protection work as Guide wall will be constructed during construction period for used to "correct" the natural slope.
3.	Rajapalong UP office- Battali R&H Road, Id: 422944088.	Some features located adjacent to the subproject area. At south side Green bud Kindergarten (5m) and at east side Ukhiya central sheed Minar (8m), Upazila Parishad (10m), Fish farm (15m). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 2 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 881.0m & Ch. 980.0m of chainage and 2 nos. Box Culverts (dimension: 2vX2.50mX2.50m) at Ch. 221.0m and (dimension: 4.50mX4.50m) at Ch. 1455.0m of chainage,	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain and Box Culvert will be constructed to terminate rainwater for one side to another side during

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
		235.0 m L-Drain at different chainage, 105.0m Brick Palisading wall at Ch. (1350.0m-1455.0m; Both side), 50.0m (2.0m height) Guide wall at Ch. (1200.0m-1209.0m=9.0m) & Ch. (1459.0m-1500.0m=41.0m) of chainage, 242.0m Retaining wall at different chainage and 198.0m RCC cast in situ wall at different chainage, Road safety works and Environmental Mitigation and Enhancement works.	rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So, L-Drain will be constructed for drainage high land eel water during rainy season. Some low land is found beside the proposed road so protection work (Palisading wall, Retaining wall & RCC cast in situ wall) will be constructed during construction period for used to "correct" the natural slope.
4.	Durongkhali station to Mohajon para community clinic road, Id: 422944090.	At east side Hazirpara graveyard (100m), Dhrumkhali station (100m) and at west side Notunpara Mosque & Madrasah (20m), Mohajonpara Community clinic (5m), Mohajonpara Swarasati Mondir (40m), Rumkha old Bihar (30m), Napitpara Hori Mondir (10m), Napitpara Kali Mondir (100m), Rumkha Gunarpara Central Shib Mondir (25m), Khalparpara mosque (40m), Khalparpara cremation & graveyard (50m). Further, some settlements located adjacent to the sub-project area and a khal is passing from north to south at chainage 300m might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 10 nos. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 77.0m, Ch. 161.0m, Ch. 420.0m, Ch. 468.0m, Ch. 535.0m, Ch. 941.0m, Ch. 1148.0m, Ch. 1223.0m, Ch. 1265.0m & 1352.0m of chainage and 1 no. Box Culverts (dimension: 2.00mX1.60m) at Ch. 140.0m of chainage, 631.0 m L-Drain at different chainage, 67.0m Guide wall (3.0m Height) at Ch. (610.0m-656.0m=46.0m) & (1.0m Height) at Ch. (1244.0m-	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain and Box Culvert will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
		1265.0m=21.0m) of chainage, 46.0m Retaining wall (3.0m Height) at Ch. (610.0-656.0m; R/S), Road safety works and Environmental Mitigation and Enhancement works.	system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So, L-Drain will be constructed for drainage high land eel water during rainy season. Some low land is found beside the proposed road so protection work (Guide wall & Retaining wall) will be constructed during construction period for used to "correct" the natural slope.
5.	Muktijuddha Somshar Alam chowdhury Road, Id: 422944091.	Some features located At east side South Ratna Baytus Sharof mosque including Madrasah, Hafezkhana & graveyard (20m) and at west side Dakhin Ratna Mojaherghona GPS (10m), Telipara Mosque, graveyard & Forkania Madrasah (15m). Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 8 nos. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 1008.0m, Ch. 1249.0m, Ch. 1346.0m, Ch. 1411.0m, Ch. 1430.0m, Ch. 1534.0m, Ch. 1614.0m & Ch. 1718.0m of chainage, 294.0 m L-Drain at different chainage, 422.0m U-Drain at different chainage, 112.0m Guide wall (1.5m Height) at different chainage, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So, L-Drain will be constructed for drainage high land eel water during rainy season. U-drain is also considered for drainage facility that runs along the road for uninterrupted water flow. Some low land is found beside the proposed road so guide wall will be constructed during construction period for used to "correct" the natural slope.

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
6.	R&H road to Md. Ali vita road, Id: 422944093.	At north side Amgastola mosque (50m), at south side Settlements (5m), at east side South Foliapara jame mosque (20m), Mahmud Ali Bhita (30m), Nurul Islam Chowdhury Technical School & College (20m) and at west side Foliapara mosque (15m), Alim Uddin GPS (50m) located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 2 nos. box Culvert (dimension: 2.0mX1.60m) at Ch. 800.0m & Ch. 990.0m of chainage, 1 no. Cross Drain (dimension: 0.975mX 0.975m) at Ch. 937.0m of chainage, 68.0 m L-Drain at Ch. (903.0m-971.0m; R/S), 38.0m U-Drain at different chainage, 304.0m Guide wall at different chainage, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So, L-Drain will be constructed for drainage high land eel water during rainy season. U-drain is also considered for drainage facility that runs along the road for uninterrupted water flow. Some low land is found beside the proposed road so guide wall will be constructed during construction period for used to "correct" the natural slope.
		Foliapara community center (100m) at north and Patches of nearest vegetation and shops, homestead garden or forest located at the subproject area. Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
7.	R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, Id: 422944095.		working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 03 no. of Cross Drain (Size: .975mmX .975mm), 106 meters of Guide Wall, 251 meters of palisading wall, 110 meters of L-drain, 87 meters of RCC Cast in Situ Pile, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some high land is found beside the road. So, L-Drain will be constructed for drainage high land eel water during rainy season. Some low land is found beside the proposed road so protection work (Guide wall and palisading wall) will be constructed during construction period for used to "correct" the natural slope.
8.	Moheskhali para sea beach Rd.-Mondar Dail Road Id: 422904011.	Notun Mosque/Mohila Madrassa(50m), Ehsan Shojib Jame Mosque(20m) to the east. Further, some settlements located adjacent to the sub-project area within 10 to 30m might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 05 no. of Cross Drain (of different dimensions), 04 numbers of Box Culvert, 686 meters of palisading wall, T-Section at different chainage, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Box culvert and cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help rapidly remove excess soil water to reduce or

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
			eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural land to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some low land is found beside the proposed road so protection work as palisading wall will be constructed during construction period for used to "correct" the natural slope.
9.	Shah Parir Dip GC-Beach Road Id: 422904021.	Dangapara GPS (30m) to the east. Jyonti Mosque and Madrassa(100m), North Majorpara Graveyard (30m), Khalid bin Walid (Ra:) Jame Mosque (10m) to the south. Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 02 no. of Cross Drain (Size: .975mmX .975mm), 278 meters of Guide Wall, 40 meters of palisading wall and T-Section at different chainage, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some low land is found beside the proposed road so protection work as guide wall and palisading wall will be constructed during construction period for used to "correct" the natural slope.

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
10.	Sabrang Pandal para North Achar bonia raod Id: 422904023	Degillar beel Mosque and Graveyard(150m), Sabrang 4 number union porishad (150m), Hefzokhana/Madrassa(150m) to the south. New Mosque (20m South-West), Community center GPS (120m) at west. Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.
		Proposed safety structures are 02 no. of Cross Drain (Size: .975mmX .975mm), 42 meters of Guide Wall, 446 meters of palisading wall and T-Section at chainage 88m, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some low land is found beside the proposed road so protection work as guide wall and palisading wall will be constructed during construction period for used to "correct" the natural slope.
11.	South Achar bonia new Mosque-	Acharbonia new mosque and graveyard (10m) to the south and patches of trees located beside the subproject site. Further, some settlements located adjacent to the sub-project area might get affected during the construction period with the generated debris and dust, though for the time being.	Contractor must adhere to the best practice debris management procedure and regular adoption of dust control measures (spraying of water at least twice a day) to minimize the effect to the least level. Moreover, regular maintenance of vehicles and equipement, conducting relatively noisy works during the day time, adopting best workmanship and engineering site management shall be within the contractor's daily working procedure, and the contractor must follow requisite health safety measures throughout the implementation period.

SL. No.	Component's name under W-20	Important Socio-Environmental and proposed safety Features	Proposed mitigation and rationale to the safety measures
	Wapridia-Al-Haz Wali Ahmed guda road Id: 422904026	Proposed safety structures are 08 no. of Cross Drain (Size: .975mmX .975mm), 215 meters of Guide Wall, 643 meters of palisading wall, T-Section at chainage 130m, Road safety works and Environmental Mitigation and Enhancement works.	Proposed subproject area arises water logging problem during the monsoon sometimes. On the other hand, some part of the proposed road is passing by the agricultural land. Cross drain will be constructed to terminate rainwater for one side to another side during rainy season and also help for rapidly remove excess soil water to reduce or eliminate waterlogging during monsoon and return soils to their natural field capacity and will help to maintain the water balance of both roadside agricultural lands to provide a sustainable irrigated agricultural system. It will also help to prevent flood and not to allow water to overflow and also help to divert water for farming. Some low land is found beside the proposed road so protection work as guide wall and palisading wall will be constructed during construction period for used to "correct" the natural slope.

Further improvement related activities which may result in adverse impacts in the surrounding environment of the sub project must be kept under close consideration and appropriate mitigation and management measures will be taken with due care and vigilance. Once the effects are minimized to its least level and controlled efficiently, it will turn into a welcoming and beneficial project for the local communities. The subproject specific environmental management plans have been outlined in **Appendix-2**. The mitigation measures as well as monitoring program of ESMP have also been incorporated in the management plan.

Environmental quality enhancement: Under the additional financing to the EMCRP project, Forest Department of the Government of Bangladesh will afforest along 200 km of road length area, primarily under the Ukhiya and Teknaf Upazila of Cox's Bazar district in order to offset the environmental and ecological devastation, that had been occurred due to the evolution of Rohingya Crisis, to an achievable level. Many of these road lengths will go through and by the Rohingya Camps, up on the hill and are already denuded of trees or vegetation. Local Government Engineering Department (LGED) will allocate and channelize the finance to the Forest Department under the said additional financing component and oversee the progress of works with due diligence. However, this enhancement work will improve the environmental quality of the area and reinstate some parts of the ecosystem services to those areas, though primarily.

4.2 Health and Safety Measure under COVID Situation

Apart from the established Occupational Health and Safety (OHS) measures being followed in construction sites, offices, and labor camps, a set of additional measures has to be taken and practiced throughout the daily cycle by each labor, staff and any involved parties, due to the ongoing pandemic coronavirus situation. Staffs and consultants at PIU and D&S, along with the pool of consultants under different firms/agencies for different services, and all the representatives or staffs of construction contractors and suppliers have to play much sensitive, (pro-) active and responsible roles in abiding by the rules and measures by themselves and getting the involved workers and different stakeholders adhered to the same. A detailed guideline containing a set of measures with shared responsibilities has been sketched out in order to fight the exposure and further spread of this potentially fatal situation. This plan or guideline shall constitute an integral part of ESMP measures for every sub-project, though is not included in this report to keep it concise and specific, and the contractor is required to keep the copy of that guideline at every site office.

However, among many other relevant issues, the guidelines emphasize on following line of directives:

a. Contractor must designate one of his employees as H&S/Safeguards supervisor to lead, coordinate and interface in order to fight the COVID 19 situation under the direct guidance of COVID focal at PIU of EMCRP project.
b. All workers, supervising and supporting engineers and staffs, consultants, service providers and other concerned parties must adhere to the personal health and hygiene rules, social distancing, and other protective measures in full in order to protect themselves and contain the infections any further. Necessary training and awareness campaign will be aligned with the specific sub-project scenario and prevailing conditions.
c. General practice of cleaning and hygiene has to be maintained in all project/site offices and camp sites, and supply of necessary PPEs and cleaning /disinfecting materials along with proper use of those is to be ensured.
d. Public consultation and stakeholder engagement are to be carried out considering the prevailing risks of virus transmission in the target areas, scope of interventions and level of ICT penetrations among the target stakeholders, and so on.
e. Necessary protocols have to be established and maintained in case of handling a sick employee or worker, and appropriate compensation to a sick disengaged labor is required to be given with due documentation.
f. Budgeting for suggested protective measures, along with necessary supervision and monitoring for the required interventions has to be ensured.

Following the additional health and safety measures presented in that guideline, sub-project specific BOQ items have been inserted to supplement the budget considering the country-specific situation, capacities, and scope of interventions. The additional cost to Health and Safety Measures under COVID 19 situation is shown in **Appendix-3.**

4.3 Cost of Environmental Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, a set of items are included in the BOQ of this sub-project. Social Safeguard Personnel for Environmental and Social Management for Work Package EMCRP/W20 have also been added in the whole BOQ in order to take supervision and leadership to organize Environmental

Management under Environmental Enhancement Works. The total costing and estimation have included enhancements such as Grass turfing plans, Tree plantation initiatives, Dust Suppression mechanisms. On the other hand, in order to ensure health safety and sanitary measures of workers PPE, First Aid Box, Labor shed, Environmental management, drinking water facility with water tests, Temporary latrine for both male and female as well as waste disposal systems has been accounted for. Ensuring sustainable labor performance in regards to environmental and social considerations motivational training has been taken into account. An overview of the estimation is given below and the detailed estimated cost to implement the ESMP is shown in **Appendix-3**.

Table 4.3.1: Summary of estimated bill of quantity

Road Package Number	Road Name	Environmental Enhancement works estimated amount (BDT)	H&S measures for COVID Situation (BDT)
W20-1	Karaibuniaa to BDR camp road, Id: 422944084.	451,637.47	114,525.00
W20-2	West jummapara village road, Id: 422944085.	435,841.12	110,685.00
W20-3	Rajapalong UP office- Battali R&H Road, Id:422944088.	468,135.88	117,205.00
W20-4	Durongkhali station to Mohajon para community clinic road, Id:422944090.	426,480.32	107,225.00
W20-5	Muktijuddha Somshar Alam chowdhury Road, Id:422944091.	358,848.54	85,135.00
W20-6	R&H road to Md. Ali vita road, Id: 422944093.	380,261.37	90,405.00
W20-7	R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, Id: 422944095.	310,406.4	114,912.5
W20-8	Moheskhali para sea beach Rd.-Mondar Dail Road, Id: 422904011.	534,831.58	255012.5
W20-9	Shah Parir Dip GC-Beach Road, Id: 422904021.	421,331.88	106,025
W20-10	Sabrang Pandal para North Achar bonia Road, Id:422904023	331,702.22	81,845
W20-11	South Achar bonia new Mosque-Wapridia-Al-Haz Wali Ahmed guda Road, Id:422904026	489,665.72	117,725
Total		**4,609,142.50**	**1,300,700.00**
Sub-Total (Enhancement work & H&S COVID BOQ) (BDT)		**5,909,842.50**	
Three Environmental Management Personnel for 11 (Eleven) roads (BDT)		**1,260,000.00**	
Grand Total (BDT)		**7,169,842.5**	

5. MONITORING MECHANISM FOR ESMP IMPLEMENTATION

Monitoring, as such, is required to ensure that the mitigation and enhancement measures are being properly implemented and at the same time, to determine whether the benefits of these measures are being realized over time. A comprehensive monitoring framework is suggested in Project ESMF and the responsibilities lie on all the responsible parties or institutions directly involved with or oversee the construction works.

There will be several tiers in monitoring framework to ensure the proper implementation of ESMP. Contractors, throughout the construction or implementation period, must ensure that environmental and social risks and impacts are minimized effectively while working at sites and adequate health and safety measures are put in place not only for their workers but also for the surrounding communities and DRPs. Contractors' employed site managers and safeguard supervisors (or persons with similar responsibilities) shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to the properties belong to public and private individuals/entities or to different features and establishments, from pollution, noise or other detrimental causes arising as a consequence of different methods of operation and activities. The said employees shall instruct as well as supervise the day-to-day progress of ESMP implementation activities on contractors' behalf. Apart from the ESMP implementation, some specific management plans, e.g. drainage management, traffic management, emergency preparedness and response, etc., whichever required, need to be prepared by the Contractor and strong supervision for the implementation of those plans is also a part of the said employees' responsibilities.

Design and supervision consultants shall stand at the first tier of the monitoring mechanism. When the contractors are mobilized in the field, safeguards consultants from D&SC firm and the Resident Engineer will ensure that contractors are adherent with every suggestive measures delineated in ESMP, on top of the best engineering practices at sites including Occupational Health and Safety (OHS). D&SC firm will prepare regular monitoring reports based on the findings of stringent supervision and monitoring on its part.

PIU will have safeguards specialists stationed in Cox's Bazar and will conduct field visits very frequently. Moreover, Executive Engineer's office in Cox's Bazar and Upazila Engineers' office in Ukhiya and Teknaf will play a vital role in upholding the proper monitoring and supervision of civil works and associated project activities, including social and environmental safeguards in and around the sub-project sites. Safeguards specialists of PIU will monitor that all staffs of the contractors and other counterparts who are involved in project implementation receive both initial and ongoing environmental and social safeguard awareness and training sufficient to ensure the best practices in the field. Local Engineers from LGED and PIU safeguards specialists shall ascertain that contractors cleaning and reclamation works after the decommissioning of sites/ end of construction works are perfectly done and will also suggest for punitive measures against the contractors if any negligence or indifference is found in following the ESMP to the fullest effectiveness.

The highest tier in the monitoring system is bestowed upon the respective Ministerial Project Steering Committee (PSC) chaired by the Sr. Secretary/Secretary, LGD, MoLGRD&C. The PIU, in collaboration with the PSC, will also ensure that Environmental and social safeguards training are provided to all Project personnel.

Widespread COVID 19 situation prevailing across the country has put further intense necessity for all concerned parties to scale up their monitoring frequency and activities in line with the prescribed guidelines to be followed in the field, camp site, and project offices. Frequent and abrupt visit to the working sites and labor camps is quite necessary in this crisis period and is strongly suggested.

6. LIMITATIONS OF THIS STUDY

With the countrywide spread of coronavirus and its huge detrimental including fatal effects on people and livelihood had made the government of Bangladesh to impose a nationwide lockdown from March 26, 2020 onward coupled with banning on passenger traveling across the districts. This development was accompanied by all office works to be suspended or postponed. However, in the backdrop of continued fragile economic and human plight being observed across the country which has primarily been caused by this COVID situation, Government of Bangladesh has had no other option but to reopen all the economic and official activities by early June, with strong guidance on limiting movement to the least. This neo-normal situation is still limiting the movement of consultants and supervising staffs to the proposed working sites for undertaking the screening survey along with conducting effective consultation meetings, which is in turn affecting the overall progress of the project and there might have a likely chance to remain the gaps in overall screening process and outcomes.

7. CONCLUSION AND RECOMMENDATIONS

The overall conclusion is that if the mitigation, compensation and enhancement measures are implemented in full, there will be no significant negative environmental impacts in regards to the selection of location, design, construction, and/or operation procedure of the proposed Sub-project. There will in fact be tremendous benefits from recommended mitigation and enhancement measures and major improvements in quality of life, opportunities in business, trading jobs and ensuring social safety and security will be achieved once the scheme is in operation.

The conclusions of the Screening study can be summarized as follows:

- The communities will receive large benefits through improved infrastructural facilities, transportation & communication etc.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety need to be minimized through the management plan.
- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.
- The green belt development, if necessary, for the road site, with large-growing trees at the periphery of the site will give the places a more natural and pleasing appearance.
- A comprehensive Environmental and Social Management Plan (ESMP) has been prepared to mitigate and reduce the adverse impacts that will come out from the Subproject activities.

Implementation of this work package will have large positive impacts to the communities in terms of improved infrastructural transportation & communication facilities, which would eventually develop the socio-economic condition of the catchment areas. So, strong recommendation should be put in place to implement the sub-project within shortest possible period of time, and with great care and efficiency.

Annexure-01: Important Environmental Features (IEFs) near site:

Detail Environmental features within 100m of the both sides from the center line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Road Name	Karaibuniaa to BDR camp road. id:422944084 **(W20-1)**	**Total Length**	1675m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Solar lamp post, paddy land, Chakboitha Community Clinic, Chakboitha graveyard, trees, paddy land
		R	Chakboitha Siraj Master Market, bamboo fencing, bamboo bushes, paddy land
300-600	L		Paddy land, pond, guide wall, paddy land
		R	Bamboo fencing, bamboo bushes, vegetables land, paddy land, betel leaf yard, Akashi trees
600-900	L		Mango trees garden on high land, betel leaf yard, paddy land, household connecting road
		R	Mango trees garden, bushes, bamboo bushes on tila
900-1200	L		Paddy land, cross drain, vegetables land, mosque, trees on hill
		R	Paddy land, vegetables land, bamboo fencing, bushes, betel leaf yard, paddy land
1200-1500	L		Trees, bushes on high land, betel leaf yard, settlement on tila
		R	Vegetables land, paddy land, betel land yard
1500-1675	L		Chakboitha social forest on hill (Forest department), Courtbazar-Valukia connecting road
		R	Paddy land, homestead garden (Akashi trees)

Road Name	West Jummapara village road. Id:422944085 **(W20-2)**	**Total Length**	1540m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Bamboo fencing, brick boundary wall, electric pole, betel nut garden, bamboo fencing, connecting road, high land (tila), trees
		R	Bamboo fencing, betel nut garden, bamboo fencing, paddy land, shop, electric pole, high land (tila), trees
300-600	L		Bamboo fencing, settlement, electric pole, tin shed fencing, local trees, mango trees
		R	Bamboo bushes, bamboo fencing, mango trees, electric pole, tin shed fencing, electric pole, shop, guide wall, tin shed fencing, market, trees, electric pole
600-900	L		Betel nut garden, agricultural land, tila, betel leaf yard, settlement, bamboo

			fencing, settlement, tin shed fencing, Akashi trees
		R	High land (tila), Akashi trees, bamboo fencing, West Jummapara hill, local trees
900-1200	L		Trees on tila, social forest on hill, tin shed fencing, bamboo bushes, settlement on high land (tila), bamboo fencing
		R	Mango trees garden, open space, betel leaf yard, earthen household, West Jummapara chorra, mango trees, jackfruits trees, betel leaf yard, open space
1200-1540	L		Bamboo bushes, trees, tin shed fencing, trees, bamboo fencing, vegetables land, mosque mango trees garden
		R	Earthen household, bamboo fencing, betel nut trees, shop, settlement, agricultural land, social forest on hill, earthen household

Road Name	Rajapalong UP office - Battali R&H Road id: 422944088 **(W20-3)**	**Total Length**	1816m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Big rain tree, shops, existing u-drain, settlements, Green bud kindergarten, Dhaka Ahsania Mission office, YPSA project office, Agricultural land, CCDB office, brick boundary wall, settlement
		R	Ukhiya central sheed Minar, brick boundary wall, mosque, Upazila Parishad, agricultural land, culvert, warehouse
300-600	L		Settlement, tin shed fencing, North Hazirpara mosque, brick boundary wall, betel nut garden, tin shed fencing, bamboo fencing
		R	Settlement, fish farm, agricultural land, homestead trees garden, settlement, brick boundary wall, agricultural land
600-900	L		Betel nut garden, tin shed fencing, bamboo fencing, bamboo bushes, Dushori khal
		R	Agricultural land, bamboo bushes, trees (Akashi & Shimul), bamboo fencing, shop, trees (Mango, coconut & Banana)
900-1200	L		Dushori khal, bamboo bushes
		R	Bamboo fencing, wire fencing, trees (Jackfruit & coconut), bamboo bushes
1200-1500	L		Dushori khal (10m), agricultural land
		R	Agricultural land, Katakhali khal (100m)
1500-1816	L		Agricultural land, household connecting road, brick boundary wall, electric pole, tin shed fencing, Tubewell, fish farm, cowshed, trees, saloon, shop
		R	Agricultural land, culvert on Katakhali khal, tin shed fencing, bamboo fencing, warehouse of UNICEF, electric pole

Road Name	Durongkhali station to Mohajonpara community clinic road. Id: 422944090 **(W20-4)**	Total Length	1460m

Chainage (m)	Left	Right	Features
000-300	L		Dhrumkhali Hazirpara mosque, tin shed fencing, trees (Mango, jackfruits, local trees, betel nut etc.), electric pole, paddy land, tin shed fencing, settlement, electric pole, bamboo fencing, solar lamp post
		R	Trees, settlements, tin shed fencing, paddy land, cross drain, household connecting road, pond, bamboo bushes, electric pole
300-600	L		Shop, electric pole, settlement on high land (tila), tin shed fencing
		R	Paddy land, betel nut garden, bamboo fencing, trees, electric pole
600-900	L		Settlement, trees, water body, Mohajonpara community clinic, shop, electric pole, settlement, bamboo fencing, tin shed fencing, brick boundary wall, tila, electric pole, tin shed fencing, household connecting road, trees, paddy land
		R	Bamboo fencing, bamboo bushes, pond, electric pole, RCC boundary pole, guide wall, Boubazar connecting road, paddy land, trees
900-1200	L		Paddy land, cross drain, tin shed fencing, Chowdhurypara connecting road, paddy land, trees, electric pole, settlement
		R	Paddy land, trees, connecting road, local earthen drain
1200-1460	L		Brick boundary wall, homestead garden (Akashi trees, betel nut)
		R	Tin shed fencing, bamboo fencing, cross drain, trees (Betel nut, Akashi, Mango etc.), high land (tila)

Road Name	Muktijuddha Somshar Alam Choudhury Road. Road id: 422944091 **(W20-5)**	Total Length	882m (Ch.978.0m-Ch.1860.0m)

Chainage (m)	Left	Right	Features
900-1200	L		Telipara mosgue & graveyard, brick boundary wall, settlement (tin shed), shop, tin shed fencing, earthen household, tubewell, tila, open space, culvert
		R	Trees, homestead garden, tin shed fencing, trees, wire fencing, bamboo bushes, shop, earthen household, bamboo fencing, tin shed fencing, brick boundary wall, settlement (building0, pond, paddy land
1200-1500	L		Dakkhin Ratna Mojaherghona GPS, trees, tin shed fencing, shop
		R	Tin shed fencing, earthen household (tin shed), brick boundary wall, settlement, wash block, bamboo bushes, trees, bamboo fencing, tin shed fencing, shop, brick boundary wall, Dakkhin Ratna baytus Sarof mosque, madrasah and hafezkhana, graveyard, shop
1500-1860	L		Tin shed fencing, electric pole, shop, u-drain, tin shed fencing, settlement, tila
		R	Tin shed fencing, brick boundary wall, shop, wire fencing, settlements (tin

			shed), Tubewell, tin shed fencing, big tree

Road Name	R&H road to Md. Ali Vita Road. Road id: 422944093 **(W20-6)**	**Total Length**	1065m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Shop, bamboo fencing, connecting road, tin shed fencing, household connecting road, brick boundary wall, protection wall, tila, settlement, existing u-drain, bamboo fencing, settlement(tin shed), building under construction, bamboo bushes, settlement(earthen), bamboo fencing, protection wall made by gunny bag, settlement(building), bamboo fencing, open space, household connecting road
		R	Shop, bamboo fencing, tin shed fencing, electric pole, small trees, tin shed fencing, mosque, brick boundary wall, household connecting road, protection wall, RCC pole, bamboo bushes, protection wall, trees, u-drain, homestead garden, tin shed fencing, low land, bamboo bushes, bamboo fencing
300-600	L		Tin shed fencing, earthen household, tila, open space, bamboo fencing, protection wall, brick boundary wall, tree, broken u-drain, connecting road, bamboo fencing
		R	Bamboo fencing, bamboo bushes, drain, household connecting road, tin shed fencing, bamboo fencing, bamboo bushes, u-drain, open space, bushes, household connecting road, u-drain, pond, trees, bamboo bushes, electric pole
600-900	L		Bamboo fencing, settlement, trees, guide wall, tin shed fencing, open space, u-drain, electric pole, household connecting road, vegetables garden, bushes, hilly road, garden, high hill area with settlement, drainage system on the road, agricultural field, vegetables garden, Buddhist Bihar connecting road, tin shed fencing, building under construction
		R	Building under construction, guide wall, bamboo bushes, trees, settlement, agricultural land, bushes, vegetables garden, wire fencing, household connecting road, protection wall, u-drain, agricultural land, bamboo bushes, bamboo fencing
900-1065	L		RCC pole with wire fencing, high hill road, shop, culvert, trees, protection wall, tila, culvert, bushes, trees, settlement, protection wall mosque, bamboo fencing
		R	Agricultural land, protection wall, bamboo bushes, u-drain, shop, household connecting road, agricultural land, protection wall, Tripoli fencing, open field, tree, bamboo fencing

Road Name	R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095 **(W20-7)**	Total Length	468m

Chainage (m)	Left	Right	Features
000-300	L		Started from Md. Kalumia's hosue, settlement, Agriculture lands
		R	Settlements, Agriculture lands, settlements, Agriculture lands, open field
300-468	L		Settlements, settlements on top of hills, open field
		R	Existing drainage, settlements on top of hills, ends at west kaliapara near to shop of Sudur

Road Name	Moheshkhalipara sea beach Road to Mondar Dail Road. Road id: 422904011 **(W20-8)**	Total Length	2386m

Chainage (m)	Left	Right	Features
000-300	L		Shop, Open Field, bamboo fence, tin fence, household connecting road to the left, chicken farm, tin fence, wired fence,
		R	Bush, tree, tree, tin fence, bush, tin fence, household connecting road to the right, tin fence, bush,
300-600	L		household connecting road to the left, bamboo fence, tin fence, shop, household connecting road to the left, tin fence
		R	Open space, bush, tin fence, trees, bamboo bush, trees, cactus, trees, cactus, tin fence, cactus trees, tin fence, household connecting road,
600-900	L		Tin fence, shop, wired fence, shop, bush, tin fence, cactus, trees, cactus tree, household connecting road to the left, bamboo fence, tin fence, cactus
		R	tree, household connecting road, trees, tin fence, bamboo fence, bush cactus, trees, household connecting road to the right, big tree (2).
900-1200	L		tin fence, settlements, open field, RCC pole with wired fence, household connecting road to the left.
		R	Bush, trees, bush, cactus, trees, bamboo bush, cactus, bamboo bush, household connecting road to the right, cactus trees, bush, open space, Electric Pole, shop,
1200-1500	L		RCC Pole with wired fence, household connecting road to the left, Tube well, shop, shop, tin fence
		R	tin fence, bush, open space, shop, cactus tree, household connecting road to the right, tin fence, bamboo fence, tin fence, Open space,
1500-1800	L		wired fence, tin fence, bamboo fence, cactus bush, bamboo fence, brickwall, tin fence, cactus, tree, tin fence, trees, cactus trees, big trees, shop
		R	Household connecting road to the right, tin fence, household connecting road.
1800-2100	L		Tin fence, brick wall, bamboo fence, tin fence, household connecting road to the left,

		R	Tin fence, tree, tin fence, bush, cactus bamboo bush, tin fence, Bamboo fence, shop,
2100-2386	L		tin fence, big tree, tin fence, cactus, tin fence, brick wall, mosque, shop, connecting road the left
		R	household connecting road to the right, bush, cactus, connecting road to the right

Road Name	Shahporir Dip GC-Beach Road. Id: 422904021 **(W20-9)**	**Total Length**	1416m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Trees, Tin fence, shop, open space, bamboo fence, open space, bamboo fence, trees, madrassa, brick wall, vegetable yard, open space, Big trees, Big trees, tin fence, vegetable yard, tin fence, big trees
		R	Shop, Trees, shops, bamboo fence, open space, big tree, shops, bamboo bush, open field, big tree, big tree, bush, tin fence, big tree, vegetable yard, big tree
300-600	L		Culvert, Big tree, vegetable yard, Electric pole, shop, household connecting road to the left, wired fence, tin fence, electric pole, tin fence, big tree, tin fence, mosque, brick wall
		R	Big tree, settlements, shop, vegetable yard, tin fence, shop, tin fence, bamboo fence, open space, shop, big tree, bamboo fence, tin fence
600-900	L		Household connecting road to the left, tin fence, shop, tin fence, culvert, shop, tin fence, household connecting road, brick wall, Graveyard, connecting road to Majorpara o the left
		R	Connecting road to Dorgapara to the right, shop, Electric Pole, Tin fence, open field, wired fence with RCC pole, household connecting road to the right, bush, settlements, bush, electric pole, Solar lamp light
900-1416	L		Bamboo fence, bush, corn yard, household connecting road to the left, shop, cc block yard, big tree, shop big tree
		R	Brick wall, household connecting road to the left, big tree, brig tree, culvert, connecting road to the right, big tree, bamboo fence, big tree, bamboo fence, big tree, tin fence, big tree, settlements, bamboo fence.

