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Ministry of Local Government, Rural Development & Co-operatives
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Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Improvement of Community Infrastructure, Growth Center, others roads & Connecting
Roads at Madaripur District



Environmental & Social Assessment and Management Report of
Community Roads

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ABBREVIATIONS

BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BMD	Bangladesh Meteorological Department
BOQ	Bill of Quantity
DPHE	Department of Public Health Engineering
EA	Environmental & Social
ECR	Environmental Conservation Rules, 1997
E.I.C	Engineer in Charge
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
E&S	Environmental and Social
ESCoP	Environmental and Social Codes of Practices
ESCP	Environmental Social Commitment Plan
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESSR	Environmental and Social Screening Report
ESSs	Environmental and Social Standards
FAO	Food and Agriculture Organization
GoB	Government of Bangladesh
GPS	Government Primary School
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IEFs	Important Environmental Features
KM	Kilometer
KMPH	Kilometer Per Hour
LGED	Local Government Engineering Department
LMP	Labour Management Procedures
LS	Lump Sum
MDSP	Multipurpose Disaster Shelter Project
MoEFCC	Ministry of Environment, Forest and Climate Change
MM	Millimeter
MoLGRDC	Ministry of Local Government, Rural Development and Cooperatives
NPDM	National Plan for Disaster Management
PD	Project Director
PIU	Project Implementation Unit
PPE	Personal Protective Equipment
RIVER	Resilient Infrastructure for Adaptation and Vulnerability Reduction
RPF	Resettlement Policy Framework
SEP	Stakeholders Engagement Plan
SMC	School Management Committee
UNDP	United Nations Development Programme
WB	World Bank

Executive Summary

The Environmental & Social Assessment and Management Report (ESAMR) of Community Roads for Madaripur District has been prepared for the sub-project titled “Improvement of Community Infrastructure, Growth Centre, Connecting Roads & others roads at Madaripur District under the RIVER Project.” The initiative is jointly financed by the World Bank and the Government of Bangladesh and aims to strengthen climate-resilient infrastructure and enhance accessibility to essential community facilities in vulnerable flood-prone regions. The RIVER Project focuses on improving rural infrastructure and disaster preparedness in flood-affected districts of Bangladesh by developing safe evacuation routes, strengthening community connectivity, and ensuring reliable access to flood shelters during emergency situations.

Under this sub-project, several community infrastructures connecting roads in Madaripur District will be improved to provide safe and sustainable access to nearby flood shelters and essential social infrastructure. The roads are located in four upazilas— Madaripur Sadar Upazila, Rajoir Upazila, Kalkini Upazila, and Shibchar Upazila—which are characterized by rural settlements, agricultural landscapes, and periodic exposure to seasonal drought, river erosion and flooding. These community roads play a crucial role in connecting local villages with educational institutions, growth centres, health facilities, local markets, and most importantly flood shelters that serve as safe havens during natural disasters. Improving these roads will enhance mobility and ensure that communities can reach flood shelters quickly and safely during emergency events.

The Environmental and Social Assessment has been conducted by D&SC to evaluate potential environmental and social impacts associated with the proposed road improvement activities and to develop suitable mitigation and management strategies in compliance with national environmental regulations and the environmental and social standards of the World Bank. The assessment process included environmental and social screening, field reconnaissance surveys, stakeholder consultations, and the review of relevant secondary data and policy documents. The assessment team visited the proposed road alignments and surrounding areas to identify sensitive environmental and social features that may be affected during construction and operation phases.

Under this sub-project, twelve (12) community infrastructures connecting roads in Gaibandha District will be improved to provide safe and sustainable access to nearby flood shelters and essential social infrastructure. The roads are located in four upazilas- Madaripur (2 roads with total length of 3.9 km), Rajoir (5 roads with total length of 4.805 km), Kalkini (3 roads with 3.612 km), and Shibchar (2 roads with active length of 2.25 km) Upazila-which are characterized by rural settlements, agricultural landscapes, and periodic exposure to seasonal flooding.

A short profile of the roads to be implemented					
Sl. No.	Name of Upazila	Name of Proposed Community Road (Road ID)	Total Length (Km)	Avg. width (m)	Distances from nearby Shelters
1.	Madaripur	RHW(Ambari)-Joyar. (354545001)	3	3.2	4m
2.	Sadar	R & H Chokder Kandi GPS (354545390)	0.9	2.1	20m
3.	Rajoir	Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Mosque.U. P (354805058)	0.995	3.2	350m
4.		Mollahdi pucca road-Mollahdi GPS via Furkania madrasa (354805112)	1.05	3	5m
5.		Ishibpur UP-Goaldi- Sonapara bazar- Ari para bazar (354803015)	0.8	3	1.7km
6.		Chanpathi-Kachabali Road (354805029)	1.26	3	1.7km
7.		Solpur More (UZR)-Katchabali bridge (UNR-3028) (354804024)	0.7	3	37m
8.	Kalkini	Mojid Kazi House-Atul Babu House Near Kali Mondir Via Khilgram (354405133)	1.512	3	500m
9.		Dhulgram Hat-Choto Bonogram A. Munshi House (354405290)	1.3	3.3	10m
10.		DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque (354405134)	0.8	1.9	112m
11.	Shibchar	UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman (354875320)	1.5	3	700m
12.		UZR-6, Kamar Bari to Bhadrason Bazar road. (354875135)	0.75	5.25	800m

The Environmental and Social Assessment has been conducted by D&SC to evaluate potential environmental and social impacts associated with the proposed road improvement activities and to develop suitable mitigation and management strategies in compliance with national environmental regulations and the environmental and social standards of the World Bank. The assessment process included environmental and social screening, field reconnaissance surveys, stakeholder consultations, and the review of relevant secondary data and policy documents. The assessment team visited the proposed road alignments and surrounding areas to identify sensitive environmental and social features that may be affected during construction and operation phases.

Overall, the activities under this works package involve rehabilitation and improvement of community roads through bituminous surfacing, localized structural works (including bridges/culverts), slope protection, utility relocation, and roadside plantation. More specifically, the interventions as well as the overall physical features around the roads are given below:

- (i) **The RHW (Ambari)-Joyar Road (354545001)** will undergo bituminous surfacing along its full 3.00 km length (Ch. 0+000 to 3+000). The alignment predominantly runs through densely distributed homestead areas, interspersed with sections of paddy fields, particularly between Ch. 0+900 and 1+500. A canal exists along the right side in the initial stretch, which may influence local drainage patterns. Given the continuous presence of residential zones and agricultural interfaces, construction activities will prioritize maintaining uninterrupted access, preventing obstruction of natural water flow, and minimizing disturbance to nearby households.
- (ii) **Improvement of the R&H-Chokder Kandi GPS Road (354545390)** will include bituminous carpeting over 0.90 km (Ch. 0+000 to 0+900). The corridor is environmentally sensitive, featuring closely spaced ponds, ditches, gardens, and homesteads within 2-4 m of the road edge. Key social receptors include a mosque on the left and a school on the right within the mid-section (Ch. 0+300-0+600), along with a canal running parallel to the alignment. Due to the high concentration of community facilities and water bodies, targeted safety interventions such as signage and speed calming measures will be introduced, alongside careful handling of drainage and pond protection.
- (iii) **The Jamadder Bari Bridge-Tarek Sikder Road via Howlader Bari Mosque (354805058)** will be upgraded with bituminous surfacing across its 0.995 km stretch. The road exhibits a linear pattern where a canal consistently borders the left side, while homestead settlements dominate the right. This asymmetrical environmental setting necessitates particular attention to slope stability and canal protection during works, in addition to ensuring safe access for adjacent households throughout the construction phase.
- (iv) **The Mollahdi Pucca Road-Mollahdi GPS via Furkania Madrasa (354805112)** is proposed for bituminous improvement over 1.05 km. This road traverses a highly active socio-economic corridor, featuring schools, mosques, madrasa, graveyards, markets, ponds, and residential clusters within close proximity. The alignment also intersects open fields and paddy land sections. Due to the diversity and density of sensitive receptors, especially near educational and religious institutions, comprehensive road safety provisions including signage and speed breakers will be strategically installed, while construction will be carefully phased to minimize disruption to daily community activities.
- (v) **The Ishibpur UP-Goaldi-Sonapara Bazar-Ari Para Bazar Road (354803015)** will be improved with bituminous carpeting between Ch. 4+600 and 5+500. The surrounding environment is primarily agricultural, with homestead clusters and religious structures (mosques) located along the right side. A pond is also present along the left section. As the road supports local movement between rural settlements and bazar areas, safety measures will focus on mosque-adjacent sections, and care will be taken to avoid impacts on nearby water bodies and cultivated land.
- (vi) **The Chanpathi-Kachabali Road (354805029)**, extending 1.26 km, will be upgraded with bituminous surfacing. The initial segment includes roadside commercial activity

- (shops), gardens, and a mosque, gradually transitioning into mixed homestead and agricultural landscapes. A canal appears along the right side in the mid-section, while paddy fields dominate the central portion of the alignment. Given the mixed land use pattern, the improvement works will incorporate localized safety features near activity zones and ensure continuity of access for both residents and small businesses.
- (vii) **The Solpur More (UZR)-Katchabali Bridge Road (354804024)** will receive bituminous treatment over approximately 0.70 km (Ch. 0+500-1+200). The road exhibits a contrasting profile, with canal and tree-lined edges on the left, and dense socio-economic activity on the right, including a school, mosque, shops, and market areas. This configuration increases pedestrian interaction with traffic, especially near institutional and commercial nodes. Accordingly, traffic calming measures, signage, and localized safety interventions will be prioritized, while construction will ensure protection of canal banks and roadside vegetation.
- (viii) **The Mojid Kazi House-Tul Babu House via Khilgram Road (354405133)** will be improved over its 1.512 km length. The alignment passes through a complex hydrological and settlement landscape, including ponds, canals, drains, gardens, and homesteads, along with connecting rural roads. Religious structures such as a mosque and a temple are also located along the route. Given the intricate mix of water bodies and community features, the project will emphasize maintaining drainage continuity, protecting aquatic edges, and ensuring safety near religious sites through appropriate signage.
- (ix) **The Dhulgram Hat-Choto Bonogram A. Munshi House Road (354405290)** will be upgraded over 1.30 km. The road environment is characterized by closely spaced ponds, gardens, homesteads, and small commercial activities, with a crematorium and a mosque located near the alignment. Some features lie extremely close to the road (within 1-3 m), increasing sensitivity during construction. Therefore, careful execution will be required to prevent structural or environmental damage, along with the installation of safety signage near religious and culturally sensitive locations.
- (x) **The DK Ideal College-Mridha Rice Mill Road via Paschim Dasar Jame Mosque (354405134)** will be improved over 0.80 km. The alignment includes a combination of graveyard, mosque, canal, ponds, and residential areas, along with a rice mill facility. The presence of a canal on the right side and multiple sensitive receptors near the road necessitates controlled construction practices. Safety measures will be focused near the mosque and graveyard, while ensuring that canal flow and adjacent pond conditions remain unaffected.
- (xi) **The Umedpur UP Bhabon-UZR-10 Road via Karjon Chairman's House (354875320)** will undergo bituminous improvement along its 1.50 km stretch. The road primarily serves as a local access corridor connecting homesteads and internal roads, eventually transitioning into agricultural zones dominated by betel leaf plantations. Given its function as a community access route, emphasis will be placed on maintaining connectivity during construction and avoiding disturbance to plantation areas.