Road Name	Sabrang Pandal para North Achar bonia road. Road id: 422904023 **(W20-10)**	**Total Length**	650m

Chainage (m)	**Left**	**Right**	**Features**
000-300	L		Open space, Electric Pole, Bamboo fence, Electric Pole, Bamboo fence, vegetable yard, household connecting road the left, bamboo fence, open field, guide wall, bush, bamboo fence, open field, open field, big tree,
		R	Tin fence, shop, tin fence, open space, guide wall, tree, agriculture field, shop, open field, tree,
300-600	L		Bamboo bush, open space, settlement, bush, brickwall, brickwall, electric pole, settlement(paka), tin fence, bamboo fence, vegetable yard, bamboo

			fence, connecting road to shikdarpara the left, vegetable yard, open space, bamboo fence, electric pole, household connecting road to the left, paan boroz, trees, shop, connecting road to lejirpara to the right
		R	Tin fence, Brick wall, open space, settlement(paka), tree, brickwall, household connecting road to the right, wire fence with RCC pole, bamboo fence, trees, tin fence, connecting road to North acharbunia

Road Name	South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026 **(W20-11)**	**Total Length**	2000m

Chainage (m)	Left	**Right**	**Features**
000-300	L		Shop, Brick wall, big tree, big tree, Electric Pole, trees
		R	Tree, Mosque, Brick Wall, Electric Pole, Tower, Settlement(paka), open space, Timber godown, trees, settlement, Open space
300-600	L		open filed, tree, electric pole, open space, vegetable yard.
		R	Tree, Vegetable yard, guide wall, trees, vegetable yard, bush, trees,
600-900	L		Guide wall, tree, electric pole, tree, wired fence bush, open field
		R	trees, vegetable yard, bush, trees, Empty space
900-1200	L		electric pole, electric pole, trees, tin fence household connecting road to the left
		R	vegetable yard, household connecting road to the right, vegetable yard, bush, open field, trees, guide wall
1200-1500	L		Bush, open space, trees, bush, wired fence, bush, shop, tin fence, bamboo fence, trees,
		R	Vegetable yard, Trees, Bush, Homestead garden,
1200-1500	L		bamboo fence, bush, settlement, garden, culvert, bamboo fence, culvert, bamboo fence
		R	Vegetable yard vegetable yard, bush, tree, vegetable yard, household connecting road to the right, tin fence,
1500-1800	L		Tin fence, Electric Pole, Shop, Tin fence, Nut tree garden, bamboo fence, Bush, Trees, bamboo fence
		R	Trees, Vegetable yard, Tin fence, Brick wall, Bamboo fence,
1800-2000	L		Bamboo fence, bush, household connecting road to the left, brick wall,
		R	Brick wall, household connecting road to the right, tin fence

Annexure-02: Attendance of consultation meetings for sub-projects

20/01

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time:.....03:55 pm.......... Date. 23/01/2020

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

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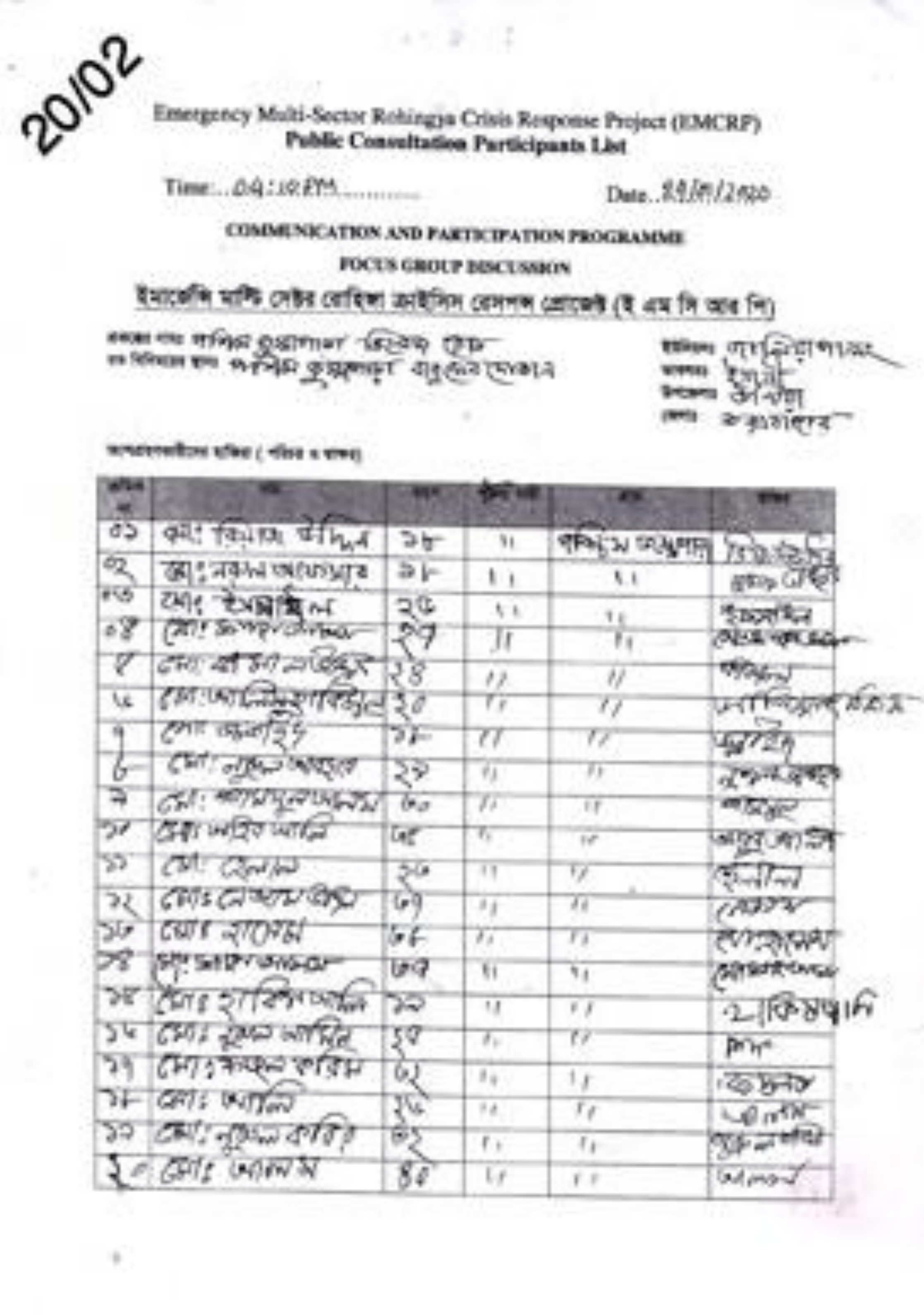
Figure: Attendance of consultation meeting for W20-1


20/02

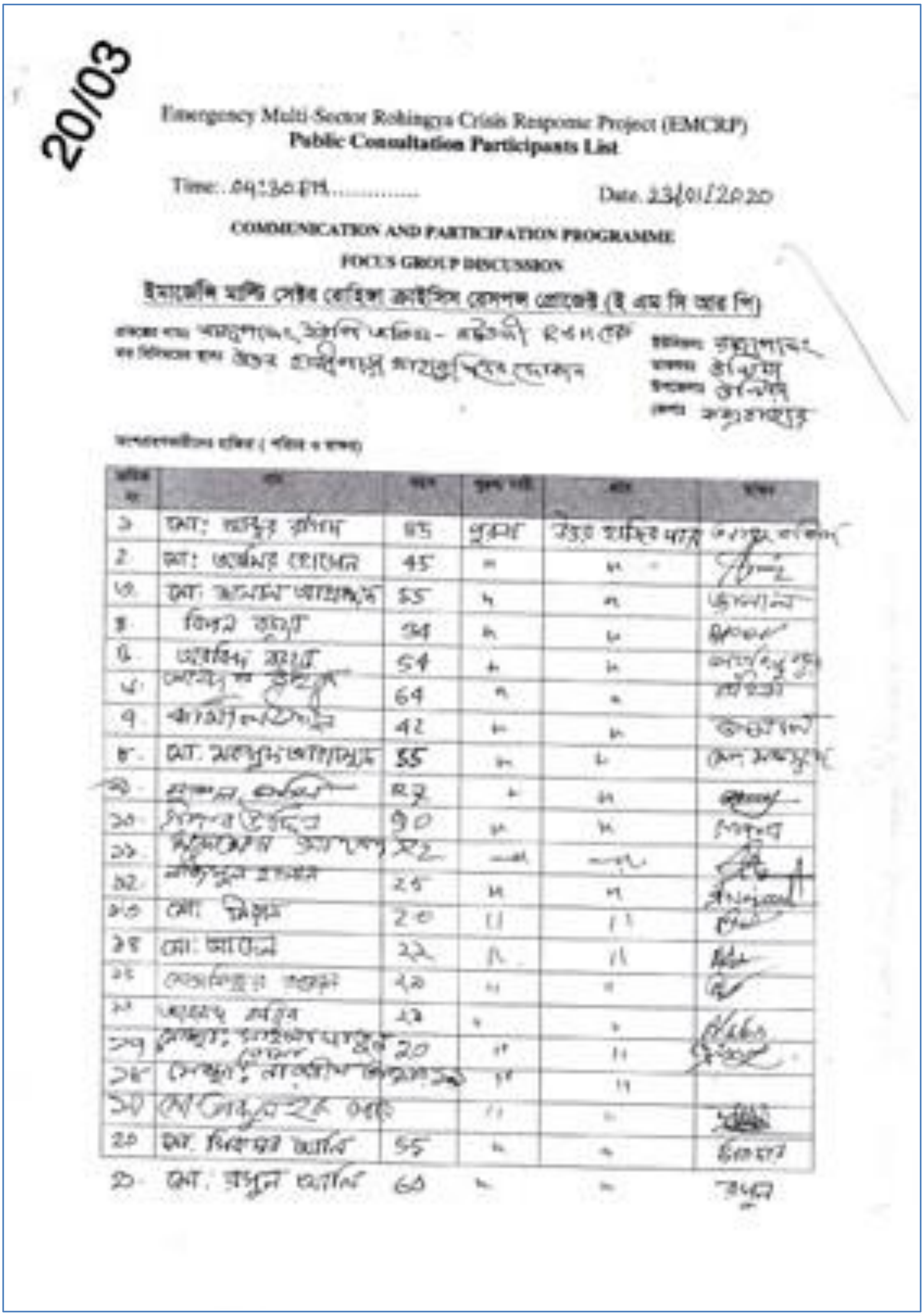
Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time...04:10 PM...........

Date..22/01/2020

COMMUNICATION AND PARTICIPATION PROGRAMME
FOCUS GROUP DISCUSSION

Figure: Attendance of consultation meeting for W20-2



20/03

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: 09:30 AM .... Date: 23/01/2020

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

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Figure: Attendance of consultation meeting for W20-3

20/4/1)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Public Consultation Participants List

Time: 11:42 AM Date: 25/01/2020

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

ক্রমিক নং	নাম	বয়স	শিক্ষাগত যোগ্যতা	পেশা	স্বাক্ষর
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20/04.21

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: ...11:42 AM... Date: 25/11/2020

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

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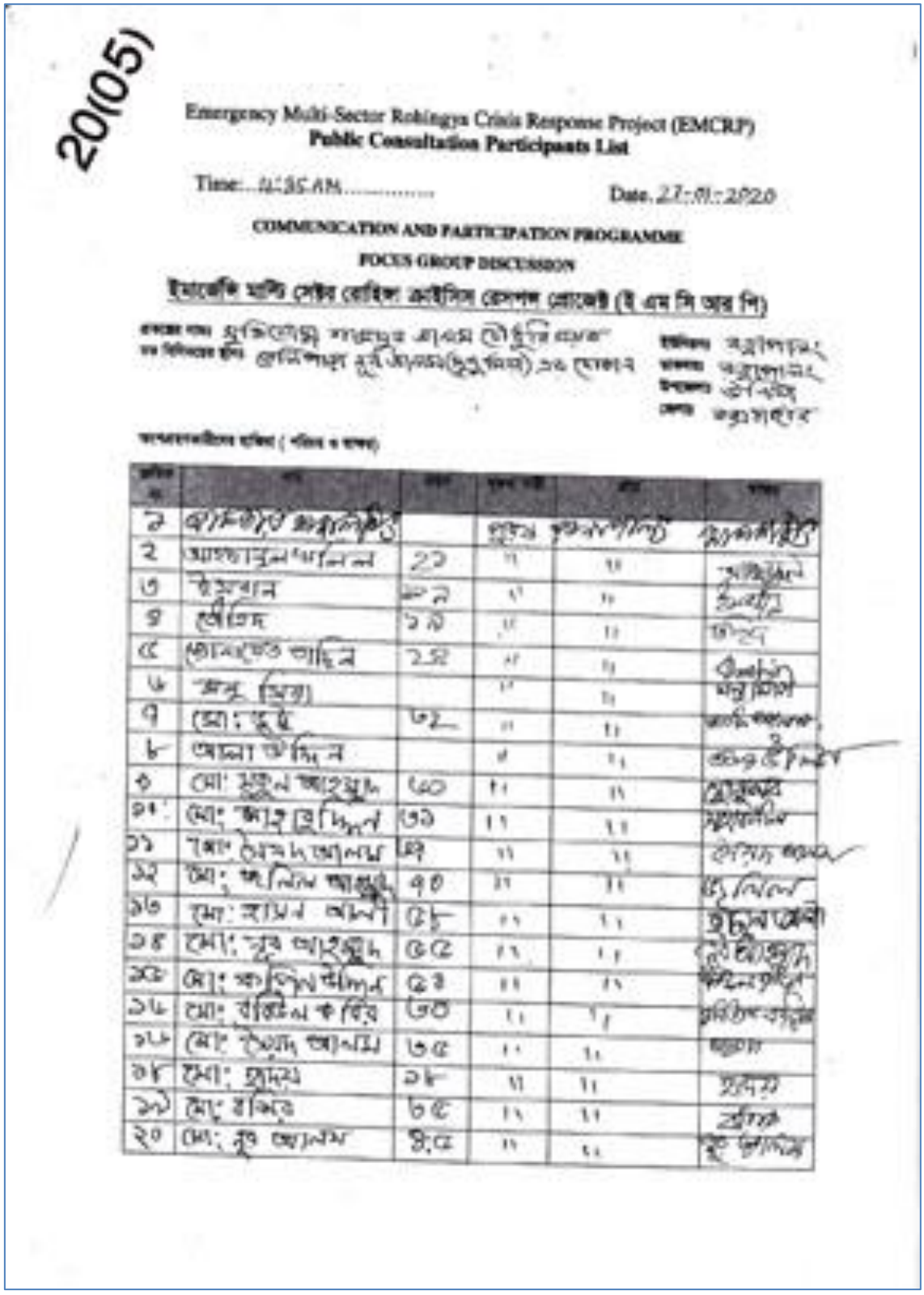
Figure: Attendance of consultation meeting for W20-4



20/05)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: 11:35 AM Date: 27:01:2020

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

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Figure: Attendance of consultation meeting for W20-5

20(06)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

Communication and Participation Programme

Focus Group Discussion

1.		65	✓		
2.		24	✓		
3.		55	✓		
4.		19	✓		
5.		65	✓		
6.		42	✓		
7.		23	✓		
8.		18	✓		
9.		19	✓		
10.		41	✓		

Figure: Attendance of consultation meeting for W20-6

20/07

২০ / ৭

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: 03:00 PM Date: 27/01/2024

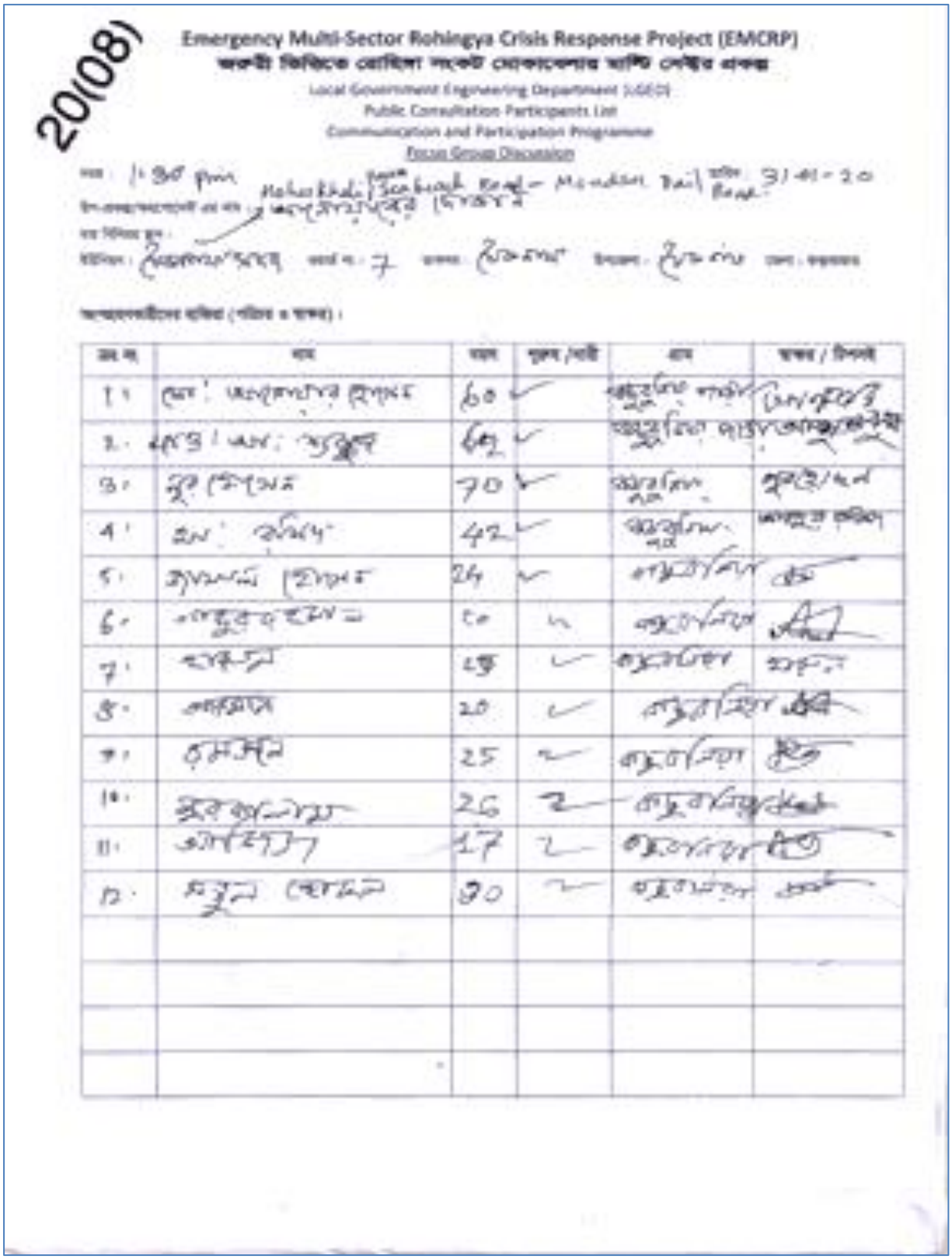
COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

১		22	M		
২		২৬	M		
৩		২৯	M		
৪		২৮	M		
৫		২৮	M		
৬		২৮	M		
৭		২৩	M		
৮		২৮	M		
৯		২৮	M		
১০		২০	M		
১১		২৬	M		
১২		২২	M		
১৩		২০	M		
১৪		৩৪	M	-	

Figure: Attendance of consultation meeting for W20-7


20/08)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

Communication and Participation Programme

Focus Group Discussion

1.		60	✓		
2.		60	✓		
3.		70	✓		
4.		42	✓		
5.		24	✓		
6.		10	✓		
7.		45	✓		
8.		20	✓		
9.		25	✓		
10.		26	✓		
11.		17	✓		
12.		30	✓		

Figure: Attendance of consultation meeting for W20-8

20(09)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
Public Consultation Participants List

Time: 5:00 pm   Date: 31-01-20

COMMUNICATION AND PARTICIPATION PROGRAMME

FOCUS GROUP DISCUSSION

ইমার্জেন্সি মাল্টি সেক্টর রোহিঙ্গা ক্রাইসিস রেসপন্স প্রোজেক্ট (ই এম সি আর পি)

Shah Parir Dip
Shah Parir Dip GC More
Sabrang
Teknaf
Cox's Bazar

1	[illegible]	35	✓	[illegible]	[illegible]
2	[illegible]	42	✓	[illegible]	[illegible]
3	[illegible]	55	✓	[illegible]	[illegible]
4	[illegible]	[illegible]	✓	[illegible]	[illegible]
5	[illegible]	[illegible]	✓	[illegible]	[illegible]
6	[illegible]	[illegible]	✓	[illegible]	[illegible]
7	[illegible]	[illegible]	✓	[illegible]	[illegible]
8	[illegible]	[illegible]	✓	[illegible]	[illegible]
9	[illegible]	[illegible]	✓	[illegible]	[illegible]
10	[illegible]	[illegible]	✓	[illegible]	[illegible]
11	[illegible]	[illegible]	✓	[illegible]	[illegible]
12	[illegible]	[illegible]	✓	[illegible]	[illegible]
13	[illegible]	[illegible]	✓	[illegible]	[illegible]
14	[illegible]	[illegible]	✓	[illegible]	[illegible]
15	[illegible]	[illegible]	✓	[illegible]	[illegible]

Figure: Attendance of consultation meeting for W20-9

20(10)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

Communication and Participation Programme

Focus Group Discussion

১		২৫	✓		
২		৪৭	✓		
৩		৩০	✓		
৪		২৪	✓		
৫		৪৭	✓		
৬		৪৫	✓		
৭		৪৪	✓		
৮		২৪	✓		
৯		১৮	✓		
১০		৩০	✓		
১১		৪০	✓		
১২		৩২	✓		
১৩		২৫	✓		
১৪		২৮	✓		
১৫		৩৪	✓		
১৬		৪০	✓		

Figure: Attendance of consultation meeting for W20-10

20(11)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Local Government Engineering Department (LGED)

Public Consultation Participants List

Communication and Participation Programme

Focus Group Discussion

1.		22			
2.		72			
3.		22			
4.		20			
5.		28			
6.		22			
7.		29			
8.		20			
9.		20			
10.		20			
11.		36		21	
12.		33		11	
13.		32		11	
14	Nasir uddin	24	male		

Figure: Attendance of consultation meeting for W20-11

Annexure-03: Pictures of sub-project location and surrounding features with public consultation

Figures: Present condition of Karaibuniaa to BDR camp road (W20-1) & Public Consultation meeting with Host community

Figures: Present condition of West Jummapara village road (W20-2) & Public Consultation meeting with Host community

Figures: Present condition of Rajapalong UP office- Battali R&H Road (W20-3) & Public Consultation meeting with Host community

Figures: Present condition of Durongkhali station to Mohajon para community clinic road (W20-4) & Public Consultation meeting with Host community

Figures: Present condition of Muktijuddha Somshar Alam chowdhury Road (W20-5) & Public Consultation meeting with Host community

Figures: Present condition of R&H road to Md. Ali vita road (W20-6) & Public Consultation meeting with Host community

Starting point

Green field on the side of the road

Vegetable yard on the side of the road

Broken shoulder of road

Public consultation with locals

Narrow pathway in earthen condition

Figures: Present condition of R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095 (W20-7) & Public Consultation meeting with Host community

Starting Point of Moheshkhalipara sea beach Road to Mondar Dail Road

Trees on the sides of the road

Tin Fence on the side of the road

Bamboo fence on the side of the road

Cactus plants on the side of the road

Tube well on the side of the road

Brick wall and tin fence on the sides

Public Consultation

Figures: Present condition of Moheshkhalipara sea beach Road to Mondar Dail Road. Road id: 422904011 (W20-8) & Public Consultation meeting with Host community

Starting Point of Shahporir Dip GC-Beach Road.Id:422904021

Shops on the side of the road

Trees on the side of the road

Agriculture fields on the side of the road

Mosque on the side of the road with brick wall boundary

Cyclone Shelter to the right with open playground bordered with wired fence

The road ended near the adjacent sea beach, here shops and trees are found on the side with culvert

Consultation meeting with locals

Figures: Present condition of Shahporir Dip GC-Beach Road.Id:422904021 (W20-9) & Public Consultation meeting with Host community

Starting point of Sabrang Pandal para North Achar bonia road.

Bush and open fileds on the side of the road

Bamboo fence and tin fence on the side of the road

Brick wall on side of the road

Wired fence and small trees on the side of the road

Trees and pan baraz on the sode of the road

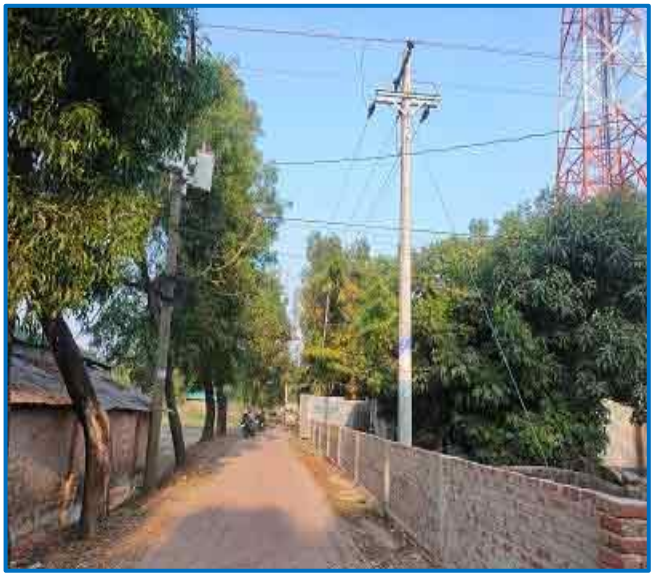
Bamboo fence with nut trees along with tin fence with narrow carriage way

Consultation meeting with local community

Figures: Present condition of Sabrang Pandal para North Achar bonia road. Road id: 422904023 (W20-10) & Public Consultation meeting with Host community

Starting point of South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road

Mosque on the side of the road with brick wall boundary



Electric pole on the side of the road

Vegetable yard on the side of the road

Brick wall and bamboo fence on the side of the road

Tin fence and open field on the side of the road

Wired fence and bush on the side of the road along with trees

Consultation meeting with local community

Figures: Present condition of South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026 (W20-11) & Public Consultation meeting with Host community

Appendix-1: Environmental Screening Form for examining sub-projects

Environmental Screening Form for Sub-project W20-1

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District; EMCRP/W20).

Name of the component: Karaibuniaa to BDR camp road Id:422944084

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 321 (Tk. In Lakhs)

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Ratnapalong

Name of Community/Local Area: Chakboitha, North Chakboitha

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water **16 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 22.0m, Ch. 128.0m, Ch. 162.0m, Ch. 452.0m, Ch. 656.0m, Ch. 700.0m, Ch.763.0m, Ch. 918.0m, Ch. 1010.0m, Ch. 1110.0m, Ch. 1140.0m, Ch. 1195.0m, Ch. 1306.0m, Ch. 1396.0m, Ch. 1500.0m & 1657.0m of chainage and **4 nos. Box Culverts** (dimension: 2vX3.0mX2.5m) at Ch. 256.0m, (dimension: 2.0mX1.50m) at Ch. 544.0m & Ch. 918.0m and (dimension: 2.0mX2.0m) at 1140.0m of chainage, for mountain eel water drainage during rainy season **1010.0 m L-Drain** at different chainage will be constructed that's has been included in the estimation. Due to the low land in different chainage for protection work of the road **10.0m Brick Palisading wall** at Ch. (1296.0m-1306.0m) and **54.0m Guide wall** at Ch. (440.0m-494.0m) will be constructed as well as for road safety work and Environmental Mitigation and Enhancement works has been included in the estimation.

Estimated footprint / land area for this sub-project is 8,207.5 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Karaibuniaa to BDR camp road belongs to Chakboitha and North Chakboitha villages at Ratnapalong union, Ward-5 under Ukhiya Upazila. This road has started from Chakboitha station stretching 1675 meters from South side to North side, along with Chakboitha Community Clinic, graveyards, Siraj market, trees, mosques, household connecting road, agriculture fields, social forest, homestead gardens etc.

Overall Comments

The proposed component of the sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, bamboo bush, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Chakboitha and North Chakboitha villages under Ratnapalong union, Ward-5 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Kurullya mora mosque (300m), Reserve forest (50m), Tulatoli mosque (300m), khal (200m) at south side. Hijolia khal (500m), Chakboitha High School (600m) at east side Chakboitha mosque (50m), North Chakboitha graveyard (70m), Karaibunia GPS (500m), Bashbunia pahar mosque (1km), Chakboitha Social forest (30m), Hazrapaper hill (500m) and west side Middle Chakboitha mosque (500m), Chakboitha reserve forest (150m), Sheulerdeba mosque (1km), Chakboitha community clinic (5m), Chakboitha graveyard (50m), North Chakboitha mosque (100m), Chakboitha mosque Tahfijul Quran & Nurani Academy (100m). Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 9-10 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Herring Bone Bond (HBB) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1675m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- 16 nos. **Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 22.0m, Ch. 128.0m, Ch. 162.0m, Ch. 452.0m, Ch. 656.0m, Ch. 700.0m, Ch.763.0m, Ch. 918.0m, Ch. 1010.0m, Ch. 1110.0m, Ch. 1140.0m, Ch. 1195.0m, Ch. 1306.0m, Ch. 1396.0m, Ch. 1500.0m & 1657.0m of chainage
- 4 nos. **Box Culverts** (dimension: 2vX3.0mX2.5m) at Ch. 256.0m, (dimension: 2.0mX1.50m) at Ch. 544.0m & Ch. 918.0m and (dimension: 2.0mX2.0m) at 1140.0m of chainage
- **1010.0 m L-Drain** at different chainage
- 10.0m Brick Palisading wall at Ch. (1296.0m-1306.0m)
- 54.0m Guide wall at Ch. (440.0m-494.0m)
- Road safety works and
- Environmental Mitigation and Enhancement works

Sub-project Location:

Important Features	
ID	422944084
District	Cox's Bazar
Upazila	Ukhiya
Union	Ratnapalong
WARD	05
Total Chainage	1675m
Proposed Chainage	1675m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 21.273477 N Longitude: 92.156686 E
Road Ending Point Coordinates	Latitude: 21.285645 N Longitude: 92.162609 E

Land ownership: Land is owned by Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio cultural assets): Please also explain any analysis on alternative location was conducted:

i) The proposed Sub-project is located within Chakboitha and North Chakboitha villages
ii) No historical sites were found
iii) Not required to relocate local community.
iv) Land accusation is not required. Some trees and vegetation will be affected with low scale due to construction activities
v) Some Household Boundary made of bamboo and tin may need adjustments.
vi) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

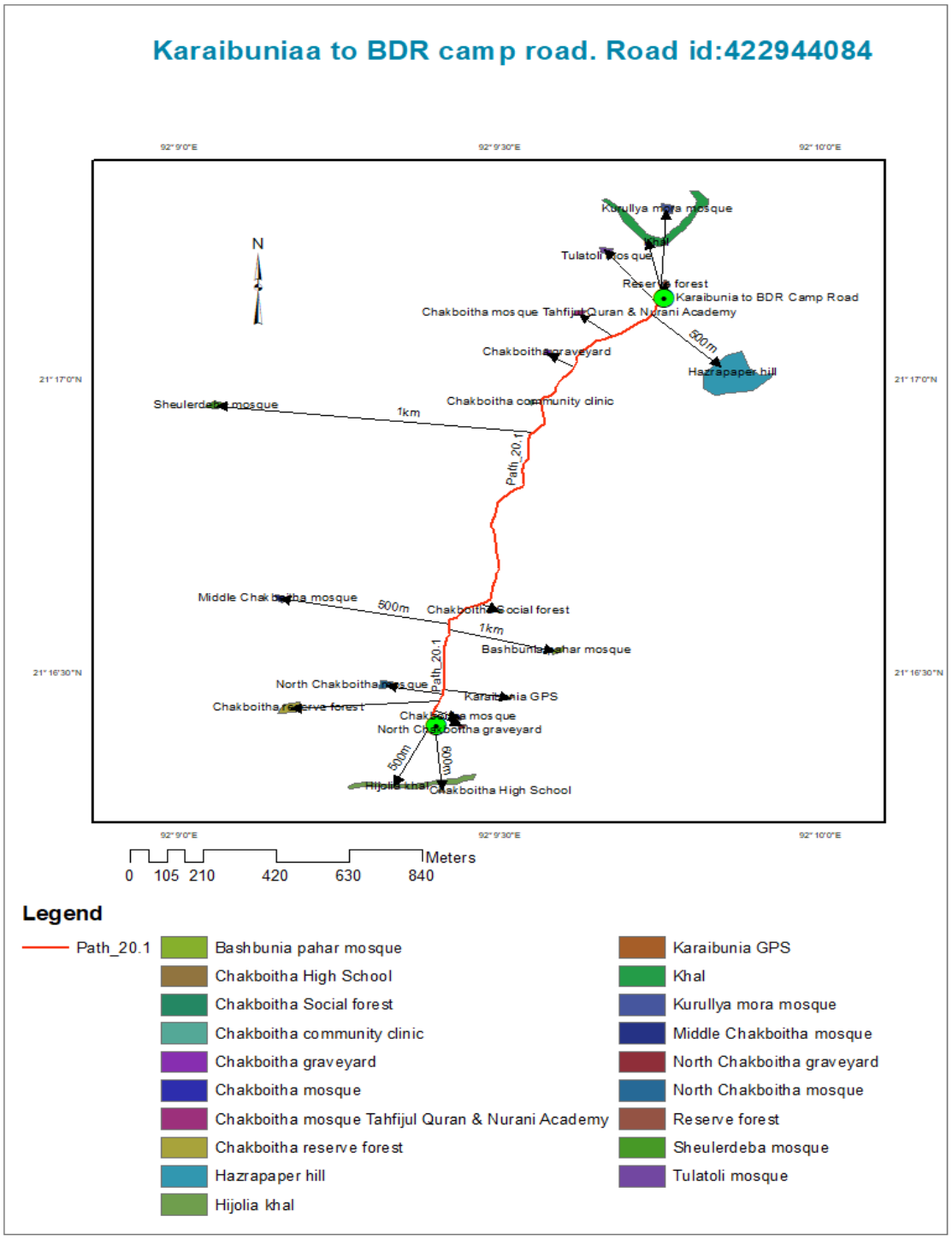
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):
Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:
Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Kurullya mora mosque (300m), Reserve forest (50m), Tulatoli mosque (300m), khal (200m) at south side Hijolia khal (500m), Chakboitha High School (600m), at east side Chakboitha mosque (50m), North Chakboitha graveyard (70m), Karaibunia GPS (500m), Bashbunia pahar mosque (1km), Chakboitha Social forest (30m), Hazrapaper hill (500m) and west side Middle Chakboitha mosque (500m), Chakboitha reserve forest (150m), Sheulerdeba mosque (1km), Chakboitha community clinic (5m), Chakboitha graveyard (50m), North Chakboitha mosque (100m), Chakboitha mosque Tahfijul Quran & Nurani Academy (100m).

No scope to disturbance by this sub-project which bring religious and cultural values to the community people. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject area)

(3) Other issues:

No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerable limit. Some light vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise and also generated from the commotion of locals but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 200 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing large and matured trees across the road side of the proposed

subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Courtbazar-Valukia connecting road Concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option. Light vehicles such as tractor, mini truck etc. will be used for transportation of construction material. This may cause more dust in the air also, the route has narrow curves.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. Courtbazar-Valukia connecting road is used for transportation.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel is found.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger

localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-2

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District; EMCRP/W20).
Name of the component: West jummapara village road Id: 422944085.
Implementing Agency/Agencies: Local Government Engineering Department (LGED)
Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)
Estimated construction period duration: 1 year
Estimated total cost of the component (in Taka): 256 (Tk. In Lakhs)
Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Jaliapalong

Name of Community/Local Area: West Jummapara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water **8 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 163.0m, Ch. 432.0m, Ch. 488.0m, Ch. 678.0m, Ch. 973.0m, Ch. 1231.0m, Ch.1441.0m & 1514.0m of chainage, for mountain eel water drainage during rainy season **162.0 m L-Drain** at different chainage will be constructed that's has been included in the estimation. Due to the low land in different chainage for protection work of the road **64.0m Guide wall** at Ch. (960.0m-1012.0m=52m; R/S) and Ch. (1064.0m-1076m=12m; R/S) will be constructed as well as for road safety work and Environmental Mitigation and Enhancement works has been included in the estimation.

Estimated footprint / land area for this sub-project is 7,546 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:
This proposed West jummapara village road belongs to West Jummapara village at Jaliapalong union, Ward-1 under Ukhiya Upazila. This road has started from Jummapara Villagerpara road stretching 1540 meters from East side to West side, along with ancillary connecting road, boundary fencing, graveyards, shop, hilly land, settlements, trees, mosques, household connecting road, agriculture fields, electric pole, chorra etc.

Overall Comments
The proposed sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, bamboo bush, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at

construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests: Within the influence area of the subproject no historical sites were identified. This sub-project is situated within West Jummapara village under Jaliapalong union, Ward-1 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Abdur Rahman Badi GPS (300m), at south side Jaliapalong GPS (1km), Panishia Chorra (500m), Abu Bakar Chiddik mosque & Forkania Madrasah (50m), Chander Alo Shishu Bikash Kendra (60m), at east side Panishia graveyard (500m), Abdul Kader Jilani jame mosque & Orphanage (10m), Jummapara hill (30m) and west side Jummapara social forest (300m), West Jummapara hill (10m). Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 16-17 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:
Section A: Sub-Project Overview

Description of sub-project/component interventions:
The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of

Brick Flat Soiling (BFS) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1675m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- 8 nos. **Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 163.0m, Ch. 432.0m, Ch. 488.0m, Ch. 678.0m, Ch. 973.0m, Ch. 1231.0m, Ch.1441.0m & 1514.0m of chainage
- **1620.0 m L-Drain** at different chainage
- 64.0m Guide wall at Ch. (960.0m-1012.0m=52m; R/S) and Ch. (1064.0m-1076m=12m; R/S)
- Road safety works and
- Environmental Mitigation and Enhancement works

Sub-project Location:

Important Features	
ID	422944085
District	Cox's Bazar
Upazila	Ukhiya
Union	Ratnapalong
WARD	01
Total Chainage	1540m
Proposed Chainage	1540m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 21.274713 N, Longitude: 92.082313 E
Road Ending Point Coordinates	Latitude: 21.267632 N, Longitude: 92.075147 E

Land ownership

Land is owned by Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

i) The proposed Sub-project is located within West Jummapara village
ii) No historical sites were found
iii) Social forest was found adjacent to the subproject during field visit.
iv) Not required to relocate local community.
v) Land accusation is not required. Some trees and vegetation will be affected.
vi) Nochance of loss of agricultural land.
vii) Some Household Boundary made of bamboo and tin may need adjustments.
viii) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridor.

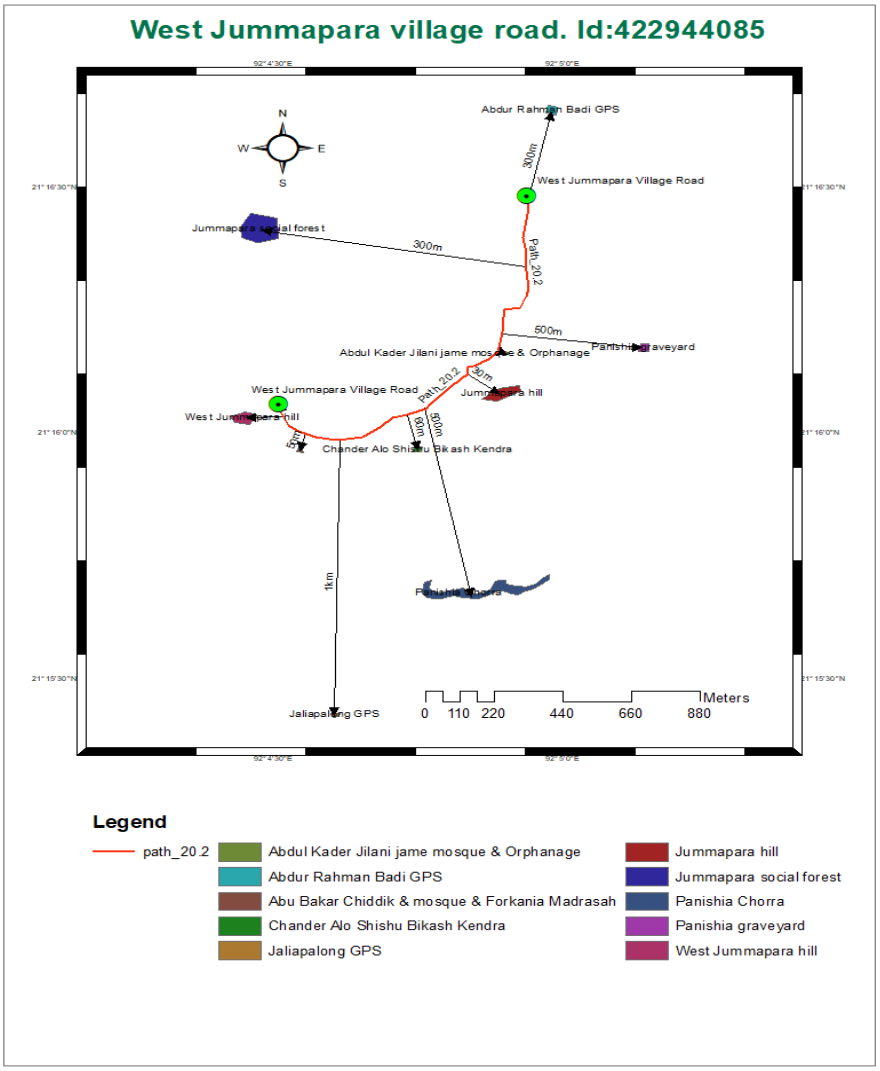
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Abdur Rahman Badi GPS (300m), at south side Jaliapalong GPS (1km), Panishia Chorra (500m), Abu Bakar Chiddik mosque & Forkania Madrasah (50m), Chander Alo Shishu Bikash Kendra (60m), at east side Panishia graveyard (500m), Abdul Kader Jilani jame mosque & Orphanage (10m), Jummapara hill (30m) and west side Jummapara social forest (300m), West Jummapara hill (10m). No scope to disturbance by this sub-project which bring religious and cultural values to the community people. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject area)

(3) Other issues:

No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during heavy rainfall and construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes.

There should have deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side and some social forest on hill of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Jummapara villagerpara connecting road is concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. Jummapara villagerpara connecting road is the main road for transportation. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable

Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Panishia chorra (500m) is the existing drainage channel around the sub-project location.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but

short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting

barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm).

Environmental Screening Form for Sub-project W20-3

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District; EMCRP/W20).

Name of the component: Rajapalong UP office- Battali R&H Road, Id:422944088.

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 552 (Tk. In Lakhs)

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Rajapalong

Name of Community/Local Area: North Hazirpara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water 2 nos. Cross Drain (dimension: 0.750mX 0.750m) at Ch. 881.0m & Ch. 980.0m of chainage and 2 nos. Box Culverts (dimension: 2vX2.50mX2.50m) at Ch. 221.0m and (dimension: 4.50mX4.50m) at Ch. 1455.0m of chainage, for mountain eel water drainage during rainy season **235.0 m L-Drain** at different chainage will be constructed that's has been included in the estimation. Due to the low land in different chainage for protection work of the road 105.0m Brick Palisading wall at Ch. (1350.0m-1455.0m; Both side), 50.0m (2.0m height) Guide wall at Ch. (1200.0m-1209.0m=9.0m) & Ch. (1459.0m-1500.0m=41.0m) of chainage, 242.0m Retaining wall at different chainage and 198.0m RCC cast in situ wall at different chainage will be constructed as well as for road safety work and Environmental Mitigation and Enhancement works has been included in the estimation.

Estimated footprint / land area for this sub-project is 8,898.4 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:
This proposed Rajapalong UP office- Battali R&H Road belongs to North Hazirpara village at Rajapalong union, Ward-6 under Ukhiya Upazila. This road has started from Infront of Ukhiya central Sheed Minar stretching 1816 meters from East side to North side, along with Ukhiya Upazila Parishad, different NGO offices, Kindergarten, settlements, drains, boundary wall, shops, trees, electric pole, mosques, warehouse, agriculture fields, homestead gardens etc.

Overall Comments
The proposed sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of

the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within North Hazirpara village under Rajapalong union, Ward-6 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side North Hazirpara mosque (100m), Ukhiya Girl's School (500m), Katakhali khal (100m), Horinmara GPS (1km), at south side Green bud Kindergarten (5m), Hazirpara Hafizia jame mosque (100m), Azizia-Hakimia Darul Ulum Madrasah & orphanage (100m), south Hazirpara graveyard (500m), at east side Ukhiya central sheed Minar (8m), Upazila Parishad (10m), Fish farm (15m), Ukhiya GPS (600m), Ukhiya Govt. High School (650m), Ukhiya Govt. girl's College (1km) and west side Ukhiya Forkaniya & Nurani Madrasah & Hefjakhana (200m), Khairatipara mosque including grageyard & pond (300m), Khairatipara Buddhist Temple (150m), Dushari Khal (5m). Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people.

No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 10-11 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Herring Bone Bond (HBB), Brick Flat Soiling (BFS) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1816m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- 2 nos. **Cross Drain** (dimension: 0.750mX 0.750m) at Ch. 881.0m & Ch. 980.0m of chainage
- 2 nos. **Box Culverts** (dimension: 2vX2.50mX2.50m) at Ch. 221.0m and (dimension: 4.50mX4.50m) at Ch. 1455.0m of chainage
- **235.0 m L-Drain** at different chainage
- **105.0m Brick Palisading wall** at Ch. (1350.0m-1455.0m; Both side)
- **50.0m (2.0m height) Guide wall** at Ch. (1200.0m-1209.0m=9.0m) and Ch. (1459.0m-1500.0m=41.0m) of chainage
- **242.0m Retaining wall** at different chainage
- **198.0m RCC cast** in situ wall at different chainage
- Road safety works and
- Environmental Mitigation and Enhancement works .

Sub-project Location:

Important Features	
ID	422944088
District	Cox's Bazar
Upazila	Ukhiya
Union	Rajapalong
WARD	06
Total Chainage	1816m
Proposed Chainage	1816m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 21.247395 N Longitude: 92.135017 E
Road Ending Point Coordinates	Latitude: 21.251471 N Longitude: 92.129350 E

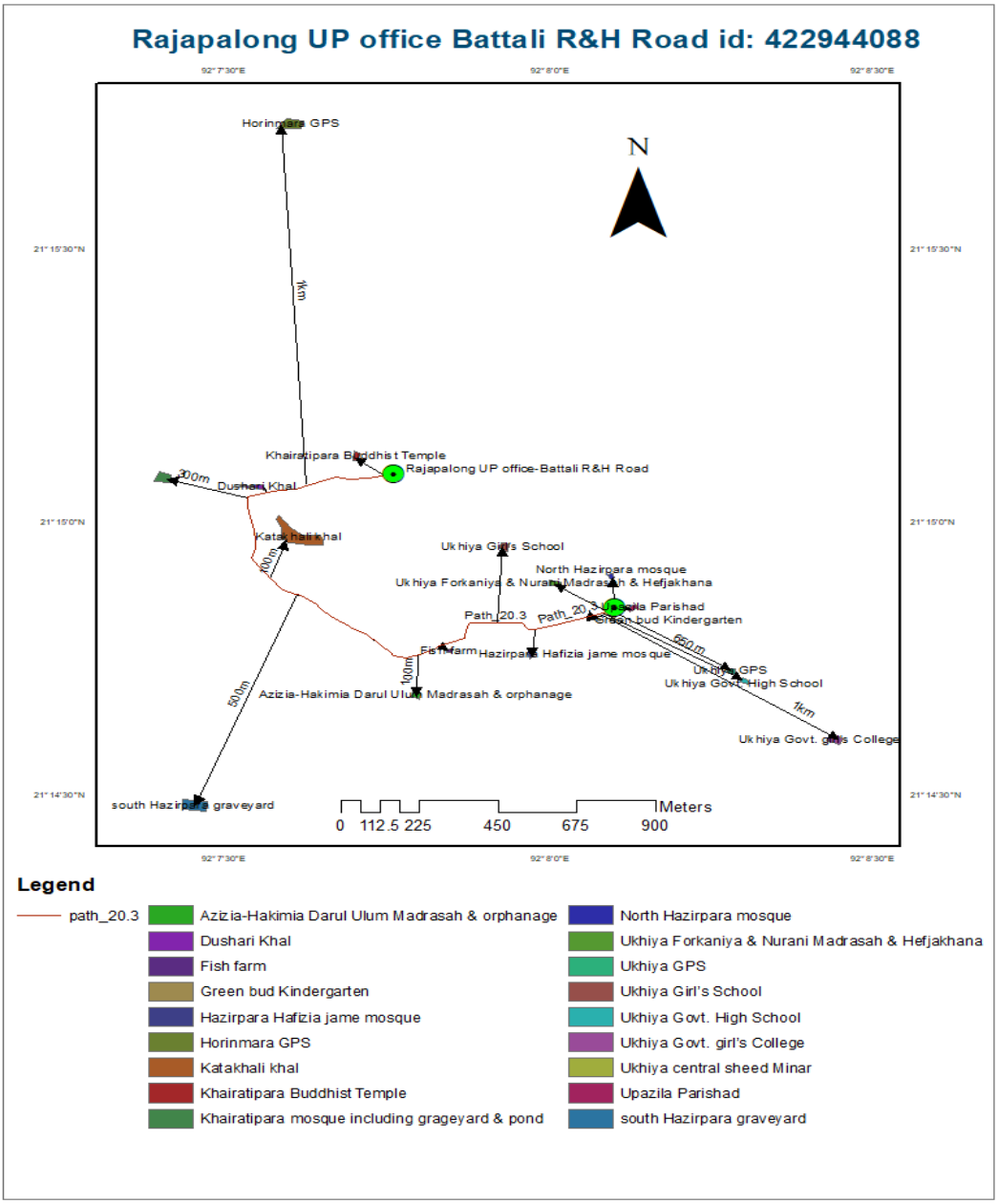
Land ownership Land is owned by Government.
Expected construction period: 1 year
Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio cultural assets): Please also explain any analysis on alternative location was conducted: i) The proposed Sub-project is located within North Hazirpara village. Some other villages named South Hazirpara, Koraliamora, Khairatipara, Harishia, Kalkachapara etc. within one kilometer. ii) No historical sites were found iii) Not required to relocate local community. iv) Land accusation is not required. v) Some trees will be cut down during construction period. vi) Dushuri khal found adjacent to the subproject area but low effect from this construction activities. vii) No chance to loss of agricultural land. viii) Some Household Boundary made of bamboo and tin may need adjustments. ix) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): **Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:** Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side North Hazirpara mosque (100m), Ukhiya Girl's School (500m), Katakhali khal (100m), Horinmara GPS (1km), at south side Green bud Kindergarten (5m), Hazirpara Hafizia jame mosque (100m), Azizia-Hakimia Darul Ulum Madrasah & orphanage (100m), south Hazirpara graveyard (500m), at east side Ukhiya central sheed Minar (8m), Upazila Parishad (10m), Fish farm (15m), Ukhiya GPS (600m), Ukhiya Govt. High School (650m), Ukhiya Govt. girl's College (1km) and west side Ukhiya Forkaniya & Nurani Madrasah & Hefjakhana (200m), Khairatipara mosque including grageyard & pond (300m), Khairatipara Buddhist Temple (150m), Dushari Khal (5m). No scope to disturbance by this sub-project which bring religious and cultural values to the community people. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject area)

(3) Other issues:

No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.

Summary of water balance analysis (For water supply scheme only):

N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Ukhiya-Teknaf connecting road concerning ancillary facilities. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. Ukhiya-Teknaf connecting road is the main way for transportation of construction materials. Head load from unloading point to project location manually by the assigned contractor.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which

are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Dushori Khal (5m) and Katakhali khal (100m) are near the sub project location, but not to disturbance or modification of existing drainage channel during construction phase.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-4

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District; EMCRP/W20).

Name of the component: Durongkhali station to Mohajon para community clinic road, Id:422944090.

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 285 (Tk. In Lakhs)

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Haldiapalong

Name of Community/Local Area: Dhurumkhali Hazirpara, Notunpara, Mohajonpara & Rumkha Napitpara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water **10 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 77.0m, Ch. 161.0m, Ch. 420.0m, Ch. 468.0m, Ch. 535.0m, Ch. 941.0m, Ch. 1148.0m, Ch. 1223.0m, Ch. 1265.0m & 1352.0m of chainage and **1 no. Box Culverts** (dimension: 2.00mX1.60m) at Ch. 140.0m of chainage**,** for mountain eel water drainage during rainy season **631.0 m L-Drain** at different chainage will be constructed that's has been included in the estimation. Due to the low land in different chainage for protection work of the road **67.0m Guide wall** (3.0m Height) at Ch. (610.0m-656.0m=46.0m) & (1.0m Height) at Ch. (1244.0m-1265.0m=21.0m) of chainage, **46.0m Retaining wall** (3.0m Height) at Ch. (610.0-656.0m; R/S) will be constructed as well as for road safety work and Environmental Mitigation and Enhancement works has been included in the estimation.

Estimated footprint / land area for this sub-project is 7,154 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Durongkhali station to Mohajon para community clinic road belongs to Dhurumkhali Hazirpara, Notunpara, Mohajonpara and Rumkha Napitpara villages at Haldiapalong union, Ward-8 under Ukhiya Upazila. This road has started from Dhrumkhali Hazirpara (Cox's Bazar-Teknaf highway) stretching 1460 meters from East side to West side (Jaliapalong Khalparpara), along with mosques, connecting road, Mohajonpara Community Clinic, different trees, household connecting road, agriculture fields, homestead gardens, electric pole, boundary fencing, guide wall etc.

Overall Comments

The proposed sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:

Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Dhurumkhali Hazirpara, Notunpara, Mohajonpara and Rumkha Napitpara villages under Haldiapalong union, Ward-8 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Rumkha Boubazar (200m), Chandrabunia playground and mosque & Madrasah (250m), North Napitpara Loknath Mondir (200m), Gunarpara Jagannath Mondir (180m), Muktijoddha Smriti Girl's High School (300m), Moriccha bazar (400m), khal (passing north to south at chainage 300m). At south side Chowdhurypara graveyard (150m), Rumkha Hazirpara mosque (150m), Chowdhurypara mosque & orphanage (200m), Chowdhurypara GPS (200m), Chemonbahar bokhtiar junior High School (200m), Rumkhapalong Dakhil Madrasah & jame mosque (400m), Sheed A.T.M Jafor Alom Diabetics Hospital (400m), Rumkha Nadborpara graveyard & Cremation (450m), Rumkha bazar (450m), at east side

Hazirpara graveyard (100m), Janab Alipara mosque, graveyard & orphanage (150m), Sabek Rumkha GPS (300m), Dhrumkhali station (100m), Dhrumkhali Hazirpara mosque & Madrasah (350m), Sheed A.T.M Jafor Alom School & College (450m), Classipara Madrasah & orphanage (250m) and west side Notunpara Mosque & Madrasah (20m), Moddhoswri Mondir (120m), Rumkha Mohajonpara Moitry Bihar (150m), north Dhrumkhali Mohajonpara GPS (200m), Mohajonpara Community clinic (5m), Mohajonpara Swarasati Mondir (40m), Mohajonpara Durga Mondir (200m), Rumkha old Bihar (30m), Ideal Kindergarten & Ideal junior High School (150m), Napitpara Hori Mondir (10m), Napitpara Kali Mondir (100m), Rumkha Gunarpara Central Shib Mondir (25m), Khalparpara mosque (40m), Khalparpara cremation & graveyard (50m). No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 5-6 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Brick Flat Soiling (BFS) and earthen. According to the design this sub-project will be developed with Bituminous Carpeting (BC) from Ch. 00 to Ch. 1460m.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **10 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 77.0m, Ch. 161.0m, Ch. 420.0m, Ch. 468.0m, Ch. 535.0m, Ch. 941.0m, Ch. 1148.0m, Ch. 1223.0m, Ch. 1265.0m & 1352.0m of chainage
- **1 no. Box Culverts** (dimension: 2.00mX1.60m) at Ch. 140.0m of chainage,
- **631.0 m L-Drain** at different chainage,
- **67.0m Guide wall** (3.0m Height) at Ch. (610.0m-656.0m=46.0m) & (1.0m Height) at Ch. (1244.0m-1265.0m=21.0m) of chainage,
- **46.0m Retaining wall** (3.0m Height) at Ch. (610.0-656.0m; R/S),
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works.

Sub-project Location:

Important Features	
ID	422944090
District	Cox's Bazar
Upazila	Ukhiya
Union	Haldiapalong
WARD	08
Total Chainage	1460m
Proposed Chainage	1460m
Road Type	Village Road

Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 21.291386 N Longitude: 92.099477 E
Road Ending Point Coordinates	Latitude: 21.294561 N Longitude: 92.087201 E

Land ownership

Land is owned by Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio cultural assets): Please also explain any analysis on alternative location was conducted:

i) The proposed Sub-project is located within Dhurumkhali Hazirpara, Notunpara, Mohajonpara & Rumkha Napitpara villages.
ii) No historical sites were found.
iii) Not required to relocate local community.
iv) A khal is passing from north to south at chainage 300m but no scope to disturbance by this subproject activities.
v) Some trees will be affected.
vi) No chance of loss of agricultural land.
vii) Some Household Boundary made of bamboo and tin may need adjustments.
viii) Land accusation is not required.
ix) Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

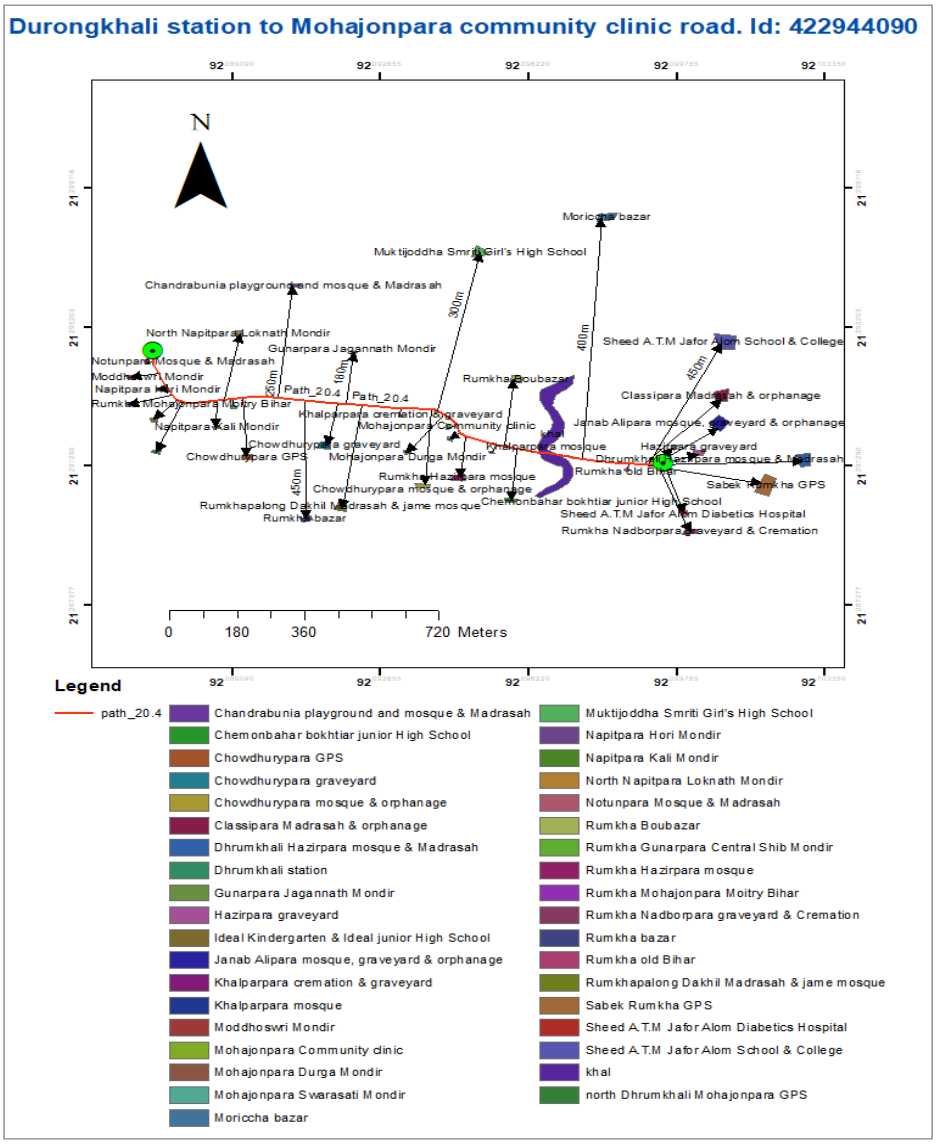
Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Rumkha Boubazar (200m), Chandrabunia playground and mosque & Madrasah (250m), North Napitpara Loknath Mondir (200m), Gunarpara Jagannath Mondir (180m), Muktijoddha Smriti Girl's High School (300m), Moriccha bazar (400m), khal (passing north to south at chainage 300m). At south side Chowdhurypara graveyard (150m), Rumkha Hazirpara mosque (150m), Chowdhurypara mosque & orphanage (200m), Chowdhurypara GPS (200m), Chemonbahar bokhtiar junior High School (200m), Rumkhapalong Dakhil Madrasah & jame mosque (400m), Sheed A.T.M Jafor Alom Diabetics Hospital (400m), Rumkha Nadborpara graveyard & Cremation (450m), Rumkha bazar (450m), at east side Hazirpara graveyard (100m), Janab Alipara mosque, graveyard & orphanage (150m), Sabek Rumkha GPS (300m), Dhrumkhali station (100m), Dhrumkhali Hazirpara mosque & Madrasah (350m), Sheed A.T.M Jafor Alom School & College (450m), Classipara Madrasah & orphanage (250m) and west side Notunpara Mosque & Madrasah (20m), Moddhoswri Mondir (120m), Rumkha Mohajonpara Moitry Bihar (150m), north Dhrumkhali Mohajonpara GPS (200m), Mohajonpara Community clinic (5m), Mohajonpara Swarasati Mondir (40m), Mohajonpara Durga

Mondir (200m), Rumkha old Bihar (30m), Ideal Kindergarten & Ideal junior High School (150m), Napitpara Hori Mondir (10m), Napitpara Kali Mondir (100m), Rumkha Gunarpara Central Shib Mondir (25m), Khalparpara mosque (40m), Khalparpara cremation & graveyard (50m). No scope to disturbance by this sub-project which bring religious and cultural values to the community people. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes; Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps; Yes/No

N/A (This activity will be confined within the existing subproject area)

(3) Other issues:

No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 80 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to

681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: N/A (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Boubazar connecting road, Rumkha-Napitpara connecting road are the concerning ancillary facilities, It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands near Notunpara Jamir Saudagor's and Md. Alom's house, near Mohajonpara Sang Sharma's house and near Rumkha Napitpara Khokhon Sharma's house. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. Boubazar connecting road, Rumkha-Napitpara connecting road are the main way for transportation. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction

phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) A khal is passing from north to south at chainage 300m but no disturbance will be anticipated during the construction period.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-5

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District; EMCRP/W20).