- (xii) **The Kamar Bari-Bhadrason Bazar Road (354875135)** will be improved over approximately 0.75 km. The alignment includes roadside shops, homesteads, gardens, and a canal, along with a significant institutional feature—Nurul Hoque College—located very close to the road. This creates a high pedestrian interaction zone, especially in the initial segment. Accordingly, safety interventions such as signage and speed breakers will be installed near the college, and construction will be carefully managed to ensure uninterrupted access and protection of the adjacent canal. approximately 2.285 km. The road passes through rural settlements, agricultural land, and important community facilities, including Bahadurpur Bazar at Ch. 2+430, Bahadurpur GPS at Ch. 2+410 (5 m away), Bahadurpur Eidgah at Ch. 2+770 (3 m away), and graveyards at Ch. 3+600 and 3+782. Considering the presence of these socio-cultural and sensitive locations, road safety features such as signage and speed breakers will be installed at appropriate locations, especially near the bazar, school, Eidgah, and graveyards.

The assessment study also reveals that the proposed road improvement works will largely be carried out within the existing Right of Way (ROW), thereby minimizing the need for land acquisition and significantly reducing potential resettlement issues. The existing roads are mainly earthen or partially paved rural roads that require improvement to ensure year-round accessibility, improved drainage, and enhanced structural stability. The project will involve activities such as road widening where necessary and contingent upon the available land within ROW, strengthening of road surfaces, improvement of drainage systems, and installation of small culverts or cross-drainage structures where required. However, the scope of works, including specific safety and environmental measures along with potential impacts that may arise from the proposed interventions, are tabulated hereunder:

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
1.	RHW(Ambari)-Joyar. (354545001)	Paved- 0+00 to 3+000m Damaged length- 1220m (Ch. 1780m to 3000m)	BC-0+00 to 3+000 and width is 3m	Not available in site	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
2.	R & H Chokder Kandi GPS (354545390)	BFS- 0+00 to 0+200m (Ch.00m to 200m)	BC-0+00 to 0+900 and width is 2.6	Not available in site	Air, water and soil pollution from Construction works; temporary

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
		Earthen-700m (Ch.200 to 900m)			obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
3.	Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Mosque.U. P (354805058)	Paved- 0+00 to 958m (Ch. 958m)	BC-0+00 to 958 and width is 3m	Not available in site	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
4.	Mollahdi pucca road-Mollahdi GPS via Furkania madrasa (354805112)	BFS-0+00 to 1+050m (Ch.9m to 28.2m, Ch.377m-1050m) Earthen-95m (Ch. 282m to 377m)	BC-0+00 to 1+050 and width is 3m Box Culvert- (4m × 4m) - (Ch. 00m), Palisading 48m- (Ch. 42 to 90m), 23m - (23.169178 N; 90.098826 E)	Not available in site	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
5.	Ishibpur UP- Goaldi- Sonapara bazar- Ari para bazar (354803015)	BFS-800m (Ch. 4,620m to 5420m)	BC- 4+620 to 5+420 and width is 3m	Not available in site	Not available in site Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
					plantation.
6.	Chanpathi-Kachabali Road (354805029)	RCC-55m (Ch. 218m to 273m) HBB+ BFS-567m (Ch.00 to 372m, 1065 to 1260m) Earthen-600m (Ch. 456 to 1056m)	RCC-0+00 to 1+260 and width is 3m RCC BOX (2m × 5m × 3m)- (Ch. 530m) U-Drain- Ch.663m Palisading 22m- (Ch. 218m to 240m), 47m- (Ch. 1213m to 1260m)	Not available in site	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
7.	Solpur More (UZR)-Katchabali bridge (UNR-3028) (354804024)	Paved- 105m (Ch.503 to 608m) HBB-595m (Ch 605 to 1200m)	BC-805 to 1+200 and width is 3m	Not available in site	Air, water and soil pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
8	Mojid Kazi House- Atul Babu House Near Kali Mondir Via Khilgram (354405133)	Paved- 0+00 to 493m Damaged Length- 433m (Ch. 60 to 493m) BFS-408m, (Ch.1104 to 1512m) Earthen-614m (Ch. 490 to 1104m)	BC-0+00 to 1+512 and width is 3m Culvert (2m × 4m × 4m) - (Ch. 1279m), Palisading-146m (Ch. 00 to 46m, Ch. 1104 to 2004)	Not available in site	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
9.	Dhulgram Hat-	Paved-0+000 to	BC-00 to 1+145	Not available	Air, water and soil

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
	Choto Bonogram A. Munshi House (354405290)	1+300m, Damage length-1288m (Ch. 12 to 1300m)	and width is 3m Palisading-67m U-Drain (7.8m × 1.6m)- (Ch. 1139m)	in site	pollution from Construction works; temporary obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.
10.	DK Ideal College- Mridha Rice Mill via Paschim Dasar Jame Mosque (354405134)	BFS-540m Damaged length-353m (Ch. 187m to 540m) Earthen-187m (Ch. 00 to 187m)	BC-0+00 to 0+800 (Ch.440m) and width 3m Palisading-0+100 to 0+187m, (Ch. 100 to 187m, Ch. 200 to 376m, Ch. 440m, Ch. 580m) Box Culvet-583m (Ch. 583m)	Not available in site	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
11.	UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman (354875320)	Paved-0+00 to 1+436m	BC-0+00 to 1+436 and width is 3m	Not available in site	Air, water and soil pollution from Construction works; temporary setback in pedestrians' movement, OHS issues of workers, SEA/SH issues among the workers/locals.
12.	UZR-6, Kamar Bari to Bhadrason Bazar road. (354875135)	Paved- 0+00 to 0+750m	BC 0+00 to 0+750m and width is 3m	Not available in site	Air, water and soil pollution from Construction works; temporary

Sl. No.	Road Name	Pavement Condition with Chainage	Proposed Road Interventions	Safeguard Features	Key Potential Impacts
					obstacles in pedestrians' movement, OHS and SEA/SH issues among workers and locals, tree plantation.

Despite the substantial socio-economic benefits the project will bring, certain construction-phase activities, such as earthworks, excavation, and material handling, are likely to cause localized soil disturbance, potential erosion, and impacts on roadside vegetation. The removal of trees and clearing of vegetation may temporarily affect the ecological balance and visual landscape, while also contributing to minor habitat disruption. In addition, construction near water bodies poses a risk of water contamination due to sediment runoff, improper waste disposal, or accidental spillage of construction materials. Air and noise pollution are anticipated due to vehicular movement, operation of construction machinery, and material transport, which may affect nearby residents, educational institutions, and health facilities. These activities may also cause temporary disruption to traffic flow and pedestrian movement, limiting access to homes, schools, and community services. In areas with dense human settlements or educational institutions, there is an increased risk of accidents, as well as occupational health and safety (OHS) concerns for workers and the public. Furthermore, the presence of a mobile workforce introduces potential risks related to Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH), which require careful management. Additional impacts include temporary social inconvenience, restricted access to local infrastructure, and safety hazards associated with open excavations, movement of heavy vehicles, and ongoing construction operations. The dismantling and relocation of electric poles may also temporarily interrupt utility services if not properly coordinated. All these impacts are very localized and mostly avoidable and do not pose any significant threat or harm to local inhabitants or biodiversity, if general good engineering and OHS practices are adopted. Therefore, the overall risk for this sub-project can be categorized as 'Moderate'. No ethnic groups are found living within the catchment area and there is no risk of involuntary resettlement or loss of common property resources.

To address these potential impacts, a comprehensive Environmental and Social Management Plan (ESMP) has been developed as part of this report in **Annexure-1**. The ESMP outlines specific mitigation and management measures that must be implemented during project construction and operation phases. Key environmental mitigation measures include regular water spraying to control dust, proper maintenance of construction equipment to minimize noise and emissions, safe disposal and management of construction waste, and restoration of disturbed areas following construction activities. Where roadside trees need to be removed, compensatory plantation programs will be undertaken to restore local vegetation and maintain ecological balance.

In addition, drainage systems will be carefully designed and maintained to prevent waterlogging and ensure the natural flow of stormwater. Construction activities near water bodies and agricultural lands will be conducted with special precautions to prevent contamination and protect local livelihoods dependent on farming and fisheries.

Social mitigation measures include the preparation and implementation of a Traffic Management Plan to ensure the safe movement of vehicles and pedestrians during construction works. Adequate signage, barricades, and warning signals will be installed at construction sites to reduce accident risks. Contractors will also be required to ensure proper occupational health and safety measures for workers, including the use of personal protective equipment (PPE), training on workplace safety, and emergency preparedness.

Stakeholder consultation was an integral component of the assessment process. Local community members, school authorities, religious leaders, local government representatives, and other relevant stakeholders were consulted during field visits to gather their views, concerns, and recommendations regarding the proposed road improvements. The majority of stakeholders expressed strong support for the project, highlighting that improved community roads will reduce travel time, facilitate access to markets and services, and significantly enhance evacuation and mobility during flood emergencies. Community members also emphasized the importance of proper drainage, road safety measures, and protection of roadside vegetation. Public consultation attendance sheets are in **Annexure 2**.

The project is expected to generate significant positive impacts in the long term. Improved community roads will strengthen connectivity between rural communities and flood shelters, thereby enhancing disaster resilience and emergency preparedness. Better road infrastructure will also support local economic development by facilitating the transportation of agricultural products, improving access to educational and health services, and enhancing overall rural mobility. In addition, the project will contribute to improved safety and accessibility for women, children, elderly people, and persons with disabilities who rely on these roads for daily activities.

The implementation of the ESMP, along with continuous monitoring and stakeholder engagement, will ensure that environmental and social risks are minimized while maximizing the long-term benefits of the project for local communities. The report therefore provides a comprehensive framework to guide environmentally responsible and socially inclusive implementation of community road improvement works under the RIVER Project.

1.0 INTRODUCTION

1.1 Sub-Project Background

Bangladesh is widely recognized as one of the most disaster-prone countries in the world due to its geographic location, low-lying topography, and extensive river systems. Seasonal floods, riverbank erosion, and intense rainfall events frequently disrupt rural livelihoods and damage infrastructure, particularly in northern districts located near major transboundary rivers. In this context, improving resilient rural infrastructure and ensuring reliable access to emergency facilities such as flood shelters have become critical priorities for disaster risk reduction and sustainable development in the country.

To address these challenges, the Government of Bangladesh, with financial and technical assistance from the World Bank, has undertaken the RIVER Project, which aims to strengthen disaster resilience and improve rural infrastructure in flood-vulnerable regions. The project focuses on the construction and improvement of multipurpose flood shelters as well as the development of community infrastructure connecting roads to ensure safe and efficient access to these shelters during flood emergencies. These infrastructures not only function as evacuation centers during disasters but also serve as community facilities such as schools or community centers during normal periods.

The project area covers four upazilas of Madaripur District, namely Madaripur Sadar Upazila, Rajoir Upazila, Kalkini Upazila, and Shibchar Upazila. These upazilas are predominantly rural and depend heavily on agriculture, fisheries, and local trade for livelihoods. However, many villages within these areas experience difficulties in accessing reliable transportation infrastructure, especially during the monsoon season when roads often become submerged, damaged, or impassable due to floodwaters. As a result, communities frequently face challenges in reaching schools, healthcare centers, markets, and emergency shelters during extreme weather events.

The proposed sub-project therefore focuses on improving the condition and resilience of existing community roads that connect villages to nearby flood shelters. These roads generally exist in the form of earthen or partially paved rural roads, which often deteriorate due to seasonal flooding, poor drainage, and heavy usage. Through the planned improvement works, these roads will be upgraded to more durable and climate-resilient standards to ensure year-round accessibility and safe evacuation routes during disasters.

The improvement of community infrastructure connecting roads will play a significant role in strengthening disaster preparedness and response capacity in the project area. By ensuring reliable access to flood shelters, the sub-project will enable communities to evacuate more quickly and safely during flood events. At the same time, improved road connectivity will facilitate daily socio-economic activities such as transportation of agricultural goods, access to markets, educational institutions, healthcare services, and other public facilities.

In addition to enhancing disaster resilience, the development of these community roads is expected to contribute to broader rural development objectives. Improved road infrastructure

will support local economic growth, improve mobility for residents, and increase accessibility for women, children, elderly persons, and individuals with disabilities who rely on these routes for daily travel.

Considering that infrastructure development activities may create certain environmental and social impacts during construction and operation phases, this Environmental & Social Assessment and Management Report (ESAMR) has been prepared to assess potential risks and identify appropriate mitigation measures. The assessment ensures that the proposed road improvement works are implemented in an environmentally sustainable and socially responsible manner, in compliance with national environmental regulations and the environmental and social standards of the World Bank.

The findings and recommendations presented in this report will guide project authorities, contractors, and relevant stakeholders in implementing the sub-project while minimizing environmental disturbances, protecting local communities, and maximizing the long-term benefits of improved community infrastructure in Madaripur District.

1.2 Objective of the Sub-Project

The primary objective of the sub-project is to enhance the resilience, accessibility, and functionality of rural road networks that provide critical connectivity to nearby flood shelters and essential community facilities. The sub-project aims to ensure safe, reliable, and all-weather access for local communities, particularly during flood and emergency events, thereby supporting timely evacuation and reducing vulnerability to disasters. By upgrading existing road surfaces, improving drainage systems, and strengthening road structures within the existing Right of Way (ROW), the project seeks to minimize environmental and social disruptions while maximizing socio-economic benefits.

Key objectives also include facilitating the movement of people, goods, and agricultural produce, improving access to education, healthcare, and markets, and supporting the overall disaster preparedness and resilience of communities in flood-prone areas of Madaripur District. Ultimately, the sub-project contributes to both short-term safety and long-term sustainable development of rural infrastructure, ensuring that flood shelters remain accessible and that the livelihoods of local residents are protected and enhanced.

1.3 Scope of the Project

The scope of the project shall include the construction of multipurpose flood shelters and construction of related access roads, flood embankments, drainage channels (both natural and manmade). The proposed infrastructure shall be climate resilient, including cross-drainage culverts and rural bridges necessary for assured rural accessibility. Raising of selected community land above the high flood level and small-scale community infrastructure to protect land and property shall also be included.

1.4 Objectives of the Report

The main objective of this Environmental & Social Assessment and Management Report (ESAMR) is to provide a comprehensive evaluation of the potential environmental and social impacts associated with the improvement of community infrastructure connecting roads at Madaripur District under the RIVER Project and to propose appropriate mitigation and management measures. The report aims to ensure that the sub-project is planned and implemented in an environmentally sustainable and socially inclusive manner, minimizing adverse impacts on local communities, sensitive receptors, and natural resources while enhancing positive outcomes.

Specific objectives include identifying environmental features and social conditions along the road corridors, assessing risks related to construction and operational activities, recommending measures to mitigate potential impacts such as dust, noise, drainage disruption, tree removal, and traffic hazards, and providing guidelines for occupational health and safety, stakeholder engagement, and grievance redress mechanisms. Additionally, the report seeks to support compliance with national environmental and social regulations as well as the environmental and social standards of the World Bank, thereby facilitating responsible implementation of the sub-project while improving community connectivity to nearby flood shelters and essential facilities.

2.0 SUB-PROJECT LOCATION AND DESCRIPTION

This section provides a detailed description of the sub-project location, its physical and socio-economic context, and the nature of the proposed improvement works for the community infrastructure connecting roads in Madaripur District under the RIVER Project.

2.1 Sub-Project Location

The sub-project covers selected community roads located in Madaripur District, which is in the central-southern part of Bangladesh and is prone to seasonal flooding due to its low-lying riverine landscape and proximity to the Padma and Arial Khan rivers. The sub-project specifically targets selected upazilas within the district. The sub-project specifically targets four upazilas:

1. **Madaripur Sadar Upazila** - A predominantly semi-urban and rural upazila with clustered settlements, extensive agricultural lands, and vibrant local marketplaces. The community roads in Madaripur Sadar Upazila are vital for connecting villages to the upazila town, providing access to healthcare, educational facilities, and emergency services, especially during seasonal flooding.
2. **Rajoir Upazila** - Characterized by flat, low-lying agricultural land and is highly susceptible to seasonal flooding during the monsoon period. Many rural communities become partially isolated due to waterlogging and inundated road networks. The connecting roads proposed under this sub-project play a vital role in improving year-round accessibility, enabling residents to reach local markets, educational institutions, healthcare centers, and designated flood shelters. Strengthening these transport links is essential for supporting livelihoods, enhancing disaster resilience, and ensuring timely access to essential services.

3. **Kalkini Upazila** -The sub-project roads in this upazila pass through numerous small villages and agricultural lands, often running close to community flood shelters established under the RIVER Project. These roads serve as vital routes for emergency evacuation during flood events, ensuring safe and timely access for residents in vulnerable areas.
4. **Shibchar Upazila** - As a predominantly rural upazila in Madaripur District, Shibchar has low-lying areas prone to seasonal flooding. The targeted roads here aim to connect villages with local markets, schools, health centers, and flood shelters, improving daily mobility and strengthening emergency access during flood events.

The selected roads for improvement are strategically located near flood shelters to ensure safe and timely access during floods and other natural disasters. Most of the road's traverse agricultural lands, rural settlements, and areas with community facilities such as schools, mosques, and local markets. Map illustrating Community Roads of Madaripur District is attached in **Figure 2.1**.