Name of the component: Muktijuddha Somshar Alam chowdhury Road, Id:422944091

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 179 (Tk. In Lakhs)

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Ratnapalong

Name of Community/Local Area: Dakhin Ratna Telipara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water **8 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 1008.0m, Ch. 1249.0m, Ch. 1346.0m, Ch. 1411.0m, Ch. 1430.0m, Ch. 1534.0m, Ch. 1614.0m & Ch. 1718.0m of chainage, for mountain eel water drainage during rainy season **294.0 m L-Drain** at different chainage and **422.0m U-Drain** at different chainage will be constructed that's has been included in the estimation. Due to the low land in different chainage for protection work of the road **112.0m Guide wall** (1.5m Height) at different chainage will be constructed as well as for road safety work and Environmental Mitigation and Enhancement works has been included in the estimation.

Estimated footprint / land area for this sub-project is 4,321.8 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

This proposed Muktijuddha Somshar Alam chowdhury Road belongs to Dakhin Ratna Telipara village at Ratnapalong union, Ward-7 under Ukhiya Upazila. This road has started from near Telipara Jame Mosque stretching 882 meters from West side to North side, along with mosques, graveyard, madrasah, Dakhin Ratna Mojaherghona GPS, different trees, tubewell, settlements, agriculture fields, homestead gardens, boundary fencing, existing u-darin etc.

Overall Comments

The proposed sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, rain tree etc., or additional vegetation may need to clear out due to construction activities, with

appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within Dakhin Ratna Telipara village under Ratnapalong union, Ward-7 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Chengchori chorra (500m), Ratnapalong UP Office (800m), Ratnapalong UP jame mosque (800m), at south side Reju khal (1km), Jambunia chorra (500m), North Pukuria Mosque & graveyard (500m), at east side Ruhuler Deba GPS (1km), South Ratna Baytus Sharof mosque including Madrasah, Hafezkhana & graveyard (20m) and at west side Dakhin Ratna Mojaherghona GPS (10m), Telipara Mosque, graveyard & Forkania Madrasah (15m), Shadrikata jame mosque (200m), Cox's bazar-Teknaf Highway (1km). Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 5-6 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Herring Bone Bond (HBB). According to the design this sub-project will be improved with Bituminous Carpeting (BC) from Ch. 978m to Ch. 1860m. Moreover, 882m to be improved with BC.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **8 nos. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 1008.0m, Ch. 1249.0m, Ch. 1346.0m, Ch. 1411.0m, Ch. 1430.0m, Ch. 1534.0m, Ch. 1614.0m & Ch. 1718.0m of chainage
- **294.0 m L-Drain** at different chainage
- **422.0m U-Drain** at different chainage
- **112.0m Guide wall** (1.5m Height) at different chainage
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works.

Sub-project Location:

Important Features	
ID	422944091
District	Cox's Bazar
Upazila	Ukhiya
Union	Ratnapalong
WARD	07
Total Chainage	1860m
Proposed Chainage	882m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 21.268869 N Longitude: 92.114703 E
Road Ending Point Coordinates	Latitude: 21.272959 N Longitude: 92.114086 E

Land ownership

Land is owned by Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

i) The proposed Sub-project is located within Dakhin Ratna Telipara village. Some other villages within 1km are Ruhulerdeba, Tekpara, North Pukuria, West Telipara, Chadrikata, South Rajapalong etc.

ii) No historical sites were found.

iii)	Not required to relocate local community.
iv)	Chengchori chorra located at 500m distance from the subproject. It is in safe distance so no disturbance will be anticipated.
v)	Some trees will be affected.
vi)	No chance to loss of agricultural land.
vii)	Some Household Boundary made of bamboo and tin may need adjustments.
viii)	Land accusation is not required.
ix)	Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

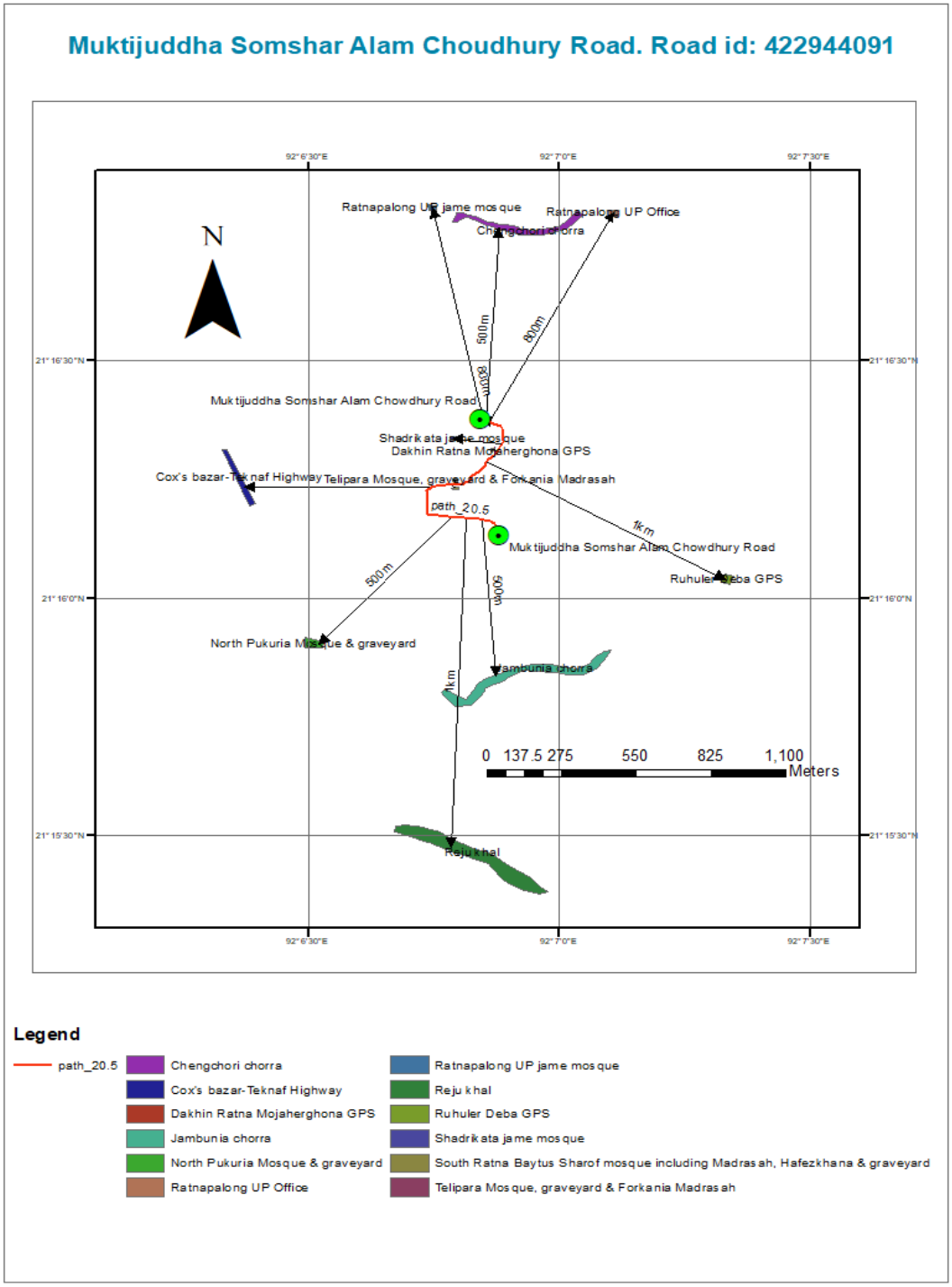
Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Chengchori chorra (500m), Ratnapalong UP Office (800m), Ratnapalong UP jame mosque (800m), at south side Reju khal (1km), Jambunia chorra (500m), North Pukuria Mosque & graveyard (500m), at east side Ruhuler Deba GPS (1km), South Ratna Baytus Sharof mosque including Madrasah, Hafezkhana & graveyard (20m) and at west side Dakhin Ratna Mojaherghona GPS (10m), Telipara Mosque, graveyard & Forkania Madrasah (15m), Shadrikata jame mosque (200m), Cox's bazar-Teknaf Highway (1km).

No scope to disturbance by this sub-project which bring religious and cultural values to the community people. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject area)

(3) Other issues:

No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise level also very low in the site area. Noise is originating from the commotion of locals. During construction period a rise in noise pollution may occur due to the transportation of equipment.

Baseline soil quality:

The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during improvement period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.

Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Middle Telipara connecting road, West Telipara connecting road and Yousuf Ali Chowdhury connecting road are the concerning ancillary facilities, the access road for the sub-project is proper in order for the equipment vehicles to arrive at the proposed location. Nonetheless, heavy four wheelers will not be a suitable option, this may cause more dust in the air also, the route has narrow curves.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands on west side at backside of Dakhin Ratna Mojaherghona GPS. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. Middle Telipara connecting road, West Telipara connecting road and Yousuf Ali Chowdhury connecting road are the main road of access for transportation. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is low for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels of Jambunia Chorra (500m) at south side and Chengchori Chorra (500m) at North side. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel is found.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.

Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-6

Sub-Project Description Form:

Name of Sub-Project: (Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District; EMCRP/W20).

Name of the component: R&H road to Md. Ali vita road, Id:422944093

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of the component (in Taka): 206 (Tk. In Lakhs)

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Rajapalong

Name of Community/Local Area: South Foliapara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The Sub-Project is categorized as a village road and improvement with Bituminous Carpeting (BC) options. For drainage of rain water **2 nos. box Culvert** (dimension: 2.0mX1.60m) at Ch. 800.0m & Ch. 990.0m of chainage and **1 no. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 937.0m of chainage, for mountain eel water drainage during rainy season **68.0 m L-Drain** at Ch. (903.0m-971.0m; R/S) and **38.0m U-Drain** at different chainage will be constructed that's has been included in the estimation. Due to the low land in different chainage for protection work of the road **304.0m Guide wall** at different chainage will be constructed as well as for road safety work and Environmental Mitigation and Enhancement works has been included in the estimation.

Estimated footprint / land area for this sub-project is 5218.5 sqm.

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:
This proposed R&H road to Md. Ali vita road belongs to South Foliapara village at Rajapalong union, Ward-6 under Ukhiya Upazila. This sub-project is in high land area. This road has started at a junction of 3 roads (Mohoripara) stretching 1065 meters from North side to West side (Cox's Bazar Teknaf Highway), along with protection wall, settlements, trees, open spaces, bushes, u-drain, mosques, agriculture fields, homestead gardens, boundary fencing, electric pole etc.

Overall Comments
The proposed sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental setting of the area thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, bamboo bush, rain tree etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be

used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage system and cross drains, culverts have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. This sub-project is situated within South Foliapara village under Rajapalong union, Ward-6 of Ukhiya Upazila, Cox's Bazar. Some sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site are at north side Amgastola mosque (50m), at south side Settlements (5m), at east side South Foliapara jame mosque (20m), Mahmud Ali Bhita (30m), Moulavi Khata mosque (120m), Nurul Islam Chowdhury Technical School & College (20m), Shilerchora Buddhist Temple (480m) and at west side Foliapara mosque (15m), Alim Uddin GPS (50m). No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 5-6 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The Sub-Project is categorized as a village road. Based on field survey, this sub-project involves of Herring Bone Bond (HBB). According to the design this sub-project will be improved with Bituminous Carpeting (BC) from Ch. 978m to Ch. 1860m. Moreover, 882m to be improved with BC.

Subproject interventions:

- **Bituminous Carpeting (BC)** options.
- **2 nos. box Culvert** (dimension: 2.0mX1.60m) at Ch. 800.0m & Ch. 990.0m of chainage
- **1 no. Cross Drain** (dimension: 0.975mX 0.975m) at Ch. 937.0m of chainage,
- **68.0 m L-Drain** at Ch. (903.0m-971.0m; R/S)
- **38.0m U-Drain** at different chainage
- **304.0m Guide wall** at different chainage
- **Road safety** works and
- **Environmental Mitigation and Enhancement** works.

Sub-project Location:

Important Features	
ID	422944093
District	Cox's Bazar
Upazila	Ukhiya
Union	Rajapalong
WARD	06
Total Chainage	1065m
Proposed Chainage	1065m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 21.236167 N Longitude: 92.142306 E
Road Ending Point Coordinates	Latitude: 21.237861 N Longitude: 92.147444 E

Land ownership

Land is owned by Government.

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio cultural assets): Please also explain any analysis on alternative location was conducted:

i) The proposed Sub-project is located within South Foliapara village. Some other villages within 1km are Baruapara, Muhoripara, Shilerchora and East Foliapara etc.

ii) No historical sites were found.

iii)	Not required to relocate local community.
iv)	Some trees may need to be cut down during construction phase.
v)	No chance to loss of agricultural land.
vi)	Some Household Boundary made of bamboo and tin may need adjustments.
vii)	Land accusation is not required.
viii)	Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative).

Section B: Environmental Screening

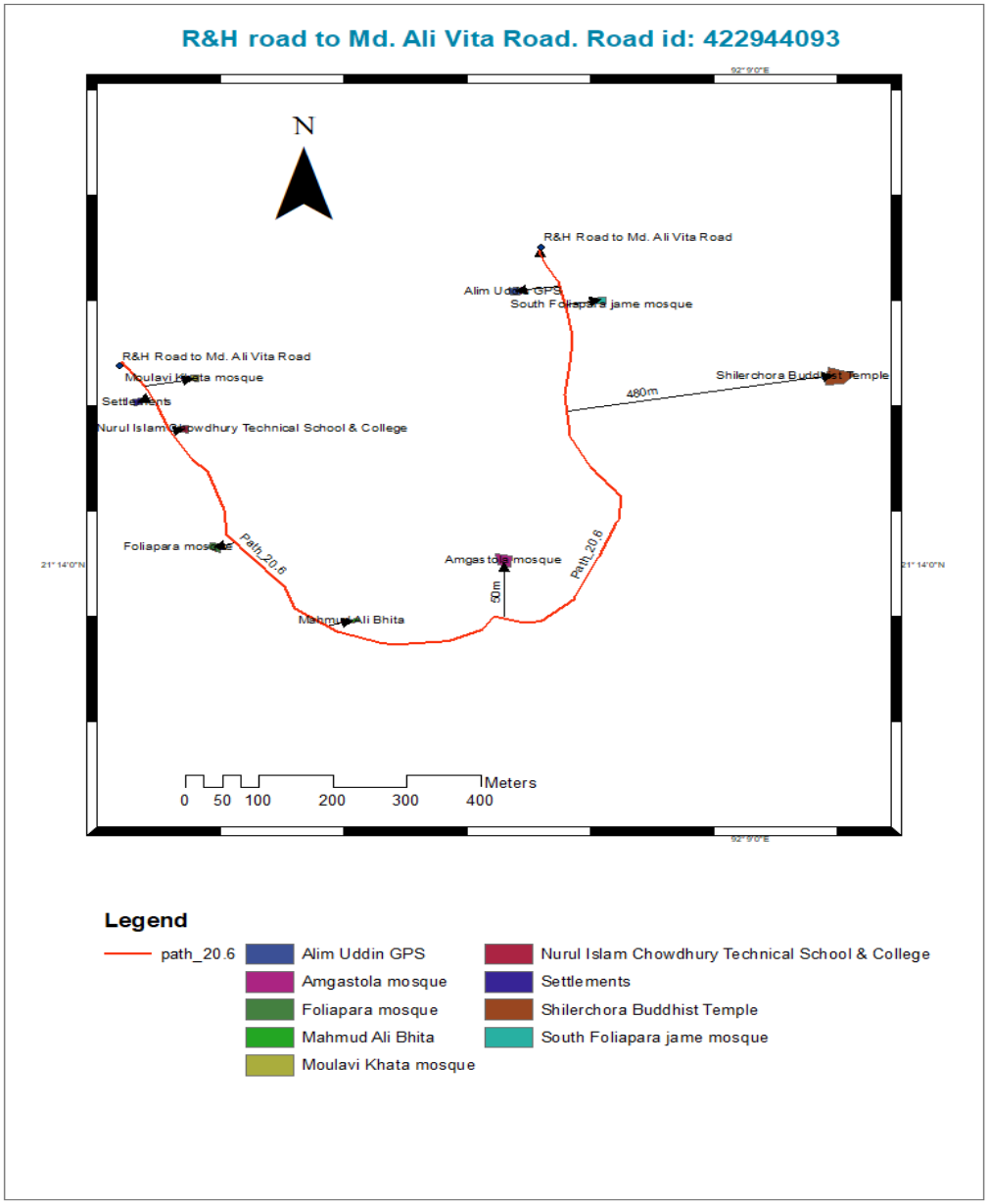
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site including at north side Amgastola mosque (50m), at south side Settlements (5m), at east side South Foliapara jame mosque (20m), Mahmud Ali Bhita (30m), Moulavi Khata mosque (120m), Nurul Islam Chowdhury Technical School & College (20m), Shilerchora Buddhist Temple (480m) and at west side Foliapara mosque (15m), Alim Uddin GPS (50m). No scope to disturbance by this sub-project which bring religious and cultural values to the community people. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps; Yes/No
N/A (This activity will be confined within the existing subproject area)
(3) Other issues:
No more mentionable issues rose.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:
Dust:
Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:
Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:
The Sub-project area is located mainly in red, alluvial, muddy, sandy soil and Dupitila formation. The soils developing from the weathered sandstones tend to be sandy to clay loams.

Landslide potential (high/medium/low, with explanation):
Landslide potential is low. There is low possibility of soil erosion or landslide during improvement period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):
Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 120 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.
Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:
N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:
Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.

Summary of water balance analysis (For water supply scheme only):
N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Cox's Bazar-Teknaf highway is the main way for ancillary facilities. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Labor camp can be established along the road since there are available open private lands on East side of Md. Ali bhita. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. Cox's Bazar-Teknaf highway is the main way for transportation. The pickup trucks as material transportation vehicles can enter the access road. Manual head load from unloading point to different locations can be done.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction

debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:
Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-7

Work Package Description Form:

EMCRP/W20- Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District

Name of Sub-Project: R&H road Faliapara LGED road to Ghunarpara mosque to Hajipara road, id: 422944095

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of sub-project component (in Taka): 1,02,00000Tk.

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Ukhiya **Union**: Rajapalong

Name of Community/Local Area: West Foliapara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety structures are 03 no. of Cross Drain (Size: .975mmX .975mm), 106 meters of Guide Wall, 251 meters of palisading wall, 110 meters of L-drain, 87 meters of RCC Cast in Situ Pile. Road safety works are also included in the project activity.

Estimated footprint / land area for this sub-project is 2293.2 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.: Proposed road is situated within the catchment area of Hajirpara Village stretching 468 meters. This road starts from Kalu Haji's house and end at west Foliapara Gonarpara culvert. Two types formation found on this road. About 01meter to 164 m is flat soling and the rest of the part is earthen road. Being one of the local communities of Ukhiya upazila these locations are very familiar to any other part of rural Bangladesh having mosques, village households, agriculture fields to grow crops and vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as rice production, betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and forests. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

People of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The subproject is environmentally sustainable and socially acceptable. The local community attended in the participatory public consultation meeting. Their community representatives as teachers, shop owners, farmers and elders have no objection to the construction this infrastructure in the proposed site; the community also appreciated the

initiative of LGED to ensure safe access and better portability. The public consultation meeting results confirmed that improvement of this road will increase socio-economic interest in the communities and make lives easier for these people. They also requested to construct the road in accessible width so that small auto and motor vehicles can pass easily. On another matter, locals requested to involve the local community to construction works and material storage monitoring duties.

The road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects. Only forest is found as homestead forest on high grounds of the location.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer. Foliapara community center located at 100m north of the subproject. There are 4 mosques located within 1km radial distance of the subproject. These are Folia para jame mosque (300m northeast), Dhakkin khairati para mosque (1km northwest), South folia para mosque (700m south) and Muhuripara jame mosque (1km east) of the subproject. A chora located at 800m west of the subproject. A stretch of higher land located at 320m to 430m chainage on south side along the subproject.

Some human settlements and agricultural land are found around the sub-project area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN).

Completed environmental and social screening forms are given below
Section A: Sub-Project Overview

Description of sub-project/component interventions:
This intervention will include the following items;

- 03 no. of Cross Drain (Size: .975mmX .975mm)
- 106 meters of Guide Wall
- 251 meters of palisading wall
- 110 meters of L-drain
- 87 meters of RCC Cast in Situ Pile
- Road safety works
- Environmental enhancement works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422944095
District	Cox's Bazar
Upazila	Ukhia
Union	Rajapalong
WARD	06
Proposed Chainage	468 m
Road Type	Village Road-A
Proposed Intervention Type	BC
Distance from Upazila HQ	1.9 km
Road Starting Point Coordinates and name	Latitude: 21^{0}14'11.0" N Longitude: 92^{0}08'10.6" E Starts from Kalu Haji's house
Road Ending Point Coordinates and name	Latitude: 21^{0}14'09.2" N Longitude: 92^{0}07'56.3" E End at west Foliapara Gonarpara culvert

Land ownership

Government Land

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

The Sub-Project is categorized as a village road with a proposed design of BC from Ch.00 to Ch. 460 m.

i) No historical sites were identified.
ii) Not required to relocate local community.
iii) Some trees and vegetation will be cut down during construction phase.
iv) No chance to losing of agricultural land.
v) Land accusation is not required.

Environmental Sensitivity: No mentionable eco concerned establishment, no socio-cultural site and elephant corridors (Checked with local IUCN representative). Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

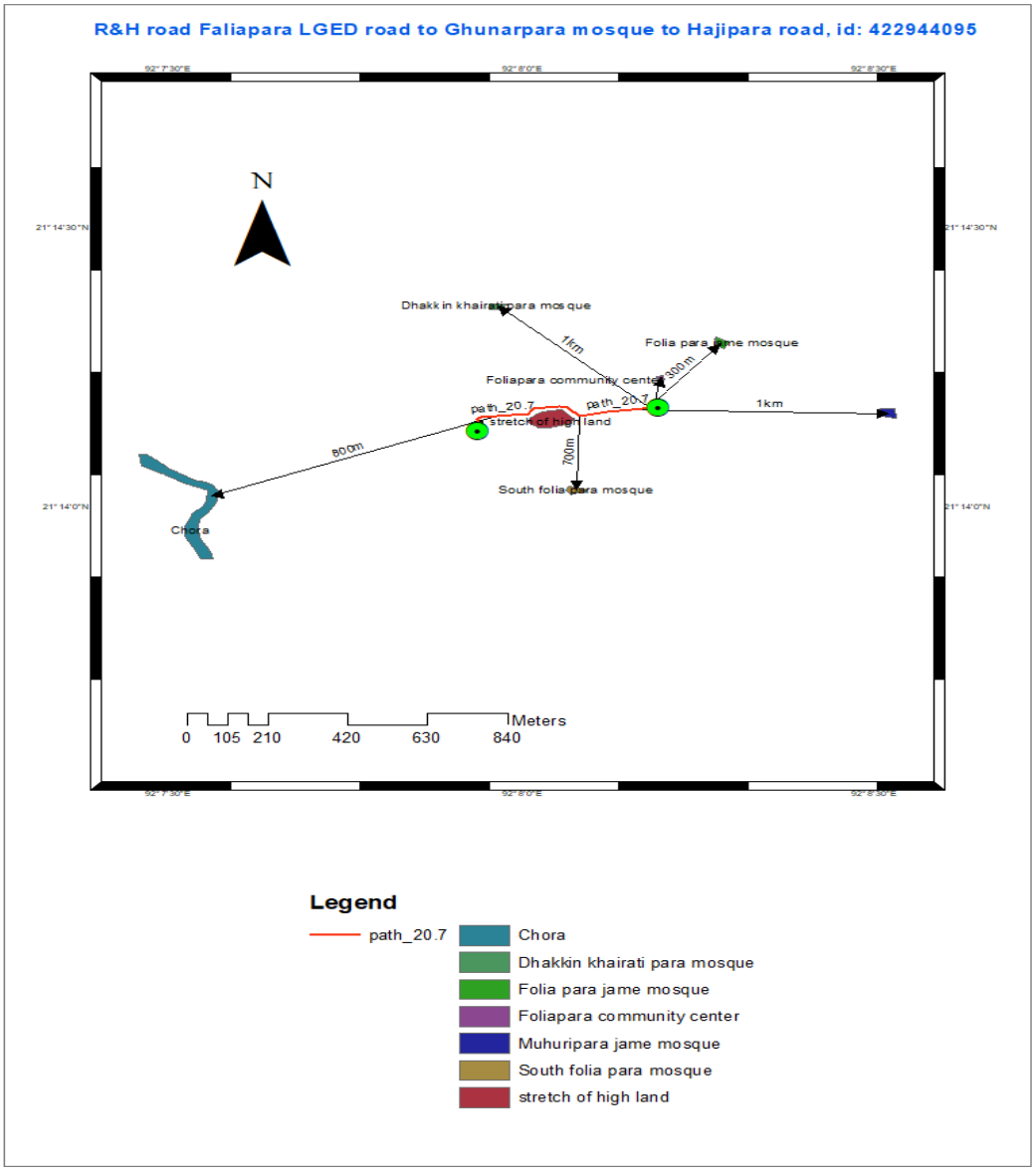
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Foliapara community center located at 100m north of the subproject. There are 4 mosques located within 1km radial distance of the subproject. These are Folia para jame mosque (300m northeast), Dhakkin khairati para mosque (1km northwest), South folia para mosque (700m south) and Muhuripara jame mosque (1km east) of the subproject. A chora located at 800m west of the subproject. A stretch of higher land located at 320m to 430m chainage on south side along the subproject. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on this road throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation)

Landslide potential is low. (The sub-project will be constructed on existing FBS road for the most part and no other part of the road is found to have pre-existing conditions which may lead to landslide. Nonetheless, protection works have been included for the road in order to ensure safety of road structure)

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet feet and deep tube well depth is 400 to 800 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A BCC road named Ukhiya station road-Foliapara mosque road is passing on the east side of the sub-project. This subproject is connected to this road. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: An open field is located on west side at 425m chainage of the subproject. Labor camp can be established here. However, this will have to be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. A BCC road named Ukhiya station road-Foliapara mosque road is the main road for transportation. Head load or mini folding vehicles like tractor can be used from unloading point to project location manually by the assigned contractor.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction

works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.):

Solid waste: Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks ii) Sand iii) cement iv) Gravel v) water vi) Aggregates, vii) concretes viii) Bitumen are the most common type of road materials used in construction.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors:(High/Medium/Low with explanation)

The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description)

No pre - existing drainage channel.

Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:

Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations at 232m chainage to 320m chainage alongside the road where a small hill is located, if follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed. A stretch of natural drainage is passing across the road side but it is in safe distance. No such effect can be anticipated.

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-8

Work Package Description Form:

Name of Subproject: EMCRP/W20- Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District

Name of Sub-Project component: Moheshkhalipara sea beach Road to Mondar Dail Road. Road id: 422904011

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of sub-project (in Taka): 3,92,00000Tk.