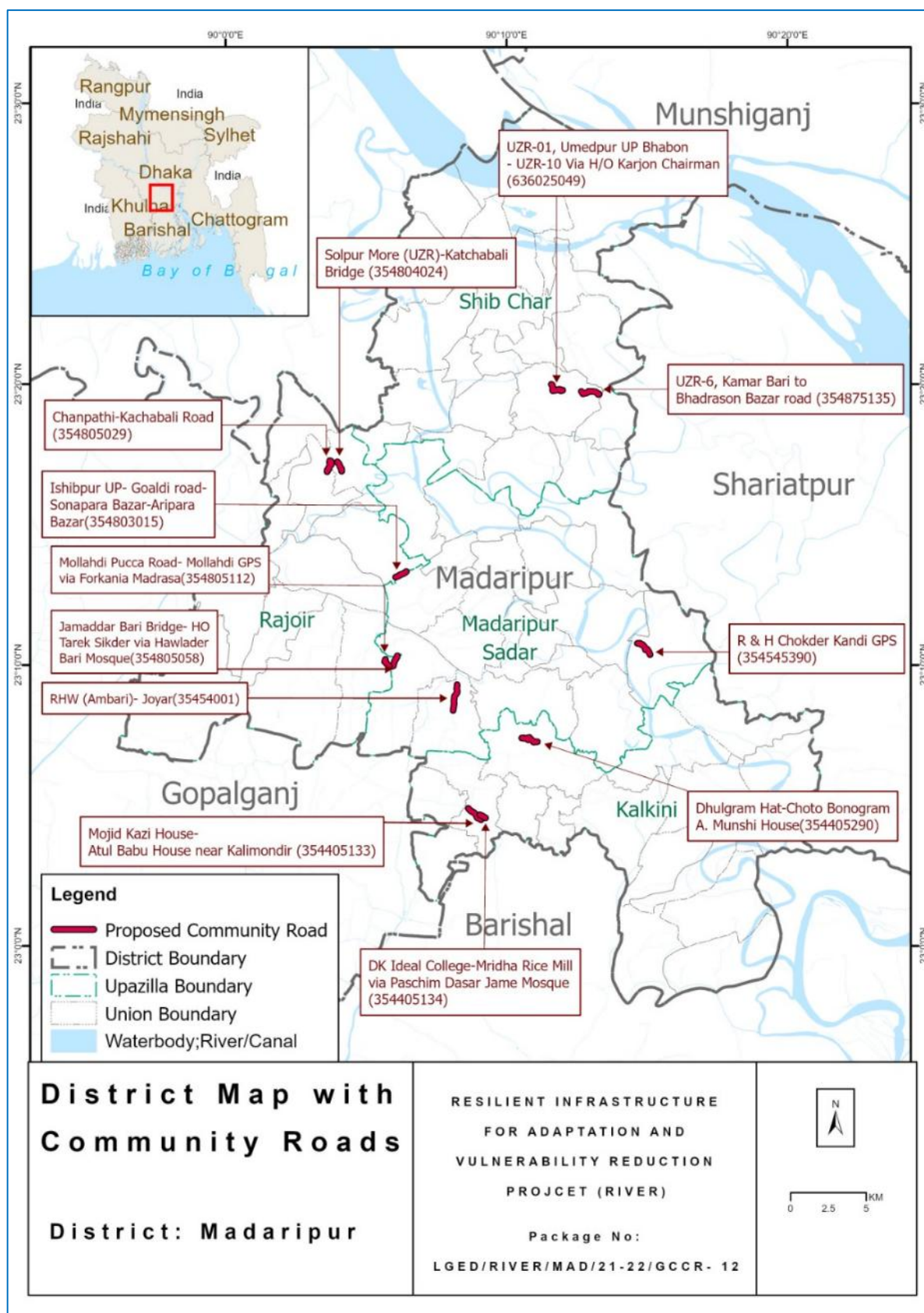


Figure 2.1: Map illustrating Community Roads of Madaripur District

2.2 Physical Features and Environment

The terrain across the project area is predominantly flat and low-lying, with several small rivers, canals, and drainage channels passing through the upazilas. During monsoon season, these areas are prone to waterlogging and localized flooding. The existing road infrastructure mainly consists of earthen or semi-paved roads with limited drainage facilities, making them vulnerable to damage and disruption during heavy rainfall. Roadside vegetation, including trees and shrubs, is present along many stretches, contributing to local ecology and providing shade to communities.

2.3 Socio-Economic Context

The project area is predominantly rural, with communities largely dependent on agriculture, fisheries, and small-scale trade for their livelihoods. Key social features along the proposed road corridors include:

- Local settlements and homesteads
- Agricultural fields and small marketplaces
- Educational institutions such as primary and secondary schools
- Religious institutions including mosques and madrassas
- Public infrastructure such as community centers and flood shelters

These roads are vital for socio-economic development, enabling residents to access essential services, markets, and emergency evacuation routes during floods. The proximity of flood shelters to these roads underscores their importance for disaster preparedness and response.

2.4 Sub-Project Description

The sub-project involves the improvement of existing community roads to enhance their structural stability, surface quality, and drainage capacity. Key components of the road improvement works include:

- Road Surface Improvement - Upgrading existing earthen or semi-paved roads with compacted soil, gravel, or pavement to ensure year-round usability.
- Road Widening and Shoulder Stabilization - Where necessary, the roads will be widened within the existing Right of Way (ROW) to facilitate safer two-way movement of vehicles and pedestrians.
- Drainage Enhancement - Construction or repair of side drains, culverts, and cross-drainage structures to prevent waterlogging and maintain road longevity.
- Slope Protection and Embankment Strengthening - Stabilization of embankments and road shoulders to reduce erosion and maintain structural integrity during floods.
- Traffic Safety Measures - Installation of signage, demarcation, and other traffic management interventions near schools, markets, and flood shelters to ensure safety during construction and operation.

The sub-project is designed to minimize environmental and social impacts by utilizing existing ROWs and avoiding unnecessary land acquisition. Construction activities will be planned to limit disruption to local communities and ensure continuous access to flood shelters.

2.5 Elementary information of Community Road in Madaripur District

The community road package components in Madaripur District, located in the central-southern region of Dhaka Division, have been identified under the RIVER Project to improve rural connectivity and facilitate access to nearby flood shelters and community facilities. The proposed community roads fall within the project influence area of several flood shelter construction sites located in different upazilas such as Madaripur Sadar Upazila, Rajoir Upazila, Kalkini Upazila, and Shibchar Upazila. Each road component has been identified with specific GPS coordinates to define its alignment and location within the respective union parishads such as Mostofapur, Kendua, Bajitpur, Molladi, Ishibpur, Baligram, Dasar, Kabirajpur, Umedpur, Ghoyajpur unions etc. These community roads are strategically selected to connect surrounding rural settlements, growth centres and different service facilities with the nearest proposed flood shelter sites, ensuring safe evacuation and improved access during flood events. The project influence area generally includes roadside settlements, agricultural fields, local markets, and educational institutions situated along the alignment. The development and rehabilitation of these roads will significantly enhance disaster resilience, mobility, and socio-economic activities of the local population while ensuring better connectivity to emergency shelters and essential services. Acknowledging this matter, such details are accounted for as given below in **Table 2.1**.

Table 2.1: Basic Featured Information of community road components

Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
1.	Madaripur Sadar	Mostofapur	RHW(Ambari)-Joyar. (354545001)	<u>Starting Point</u> 23.154975 N 90.137003 E <u>Ending Point</u> 23.139644 N 90.134840 E	3.000	Mostofapur, Ambari, Joyar	141 No. Ambari GPS	4m From Proposed Flood Shelter
2.		Ghoyajpur	R & H Chokder Kandi GPS (354545390)	<u>Starting Point</u> 23.172848 N 90.251819 E	0.900	Moddho Chok	176 No. Madhya Chak GPS	20m From Proposed Flood Shelter

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Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
				<u>Ending Point</u> 23.179541 N 90.244279 E				
3.	Rajoir	Bajitpur	Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Mosque.U. P (354805058)	<u>Starting Point</u> 23.166173 N 90.097649 E <u>Ending Point</u> 23.172154 N 90.101869 E	0.995	Molladi,Purbo Molladi	96 No. Mollahdi Bajitpur GPS	350m From Proposed Flood Shelter
4.		Molladi	Mollahdi pucca road- Mollahdi GPS via Furkania madrasa (354805112)	<u>Starting Point</u> 23.166439 N 90.097659 E <u>Ending Point</u> 23.170189 N 90.094627 E	1.050	Molladi, Bajitpur	96 No. Mollahdi Bajitpur GPS	5m From Proposed Flood Shelter
5.		Ishibpur	Ishibpur UP-Goaldi- Sonapara bazar- Ari para bazar (354803015)	<u>Starting Point</u> 23.222099 N 90.107245 E <u>Ending Point</u> 23.219125 N 90.100759 E	0.800	Shubondi Dharaikandi, Satbaria, Aripara	107 No. Sona Para GPS	1.7km From Proposed Flood Shelter
6.		Kabirajpur	Chanpathi-Kachabali	<u>Starting Point</u>	1.260	Chanpatti, Jogadia	90 No.	1.7km From

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Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
			Road (354805029)	23.286843 N 90.061588 E <u>Ending Point</u> 23.281261 N 90.059712 E			Dakshin Chand Patti GPS	Proposed Flood Shelter
7.		Kabirajpur	Solpur More (UZR)- Katchabali bridge (UNR-3028) (354804024)	<u>Starting Point</u> 23.287122 N 90.065878 E <u>Ending Point</u> 23.281695 N 90.068935 E	0.700	Solpur, Kachabali	17 No. Solpur GPS	37m From Proposed Flood Shelter
8.		Dasar	Mojid Kazi House-Atul Babu House Near Kali Mondir Via Khilgram (354405133)	<u>Starting Point</u> 23.074845 N 90.151502 E <u>Ending Point</u> 23.081859 N 90.143877 E	1.512	Khilgram, Kaligram, Poschim Dasar	34 No. Dasar GPS	500m From Proposed Flood Shelter
9.	Kalkini	Baligram	Dhulgram Hat-Choto Bonogram A. Munshi House (354405290)	<u>Starting Point</u> 23.121028 N 90.184919 E <u>Ending Point</u> 23.123484 N	1.300	Sonmandi, Moddhya Dhulgram	110 No. Dhulgram GPS	10m From Proposed Flood Shelter

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Sl. No.	Name of Upazila	Union	Name of Proposed Community Road	GPS Coordinates	Total Length (Km)	Locations Under Project Influence Area	Nearby Proposed Flood Shelter	Distances from nearby Shelters
				90.175648 E				
10.		Dasar	DK Ideal College- Mridha Rice Mill via Paschim Dasar Jame Mosque (354405134)	Starting Point 23.075947 N 90.154247 E Ending Point 23.077925 N 90.148400 E	0.800	Dasar, Poschim Dasar, Uttor Khilgram	34 No. Dasar GPS	112m From Proposed Flood Shelter
11.	Shibchar	Umedpur	UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman (354875320)	Starting Point 23.330410 N 90.206478 E Ending Point 23.333394 N 90.193185 E	1.500	Ram Rayer Kandi, Alepur	10 No. Purba Kachhikata GPS	700m from Proposed Flood Shelter
12.		Umedpur	UZR-6, Kamar Bari to Bhadrasan Bazar road. (354875135)	Starting Point 23.331534 N 90.201882 E Ending Point 23.327382 N 90.221717 E	0.750	Umedpur, Chander Chor	143 No.Bhadrasan Sarderkandi GPS	800m from Proposed Flood Shelter

[*Sources of data: Field survey, March 2026]

2.6 Environmental / Social Category of the Subproject

The overall anticipated adverse impacts of the subproject are minimal, localized, and site-specific in nature, and mostly avoidable or mitigable and do not pose any significant threat or harm to local inhabitants or biodiversity, if general good engineering and OHS practices are adopted. Moreover, the roads will be constructed within the existing ROW and no rehabilitation or acquisition of land is required or provisioned. Further, no ethnic groups are found living within the catchment area and there is no risk of involuntary resettlement or loss of common property resources. Therefore, considering all the anticipated impacts, existing social and environmental settings and scope of work, the overall risk for this subproject can be categorized as 'Moderate'.

2.7 Baseline Conditions of the Community Road

The baseline assessment of the community roads under the sub-project in Madaripur District provides a detailed understanding of the existing physical and social conditions, which serves as the foundation for planning road improvements while minimizing environmental and social impacts. The targeted roads pass through the upazilas of Madaripur Sadar, Rajoir, Kalkini, and Shibchar.

Existing Pavement Condition and Chainage: Most of the existing roads are paved or semi-paved and exhibit varying levels of deterioration due to seasonal flooding, heavy monsoon rainfall, and limited maintenance. Potholes, rutting, and erosion along shoulders are commonly observed, particularly in low-lying sections and areas adjacent to drainage channels. Road surfaces along chainages near settlements and marketplaces are particularly affected by frequent pedestrian and vehicular use.

Existing Structures on the Road: The roads traverse areas with various existing structures, including small culverts, side drains, footbridges, local marketplaces, schools, mosques, and roadside residences. In some sections, informal drainage channels and agricultural access points intersect the road alignment. Tree cover and roadside vegetation are present along several stretches, contributing to local ecology.

Proposed Road Interventions: The sub-project proposes to upgrade the existing roads within the available Right of Way (ROW) to improve structural stability, all-weather accessibility, and flood resilience. Interventions include earthwork for raising low-lying sections, paving with compacted gravel or bituminous surfaces, slope stabilization, shoulder reinforcement, and improvement of roadside drainage to prevent waterlogging.

Proposed Structures: The project includes the construction of new small culverts, cross-drainage structures, and side drains at strategic locations to ensure uninterrupted water flow and prevent road flooding.

Safeguard Features: To ensure environmental and social sustainability, safeguard measures will be incorporated during construction and operation. Signage, speed control measures, and pedestrian pathways will be provided to enhance safety.

Overall, the baseline conditions highlight the need for targeted interventions to enhance road safety, connectivity, and resilience, while the proposed structural improvements and safeguard features are designed to address environmental and social risks, improve access to flood shelters, and support the sustainable development of the rural road network in Madaripur District. Baseline Conditions of the community Roads status are presented in **Table 2.2**. A typical pavement design for Community Road is provided hereunder.

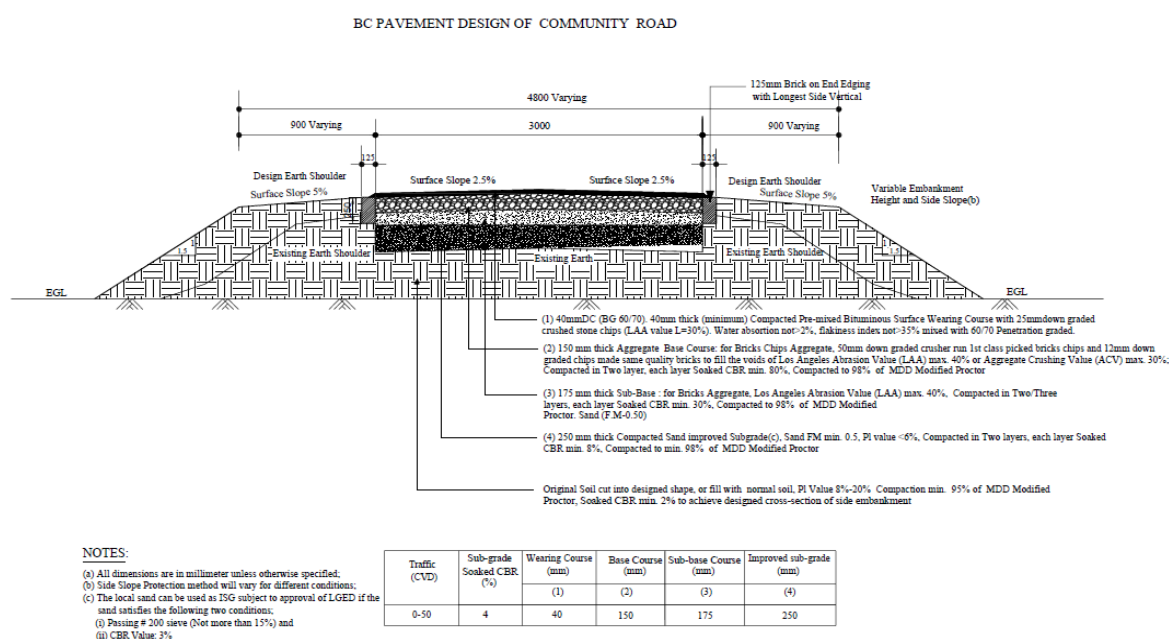


Figure 2.2 BC Pavement Design for typical Community Road

Table 2.2 Status of Baseline Conditions of the Community Road

Sl. No.	Road Name	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
1.	RHW (Ambari)-Joyar. (Village-B)	354545001	3	Paved- 0+00 to 3+000m Damaged length- 1220m (Ch. 1780m to 3000m)	Bridge (15m × 4.1m)- (Ch. 00m)	Not available in site	BC-0+00 to 3+000 and width is 3m
2	R & H Chokder Kandi GPS (Village-B)	354545390	0.9	BFS- 0+00 to 0+200m (Ch.00m to 200m) Earthen-700m (Ch.200 to 900m)	Slope Protection-80 to 170m, Palisading- (80 to 170m, 310 to 330m, 500 to 575m, 575 to 900m)	Not available in site	BC-0+00 to 0+900 and width is 2.6
3.	Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Mosque. (Village-B)	354805058	0.995	Paved- 0+00 to 958m (Ch. 958m)	Bridge (20m × 2.45m) - (Ch. 70m), (13.2m × 4.3m)- (Ch. 884m)	Not available in site	BC-0+00 to 958 and width is 3m Culvert (3m × 5m × 5.5m)- (Ch.70m)
4.	Mollahdi pucca road-Mollahdi GPS via Furkania madrasa (Village-B)	354805112	1.05	BFS-0+00 to 1+050m (Ch.9m to 28.2m, Ch.377m-1050m) Earthen-95m (Ch. 282m to 377m)	Culvert (9m × 2m)- (Ch. 00 to 9m), (10m × 3.75m)- (Ch. 580m)	Not available in site	BC-0+00 to 1+050 and width is 3m Box Culvert- (4m × 4m) - (Ch. 00m), Palisading 48m- (Ch. 42 to 90m), 23m -

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Sl. No.	Road Name	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
							(23.169178 N; 90.098826 E)
5.	Ishibpur UP- Goaldi- Sonapara bazar- Ari para bazar (UNR)	354803015	0.8	BFS-800m (Ch. 4,620m to 5420m)	Bridge- (15.6m × 4.60m), (Ch. 00 to 5290m)	Not available in site	BC- 4+620 to 5+420 and width is 3m
6.	Chanpathi- Kachabali Road (Village-B)	354805029	1.26	RCC-55m (Ch. 218m to 273m) HBB+ BFS-567m (Ch.00 to 372m, 1065 to 1260m) Earthen-600m (Ch. 456 to 1056m)		Not available in site	RCC-0+00 to 1+260 and width is 3m RCC BOX (2m × 5m × 3m)- (Ch. 530m) U-Drain-Ch.663m Palisading 22m- (Ch. 218m to 240m), 47m- (Ch. 1213m to 1260m)
7.	Solpur More (UZR)-Katchabali bridge (UNR-3028) (Village-A)	354804024	0.7	Paved- 105m (Ch.503 to 608m) HBB-595m (Ch 605 to 1200m)		Not available in site	BC-805 to 1+200 and width is 3m
8	Mojid Kazi House- Atul Babu House Near Kali Mondir Via Khilgram	354405133	1.512	Paved- 0+00 to 493m Damaged Length- 433m (Ch. 60 to	Bridge (18m × 2.5m) - (Ch.1279m)	Not available in site	BC-0+00 to 1+512 and width is 3m Culvert (2m × 4m ×

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Sl. No.	Road Name	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
	(Village-B)			493m) BFS-408m, (Ch.1104 to 1512m) Earthen-614m (Ch. 490 to 1104m)			4m) - (Ch. 1279m), Palisading-146m (Ch. 00 to 46m, Ch. 1104 to 2004)
9.	Dhulgram Hat- Choto Bonogram A. Munshi House (Village-B)	354405290	1.3	Paved-0+000 to 1+300m, Damage length-1288m (Ch. 12 to 1300m)	Palisading 20m- (Ch. 282m), 26m-(Ch. 501) m, 67m- (Ch. 535) m, 18m-(Ch. 786) m 20 U Drain-(7.8m × 1.6m) -Ch.1139m	Not available in site	BC-00 to 1+145 and width is 3m Palisading-67m U-Drain (7.8m × 1.6m)- (Ch. 1139m)
10.	DK Ideal College- Mridha Rice Mill via Paschim Dasar Jame Mosque (Village-B)	354405134	0.8	BFS-540m Damaged length- 353m (Ch. 187m to 540m) Earthen-187m (Ch. 00 to 187m)		Not available in site	BC-0+00 to 0+800 (Ch.440m) and width 3m Palisading-0+100 to 0+187m, (Ch. 100 to 187m, Ch. 200 to 376m, Ch. 440m, Ch. 580m) Box Culvet-583m (Ch. 583m)

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Sl. No.	Road Name	Road ID	Total Road Length (km)	Pavement Condition with Chainage	Existing Structures on the road	Safeguard Features	Proposed Road Interventions
11.	UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman (Village-B)	354875320	1.5	Paved-0+00 to 1+436m	Palisading 25m - (Ch.495m to 520m), 55m- (Ch. 780m to 835m) U.Drain (4.2m ×1.8m)- (Ch. 614m), (4.2m × 1.8m)- (Ch. 701m), (4.2m × 1.0m)- (Ch. 940m)	Not available in site	BC-0+00 to 1+436 and width is 3m
12.	UZR-6, Kamar Bari to Bhadrason Bazar road. (Village-B)	354875135	0.75	Paved- 0+00 to 0+750m		Not available in site	BC 0+00 to 0+750m and width is 3m

3.0 Environmental and Social Survey and Screening

3.1 Survey and Screening Methodology

An Environmental and Social Survey and Screening have been carried out within the Project Influence Area (PIA), defined as a 0.5 km buffer on both sides from the centerline of the proposed road alignment. The purpose of the survey was to identify baseline environmental and socio-economic conditions, as well as potential sensitive receptors that may be affected by project activities. The methodology generally involves a combination of desk review, field reconnaissance, and stakeholder consultation. Initially, relevant secondary information was reviewed to understand the baseline settings. This was followed by systematic field surveys along the road alignment within the 0.5 km PIA, where environmental features (water bodies, vegetation, wetlands, and flora and fauna, etc.) and social features (settlements, educational institutions, mosques/temples, markets, health facilities, agricultural lands, and cultural properties) were identified and impacts from the implementation works were assessed. Structured observations, photographic documentation, and transect walks were used during the field investigation. In addition, consultations with local communities, local government representatives, and relevant stakeholders were conducted to gather information on livelihood activities, land use, community resources, and potential concerns regarding the proposed interventions. The collected information was then analyzed through a screening process to assess the likelihood and significance of environmental and social impacts during construction and operation phases. The outcome of the survey and screening helps determine the level of environmental and social assessment required and supports the preparation of appropriate mitigation measures and management plans to ensure environmentally sustainable and socially responsible road development in the area.