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Teknaf **Union**: Teknaf Sadar

Name of Community/Local Area: Kochubunia Village

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety and service providing structures include 03 nos. of **Cross Drain** (dimension: 0.750mX0.750m) at identified chainages and (dimension: 0.975mX0.975m) at Ch. 400.0m & Ch. 583.0m, 06 nos. of **Box Culvert** (dimension: 1.0mX1.50m) at Ch. 777.0m, (dimension: 1.5mX2.0m) at 90.0m, (dimension: 4.0mX4.0m) at 705.0m and (dimension: 2.50mX2.50m) at Ch. 981.0m, Ch. 1525.0m & Ch. 2082.0m along the road length. Road safety works are also included in the project activity.
Estimated footprint / land area for this sub-project is 11691.4 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

Proposed road is situated within the catchment area of Kochubunia Village stretching 2386 meters This road starts at Teknaf sea beach road and ends in Mondar Dail Road. Being one of the local communities of Teknaf upazila these locations are very familiar to any other part of rural Bangladesh having mosques, village households, agriculture fields to grow crops and vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as rice production, betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and forests. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

The proposed component of the sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, mango tree, bamboo bushes etc., or additional vegetation may need to clear out due to

construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Notun Mosque/Mohila Madrassa(50m), Ehsan Shojib Jame Mosque(20m) to the east. Chanduripara GPS (1km), Baytosh Shorok Madrassa (1km) to the south. Households (within 10-30m) to the west and north. Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. No disturbance is anticipated due to construction activities to those environmental components.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 7-8 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below
Section A: Sub-Project Overview

Description of sub-project/component interventions:
This intervention will include the following items; • 05 no. of **Cross Drain** (of different dimensions),

- 04 numbers of **Box Culvert**,
- 686 meters of **palisading wall**,
- **T-Section** at different chainage.
- Road safety works
- Environmental enhancement works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422904011
District	Cox's Bazar
Upazila	Teknaf
Union	Teknaf Sadar
WARD	01
Proposed Chainage	2386 m
Road Type	Village Road-A
Proposed Intervention Type	BC
Distance from Upazila HQ	07 km
Road Starting Point Coordinates and name	Latitude: $21^0$50'59.3" N Longitude: $92^0$16'54.2" E starts at Teknaf sea beach road
Road Ending Point Coordinates and name	Latitude: 21050'28.0" N Longitude: 92017'16.3" E Road ends in Mondar Dail Road

Land ownership
Government Land

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:
Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Notun Mosque/Mohila Madrassa(50m), Ehsan Shojib Jame Mosque(20m) to the east. Chanduripara GPS (1km), Baytosh Shorok Madrassa (1km) to the south. Households (within 10-30m) to the west and north. Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

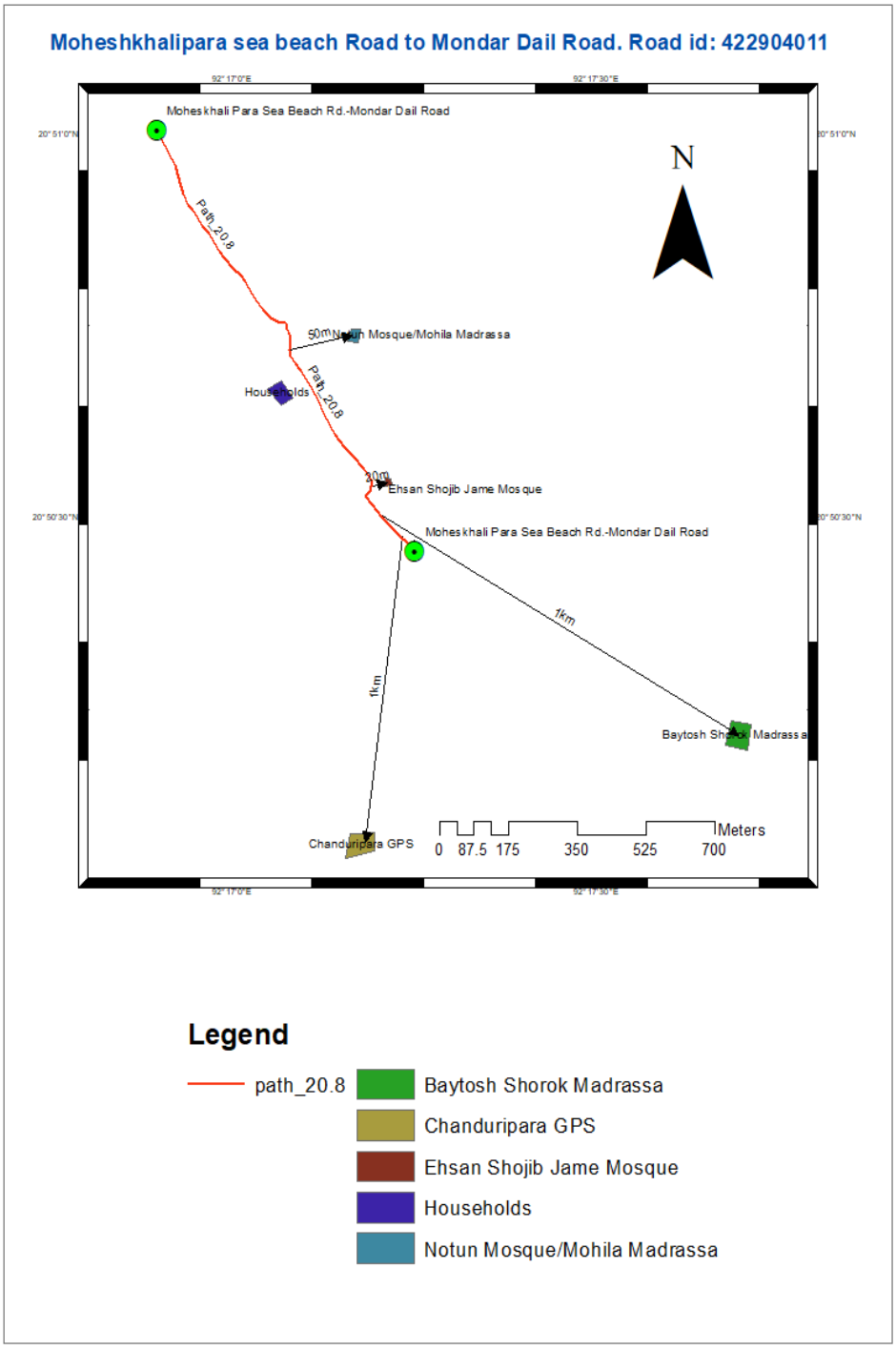
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:
Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes

including Notun Mosque/Mohila Madrassa(50m), Ehsan Shojib Jame Mosque(20m) to the east. Chanduripara GPS (1km), Baytosh Shorok Madrassa (1km) to the south. Households (within 10-30m) to the west and north. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas (within 30m buffer zone) are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*:

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No:

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on this road throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 60 feet to 70 feet feet and deep tube well depth is 400 to 800 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to

681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A connecting road called Mondar dail road which connects with proposed road is available. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: An open space is available of Md. Faruq that's may be done with the consent of land owner under a mutual agreement, with the supervision of the Engineer in charge.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. A connecting road called Mondar dail road which connects with proposed road is available for transportation.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities. For instance, an open space is available of Md. Faruq which can be rented for material storage.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts:

Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-9

Work Package Description Form:

Name of Sub-Project: EMCRP/W20- Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District

Name of the compnent: Shahporir Dip GC-Beach Road.Id:422904021

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of sub-project component (in Taka): 2,92,00000Tk.

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Teknaf **Union**: Sabrang

Name of Community/Local Area: Shahporir deep

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety structures are 02 no. of **Cross Drain** (Size: .975mmX .975mm), 278 meters of **Guide Wall**, 40 meters of **palisading wall** and **T-Section** at different chainage. Road safety works are also included in the project activity.

Estimated footprint / land area for this sub-project is 6938.4 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

Proposed road is situated within the catchment area of Shahporir deep stretching 1416 meters. This road starts at Shahporir Deep bazar area and ends in Shahporir deep sea beach. Being one of the coastal communities of Teknaf upazila these locations are very familiar to any other part of coastal-rural Bangladesh having mosques, village households, few agriculture fields to grow vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and moderate forests. This road is connected with adjacent beach and has no possibility to be disturbed also no flora or fauna will be challenged by this intervention. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

The proposed component of the sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, mango tree, bamboo bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive

soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Dangapara GPS (30m) to the east. Jyonti Mosque and Madrassa(100m), North Majorpara Graveyard (30m), Khalid bin Walid (Ra:) Jame Mosque (10m) to the south. Households (within 500m) to the west and north. Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. No disturbance is anticipated due to construction activities to those environmental components.
In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 4-5 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below
Section A: Sub-Project Overview

Description of sub-project/component interventions:
This intervention will include the following items;

- 02 no. of **Cross Drain** (Size: .975mmX .975mm)
- 278 meters of **Guide Wall**
- 40 meters of **palisading wall**

- **T-Section** at different chainage.
- Road safety works
- Environmental enhancement works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422904021
District	Cox's Bazar
Upazila	Teknaf
Union	Sabrang
WARD	07
Proposed Chainage	1416 m
Road Type	Village Road-A
Proposed Intervention Type	BC
Distance from Upazila HQ	12 km
Road Starting Point Coordinates and name	Latitude: 20.768711 N Longitude: 92.325776 E starts at Shahporir Deep Bazar
Road Ending Point Coordinates and name	Latitude: 20.767606 N Longitude: 92.317356 E Road ends close to Shahporir deep sea beach

Land ownership
Government Land

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Dangapara GPS (30m) to the east. Jyonti Mosque and Madrassa(100m), North Majorpara Graveyard (30m), Khalid bin Walid (Ra:) Jame Mosque (10m) to the south. Households (within 500m) to the west and north.

Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

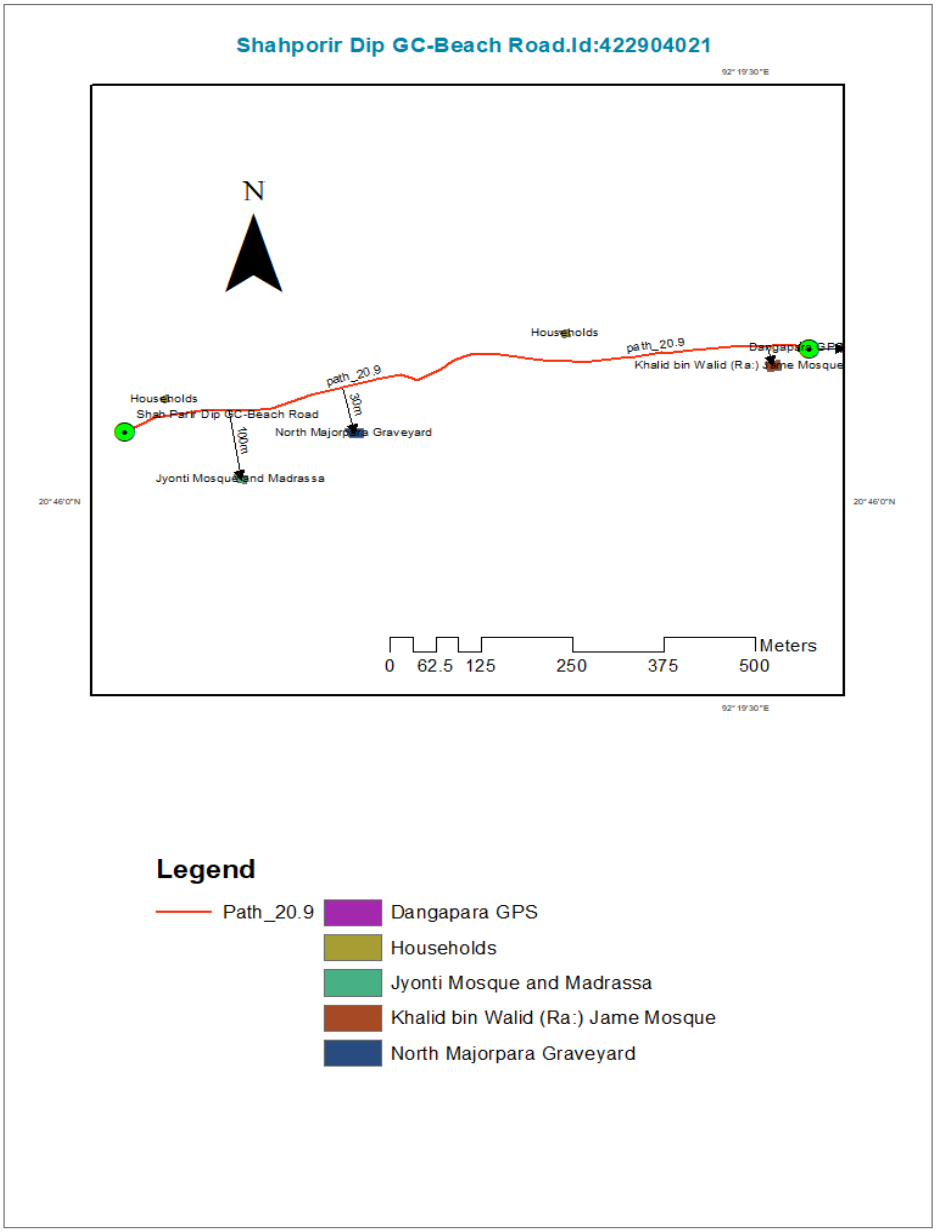
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes including Dangapara GPS (30m) to the east. Jyonti Mosque and Madrassa(100m), North Majorpara Graveyard (30m), Khalid bin Walid (Ra:) Jame Mosque (10m) to the south. Households (within 500m) to the west and north.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*:

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis

of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No:

N/A (This activity will be confined within the existing subproject boundary).

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 200 feet and deep tubewell depth is 800 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): A connecting road called Teknaf sea beach road are the main way for ancillary facilitis. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: An open space is available in the area of Dangapara GPS for labor camp
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. A connecting road called Teknaf sea beach road is available for access and transportation.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily.

Liquid wastes: Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:
Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-10

Work Package Description Form:

Name of Sub-Project: EMCRP/W20- Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District

Name of the component: Sabrang Pandal para North Achar bonia road. Road id: 422904023

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of sub-project component(in Taka): 96,00000 Tk.

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Teknaf **Union**: Sabrang

Name of Community/Local Area: Pandal para, Acharbunia

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety structures are 02 no. of **Cross Drain** (Size: .975mmX .975mm), 42 meters of **Guide Wall**, 446 meters of **palisading wall** and **T-Section** at chainage 88m. Road safety works are also included in the project activity.

Estimated footprint / land area for this sub-project is 3,185 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

Proposed road is situated within the catchment area of Pandal para, Acharbunia stretching 650 meters. This road starts at Pandalpara road point Teknaf to Shahprodip main road and ends in Acharbunia road near to Nurul Haque Fakir's house. Being one of the coastal communities of Teknaf upazila these locations are very familiar to any other part of coastal-rural Bangladesh having mosques, village households, few agriculture fields to grow vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and moderate forests. This road is connected with adjacent beach and has no possibility to be disturbed also no flora or fauna will be challenged by this intervention. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

The proposed component of the sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like betel nut, mango tree, bamboo bushes etc., or additional vegetation may need to clear out due to

construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes Degillar beel Mosque and Graveyard(150m), Sabrang 4 number union porishad (150m), Hefzokhana/Madrassa(150m) to the south. Acharbonia Jame Mosque(400m) to the north. New Mosque (20m South-West), Community center GPS (120m), Community Center Mosque (200m to South-West), Adorsho Gram and Gucho Gram(600m) to the west. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 7-8 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below
Section A: Sub-Project Overview

Description of sub-project/component interventions:
This intervention will include the following items;

- 02 no. of **Cross Drain** (Size: .975mmX .975mm)

- 42 meters of **Guide Wall**,
- 446 meters of **palisading wall**
- **T-Section** at chainage 88m.
- Road safety works
- Environmental enhancement works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422904023
District	Cox's Bazar
Upazila	Teknaf
Union	*Sabrang*
WARD	05
Proposed Chainage	650 m
Road Type	Village Road-A
Proposed Intervention Type	BC
Distance from Upazila HQ	07 km
Road Starting Point Coordinates and name	Latitude: 20.823691 N Longitude: 92.303083 E starts at Pandalpara road point Teknaf to Shahprodip main road
Road Ending Point Coordinates and name	Latitude: *20.767606 N* Longitude: *92.317356 E* ends in Acharbunia road near to Nurul Haque Fakir's house

Land ownership
Government Land

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:
Dhonir pera Beel (1.5km) to the east. Degillar beel Mosque and Graveyard(150m), Sabrang 4 number union porishad (150m), Hefzokhana/Madrassa(150m) to the south. Dhonirpera Beel (4km), Acharbonia Jame Mosque(400m) to the north. Within the influence area of the subproject no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (checked with local IUCN representative).

Section B: Environmental Screening

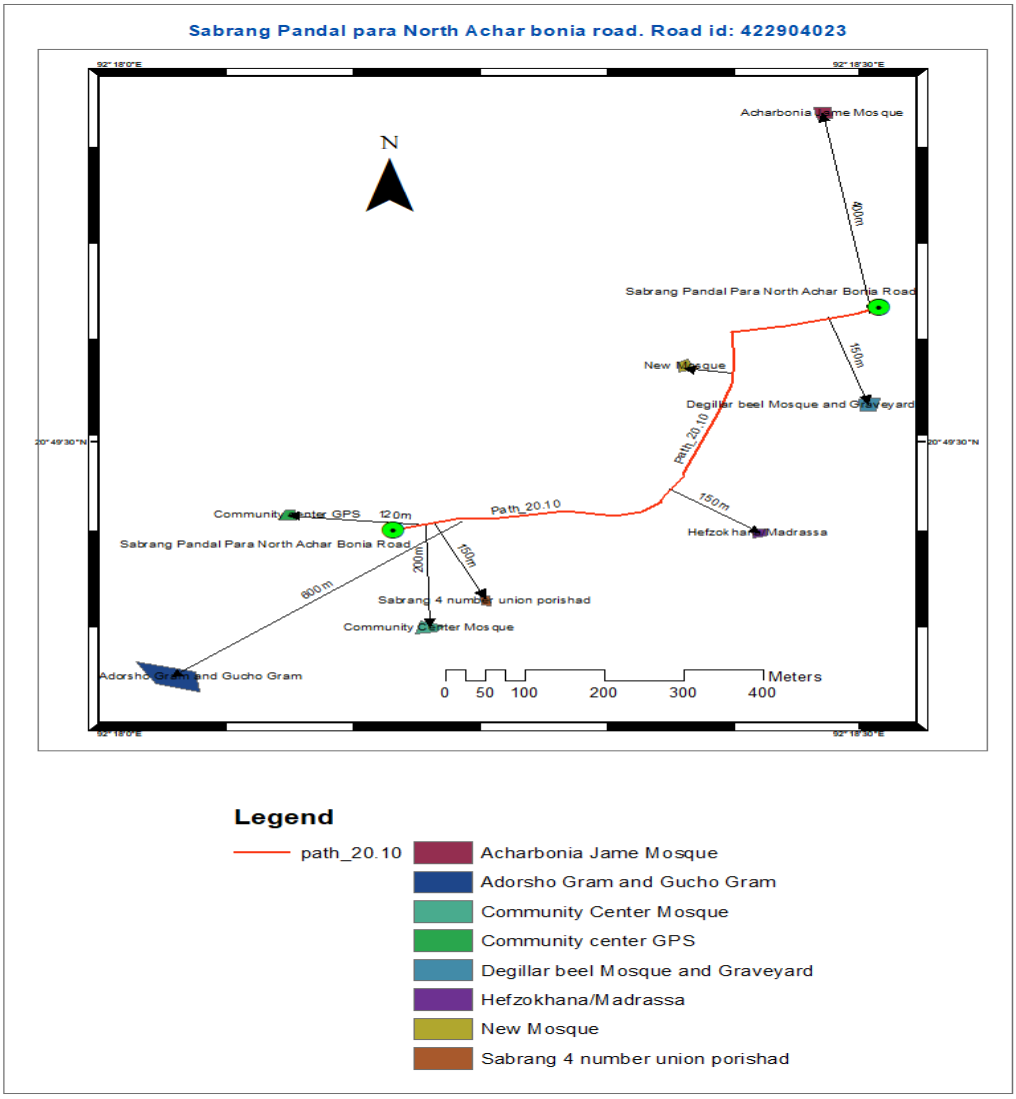
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site

including elephant migration routes and remaining forests:

Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes Degillar beel Mosque and Graveyard(150m), Sabrang 4 number union porishad (150m), Hefzokhana/Madrassa(150m) to the south. Acharbonia Jame Mosque(400m) to the north. New Mosque (20m South-West), Community center GPS (120m), Community Center Mosque (200m to South-West), Adorsho Gram and Gucho Gram(600m) to the west. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*:

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No:

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN.

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of vehicles such as motor cycle, auto rickshaw, tempo, trolley etc. over the road surface which causes air pollution.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor etc. move on the road surface adjacent to sub-project throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tubewell depth is 400 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): Two connecting roads called Beriband road and teknaf LGED road which connects with proposed road. It is possible to carry the construction materials on this road to the construction site.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Open spaces are available along the road which can be used for labor camp. These locations are not in any private land area therefore no consent or resettlement is needed.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. Beriband road and teknaf LGED road which connects with proposed road will be used for transportation.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger

localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Sub-project W20-11

Work Package Description Form:

Name of Sub-Project: EMCRP/W20- Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District

Name of Sub-Project component: South Achar bonia new Mosque Wapridia-Al-Haz Wali Ahmed guda road. Road id: 422904026

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Estimated total cost of sub-project (in Taka): 3002 (Tk. In Lakhs)

Estimated construction period duration: 1 year

Estimated total cost of sub-project component (in Taka): 3,21,00000 Tk.

Estimated Operation and Maintenance period (life of sub-project): Project design life is more than 15 (Fifteen) years but Government policies will determine the period for sub-projects to operate in/near the camps.

District: Cox's Bazar **Sub-District**: Teknaf **Union**: Sabrang

Name of Community/Local Area: Pendalpara, Degillar Bill, South Acharbonia

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The Sub-Project is categorized as a village road-A with a proposed design of Bituminous Carpeting through construction of Earth Work. Proposed safety structures are 08 no. of **Cross Drain** (Size: .975mmX .975mm), 215 meters of **Guide Wall**, 643 meters of **palisading wall**, **T-Section** at chainage 130. Road safety works are also included in the project activity.

Estimated footprint / land area for this sub-project is 9,800 sq. meter

Brief description of sub-project site: (e.g. present land use, Important Environmental Features (IEFs) near site, etc.:

Proposed road is situated within the catchment area of Pendalpara, Degillar Bill, South Acharbonia stretching 2000 meters. This road starts at main road of union porishod-Teknaf near Shafiq's Shop and New mosque and ends in Zila Parishod road. Being one of the coastal communities of Teknaf upazila these locations are very familiar to any other part of coastal-rural Bangladesh having mosques, village households, few agriculture fields to grow vegetation that serves as subsistent gardening. The surrounding area is dominated with agriculture practices as betel leaf production, vegetable farming etc. Majority of the surrounding space of this intervention is covered with homestead gardens and moderate forests. This road is connected with adjacent beach and has no possibility to be disturbed also no flora or fauna will be challenged by this intervention. However, there are no significant eco-sensitive features on the pathway of this proposed road.

Overall Comments

The proposed component of the sub-project (Road improvement) is not located within any remarkable environmentally sensitive area and will not cause any severe affect to the environmental settings of the area, thus not going to create intimidation to important environmental features. No drainage congestion/water logging have been observed in the road area. But, some local trees like

betel nut, mango tree, bamboo bushes etc., or additional vegetation may need to clear out due to construction activities, with appropriate offsetting measures to be taken. No agricultural productive soil will be used for the purpose. Earth will be compacted for stabilization. The inputs will be mainly at construction phase and limited within project boundary. Moreover, mitigation measures will be taken according to the ESMP for minimizing the air, dust and noise pollution.

It has been revealed that this project's scope of works do not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover other issue has also been brought to their attention that drainage system and a bridge have also been included into the evaluation of this project since runoff from higher grounds are also a concerning matter during rainy season.

Local people of the subproject area are very much optimistic about the success of the project and are also eager to participate in the project activities. The local individuals were participated in participatory public consultation meeting. Local communities have no objection to construction of this road component. The community also appreciated the initiative for having easily accessible and passive their emergency situation. The proposed construction of hillock village road is not located within any identified environmentally sensitive area, and therefore, does not seem to cause any adverse impact on the important environmental features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

Types of waste to be generated during construction and operation phase:
During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels etc. Negligible amount of plastic, fuel etc. will be generated in equipment/stack yards. Human wastes will be generated in labor camp. Dust and noise are among the nuisance that may generate during the operation phase.

Sensitive environmental, cultural, archaeological, religious sites near (within 1km) of site including elephant migration routes and remaining forests:
Within the influence area of the subproject no historical sites were identified. Sensitive environmental, cultural, archaeological, religious sites within 1 kilometer of site includes Households with homestead gardens (within 500m) to the east. Acharbonia (at starting of road) new mosque and graveyard (10m), Degillar Beel Jame Mosque/ Graveyard (500m), Sabrang Union Porishod (180m) to the south. Households (within 500m), Acharbonia Jame Mosque(500m) to the north. Sabrang Community center GPS (180m) to the West. Community based institutions including religious centers like Mosques, temples; and different forms of educational/cultural institutions bring cultural values and social cohesion to the community people. No scope to disturbance by this sub-project which bring religious and cultural values to the community people.

In this sub-project area, no elephant migration routes exist (ref. IUCN). Elephant migration routes were about 9-10 km away from this sub-project. No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

This intervention will include the following items;

- 08 no. of Cross Drain (Size: .975mmX .975mm)
- 215 meters of Guide Wall
- 643 meters of palisading wall
- T-Section at chainage 130
- Road safety works
- Environmental enhancement works (description of such items can be found in BOQ)

Sub-project Location:

Important Features	
ID	422904026
District	Cox's Bazar
Upazila	Teknaf
Union	Sabrang
WARD	05
Proposed Chainage	2000 m
Road Type	Village Road-A
Proposed Intervention Type	BC
Distance from Upazila HQ	05 km
Road Starting Point Coordinates and name	Latitude: 20.819513 N Longitude: 92.306107 E starts at main road of union porishod-Teknaf near Shafiq's Shop and New mosque
Road Ending Point Coordinates and name	Latitude: 20.821251 N Longitude: 92.311190 E ends in Jela Parishod road

Land ownership

Government Land

Expected construction period: 1 year

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Households with homestead gardens (within 500m) to the east. Acharbonia (at starting of road) new mosque and graveyard (10m), Degillar Beel Jame Mosque/ Graveyard (500m), Sabrang Union Porishod (180m) to the south. Households (within 500m), Acharbonia Jame Mosque(500m) to the north. Sabrang Community center GPS (180m) to the West. Within the influence area of the subproject no historical sites were identified.

Environmental sensitivity: No mentionable eco concerned establishment, no socio cultural site/

elephant corridor(checked with local IUCN representative).

Section B: Environmental Screening

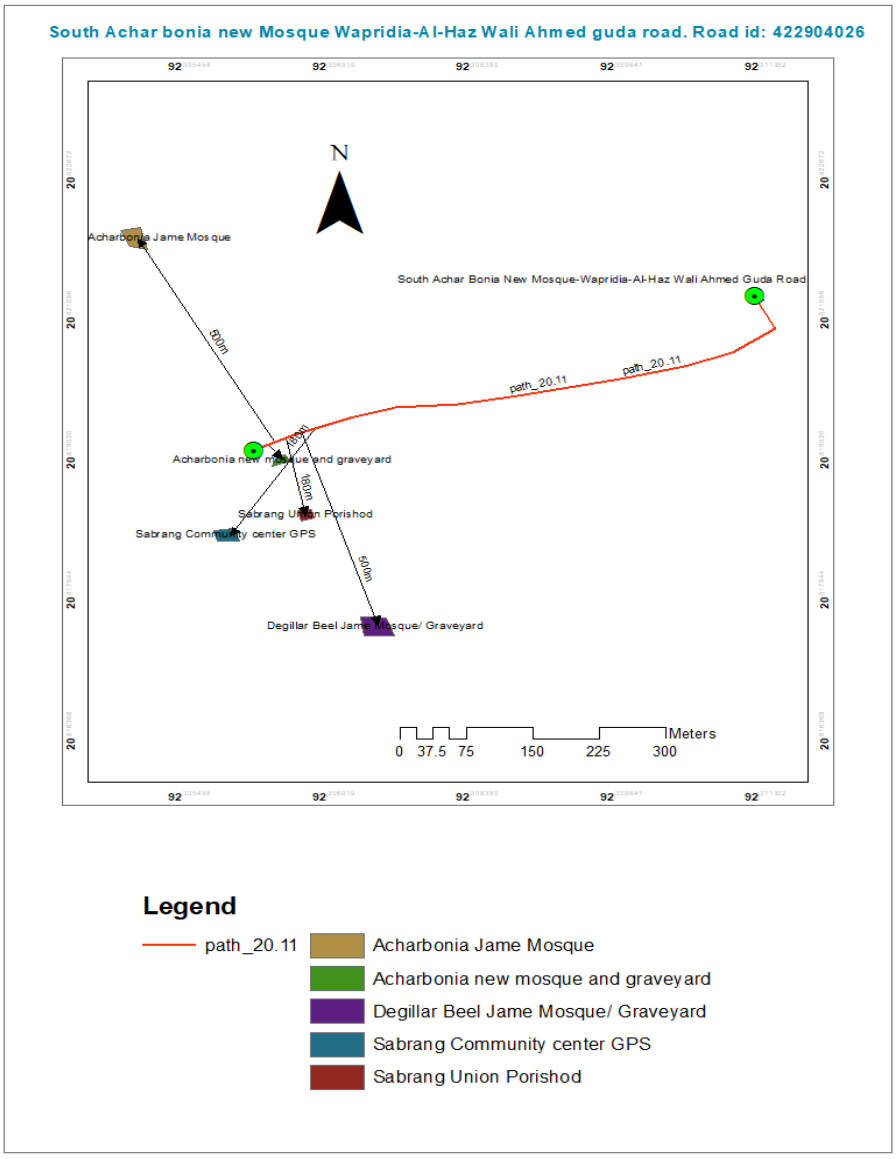
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site):

Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Households with homestead gardens (within 500m) to the east. Acharbonia (at starting of road) new mosque and graveyard (10m), Degillar Beel Jame Mosque/ Graveyard (500m), Sabrang Union Porishod (180m) to the south. Households (within 500m), Acharbonia Jame Mosque(500m) to the north. Sabrang Community center GPS (180m) to the West. Apart from this structure no other sensitive environmental, cultural, archaeological, religious sites exists.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are given below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive areas found in the areas, except some matured vegetation around the site. Several mosques, school and human settlement were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing subproject boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*:

No. There is no existence of Elephant corridor/ route now, which have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) Potential impacts on remaining forests in/around camps Yes/No:

N/A (This activity will be confined within the existing subproject boundary)

(3) Other issues:

No more mentionable issues were raised.

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerablelimit. Vehicles such as tempo, auto rickshaw, tractor, trailer, etc. move on this road throughout the day and night generate noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

Landslide potential is low. There is low possibility of soil erosion or landslide during construction period of targeted sub-project. The impacts are negative but very small scale, site-specific within a relatively small area and adjustable by mitigation measures.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet and deep tubewell depth is 400 feet. But the shallow tube well is not working properly during the dry season. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers beneath the Sub-project area contains high concentration of iron. Deep groundwater table (drinkable) varies from 400-800ft (Field survey, 2019). Local people usually use deep tube-well water for drinking and other domestic purposes.