3.2 Important features/establishments around the PIA

The project influence area of the proposed community road sub-projects includes a variety of environmental, social, economic, and cultural features located along or near the existing road alignments. These features have been identified during field reconnaissance surveys and consultations with local communities to understand the baseline conditions and potential interactions between the proposed road maintenance activities and surrounding establishments. The community roads generally pass through rural settlements and agricultural landscapes within different unions and upazilas, where local infrastructure and community facilities are closely located near the roadside.

From an environmental perspective, the surrounding areas of the assessed community roads are predominantly characterized by agricultural landscapes, low-lying floodplains, scattered vegetation, and rural homestead gardens. Small ponds, irrigation canals, and natural drainage channels are also commonly found along or near the road alignments, which play a significant role in local water management and fish cultivation. These natural and semi-natural environmental features contribute to the ecological balance of the area and

therefore require careful consideration during construction activities to avoid unnecessary disturbance, sedimentation, or blockage of drainage paths.

The social features within the project influence area include rural households, schools, religious institutions, community centers, and public service facilities located close to the existing road corridors. Residential settlements are often situated along both sides of the roads, indicating that these roads serve as important local access routes for daily community activities. Educational institutions such as primary and secondary schools, madrasa buildings, and playgrounds may also be located within short distances from the road alignment. Religious establishments including mosques and community graveyards are common features in the project area and are often found near village centers along the road network. These social infrastructures are important gathering places for local residents and require careful consideration during construction activities to minimize disruption and maintain safe access.

In terms of economic features, the project influence area contains small local markets, roadside shops, agricultural storage areas, and facilities supporting rural livelihoods. Weekly rural markets (haats), small grocery shops, tea stalls, and agricultural input stores are frequently located at road intersections or village centers. These establishments depend heavily on the accessibility provided by community roads for transportation of goods and services. In addition, agricultural activities such as crop production, livestock rearing, and fish cultivation are key sources of livelihood for the surrounding communities. Improved road conditions are therefore expected to enhance local economic activities by facilitating easier transportation of agricultural products, improving market access, and reducing travel time for rural populations.

The cultural and community heritage features within the project influence area may include local mosques, Eidgah grounds, graveyards, Shaheed Minars, Crematorium and other culturally significant landmarks. These sites hold social and cultural importance for local communities and are often located within close proximity to village roads. Any construction or maintenance work near such cultural features will require special attention to ensure that these sites are protected and that community access remains uninterrupted.

In addition to these environmental, social, economic, and cultural features, the project influence area may also include essential service infrastructure such as tube wells, rural electrification lines, irrigation pumps, drainage outlets, and small water supply systems. These utilities support the daily needs of the local communities and must be carefully protected during construction to prevent service disruptions. Where temporary disturbances are unavoidable, appropriate mitigation measures and coordination with local authorities will be necessary to restore services promptly.

Overall, the surrounding features and establishments within the project influence area reflect the typical rural landscape and socio-economic structure of Madaripur District. The identification and documentation of these features are essential for assessing potential

environmental and social impacts associated with the community road improvement works. Detailed information on these environmental, social, economic, and cultural establishments identified during the field assessment has been systematically presented in **Table 3.1**, which provides a location-specific inventory of important features situated along or near the assessed road alignments. This inventory will help guide the implementation of appropriate mitigation measures and ensure that project activities are carried out in an environmentally and socially responsible manner.

Table 3.1: Important features under Project Influence Area

Division: Dhaka	District: Madaripur	Upazila: Madaripur Sadar
Name of the Road:	RHW(Ambari)-Joyar (354545001)	
Total Road Length (Km)	3.000 km	
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L	Homestead Area
	R	Canal
300-600	L	Homestead Area
	R	Homestead Area
600-900	L	Homestead Area
	R	Homestead Area
900-1200	L	Paddy Land
	R	Paddy Land
1200-1500	L	Paddy Land
	R	Homestead Area
1500-1800	L	Homestead Area
	R	Homestead Area
1800-2100	L	Homestead Area, Paddy Land
	R	Homestead Area
2100-3000	L	Homestead Area
	R	Homestead Area
Name of the Road:	R & H Chokder Kandi GPS (354545390)	
Total Road Length (Km)	0.900 km	

Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Garden-2m, Homestead area-3m, Ditch-3m, Pond-4m,
		R	Homestead area-3m, Pond-2m
300-600	L		Bamboo Garden-2m, Homestead area-3m, Mosque-3m
		R	Canal-2m, Pond-2m, Homestead area-3m, School-6m
600-900	L		Agricultural Land-2m, Homestead area
		R	Homestead Area, Canal
Division: Dhaka	District: Madaripur		Upazila: Rajoir
Name of the Road:	Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Mosque (354805058)		
Total Road Length (Km)	0.995 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Canal
		R	Homestead Area
300-600	L		Canal
		R	Homestead Area
600-900	L		Canal
		R	Homestead Area
Name of the Road:	Mollahdi pucca road-Mollahdi GPS via Furkania madrasa (354805112)		
Total Road Length (m)	1.050 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Homestead Area, School Mosque-6m
		R	Canal, Pond, School
300-600	L		Homestead area, Garden-5m
		R	Mosque, Pond, Home, Field Ground-10m
600-900	L		Paddy Field
		R	Graveyard, Club House, Market, Pond, House-10m, Market

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900-1100	L		Madrasa, Home, Pond, Graveyard Area-13m
		R	Home, Pond, Market-7m
Name of the Road:	Ishibpur UP-Goaldi- Sonapara bazar- Ari para bazar (354803015)		
Total Road Length (m)	0.800 km		
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)	
4600-4900	L		Agricultural Land-5m
		R	Homestead-6m
4900-5200	L		Agricultural Land, Pond-5m
		R	Mosque, Homestead Area-6m
5200-5500	L		Agricultural Field
		R	Mosque, Homestead Area
Name of the Road:	Chanpathi-Kachabali Road (354805029)		
Total Road Length (m)	1.260 km		
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)	
00-300	L		Shop, Garden, Home-6m, Mosque
		R	Garden, Homestead Area
300-600	L		Homestead Area, Field
		R	Homestead Area, Canal
600-900	L		Paddy Field
		R	Paddy Field
900-1200	L		Homestead Area
		R	Homestead Area
Name of the Road:	Solpur More (UZR)-Katchabali bridge (UNR-3028) (354804024)		
Total Road Length (m)	0.700 km		
Chainage	Orientation (Left/Right)	Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)	
500-800	L		Canal, Trees

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		R	School, Mosque, shop, Homestead Area
800-1100	L		Canal, trees
		R	Homestead Area, Mosque
1100-1200	L		Canal, Trees
		R	Shop, Market, Home
Division: Dhaka	District: Madaripur		Upazila: Kalkini
Name of the Road:	Mojid Kazi House-Tul Babu House Near Kali Mondir Via Khilgram (354405133)		
Total Road Length (m)	1.512 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		00 to Chowrasta (West), Pond, Homestead, Drain, Field, Land-5m
		R	Drain, Home, Pond-5m
300-600	L		Pond, Home, Rice Mill Connecting Road
		R	Connecting road, Homestead-5m, Drain-3m
600-900	L		Pond, Canal, Homestead-8m
		R	Home, Khal, Mosque-20m
900-1200	L		Pond, Home Connecting Road, Garden-5m
		R	Garden, Temple
1200-1500	L		Homestead, Field, Garden, Drain, Canal
		R	Garden, Homestead, Bridge, Road
Name of the Road:	Dhulgram Hat-Choto Bonogram A. Munshi House (354405290)		
Total Road Length (m)	1.300 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Garden-3m, Pond-7m, Drain, Homestead-11m, Crematorium-13m
		R	Small Garden-4m, Pond-5m, Home-11m, Garden
300-600	L		Pond-0.5m, Homestead-0.9m, Shop-1m
		R	Pond-0.9m, Home-3m, Garden-4m

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600-900	L		Home, Garden-3m, Pond-5m
		R	Home-1m, Mosque-2m, Garden-5m, Pond-7m
900-1200	L		Bamboo Garden-1m, Homestead-3m, Pond-5m
		R	Homestead-6m, Garden-7m
1200-1300	L		Field-0.7m, Pond-10m, Homestead-13m
		R	Field-2m, Homestead-5m, Garden-5m
Name of the Road:	DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque (354405134)		
Total Road Length (m)	0.800 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Graveyard, Home-2m
		R	Canal
300-600	L		Home, Pond-3m
		R	Home, Pond, Mosque-2m
600-900	L		Home, Rice Mill-10m
		R	Home, Canal
Division:Dhaka	District: Madaripur		Upazila: Shibchar
Name of the Road:	UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman (354875320)		
Total Road Length (m)	1.500 km		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Homestead Connecting Road
		R	Homestead Connecting Road-8m
300-600	L		Homestead Connecting Road-3m
		R	Homestead Connecting Road-2m
600-900	L		Homestead-9m
		R	Homestead-6m
900-1200	L		Homestead & Empty Place
		R	Homestead & Empty Place
1200-1500	L		Betel Leaf Plantation
		R	Betel Leaf Plantation
Name of the Road:	UZR-6, Kamar Bari to Bhadrason Bazar road. (354875135)		

Total Road Length (Km)	0.750 m		
Chainage	Orientation (Left/Right)		Social/Economic/Cultural/Environmental Features (With distance from the centerline of the road)
00-300	L		Shop-1m, Homestead-5m
		R	Nurul Hoque College-3m
300-600	L		Garden-8m
		R	Homestead-11m
600-900	L		Canal-3m, Homestead-7m
		R	Homestead-2m

(*Data Source: Field Survey, March 2026)

4.0 Environmental and Social Impacts and Proposed Mitigation and Enhancement Measures

4.1 Environmental and Social Impacts for the Implementation of works

The proposed community road improvement in Madaripur District under the RIVER Project aim to rehabilitate and maintain existing rural road infrastructure to improve accessibility, disaster resilience, and socio-economic connectivity within the project influence area. Since the project interventions will mostly take place within the existing right-of-way of community roads, the anticipated environmental and social impacts are expected to be moderate, temporary, and site-specific in nature. However, certain environmental and social risks may arise during the construction and operational phases that require appropriate mitigation and enhancement measures to ensure sustainable project implementation.

Environmental and Social protection and enhancement will be an integral component of the sub-projects. Environmental and Social Mitigation and Enhancement Measures to address potential environmental and community impacts during construction and operation phase. These measures will be implemented in accordance with the Environmental and Social Management Framework (ESMF) of the RIVER Project. Key mitigation measures will include dust suppression through regular water spraying, proper management of construction waste, control of noise during construction activities, and prevention of water pollution from construction materials or machinery. Social mitigation measures will focus on minimizing disruption to local communities living along the road corridors. Construction activities will be carefully scheduled to avoid blocking community access routes for long periods. Temporary access arrangements will be maintained where construction works interfere with local movement. Safety awareness will be promoted among workers and community members to reduce occupational and public health risks. Local labor will be encouraged where possible, which may contribute to temporary employment opportunities for nearby residents. Site specific Environmental Impacts and Mitigation Measures are described in **Table 4.1**.

Table 4.1: Environmental and Social Impacts and Proposed Mitigation and Enhancement Measures for Community Road Improvement in Madaripur District

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
1	RHW(Ambari)-Joyar.	- Dust generation and air pollution during earthworks, transportation of construction materials, and road surface improvement which may affect nearby settlements. - Temporary disruption of local movement and access for residents, pedestrians, and local vehicles during road rehabilitation activities. - Noise disturbance from construction machinery and vehicles, particularly affecting nearby residents and religious activities at the mosque. - Occupational and community safety risks due to movement of construction vehicles and operation of equipment along the road corridor.	- Regular water spraying on exposed soil and road surfaces, covering of construction materials during transport, limiting vehicle speed, and maintaining machinery to control dust emissions. - Restrict construction work during sensitive hours (especially prayer times), maintain equipment to reduce noise, and avoid unnecessary honking or heavy machinery operation near the mosque area. - Provide personal protective equipment (PPE) to workers, install safety signage and barricades, conduct safety briefings for workers, and ensure safe movement of construction vehicles within the work zone. - Maintain temporary access pathways, install warning signs and barricades, implement a basic traffic management plan, and inform local residents in advance about construction schedules.
2	R & H Chokder Kandi GPS	- Dust generation and air pollution from earthworks, transportation of materials, and road surface preparation which may affect nearby settlements and roadside shops. - Temporary disruption to local traffic and pedestrian movement during culvert repair, earthworks, and road surface improvement.	- Regular water spraying on exposed surfaces, covering of construction materials during transport, maintaining vehicles and limiting speed near settlements. - Install temporary traffic management signs, maintain alternate access routes, and ensure safe pedestrian passage during construction.

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		- Potential drainage blockage and localized waterlogging due to damaged culverts or improper construction practices. - Noise disturbance from construction equipment and vehicles, particularly - affecting nearby households, schools, and local religious establishments.	- Rehabilitate and maintain existing culverts and cross-drainage structures, ensure proper alignment of drainage channels, and keep drainage paths clear during construction. - Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction work during prayer times or school hours where feasible.
3	Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Mosque.	- Noise and vibration from construction equipment disturbing nearby residents, schools, and local community activities. - Temporary disruption of local traffic and pedestrian movement along the road corridor during construction activities. - Community safety risks due to movement of construction vehicles near settlements and agricultural fields. - Temporary disturbance to roadside economic activities and access to houses or agricultural land. - Risk of soil erosion or embankment instability particularly during the rainy season. - Minor removal of roadside vegetation or small trees within the existing right of way.	- Restrict construction activities to daytime hours, maintain machinery properly, and avoid excessive noise near sensitive locations. - Install warning signs and barricades, ensure temporary access for pedestrians and local vehicles, and implement a basic traffic management plan. - Maintain alternative access paths where required, schedule works in sections to minimize disruption, and consult with local residents before major activities. - Minimize cutting of trees and vegetation; undertake compensatory roadside tree plantation after construction where feasible.
4	Mollahdi pucca road- Mollahdi GPS via Furkania madrasa	Temporary traffic congestion and disruption of local mobility during road repair and culvert improvement works.	Regular water spraying on exposed surfaces, covering of construction materials during transport, and limiting vehicle speed within

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		- Community safety risks due to movement of heavy vehicles and construction equipment near settlements and schools. - Temporary disturbance to local economic activities such as roadside shops and vendors. - Dust generation from earthworks, excavation, and movement of construction vehicles affecting nearby households and roadside shops. - Noise disturbance from operation of construction machinery near residential areas, schools, and religious establishments.	settlements. - Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction near sensitive locations during school or prayer times. - Dispose excess materials at designated sites, reuse suitable materials for road embankment, and maintain proper waste management practices. - Maintain access to shops and markets during construction, conduct works in phases, and coordinate with local community representatives to minimize disruptions. - Implement traffic management measures including temporary diversions, warning signs, flagmen, and maintaining access to houses and local roads. - Install warning signs, safety barriers, and speed control measures; assign flagmen in busy locations to guide traffic and pedestrians.
5	Ishibpur UP-Goaldi- Sonapara bazar- Ari para bazar	- Dust generation during earthworks, road resurfacing, and material transportation, affecting nearby homes, shops, schools, and roadside settlements. - Temporary obstruction of pedestrian and local traffic, creating difficulties for villagers, school children, and vendors. - Disturbance to local livelihoods, including roadside vendors, small shops, and farmers during	- Regular sprinkling of water on roads, covering transport vehicles, limiting speed of vehicles, and maintaining construction equipment to minimize dust. - Maintain access to businesses, communicate construction schedule in advance, and coordinate temporary relocation or alternate access routes if required.

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		construction activities. - Blockage or inadequate cross-drainage and culverts, leading to waterlogging and localized flooding along the road. - Generation of construction waste and debris, which may pollute nearby fields or drainage channels if improperly managed.	- Ensure road maintenance after construction, integrate road safety features, and promote roadside plantation for environmental enhancement. - Construct protection walls, palisading walls, and guide walls where required; use compaction and proper grading to stabilize embankments.
6	Chanpathi-Kachabali Road	- Temporary obstruction of local traffic and pedestrian movement during culvert replacement and embankment works. - Waste generation from construction debris and excavated soil causing visual pollution and potential blockage. - Community health and safety risks from heavy vehicles and construction near schools, mosques, and settlements. - Enhanced disaster resilience and evacuation access to nearby flood-prone areas and embankments. - Potential cultural sensitivity issues near Narikelbari Eidgha and local community gathering areas. - Soil erosion and slope instability along embankment sections, especially in low-lying areas prone to flooding. - Waterlogging and drainage blockage due to construction near existing culverts and cross drains.	- Implement traffic management plan, provide warning signs, maintain alternative routes, and allow temporary pedestrian access. - Climate-resilient road design, improved drainage, and clear linkages with Ratnai Embankment and other shelters. - Maintain buffer zones around religious or cultural sites, avoid construction activities during events, and consult local leaders before works. - Stabilize slopes with palisading or protection walls, compaction of earthworks, and turfing or roadside plantation. - Clean and rehabilitate existing drains, construct additional drainage where needed, and ensure water flow during monsoon. - Proper disposal at designated sites, reuse suitable materials for embankment, and maintain clean worksite.
7	Solpur More (UZR)-	Dust generation during earthworks, road surface	Regular water spraying on construction sites and

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
	Katchabali bridge (UNR-3028)	improvement, and material transport affecting nearby households, schools, and shops. - Noise and vibration from machinery and vehicles disturbing residents, nearby schools, and religious establishments. - Temporary disruption of pedestrian and vehicular traffic along the road. - Soil erosion and embankment instability due to excavation, filling, or rainfall. - RDisturbance to agricultural lands adjacent to the road during earthwork and material storage. - emoval of roadside trees or vegetation for road widening or protection works. - Construction waste and debris generation that may affect nearby settlements or drainage.	road surfaces, covering trucks carrying materials, and minimizing speed of vehicles. - Install speed limits, warning signs, temporary barriers, and raise awareness among local residents. - Stabilize embankments with compaction, turfing, palisading walls, and guide/protection walls where required. - Avoid unnecessary encroachment, fence off agricultural plots, and restore disturbed lands after construction.
8	Mojid Kazi House-Atul babu House near Kali Mondir via Khilgram.	- Temporary obstruction of traffic and pedestrian movement along the road. - Erosion of road shoulders and embankments during earthworks or heavy rainfall. - Waterlogging and improper drainage due to old or insufficient culverts and cross drains. - Safety risks for workers including accidents, injuries, and exposure to dust or noise. - Safety risks for local communities from heavy machinery, trucks, and construction activities. - Access disruption to schools, mosques, and markets	- Implement traffic management plans; provide alternative access or temporary detours; install warning signs and barricades. - Provide temporary access; schedule work to avoid peak market hours; inform vendors in advance. - Store fuel and chemicals in safe, designated areas; prevent leakage; maintain spill containment measures; avoid disposal in drains or water bodies. - Avoid encroachment on crop areas; coordinate with landowners; restore disturbed farmland after