There should have deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019).
Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing large and matured trees across the road side of the proposed subproject area are located within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g. status of access road or any other facility required for sub-project to be viable): The main sea beach road of R&HD road from the west at is available for material delivery. It is possible to carry the construction materials on this road to the construction site with limited traffic flow since this road has small corridor to pass large vehicles.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Toilet and water supply facilities will be ensured by the contractor in the vicinity of the construction area for all the components of the sub-project, electric connection will be established with the accommodation facility due for the workforce.
Possible location of labor camps: Open spaces are available along the road which can be used for labor camp. These are not private land.
Requirement and type of raw materials (e.g. sand, stone, wood, etc.): i) Bricks, ii) Sand, iii) cement, iv) Gravel, v) water, vi) Aggregates and vii) wood are the most common type of materials used for the construction of labor shed and site office during the pre-construction stage.
Identification of access road for transportation (Yes/No): Yes. The main sea beach road of R&HD road from the west at is available for material delivery.
Location identification for raw material storage: Best option for raw material storage is any sufficiently available space next to the labor camp or the site office and away from steep slopes. However, this will need to arrange an open field and should be consulted with local communities.
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): Earth/ mud, plastics, brick chips, cement dusts, and dust from bricks can be found during pre-construction time which can be identified as solid wastes. Also, brick chips, cement, sand, bamboo stalks, remnants of tin and other leftover pre-construction materials can be found after the construction of labor camp, latrines and kitchen. Negligible amount of bio and non-biodegradable Solid waste (incl. food waste, plastics, polythene, paper, etc.) may be produced from the use of

working labors engaged in construction works of labor camp and associate facilities. Altogether amount of those produced wastes in a single day is nearly 50 kg during the pre-construction phase.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g. Solids wastes, liquid wastes, etc.): ***Solid waste:*** Residual waste from the labor camps will be generated. Wastes from equipment maintenance/vehicles on-site and scrap material will be generated during construction work, which are mostly solid wastes. Waste from civil works includes brick chips, leftover sands, construction debris, etc. And the overall quantity will be tentatively 45 kg daily. ***Liquid wastes:*** Leftover oils or spills from machineries may have a high probability to generate liquid waste. And the quantity can be tentatively 3 kg daily.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) water vi) concretes vii) Bitumen are the most common type of road materials used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: No such vegetation is present in the right of way. Specific soil amount is not needed for the project. The current condition explains that there is no aggregated soil on the right of way.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) The possibility is Medium, for stagnant water bodies to occur. Because water usage will be higher during the construction period. By default, this area has no water logging troubles due to being natural channels. Moreover, no possibilities of stagnation of water in long run. So, local communities have stated that they do not have severe troubles with mosquitos or other disease vectors.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No pre - existing drainage channel.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. The improvement works will be limited within the Right of Way of this road component. Moreover, not any considerable terrestrial or aquatic ecosystem is present in that area, which could be affected significantly by the construction activities. Also, the area is not known for containing any endangered or threatened species of any kind.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: Construction activities such as cut-and-fill operations, slope stabilization or any mechanical operations that follow a faulty or incomplete operational procedure may lead to small scale landslides or mass movement in road cuts or adjoining land areas. The impacts are negative but

short term, site specific within a relatively small area and manageable by mitigation measures.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) Low, Potential erosion may occur when moderately to highly sloping terrains are disturbed for the improvement of sub-project. The impacts are negative but short term, site specific within a relatively small area and adjustable by mitigation measures.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impacts on light but low effects of noise and air pollution, and will be managed by preventive measures, like water sprinkling twice a day, covered transport of materials and so on.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: During the operation phase, number of vehicles and frequency will be increased, though not to a significant level. This growth has moderate potential to generate dust and blow those in the air, and contribute to health hazards and interference of plant growth.
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) Low. Over use of road and frequent movement of heavy/overloaded vehicles may cause further destruction of road-bed soils and in turn early deterioration of road pavement, which could be managed by imposing barriers at strategic locations to stop entry of such types of vehicles.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) Not applicable.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility of creating new stagnant water bodies that can encourage mosquito breeding and other disease vectors, during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: Construction or implementation of a road project substantially contributes to the development of the project areas. It surely improves the communication network, reduces the transport time, increases the trade and business in/around the areas, and ensures access to better living conditions with amenities, better educational and job opportunities and health facilities. Thus, the direct and indirect impacts on economic development in the project areas would be enormous by this sub-project.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) Existing drainage channels may be affected, if dust generated from frequent vehicle movement deposits on the still water level and any type of slope/soil movement is triggered. These effects are very local and can mostly be avoided by regular periodic maintenance of the road and setting barriers at several strategic points to limit the vehicle speed.

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. Little effects on terrestrial ecosystem are anticipated due to the dust pollution/deposition and vehicular emission, though every ecosystem has some assimilative capacity on its own to lower the associated risks.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: Vibration effects generated from frequent and speedy movement of heavy vehicles may trigger localized landslides or mass movements, which can be avoided by placing barriers and speed breakers at different strategic locations on the road.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) Low. Concentrated outflow will be carried by proposed drains and culvert.
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: Improved road communication will definitely increase the traffic/ vehicular movement, which must increase the light and noise pollution, but air pollution effect will not be increased significantly, as the proposed BC road will reduce the pollution generated from dust, especially during the dry season and if the vehicles are maintained in good conditions.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Section D: Environmental Screening Summary of the Work Package-20

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
1: Sub-Project Interventions	**Air quality**	Under the subproject intervention the overall score is **low**.	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • Requiring trucks delivering aggregates or bricks and cement to have tarpaulin cover and Limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Covering of trucks; • Records of air quality inspection;	Visual monitoring of air quality and if requires, air quality test (CO, $PM_{2.5,10}$) once in construction period in winter season.
	Soil impacts	Under the sub-project intervention the overall score is **low.**	• Precautions might be taken when rainstorms are likely, when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. • The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers	Construction Contractor monitored by Consultant and PIU	• No visible degradation to nearby drainages, • *khals* or water bodies due to soil erosion. • Rain storms in construction phase.	Monitoring as weekly basis.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and construction yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • Cut-and-fill operations on the hill slope and slope stabilization shall be carried out step by step following proper operational procedures.			
	Hydrology (surface and groundwater)	Under the subproject intervention the overall score is **low**.	• All precautions to store chemicals/oil/fuel properly so that no chance of spill. • Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water. • Monitor water quality according to the environmental management plan.	Construction Contractor and monitored by Consultant and PIU	• Areas for stockpiles, storage of fuels and lubricants and waste materials; • Records of water quality inspection; Water Quality Test • (National Drinking Water Quality Standard Parameters)if requires; • No visible	Water quality test (mainly GW) twice during the construction period in six months interval.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
					degradation to nearby drainages, *khals* or water bodies due to construction activities. • Records should be kept and logged.	
2: Pre-construction Phase	**Sanitation, water supply**	Under the subproject intervention the overall score is **low**.	• Provide suitable housing, adequate supplies of potable water, and toilet and bathing facilities within labor camp area for the assigned laborer. • Provide means for disposing of wastewater from toilets, baths and food preparation areas either through a septic tank and soak away, or holding tank with removal by vacuum truck. • Records for any type of training or awareness building sessions must be kept at site.	Construction Contractor and monitored by Consultant and PIU	• Site-specific H&S Plan; • Records of supply of uncontaminated water; • Record of Health &Safety orientation trainings; • Condition of sanitation facilities for workers.	Visual inspection by PIU and supervision consultants on monthly basis
	Transportation	Under the subproject intervention the overall score is **low.**	• Contractor should verify vehicles for the suitability of carrying, loading and unloading of materials	Construction Contractor and monitored by Consultant and PIU	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
	Storage of construction materials	Under the subproject intervention the overall score is **low**.	• Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials;	During implementation phase, as necessary with discussion with PIU, Consultant
3: Construction Phase	**Wastes**	Under the sub-project intervention the overall score is **low.**	• Prepare and implement on-site waste water runoff and labor camp waste management plan approved by PIU and consultants. • Wastes must be placed in the designated bins which must be regularly emptied. These shall remain within demarcated areas and shall be designed to prevent wastes from being blown out by wind. • All waste must be removed from the site and transported to a disposal site.	Construction Contractor and monitored by Consultant and PIU	• Complaints from community; • Regular inspection of waste management activity; • Waste disposal record.	As work weekly progresses
	Cut and fill Activities (Cutting of hill slope and earth removal from borrow areas caused for soil erosion and landslides)	Under the sub-project intervention, the overall score is low.	• During construction cut and fill will be balanced as far as is possible. Designs shall ensure that as far as possible all cut and fill activities are balanced • Proper care will be taken during cutting and filling so that slope or toe of the road embankment remain within the right of way and	Contractor, environmental specialist of D&SC	• Location of road alignment and slope.	Daily as work progresses

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			does not disturb the crop.			
	Storage of materials	Protected and safety storage to be needed for construction materials storage. Not interrupt natural land contours, disturbance in natural drainage patterns and logging of water and the overall score is **low.**	With the assistance respective E-I-C to identify the storage site and other requirements, which will be approved by PIU and consultants. However, following sets of requirements shall be taken into consideration: • Storage area will be sufficiently spacious so that unloading works can be performed inside the area and materials must not be rest on road side, near the water bodies, or trees and bushes, and will not be located in any crowded place. • Storage area must be well fenced with guard posted at the entrance and at least 30 m distant from any water bodies. • Construction materials must not interrupt land contours, natural drainage pattern, and create water logging or depression. • Cement, sand, reinforced bars,	Construction Contractor and monitored by Consultant and PIU	• List of materials and sources of materials; • Storage areas for materials and equipment.	Monthly basis during implementation phase, as necessary through the discussion with PIU, Consultant

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			stone chips, aggregates etc. must be covered with tarpaulins, and end of reinforced bars will be capped with plastic caps or covered with sacks/clothes to avoid any health injury. • Chemicals and hazardous materials including oil, grease, bitumen, etc. shall be kept in a Cement concrete bunded area or on wooden stage covered with polythene/tarpaulin.			
	Removal of Vegetation (May cause soil erosion and their deposition on nearby crop field, affecting soil quality and productivity)	Under the sub-project intervention, the overall score is **low.**	• If during detailed design cutting of trees is required, compensatory plantation for trees lost at a rate of 5 trees for every tree cut. • Prevent workers or any other person from removing and damaging any flora (plant/vegetation) and fauna.	Contractor, environmental specialist of D&SC	• Complaints from community	Daily
	Noise pollution	Under the subproject intervention the overall score is **low.**	• Consultation with affected people; not to operate noisy equipment during working period; • No noisy work after 5.00 pm. • Sound suppression for equipment; • Ear protection for workers.	Construction Contractor and monitored by Consultant and PIU	• Number of complaints from stakeholders; • Use of silencers in noise-producing equipment and	Inspection by PIU and supervision consultants on monthly basis;

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			• Conduct noise quality monitoring as per EMP.		sound barriers; • Noise Level following decibel meter (dB)	
	Air pollution	Under the subproject intervention the overall score is **low.**	• Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; no smoke emitting equipment; and limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Construction Contractor and monitored by Consultant and PIU	• Location of stockpiles; • Number of complaints from stakeholders; • Records of air quality inspection.	Visual observation and monitoring of air quality during construction period.
	Road Safety and Accidents	Under the subproject intervention the overall score is **low.**	• Erection of suitable signage at construction sites • Direct observation and discussion with local people • Restrict the transport of oversize loads. • Operate construction vehicles to non-peak periods (night) to minimize the traffic disruption. • Enforce on-site and access road speed limits. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc.	Construction Contractor, environmental specialist of D&SC.	• Complaints from communities, pedestrians	Day basis during work time

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
			• Local residents should be kept informed about planned Works			
4. Post Construction	**Road Safety**	Under the issue the overall score is **low**.	• Install traffic signs for speed limit, speed breaker where needed, Mile post and create adequate ***traffic*** detours, and sufficient ***signage*** & ***warning*** signs, Post speed limits and suitable bending on the road. • Imposing barriers at several strategic places on the road to limit the movement of overloaded or heavy vehicles. • The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required or as suggested by the Environmental Specialist of D&Sc.	Construction Contractor, environmental specialist of D&SC.	• Road signage and safety instruments at suitable locations and chainage	Immediately after the construction work is over.
	Tree re plantation	Under the issue the overall score is **low**.	• Replantation of trees during monsoon period • Maintain of trees properly • Check survival of trees and replant the dead trees	Construction Contractor, environmental specialist of D&SC	• Number of complaints from stakeholders; • Records of trees number and tree plantation inspection	Immediately after the construction work is over.
5.	**Maintenance**	Under the issue	• No advertisement/boardings shall	LGED	• Number of	During

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/Institution Responsible	Monitoring Suggestions	
					Indicator	Frequency
Operational Phase	**of road and assets** (Road accidents may increase due to higher number of vehicles using the roads at increased speeds)	the overall score is **low**.	be allowed within the Right of Way limits of the project road. • Regular maintenance and cleaning of assets such as sign boards, road safety sign etc. shall be undertaken. • Clear smooth speed breaker/rough surfaces should be clear in views. • Regular maintenance of road surface and shoulders.		complaints from stakeholders.	Operation under LGED's regular maintenance program in each 3 years.

* Overall Impact Score: High = Likely to cause long-term E&S impacts; Medium = Likely to cause temporary impacts; Low = Likely to cause little, short-term impacts

**Post-construction phase denotes the time period contractor use to clear and clean up the sites after the construction work is ended, perform tree plantation, grass turfing, and minor rectification till the official handing over the site to LGED, or owner of the site.

Recommendation for further environmental and social assessment and/or site specific environmental and social management plan: Yes

**If yes, please specify what assessments/plans would be required.* Mention some recommendation on E&S assessment …. ESMP

If site specific environmental and social management plan (ESMP) is followed the impacts can be mitigated and monitored. ESMP is attached.

Appendix-2: Environmental and Social Management Plan (ESMP)

ESMP for Access and evacuation Roads; *(LGED/EMCRP-W20):* Improvement of 11 roads and construction of culverts with side drains under Cox's Bazar District.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed within these sub-project activities. So, there are no any mitigation measures in respect to this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC.
Pre-Construction Stage	Loss of livelihood	• Under these subprojects, there is no scope of negative impact of adjacent livelihoods.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All of the project stakeholders should be consulted • Separate community level consultation meeting with the potential affected HHs • Consultation meeting with host communities about the project objectives and scope of works	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact. • In case of unavoidable circumstances, alternative access will be provided.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection & implementing interventions: Human-elephant conflict	• Selection of sub-project sites and all implementing interventions must take place outside of the elephant corridor/influence area.	PIU	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Tubewell location within the construction site is not near to any kinds of latrine and soaks well which could be contaminated by those. • After completing the development the site shall be restored as before. • This site is in the local community, so continuous need based discussion with the local community to avoid any conflicts will be taking place. • Sub project intervention must avoid natural disturbance to existing slop and natural drainage. • The contractor must ensure sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities mostly will finish at day time within 05 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kinds of construction works.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	• Acceptable range of emission of CO, particulate matter [SPM (**Suspended particulate matter)**, PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices.	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Dust generation must be limited as a result of clearing, leveling and site grading operations with using water florescent manually and through water pipes. • Dust generation due to vehicle movement on connecting road shall be controlled by watering the path at limited level.		
Construction Activity	Safety Issues	• Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staffs. • Records of every training must be kept at site. • All kinds of Child labour are completely prohibited in every site. • Every construction materials storage site will be well fenced by Tin and safety caution tape.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the Executive Engineer of Cox's Bazar. • Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken.	PIU & Contractor	Social Development Specialist and Gender Specialist of

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• If ground water is withdrawn, adequate approvals from the appropriate department need to be collected before setting up bore wells. • Any type of consent letter or agreement for withdrawing water from either surface or underground sources will be kept on site. • Local community must be consulted before any construction works starts.		PIU, PSC
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Informed Local community will be trained on traffic management and awareness.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Labor Base Camp: Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labour camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labour	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Residual waste from the temporary accommodation facilities, and from equipment maintenance/vehicles on-site • Wastes after completion of construction works. So, recycling process is not applicable. • Proper consents for hazardous waste management.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Slipping of soil masses, dust deposition, draining or spillage of chemicals/contaminants, etc. to nearby water bodies	• Slope protection measures (proper compaction, palisading or protection walls, etc.) will be taken before starting work at any sensitive section of the road. • Dust suppression measures and material storage and handling procedure have to be undertaken with proper care and vigilance to avoid or minimize the impacts.	PIU & Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: • The potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. • Preparation of proper walkways and clearly designation as a walkway has to be ensured; all walkways shall be provided with good conditions underfoot; signposted and	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	with adequate lighting. • Proper Signpost at any slippery areas will be ensured in construction site. • Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. • This sub project will have Proper communicative emergency response plan (ERP) with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational roles and authorities' responsibilities and expertise, emergency response and evacuation procedure and personnel will be trained and drilled to test and ensure the coherence with the plan. • All people of construction site will be concerned about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		during the construction phase in order to highlight the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. Written records of this awareness training shall be kept on site. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.		
Construction activity	Odours and pollution caused by leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	• Preventative maintenance schedule should be followed. • Solid organic wastes should be stored in bins and/ or skips and emptied regularly at a designated waste disposal area away from the camp site. If no designated site is available within the reach, a dug-hole at a nearby place can be used with periodic filling with soil layer for preventing pollution and generating nutrient rich compost soil over time.	PIU	Environmental Consultant of PIU, PSC. Union Member
Construction Activity	Demobilization of structures, facilities and equipment used during the project	• Contractor must prepare a waste management plan including relevant directives from “Waste Management Plan Principles” given hereunder.	PIU / Contractor	Environmental Consultant of PIU, and Executive Engineer of Cox’s

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	implementation period (including site clearance and restoration after the construction). The impacts are similar to those listed in construction stage: • Pollution from waste materials Health & Safety risks to workers and local community			Bazar
Operation & Maintenance	Noise and vibration disturbances to fauna, and Traffic Safety.	• Provision to maintain noise and vibration from the operation and maintenance of machinery and equipment by proper monitoring and measures. • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	UE (under the direct guidance of Executive Engineer, Cox's Bazar)	UNO, PSC

Waste Management Plan:

The Contractor shall develop a waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food and organic waste etc.) prior to commencing of construction and submit to LGED for approval. The plans must include following principles or series of actions, which will be carried out/followed by the contractor and supervised by the Field level Environmental Specialist and Social Development Specialist:

- The quantity of waste materials shall be minimized by 3R (Reduce, Recycle and Reuse) approach, and wastes shall be segregated accordingly, wherever practical; and stored in designated places/facilities in the site.
- Construction site shall be maintained in a cleaner, tidy and safe condition and appropriate facilities shall be provided and maintained as temporary storage of all wastes before transportation and final disposal.

- Hazardous waste viz. waste oil etc. will be collected and stored in a paved and bounded area and subsequently sold to authorized recyclers.
- The scrap material generated from related construction activities will be collected and stored separately in the stack yard and sold to local recyclers.
- All wastes generated during construction shall be disposed off in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Other leftover non-hazardous wastes, including construction debris shall be transported to an approved disposal site by pick up tracks or back loaded vehicles with proper care.
- Organic wastes produced in the labor camp site during the construction period shall be collected and transported in vehicles covered with tarps or nets to prevent spilling waste along the route to the designated disposal site;
- Burning of any type of wastes in the construction site shall be prohibited completely.

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Appendix-3: Cost of Environmental Mitigation and Enhancement Works in BOQ for each sub-project under work package EMCRP/W20

In consideration to the above-mentioned environmental impacts and their mitigation measures for all sub-project, individual BOQ for each sub-project has been prepared. Following tables will illustrate such items of enhancement and impact mitigation works as well as considering the emerged situation of COVID-19, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites.

Cost of Environmental Enhancement Works for W20-1 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	5,025.0 Sq.m	@38.15 Tk. Per sqm	191,703.75
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1675.0m	@ 2.56 BDT	4,288.00
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	protection goggles.			
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**451,637.47**

Cost of H&S Measures under COVID 19 Situations for W20-1

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 34 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-20.1).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	92		115	50.00	207	10,350.00	To be placed in a case/holder on the basin, for washing hands for max. 39 people a day and showering of 34 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety	22 nos. for each site		N/A	400.00	22	8,800.00	For labors who work in close contact, 22 in each site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	Goggles							
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead. Masks should be worn at all times when in the field.
8.	Cloth mask for Workers	N/A	34 nos. for each labor camp		35.00	612	21,400.00	A worker will use a mask for 15 days with everyday washing.
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	4 Can	250.00	5.5	1,375.00	
10.	Detergent Cleaner	N/A	1.750 kg in each camp/month		400.00	15.75	6,300.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**114,525.00**	

Cost of Environmental Enhancement Works for W20-2 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	4620 Sq.m	@38.15 Tk. Per sqm	176,253.00
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1540.0m	@ 2.56 BDT	3,942.40
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
5.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**435,841.12**

Cost of H&S Measures under COVID 19 Situations for W20-2

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 32 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-20.2).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	86		108	50.00	194	9,700.00	To be placed in a case/holder on the basin, for washing hands for max. 37 people a day and showering of 32 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office
6.	Face Shield/ Protective Safety Goggles	20 nos. for each site		N/A	400.00	20	8,000.00	For labors who work in close contact, 20 in each site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	32 nos. for each labor camp		35.00	576	20,160.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	3 Can	250.00	4.5	1,125.00	
10.	Detergent Cleaner	N/A	1.500 kg in each camp/month		400.00	13.50	5,400.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**110,685.00**	

Cost of Environmental Enhancement Works for W20-3 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	2251.84 Sq.m	@38.15 Tk. Per sqm	207,841.2
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1816.0m	@ 2.56 BDT	4,648.96
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
	injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**468,135.88**

Cost of H&S Measures under COVID 19 Situations for W20-3

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 36 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-20.3).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	97		122	50.00	219	10,950.00	To be placed in a case/holder on the basin, for washing hands for max. 41 people a day and showering of 36 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety	24 nos. for each site		N/A	400.00	24	9,600.00	For labors who work in close contact, 24 in each site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	Goggles							
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	36 nos. for each labor camp		35.00	648	22,680.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	4 Can	250.00	5.5	1,375.00	
10.	Detergent Cleaner	N/A	1.750 kg in each camp/month		400.00	15.75	6,300.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**117,205.00**	

Cost of Environmental Enhancement Works for W20-4 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1810.4 Sq.m	@38.15 Tk. Per sqm	167,097.00
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1460.0m	@ 2.56 BDT	3,737.60
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
5.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**426,480.32**

Cost of H&S Measures under COVID 19 Situations for W20-4

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 30 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-20.4).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	81		101	50.00	182	9,100.00	To be placed in a case/holder on the basin, for washing hands for max. 35 people a day and showering of 30 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office
6.	Face Shield/ Protective Safety	16 nos. for each site		N/A	400.00	16	6,400.00	For labors who work in close contact, 16 in each site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	Goggles							
7.	One time Mask (Disposable) for Contractors' Staffs	5 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	30 nos. for each labor camp		35.00	540	18,900.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	3 Can	250.00	4.5	1,125.00	
10.	Detergent Cleaner	N/A	1.5 kg in each camp/month		400.00	13.5	5,400.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**107,225.00**	

Cost of Environmental Enhancement Works for W20-5 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1093.68 Sq.m	@38.15 Tk. Per sqm	100,944.9
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	882.0m	@ 2.56 BDT	2,257.92
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. **Temporary Toilet:** Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
5.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**358,848.54**

Cost of H&S Measures under COVID 19 Situations for W20-5

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 18 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-20.5).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	49		61	50.00	110	5,500.00	To be placed in a case/holder on the basin, for washing hands for max. 21 people a day and showering of 18 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
6.	Face Shield/ Protective Safety Goggles	10 nos. for each site		N/A	400.00	10	4,000.00	For labors who work in close contact, 10 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	3 nos. each day in each site		N/A	12.00	810	9,720.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	18 nos. for each labor camp		35.00	324	11,340.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	9	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**85,135.00**	

Cost of Environmental Enhancement Works for W20-6 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	**Grass Turfing** Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1320.6 Sq.m	@38.15 Tk. Per sqm	121,889.25
2.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1065.0m	@ 2.56 BDT	2,726.40
3.	**Water Supply and Sanitation** Providing and maintaining adequate portable water supply, sanitation, cleanliness facilities at camp site and work site to the entire satisfaction of Engineer-in-charge. Temporary Toilet: Construction of temporary toilets in work site/ rest area complete as per design and specifications and approved by the Engineer-in-Charge. There should be 1 camp in each site. In each camp, there should be 1 no of toilet for women and 1 no of toilet for men.	2 nos.	@12822.86 per toilet	25,645.72
4.	**First Aid Box** Supplying, equipping and maintaining adequate first-aid box throughout the working period at worksite and site office, and erect conspicuous notice boards directing where these are situated and providing all requisite emergency medical first aid kits, including complying with the government medical or labour requirements at all times, and provide, equip and maintain necessary dressing kits throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.	1 no.	LS @5000 Tk. Per box	5,000

Sl no.	Description of item	Quantity	Unit price	Total amount
5.	**Drinking Water Facilities** Providing continuous adequate drinking water supply at worksite and site office as well by installing necessary tube-well/s where applicable or any other means depending on local situation, also providing essential arrangement for storing drinking water by supplying portable best quality water tank equivalent to Gazi/Padma of adequate capacity depending on the number of users, including supplying 1 (one) no. best quality water filter of minimum capacity 30 liters with necessary kits, etc. all complete as per satisfaction and direction of the Engineer-in-charge.	1 no.	LS @ Tk. 30,000	30,000
6.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for users, providing a safe working area for those involved in work on trafficked network and minimizing any disruption to smooth flow of traffic (this includes providing necessary barricades, warning signs/lights, guide signs, flagmen, maintaining diversion roads by cutting, filling, constructing, etc. or by any other means) in accordance with the full satisfaction of the Engineering-in-charge.	1 no.	LS @ Tk. 15,000	15,000
7.	**Personal Protection Equipment for Workers** Providing and maintaining appropriate (safe design, fit and comfort) personal protection equipment (PPE) to ensure the highest possible protection for employees in establishing and maintaining a safe and healthful working environment at workplace, including demonstrating, providing training on proper understanding and development of skill in the use of PPE, including supplying (i) best quality safety jacket, (ii) suitable hand protection gloves, (iii) appropriate foot protection shoes, (iv) best quality safety helmets, face shields, ear muffs etc. (v) suitable eye protection goggles	LS	LS @ Tk 30,000	30,000

Sl no.	Description of item	Quantity	Unit price	Total amount
8.	**Tree plantation** Tree plantation to compensate the felled down trees and enhance the ecological condition in the subproject area- preferably local fruits, flowers, medicinal and ornamental trees- Mango, Jackfruit, Jam, Kathbadam, Chalta, Krisnachura, Bokul, Jarul, Polash, Kadom, Shimul, Neem, Arjun, Amloki, Horitoki, Bohera, Mahogany, Palm Tree, Chambal, Rain Tree, Shil koroi, Satim, Sishu (including protection, fencing and conservation during project defect liability period): Preferably at both sides of Road where space is available (fencing as per LGED rate schedule 5.26.14) (Contractors will also be instructed by the consultant and PIU prior to the tree plantation work) at an interval of 10 feet.	100 nos.	@ Tk. 1000	100,000
9.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's representatives on safety practice and as per direction of the E.I.C.	1 no.	LS @ Tk. 10,000	10,000
10.	**Waste disposal facility** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@ Tk. 5000	5,000
11.	**Water Test (Drinking Water samples)** Water samples are to be collected periodically (half yearly) from the tube well at labor shed area for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@ Tk. 5000	5,000
12.	**Working labour shed:** Construction of Labor shed (Size: 30'x20') with C.I sheet Roofing, Tarza fencing and brick soling floor as per requirement and direction of the E-I-C.	1 no.	LS @ Tk. 30,000	30,000
	Subtotal Bill: Environmental facilities			**380,261.37**

Cost of H&S Measures under COVID 19 Situations for W20-6

Considering the emerged situation, following budget/cost has been estimated for the protection of workers and staffs working or engaged in construction sites. The cost is estimated counting 22 workers for 270 active working days (9 months in a year) in a contract period for one site under this package (EMCRP/W-20.6).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1.	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2.	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3.	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4.	Bar Soaps (150 gm each)	59		74	50.00	133	6,650.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 22 workers in each labor camp.
5.	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can for Refill)	2 bottles and 1 Can for each site	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 litre can for each Site office

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
6.	Face Shield/ Protective Safety Goggles	14 nos. for each site		N/A	400.00	14	5,600.00	For labors who work in close contact, 14 in each site
7.	One time Mask (Disposable) for Contractors' Staffs	3 nos. each day in each site		N/A	12.00	810	9,720.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8.	Cloth mask for Workers	N/A	22 nos. for each labor camp		35.00	396	13,860.00	A worker will use a mask for 15 days with everyday washing
9.	Floor Cleaner (1 litre Can)	1.5 Can	N/A	2 Can	250.00	3.5	875.00	
10.	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	9	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11.	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
	Grand Total						**90,405.00**	

Cost of Environmental Enhancement Works for W20-7 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1,404 sqm	@38.15 Tk. Per sqm	53,562.6
2.	**Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	01	@5000 Tk. Per box	5000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	468 meters	2.56 Tk. per meter	1,198.08
4.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer' sand Contractor's representatives on safety practice and as per direction of the E.I.C.	LS	Lum Sum @ 10000	10000
5.	**Providing Safety gear/ (PPE)** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc.	LS	@ Tk. 30000	30,000
6.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	100 nos.	@ Tk. 1000 for each tree.	100000

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
7.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@12822.86 per toilet	25645.72
8.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@5000	5000
9.	**Drinking water Facility** Supplying continuous adequate drinking water supply at work site and site office as well by installing necessary tube-well/s where applicable with best quality water tank (Gazi/Padma) and water filter of minimum capacity of 30 liters with necessary kits. All complete as per satisfaction of EIC.	1	@30000 tk for each setup	30000
10.	**Test (Drinking Water samples)** **Water samples** to be collected periodically (half yearly) for Tube well at labor shed for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@5000tk	5000
11.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for user s and providing a safe working area for those involved in work.	LS	15000	15000
12.	**Worker labor shed** Size (30'X20') with C.I sheet roofing, Tarza fencing and brick soling floor as per requirement and direction of EIC	1	30000	30000
	Subtotal Bill: Environmental facilities			**310,406.4**

Cost of H&S Measures under COVID 19 Situations for W20-7

The cost is estimated counting 10 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-20-7).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	27		33.75	50.00	60.75	3037.5	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5	2 bottles and 1 Can	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	liter Can for Refill)	for each site						office
6	Face Shield/ Protective Safety Goggles	6 nos. for this site		N/A	400.00	6	2400.00	For labors who work in close contact, 12 in each site
7	One-time Mask (Disposable) for Contractors' Staffs	05 nos. each day in each site		N/A	12.00	4050	48, 600	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	10 nos. for each labor camp		35.00	180	6,300.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							**114,912.5**	

Cost of Environmental Enhancement Works for W20-8 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	7,158sqm	@38.15 Tk. Per sqm	273,077.7
2.	**Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	01	@5000 Tk. Per box	5000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	2386 meters	2.56 Tk. per meter	6,108.16
4.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer' sand Contractor's representatives on safety practice and as per direction of the E.I.C.	LS	Lum Sum @ 10000	10000
5.	**Providing Safety gear/ (PPE)** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc.	LS	@ Tk. 30000	30,000
6.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	100 nos.	@ Tk. 1000 for each tree.	100000

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
7.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@12822.86 per toilet	25645.72
8.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@5000	5000
9.	**Drinking water Facility** Supplying continuous adequate drinking water supply at work site and site office as well by installing necessary tube-well/s where applicable with best quality water tank (Gazi/Padma) and water filter of minimum capacity of 30 liters with necessary kits. All complete as per satisfaction of EIC.	1	@30000 tk for each setup	30000
10.	**Test (Drinking Water samples)** **Water samples** to be collected periodically (half yearly) for Tube well at labor shed for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@5000tk	5000
11.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for user s and providing a safe working area for those involved in work.	LS	15000	15000
12.	**Worker labor shed** Size (30'X20') with C.I sheet roofing, Tarza fencing and brick soling floor as per requirement and direction of EIC	1	30000	30000
	Subtotal Bill: Environmental facilities			**534,831.58**

Cost of H&S Measures under COVID 19 Situations for W20-8

The cost is estimated counting 50 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-20-8).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	1,350		168.75	50.00	1518.75	75937.5	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can	2 bottles and 1 Can for	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	for Refill)	each site						
6	Face Shield/ Protective Safety Goggles	30 nos. for this site		N/A	400.00	30	12,000.00	For labors who work in close contact, 12 in each site
7	One-time Mask (Disposable) for Contractors' Staffs	05 nos. each day in each site		N/A	12.00	6,750	81, 000.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	50 nos. of labor for this site		35.00	900	31,500.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							**255012.5**	

Cost of Environmental Enhancement Works for W20-9 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	4,248 sqm	@38.15 Tk. Per sqm	162061.2
2.	**Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	01	@5000 Tk. Per box	5000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	1416 meters	2.56 Tk. per meter	3,624.96
4.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer' sand Contractor's representatives on safety practice and as per direction of the E.I.C.	LS	Lum Sum @ 10000	10000
5.	**Providing Safety gear/ (PPE)** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc.	LS	@ Tk. 30000	30,000
6.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	100 nos.	@ Tk. 1000 for each tree.	100000

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
7.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@12822.86 per toilet	25645.72
8.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@5000	5000
9.	**Drinking water Facility** Supplying continuous adequate drinking water supply at work site and site office as well by installing necessary tube-well/s where applicable with best quality water tank (Gazi/Padma) and water filter of minimum capacity of 30 liters with necessary kits. All complete as per satisfaction of EIC.	1	@30000 tk for each setup	30000
10.	**Test (Drinking Water samples)** **Water samples** to be collected periodically (half yearly) for Tube well at labor shed for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@5000tk	5000
11.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for user s and providing a safe working area for those involved in work.	LS	15000	15000
12.	**Worker labor shed** Size (30'X20') with C.I sheet roofing, Tarza fencing and brick soling floor as per requirement and direction of EIC	1	30000	30000
	Subtotal Bill: Environmental facilities			**421,331.88**

Cost of H&S Measures under COVID 19 Situations for W20-9

The cost is estimated counting 30 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-20-9).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	81		102	50.00	183	9,150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can	2 bottles and 1	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	for Refill)	Can for each site						
6	Face Shield/ Protective Safety Goggles	18 nos. for each site		N/A	400.00	18	7,200.00	For labors who work in close contact, 12 in each site
7	One-time Mask (Disposable) for Contractors' Staffs	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	30 nos. of labor for this site		35.00	540	18,900.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							**106,025.00**	

Cost of Environmental Enhancement Works for W20-10 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1,950 sqm	@38.15 Tk. Per sqm	74,392.5
2.	**Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	01	@5000 Tk. Per box	5000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	650 meters	2.56 Tk. per meter	1664
4.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer' sand Contractor's representatives on safety practice and as per direction of the E.I.C.	LS	Lum Sum @ 10000	10000
5.	**Providing Safety gear/ (PPE)** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc.	LS	@ Tk. 30000	30,000
6.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	100 nos.	@ Tk. 1000 for each tree.	100000

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
7.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@12822.86 per toilet	25645.72
8.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@5000	5000
9.	**Drinking water Facility** Supplying continuous adequate drinking water supply at work site and site office as well by installing necessary tube-well/s where applicable with best quality water tank (Gazi/Padma) and water filter of minimum capacity of 30 liters with necessary kits. All complete as per satisfaction of EIC.	1	@30000 tk for each setup	30000
10.	**Test (Drinking Water samples)** **Water samples** to be collected periodically (half yearly) for Tube well at labor shed for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@5000tk	5000
11.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for user s and providing a safe working area for those involved in work.	LS	15000	15000
12.	**Worker labor shed** Size (30'X20') with C.I sheet roofing, Tarza fencing and brick soling floor as per requirement and direction of EIC	1	30000	30000
	Subtotal Bill: Environmental facilities			**331,702.22**

Cost of H&S Measures under COVID 19 Situations for W20-10

The cost is estimated counting 15 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-20.10).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	40		50	50.00	90	4500.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can	2 bottles and 1	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site office

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	for Refill)	Can for each site						
6	Face Shield/ Protective Safety Goggles	09 nos. for each site		N/A	400.00	09	3,600.00	For labors who work in close contact, 12 in each site
7	One-time Mask (Disposable) for Contractors' Staffs	03 nos. each day in each site		N/A	12.00	810	9,720.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	15 nos. of labor in this site		35.00	270	9,450.00	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							**81,845.00**	

Cost of Environmental Enhancement Works for W20-11 in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
1.	**Grass Turfing** Turfing on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	6000 sqm	@38.15 Tk. Per sqm	228,900
2.	**Aid Box** Supply of first aid box with standard contents and as per direction of the E.I.C.	01	@5000 Tk. Per box	5000
3.	**Dust suppression measures** Dust suppression measures like water sprinkling on aggregates/ unpaved roads, in and around the work site and as per direction of the E.I.C.	2000 meters	2.56 Tk. per meter	5120
4.	**Motivation training** Motivation training (twice: before and after construction start) of the Upazila Engineer' sand Contractor's representatives on safety practice and as per direction of the E.I.C.	LS	Lum Sum @ 10000	10000
5.	**Providing Safety gear/ (PPE)** Providing Safety gear package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc.	LS	@ Tk. 30000	30,000
6.	**Tree plantation** Tree plantation around the shelter or road including maintenance for 2 years as per direction of E.I.C. (Coconut, Mango, Jackfruit etc. to be planted. The payment is to be made only when trees are fully grown) and as per direction of E.I.C. Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	100 nos.	@ Tk. 1000 for each tree.	100000

Sl no.	Description of item	Quantity	Unit price	Total amount (BDT)
7.	**Temporary Sanitary Latrine** Temporary Sanitary Latrine/ Septic Tank/ Portable Toilet: 2 nos. (1 no of Toilet for female and 1 no of Toilet for male) and as per direction of E.I.C.	2 nos.	@12822.86 per toilet	25645.72
8.	**Waste disposal** Temporary camp site waste disposal facility improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility) and as per direction of E.I.C.	LS	@5000	5000
9.	**Drinking water Facility** Supplying continuous adequate drinking water supply at work site and site office as well by installing necessary tube-well/s where applicable with best quality water tank (Gazi/Padma) and water filter of minimum capacity of 30 liters with necessary kits. All complete as per satisfaction of EIC.	1	@30000 tk for each setup	30000
10.	**Test (Drinking Water samples)** **Water samples** to be collected periodically (half yearly) for Tube well at labor shed for laboratory analysis of different parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from reputed laboratory and report) as desired by E.I.C.	LS	@5000tk	5000
11.	**Traffic Management** Maintaining traffic management at worksite from time of commencement of contractor's activities to time of completion activities, including ensuring that the road is safe for user s and providing a safe working area for those involved in work.	LS	15000	15000
12.	**Worker labor shed** Size (30'X20') with C.I sheet roofing, Tarza fencing and brick soling floor as per requirement and direction of EIC	1	30000	30000
	Subtotal Bill: Environmental facilities			**489,665.72**

Cost of H&S Measures under COVID 19 Situations for W20-11

The cost is estimated counting 40 workers for 270 active working days (9 months) of one-year construction period for this sub- project (EMCRP/W-20-11).

Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
1	Non-Contact IR Digital Thermometer	01 nos. in each site	N/A	N/A	5,000.00	1	5,000.00	Each site office will have a thermometer for checking body temperature every morning at the entrance of the working site
2	Wash Basin with Small Water Tank, Bucket and Mug (or piped water supply)	01 nos. in each site	N/A	01 nos. in each camp	10,000.00	2	20,000.00	Wash basin to be installed at favorable locations immediately after the entrance to the facility
3	Trash bin (covered)/Paddle Bin	01 nos. in each site	N/A	01 nos. in each camp	550.00	2	1,100.00	
4	Bar Soaps (150 gm each)	108		135	50.00	243	12150.00	To be placed in a case/holder on the basin, for washing hands for max. 25 people a day and showering of 20 workers in each labor camp.
5	Hand Sanitizer (2 nos. 250 ml bottle and 5 liter Can	2 bottles and 1	N/A	N/A	4,000.00	1	4,000.00	2 bottles and a 5 liter can for each Site

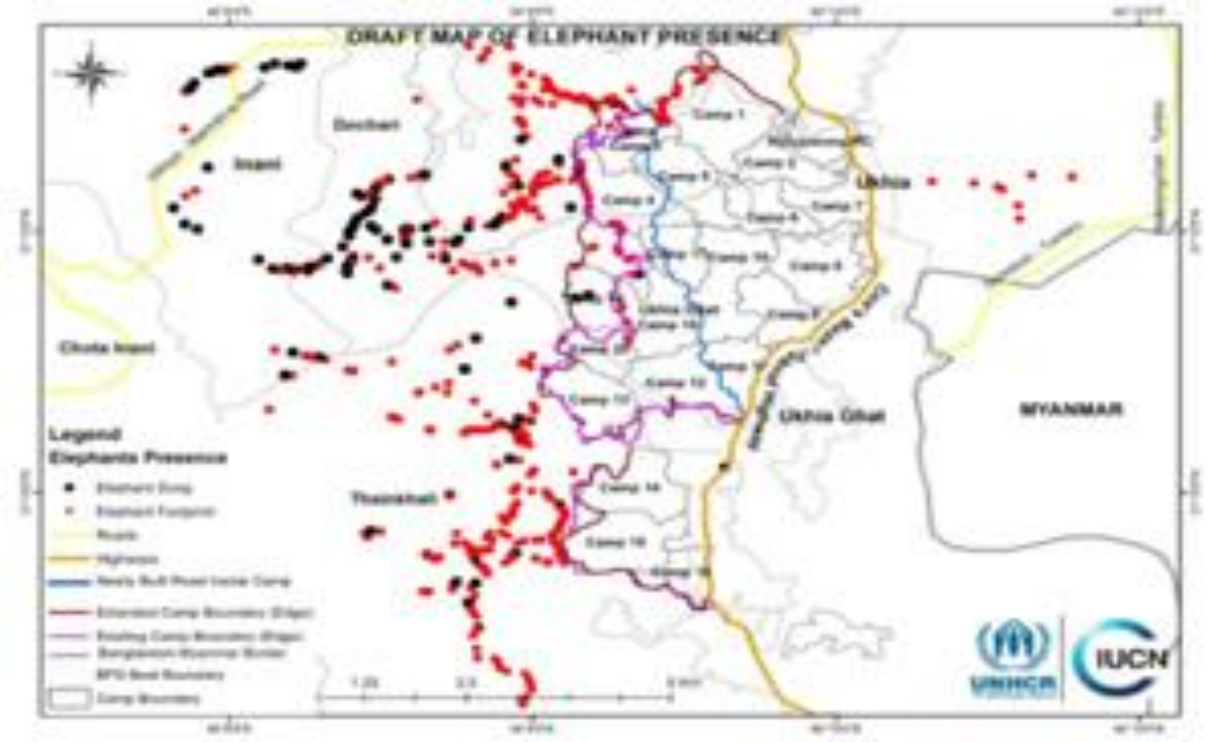
Sl. No.	Description of Item	Number of items to be used/kept at			Unit Cost (BDT.)	No. of items	Total Cost/ Price (BDT.)	Remarks/ Justification
		Site Office	Working Site	Labor Camp				
	for Refill)	Can for each site						office
6	Face Shield/ Protective Safety Goggles	24 for this site		N/A	400.00	24	9,600.00	For labors who work in close contact, 12 in each site
7	One-time Mask (Disposable) for Contractors' Staffs	05 nos. each day in each site		N/A	12.00	1350	16,200.00	Reusing N95/KN95 mask will not be a manageable option in field scenario, one time disposable medical/surgery mask a good option instead.
8	Cloth mask for Workers	N/A	40 nos. of labor for this site		35.00	720	25,200	A worker will use a mask for 15 days with everyday washing
9	Floor Cleaner (1 liter Can)	1.5 Can	N/A	2 can	250.00	3.5	875.00	
10	Detergent Cleaner	N/A	1 kg in each camp/month		400.00	09	3,600.00	To be used for washing clothes, masks and tools & equipment, etc.
11	Miscellaneous cost				20,000.00	1	20,000.00	Contingency cost for medical emergency and compensation for workers, subject to proper documentation
Grand Total (BDT)							**117,725.00**	

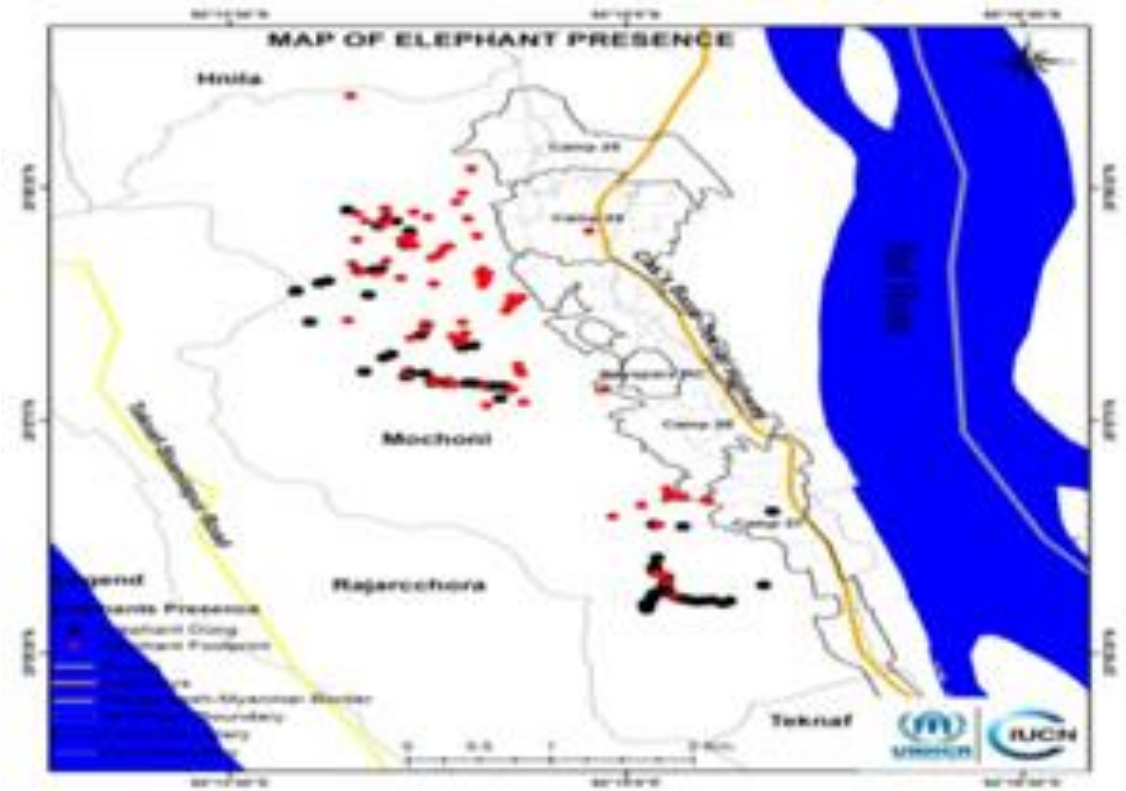
Social Safeguard Personnel for Environmental and Social Management for Work Package-20

Another item is to be added in the whole BOQ in order to take supervision and leadership to organize Environmental Management under Environmental Enhancement Works. This item is added as described below;

Sl.	Description	Road Package No.	Quantity	Unit	Unit Rate	Total Amount (BDT)
1.	Environmental Management Costs of the Environmental & Social Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & Transport (Net payment excluding Tax & VAT). And as per direction of the E.I.C ***(One Safeguard Personnel for R1, R4, R6 & R7)***	R1 R4 R6 R7	12	Months	@ Tk. 35,000	420,000
3.	Environmental Management Costs of the Environmental & Social Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & Transport (Net payment excluding Tax & VAT). And as per direction of the E.I.C ***(One Safeguard Personnel for R2, R3 & R5)***	R2 R3 R5	12	Months	@Tk. 35,000	420,000
2.	Environmental Management Costs of the Environmental & Social Safeguard Personnel for Environmental and Social Management and Monitoring during construction and operation phase for their salary & Transport (Net payment excluding Tax & VAT). And as per direction of the E.I.C ***(One Safeguard Personnel for R8, R9, R10 & R11)***	R8 R9 R10 R11	12	Months	@ Tk. 35,000	420,000
	Total					**12,60,000**

Appendix-4: Elephant Migration Routes Map





Elephant presence map (latest information published on 24 May 2018)

Appendix-5: Location Map of each Sub-project

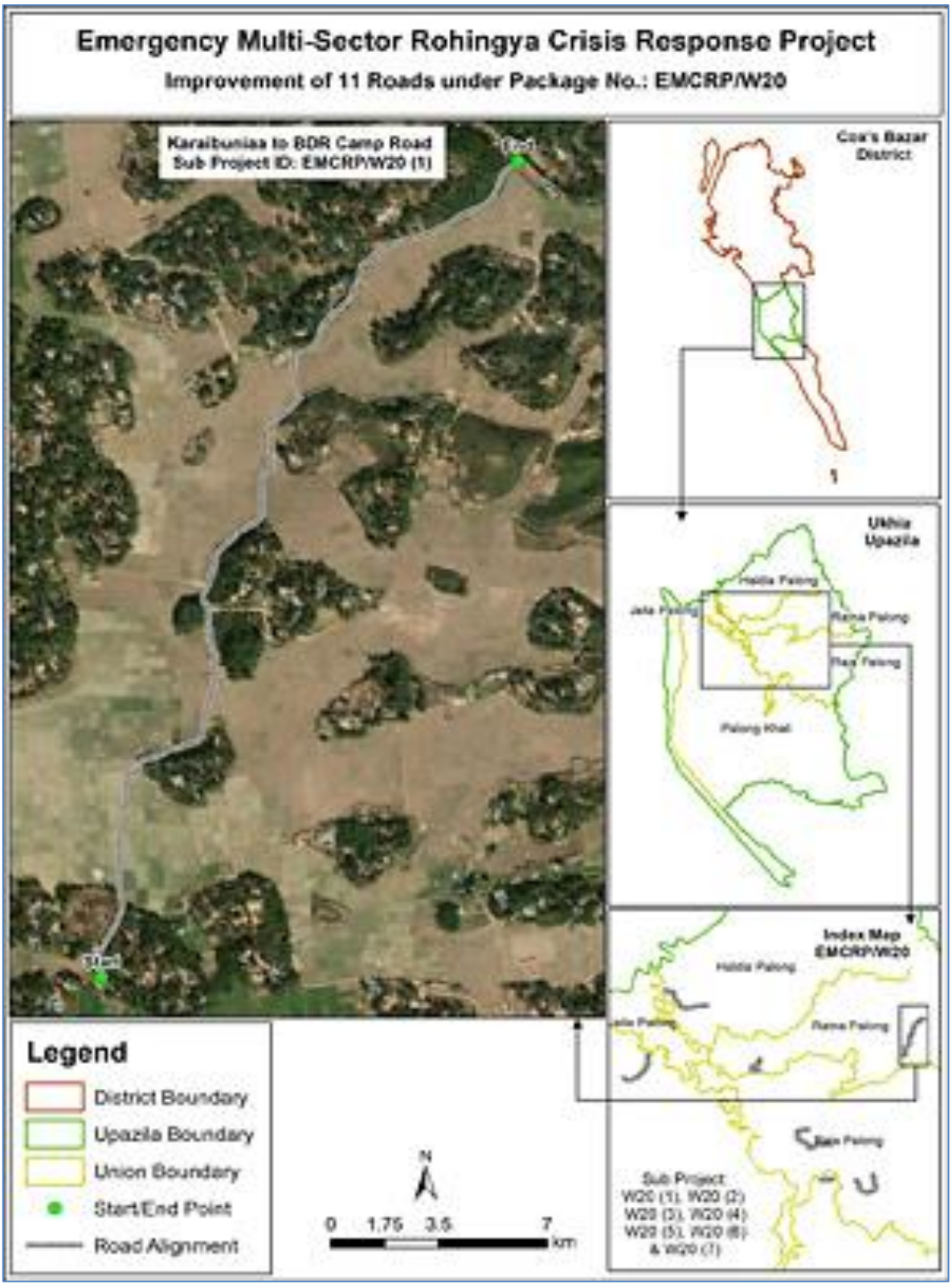


Figure: Location Map of W20-1

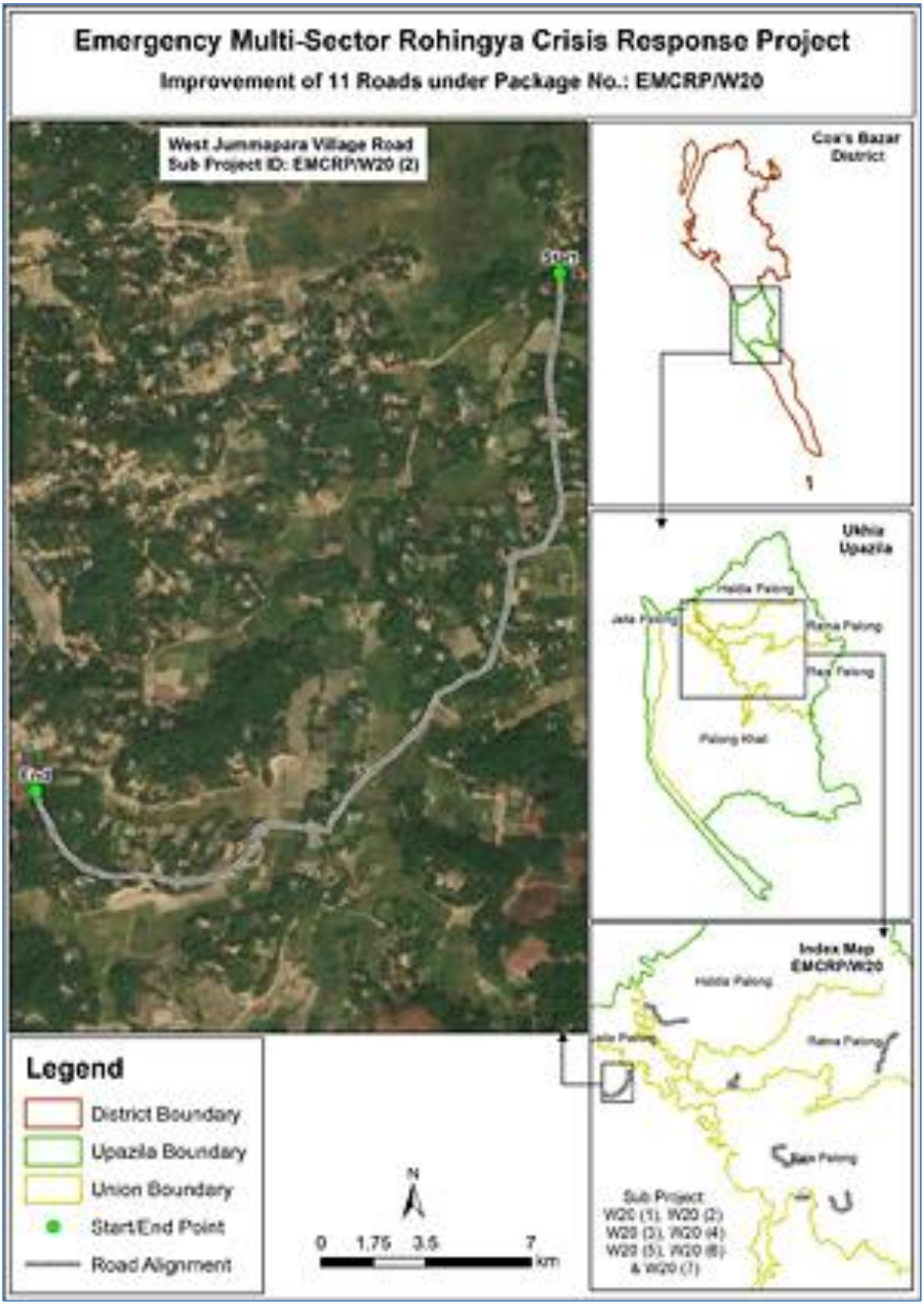


Figure: Location Map of W20-2

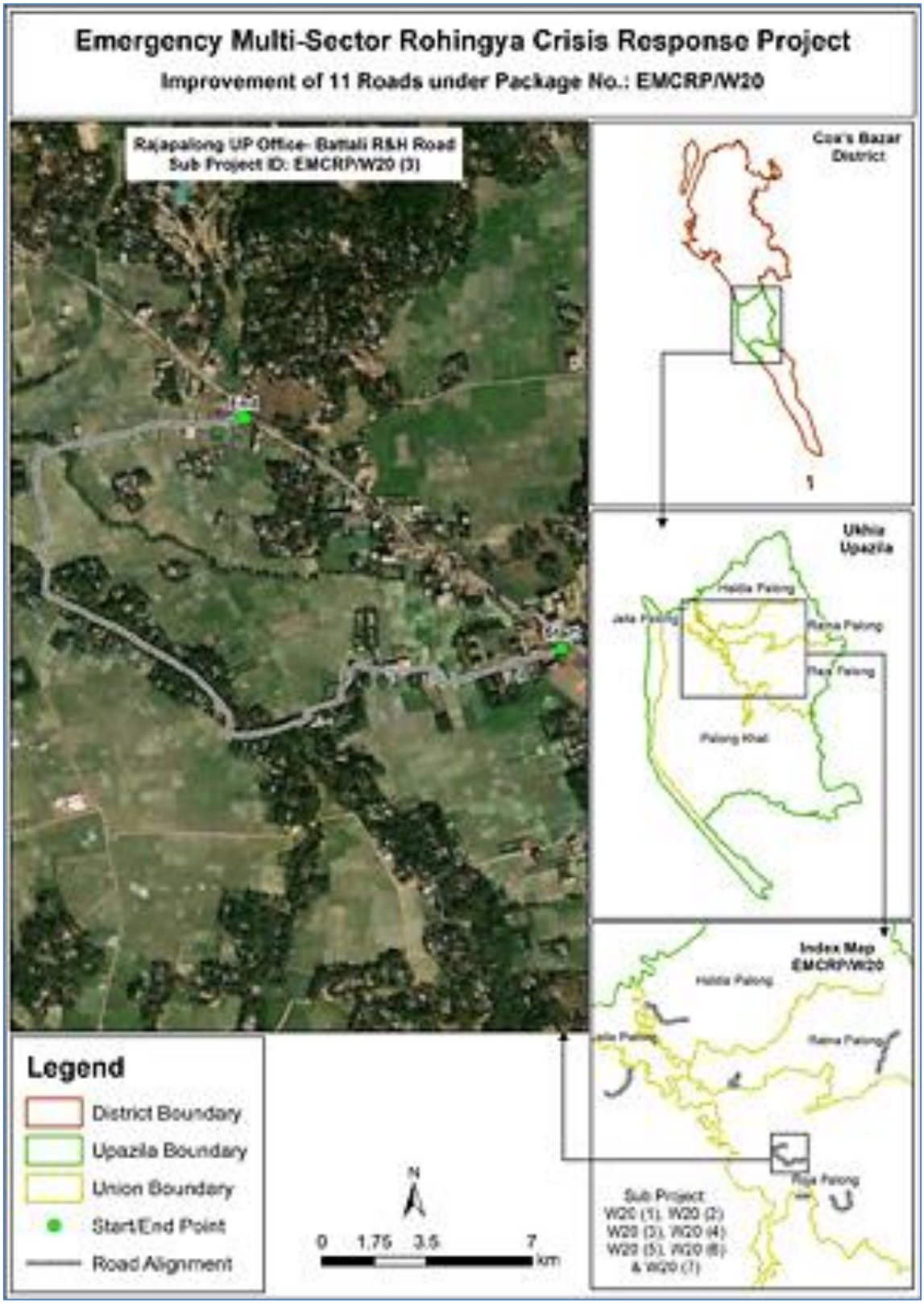


Figure: Location Map of W20-3

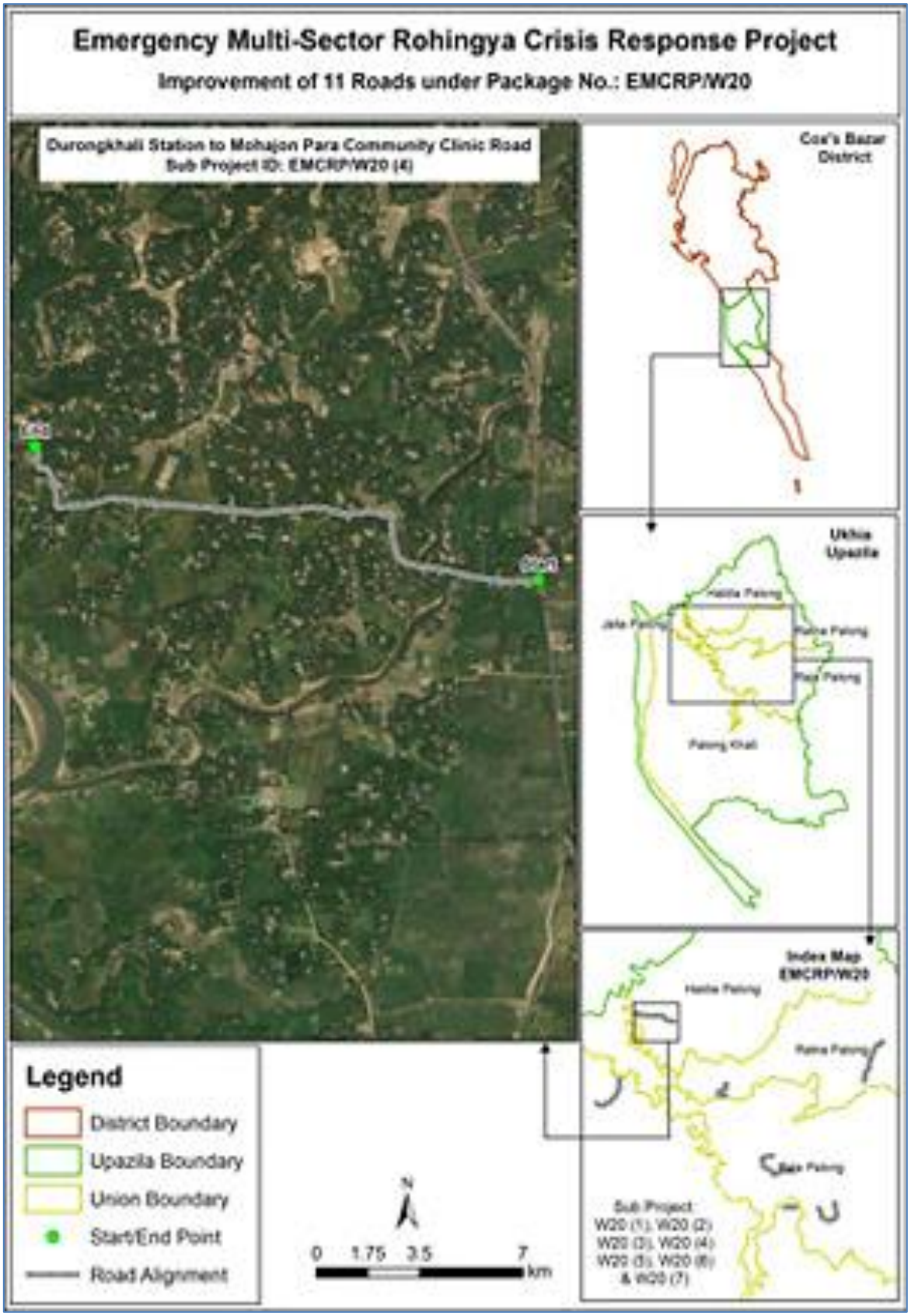


Figure: Location Map of W20-4

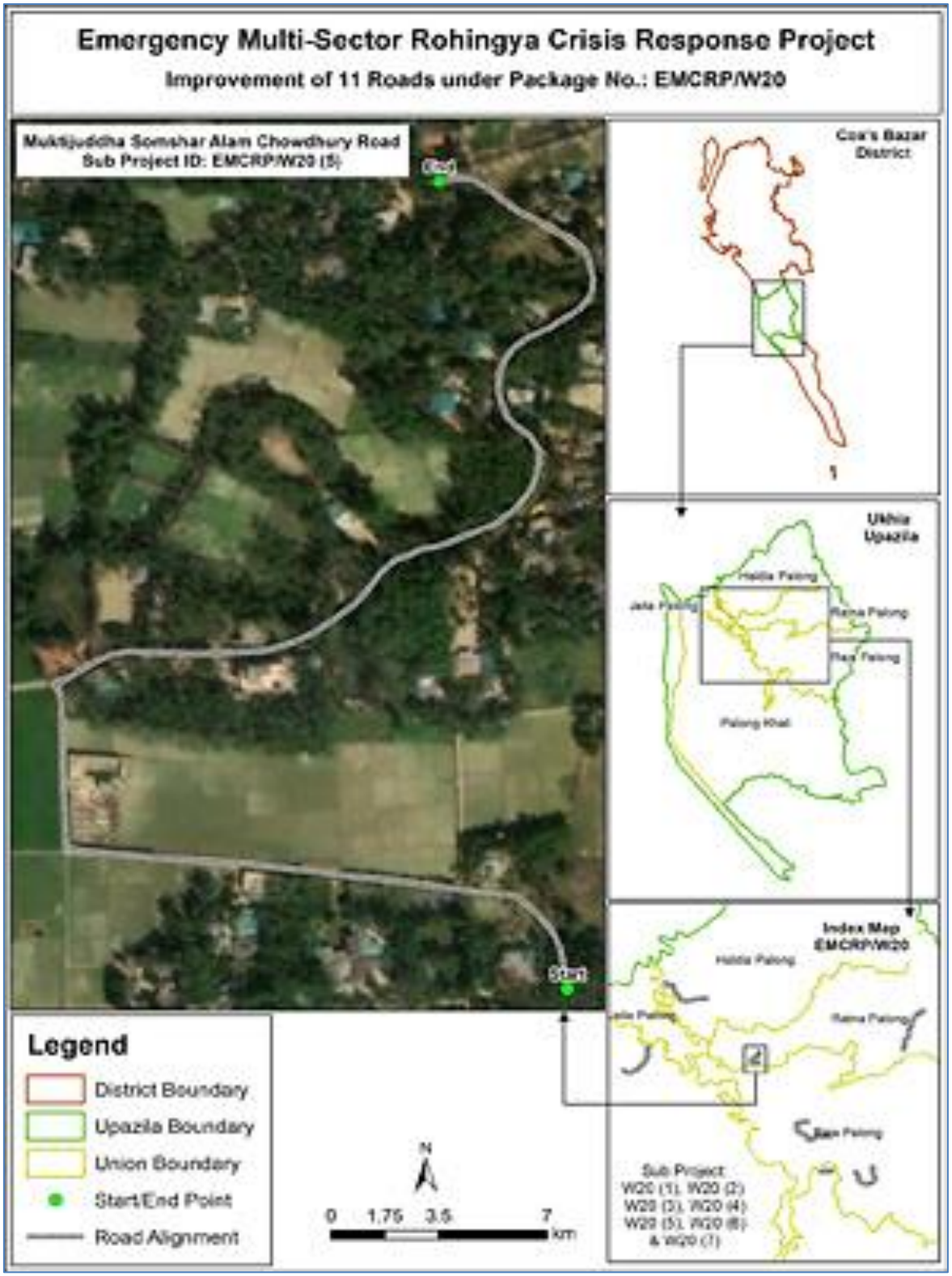


Figure: Location Map of W20-5

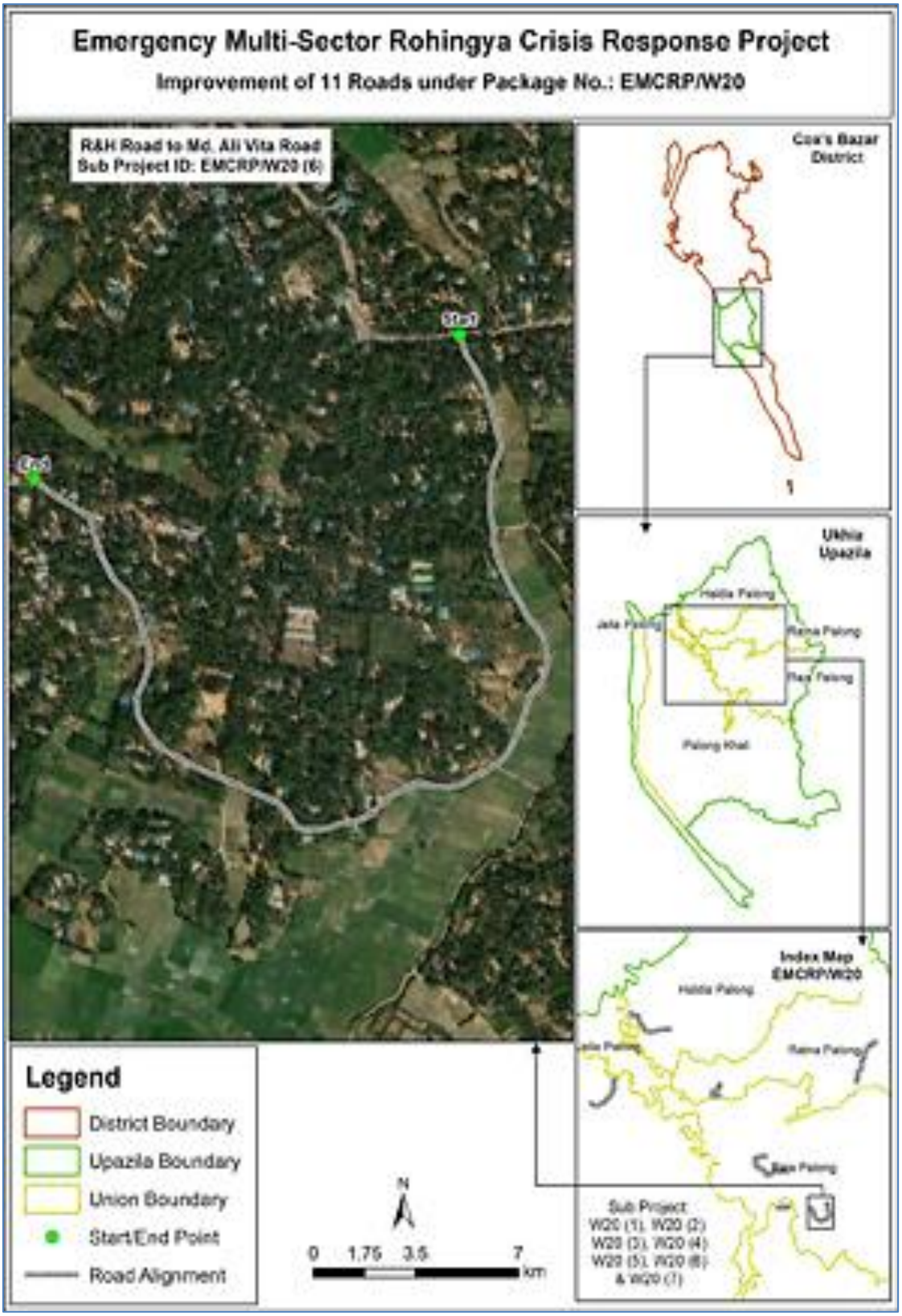


Figure: Location Map of W20-6

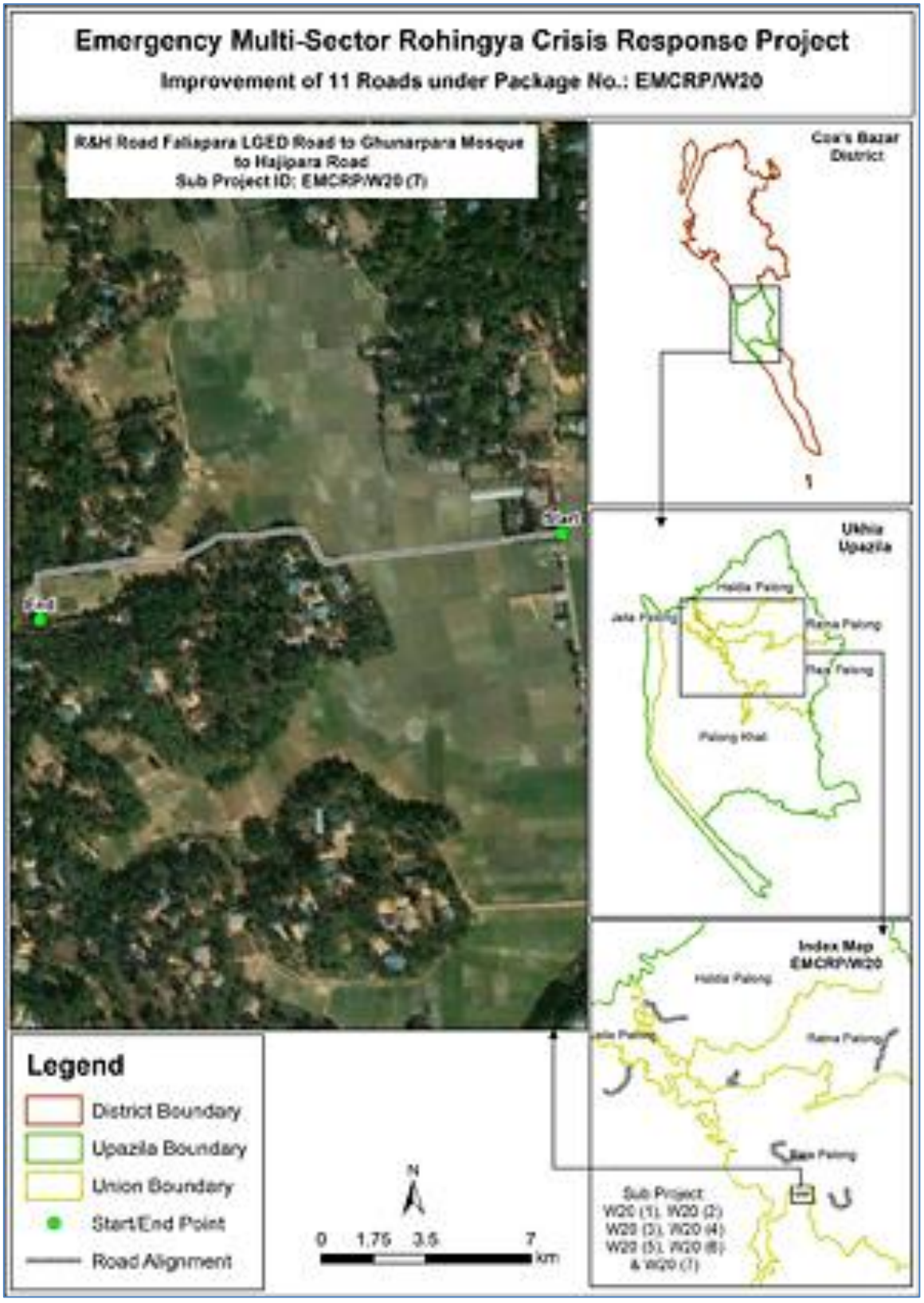


Figure: Location Map of W20-7

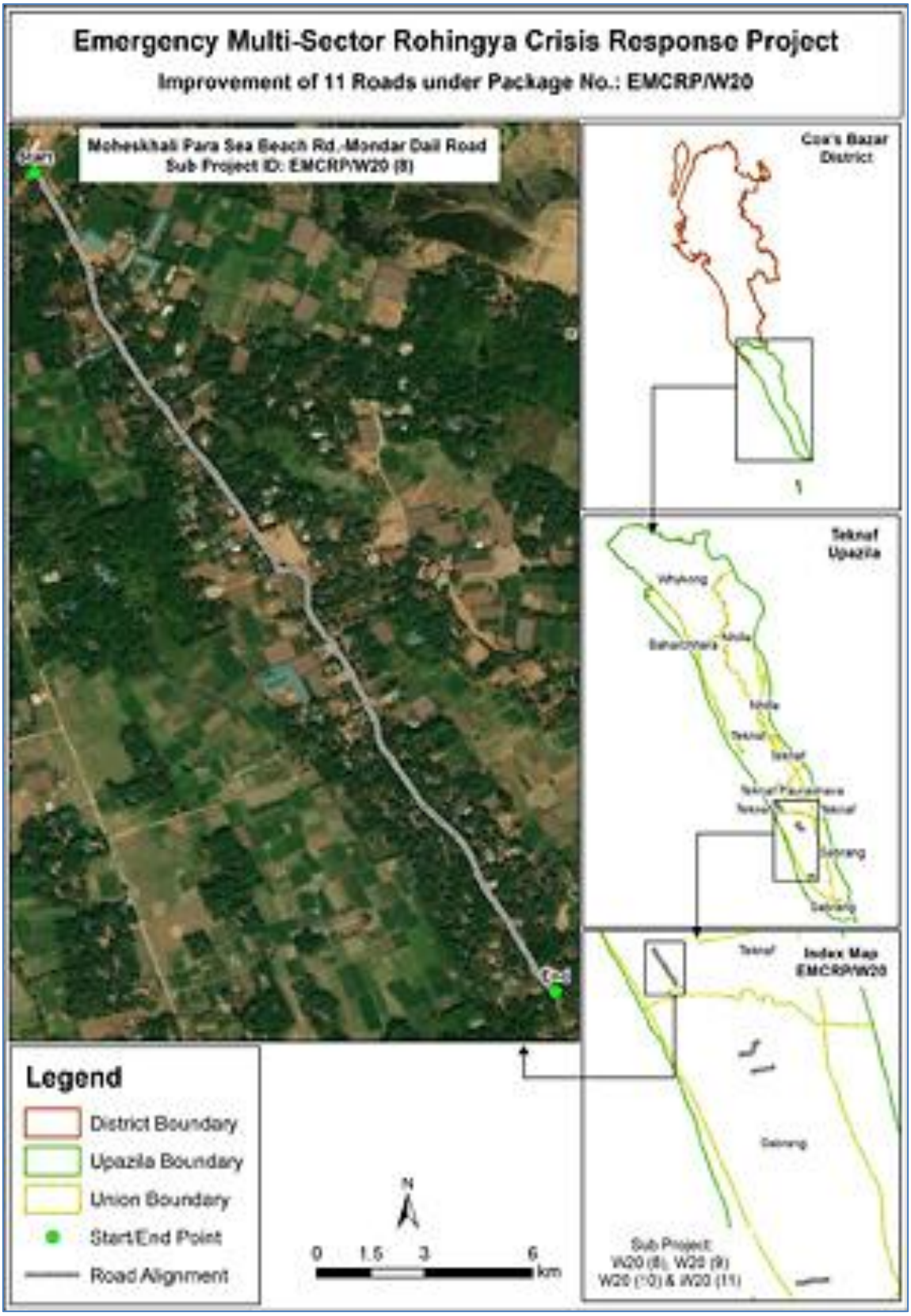


Figure: Location Map of W20-8

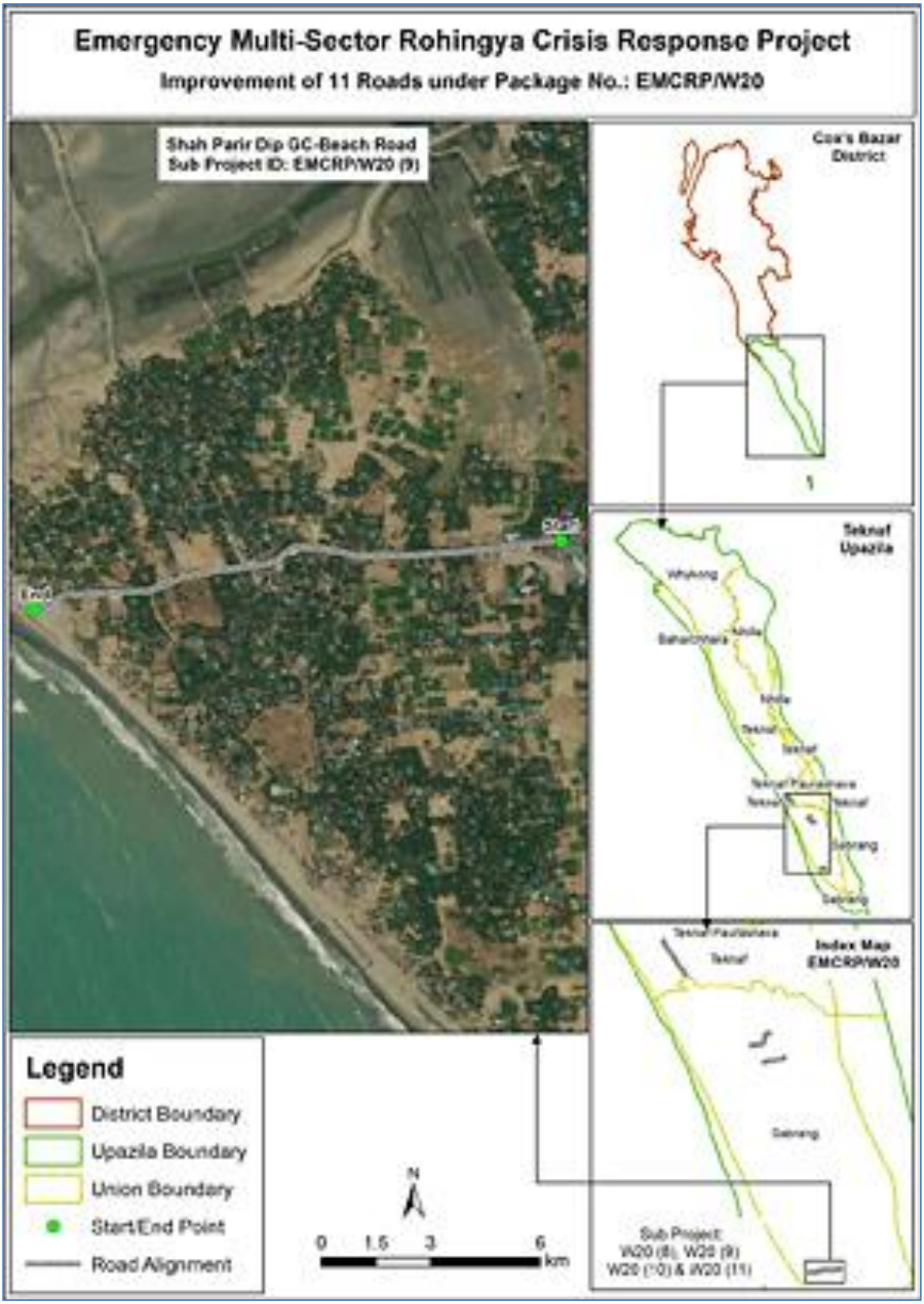


Figure: Location Map of W20-9

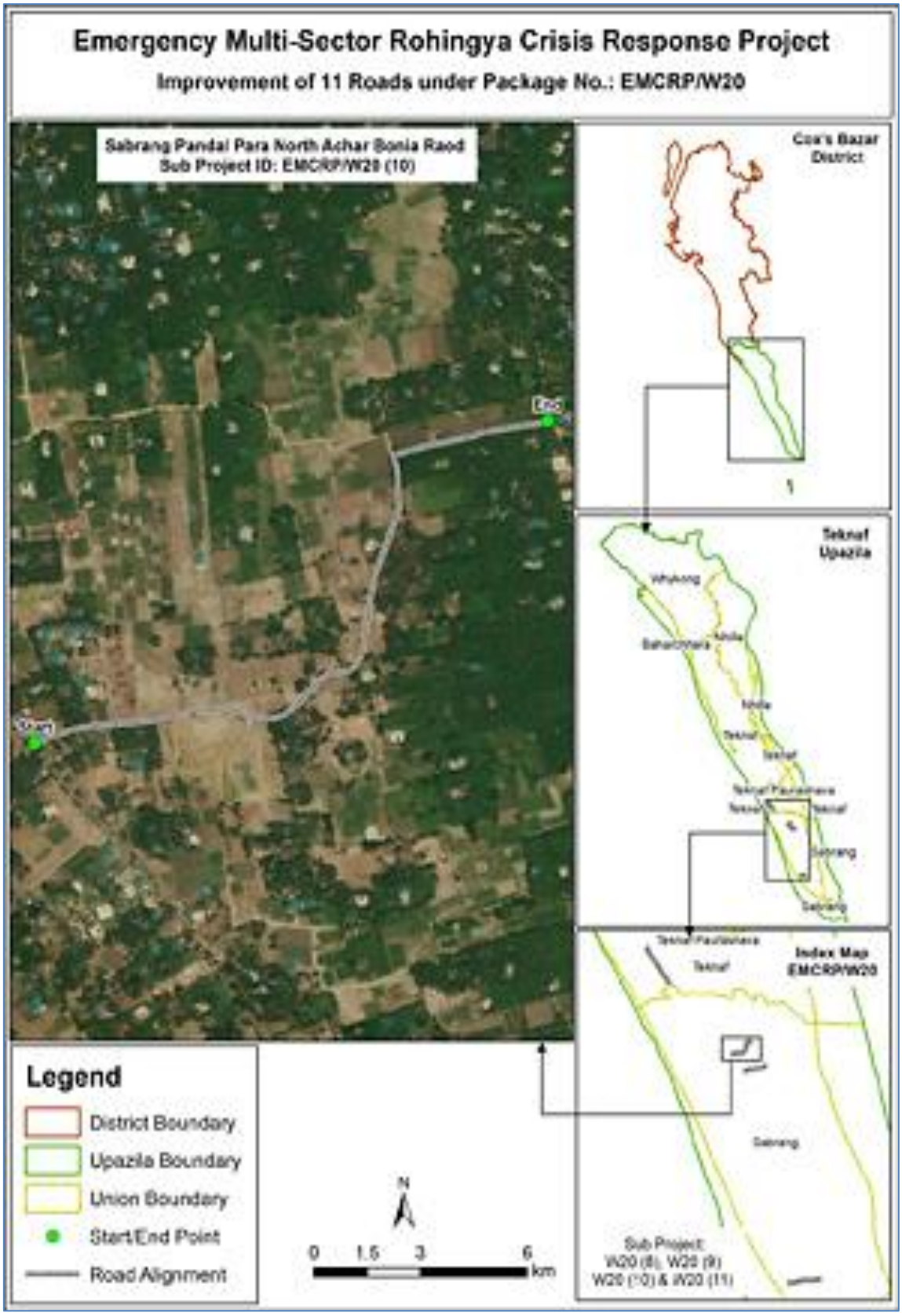


Figure: Location Map of W20-10

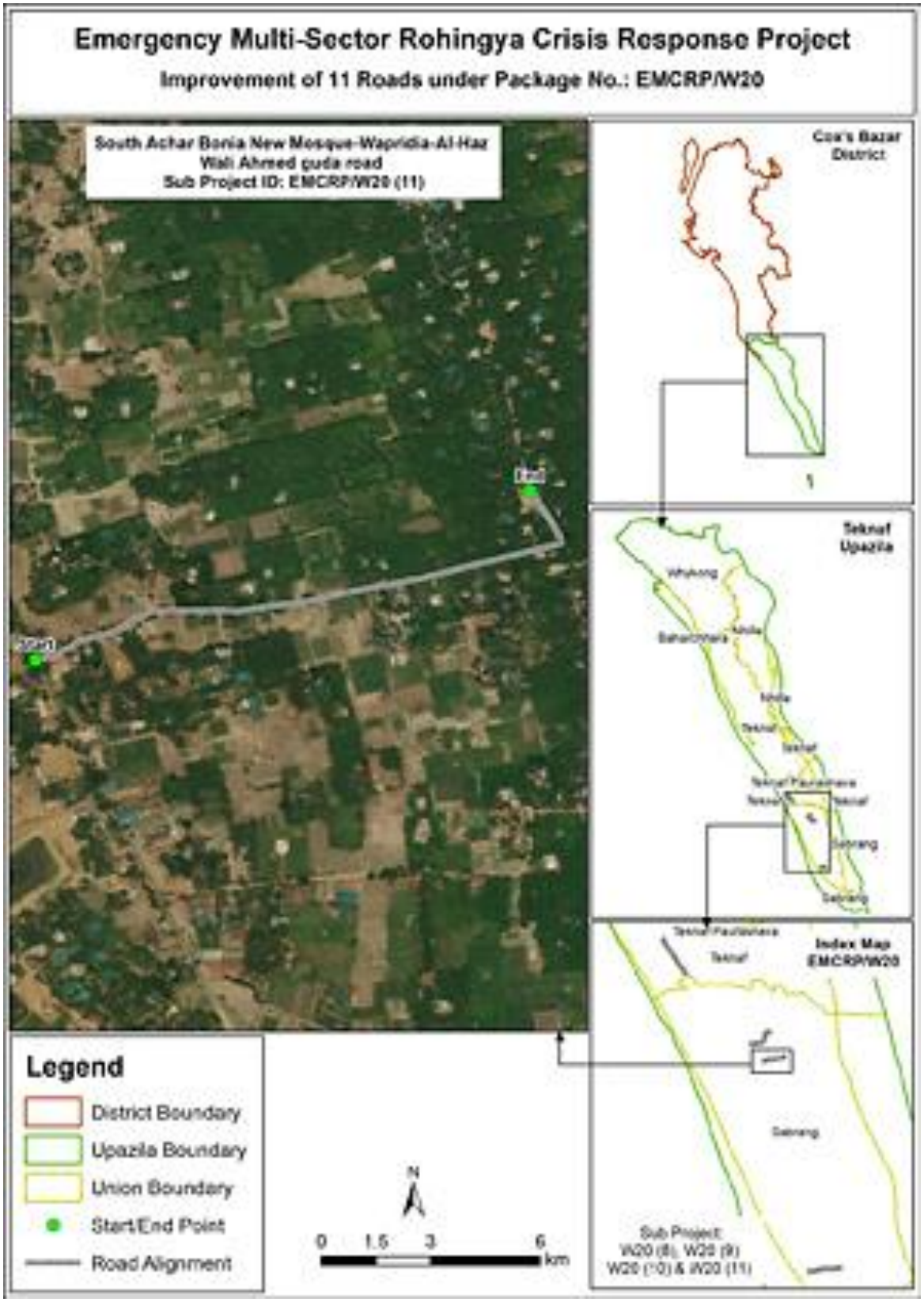
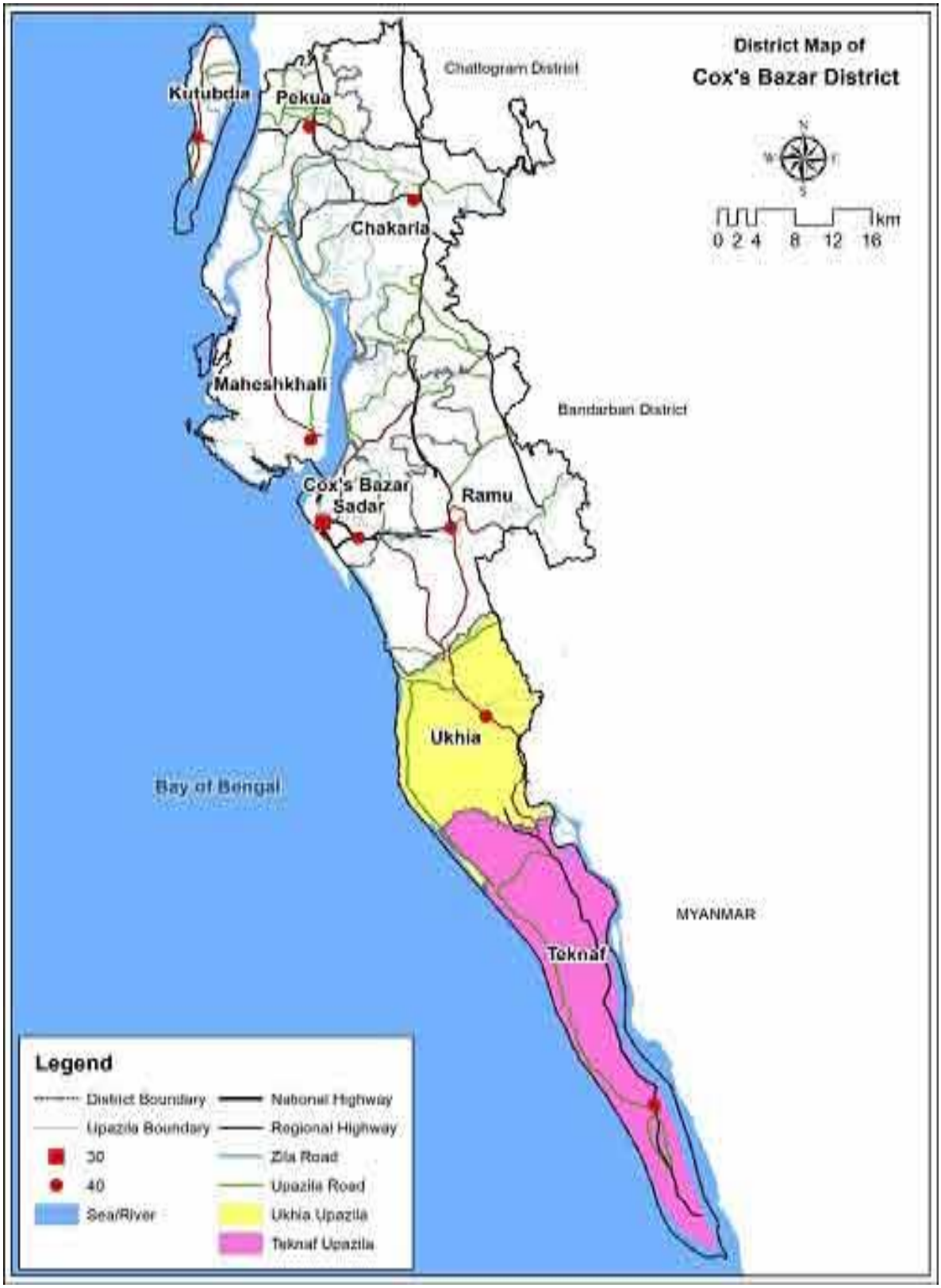


Figure: Location Map of W20-11



District map showing Ukhiya and Teknaf Upazila