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		along the road alignment. - Improved disaster resilience and evacuation route during floods or emergencies. - Enhancement of local environment and aesthetics along the road corridor. - Impact on small roadside businesses or vendors due to construction activities. - Potential soil and water contamination from fuel, lubricants, and construction materials.	construction. - Stabilize embankments with turfing, palisading walls, guide/protection walls; proper compaction and grading of shoulders; maintain drainage. - Rehabilitate existing culverts; construct additional cross-drains where needed; ensure free flow of water during and after construction. - Install road signs, barriers, and speed control measures; conduct safety awareness sessions for residents, students, and road users.
9.	Dhulgram Hat-Choto Bonogram A. Munshi House	- Dust generation from earthworks, excavation, and movement of construction vehicles affecting nearby households and roadside shops. - Noise disturbance from operation of construction machinery near residential areas, schools, and religious establishments. - Temporary traffic congestion and disruption of local mobility during road repair and culvert improvement works. - Community safety risks due to movement of heavy vehicles and construction equipment near settlements and schools.	- Regular water spraying on exposed surfaces, covering of construction materials during transport, and limiting vehicle speed within settlements. - Restrict high-noise activities to daytime hours, maintain machinery properly, and avoid construction near sensitive locations during school or prayer times. - Implement traffic management measures including temporary diversions, warning signs, flagmen, and maintaining access to houses and local roads. - Install warning signs, safety barriers, and speed control measures; assign flagmen in busy locations to guide traffic and pedestrians.
10.	DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame	Dust generation during earthworks, road resurfacing, and material transportation, affecting nearby homes,	Regular sprinkling of water on roads, covering transport vehicles, limiting speed of vehicles, and

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
	Mosque	shops, schools, and roadside settlements. • Temporary obstruction of pedestrian and local traffic, creating difficulties for villagers, school children, and vendors. • Blockage or inadequate cross-drainage and culverts, leading to waterlogging and localized flooding along the road. • Generation of construction waste and debris, which may pollute nearby fields or drainage channels if improperly managed.	maintaining construction equipment to minimize dust. • Construct protection walls, palisading walls, and guide walls where required; use compaction and proper grading to stabilize embankments. • Maintain access to businesses, communicate construction schedule in advance, and coordinate temporary relocation or alternate access routes if required. • Ensure road maintenance after construction, integrate road safety features, and promote roadside plantation for environmental enhancement.
11.	UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman	• Temporary obstruction of traffic and pedestrian movement along the road. • Erosion of road shoulders and embankments during earthworks or heavy rainfall. • Waterlogging and improper drainage due to old or insufficient culverts and cross drains. • Safety risks for workers including accidents, injuries, and exposure to dust or noise. • Access disruption to schools, mosques, and markets along the road alignment. • Impact on small roadside businesses or vendors due to construction activities. • Potential soil and water contamination from fuel,	• Stabilize slopes with palisading or protection walls, compaction of earthworks, and turfing or roadside plantation. • Clean and rehabilitate existing drains, construct additional drainage where needed, and ensure water flow during monsoon. • Proper disposal at designated sites, reuse suitable materials for embankment, and maintain clean worksite. • Climate-resilient road design, improved drainage, and clear linkages with Ratnai Embankment and other shelters. • Maintain buffer zones around religious or cultural

Sl. No.	Name of Community Road	Environmental and Social Impacts	Proposed Mitigation and Enhancement Measures
		lubricants, and construction materials. Improved disaster resilience and evacuation route during floods or emergencies. Enhancement of local environment and aesthetics along the road corridor.	sites, avoid construction activities during events, and consult local leaders before works.
12.	UZR-6, Kamar Bari to Bhadrason Bazar road.	- Noise and vibration from construction equipment disturbing nearby residents, schools, and local community activities. - Temporary disruption of local traffic and pedestrian movement along the road corridor during construction activities. - Minor removal of roadside vegetation or small trees within the existing right of way. - Risk of soil erosion or embankment instability particularly during the rainy season. - Community safety risks due to movement of construction vehicles near settlements and agricultural fields. Temporary disturbance to roadside economic activities and access to houses or agricultural land.	- Restrict construction activities to daytime hours, maintain machinery properly, and avoid excessive noise near sensitive locations. - Install warning signs and barricades, ensure temporary access for pedestrians and local vehicles, and implement a basic traffic management plan. - Minimize cutting of trees and vegetation; undertake compensatory roadside tree plantation after construction where feasible. - Maintain alternative access paths where required, schedule works in sections to minimize disruption, and consult with local residents before major activities.

5.0 Environmental and Social Management Plan (ESMP)

5.1 Purpose of the ESMP

The purpose of the Environmental and Social Management Plan (ESMP) for the sub-project “Improvement of Community Infrastructure Connecting Roads” is to provide a structured framework to identify, mitigate, and manage potential environmental and social impacts associated with the design, construction, and operation of the community roads. The ESMP ensures that all project activities comply with national environmental and social regulations as well as the environmental and social standards of the World Bank, promoting sustainable and socially inclusive infrastructure development.

Specifically, the ESMP aims to minimize adverse effects on local communities, settlements, flood shelters, agricultural lands, roadside vegetation, water bodies, and sensitive receptors such as schools and religious institutions. It outlines detailed mitigation measures for construction-related impacts such as dust, noise, traffic disruption, soil erosion, and safety hazards, and includes measures for operational sustainability and long-term maintenance of the roads. Furthermore, the ESMP establishes procedures for stakeholder engagement, grievance redress, occupational health and safety, and monitoring and reporting, ensuring that the project delivers its intended benefits—which is enhanced connectivity, safer access to flood shelters, and improved resilience of rural communities—while also safeguarding the environment and promoting social well-being.

5.2 Environmental and Social Management Plan (ESMP)

The Environmental and Social Management Plan (ESMP) for the sub-project under the RIVER Project provides a comprehensive framework for the systematic management of potential environmental and social impacts throughout the design, construction, and operational phases of the project. The ESMP is developed to ensure compliance with the national environmental and social regulations of Bangladesh as well as the Environmental and Social Standards (ESS) of the World Bank, thereby promoting sustainable, safe, and socially inclusive implementation of road improvement works.

The ESMP identifies key potential environmental impacts, including dust and air pollution, noise and vibration from construction equipment, soil erosion, sedimentation in nearby water bodies, removal of roadside vegetation, and temporary disruption of natural drainage patterns. It also addresses social impacts such as disturbance to local settlements, access restrictions for pedestrians and vehicles, occupational health and safety risks for workers, and potential conflicts with nearby institutions including schools, mosques, markets, and flood shelters.

To mitigate these impacts, the ESMP proposes detailed measures across multiple categories. Environmental mitigation measures include regular water spraying and dust control, proper

storage and disposal of construction materials and waste, restoration of disturbed areas, erosion control and slope protection, protection of existing trees with compensatory planting where removal is unavoidable, and careful management of drainage systems to prevent waterlogging and contamination. Social mitigation measures include implementing traffic management plans, ensuring safe pedestrian pathways, establishing buffer zones near sensitive receptors such as schools and religious institutions, scheduling construction activities to minimize community disruption, and maintaining clear communication with local residents regarding work schedules and potential impacts.

The ESMP also emphasizes occupational health and safety (OHS), including mandatory use of personal protective equipment (PPE), safety training for all construction personnel, emergency response procedures, and routine site inspections to ensure compliance with safety standards. In addition, it establishes community engagement and Grievance Redress Mechanisms (GRM) to ensure that local stakeholders have avenues to raise concerns, provide feedback, and participate in monitoring the implementation of mitigation measures. The activity wise anticipated environmental and social impacts and corresponding mitigation measures and Site-Specific Impacts and mitigation/management measures have been outlined in **Table 5.1**.

Furthermore, the ESMP outlines a monitoring and reporting framework to track the effectiveness of mitigation measures, identify unforeseen impacts, and facilitate adaptive management. Regular monitoring of air and water quality, noise levels, traffic safety, and compliance with environmental safeguards is recommended, along with periodic reporting to project authorities and relevant regulatory agencies. The plan also includes a schedule for maintenance and operational safeguards post-construction to ensure long-term functionality, safety, and environmental sustainability of the improved road network.

Overall, the ESMP serves as an essential tool to ensure that the sub-project not only enhances community connectivity and access to flood shelters but also minimizes environmental degradation, safeguards community health and safety, and strengthens the resilience of rural populations in Madaripur Sadar, Rajoir, Kalkini, and Shibchar Upazilas. By integrating environmental and social considerations into every stage of project implementation, the ESMP ensures that the benefits of improved road infrastructure are maximized while negative impacts are systematically prevented, mitigated, and managed.

Table 5.1: ESMP_ Pre-Construction phase, Construction Phase and Operation Phase

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	- Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. - Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction	Loss of right to access	Project to ensure thorough analysis of alternatives that access enjoyed by the community remains	PIU	Social Development

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Stage		intact. In case of unavoidable circumstances, alternative access will be provided.		Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		measures for avoiding any disturbance. - All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. - Noise producing vehicles and equipment will be kept in maintenance regularly. - Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.		
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. - Dust generation must be limited as a result of clearing, leveling and site grading operations with using water fluorescent 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	Unauthorized entry is completely prohibited in construction site and take necessary measures for	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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.		
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. • Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical	PIU & Contractor	Social Development Specialist and

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		Gender Specialist of PIU
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU

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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 labor camps will be put in place. - Treated water will be made available at site for drinking purpose. - Adequate accommodation arrangements for labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	- A separate grievance mechanism for workers has to be established for the work package. - Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. - Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
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.	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 electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual	• 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. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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 during the construction phase in order to highlight the heat related illnesses of working in hot		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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	Contractor	Environmental Consultant of PIU/D&SC.

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		covered. - Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. - The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. - 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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.	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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		problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on	Upazila Engineer (UE)	District Executive Engineer, LGED

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	trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

5.3 Monitoring of ES Performance

Monitoring of Environmental and Social (ES) performance is a crucial component of the implementation of community road improvement activities under the RIVER Project to ensure that all environmental and social safeguard measures are effectively applied during construction and operation phases. A systematic monitoring framework to be established to assess compliance with the Environmental and Social Management Plan (ESMP), national environmental regulations of Bangladesh, and the safeguard requirements of the World Bank. The monitoring process will involve regular field inspections, supervision visits, and periodic reporting to evaluate the effectiveness of mitigation measures related to dust suppression, noise control, traffic management, occupational health and safety, waste management, protection of nearby water bodies, and conservation of roadside vegetation. Social aspects such as community safety, access to local settlements and institutions, prevention of labor influx issues, grievance redress mechanisms, and engagement with local stakeholders will also be closely monitored. Monitoring facilitates continuous tracking of compliance, assessment of performance, and early identification of potential environmental and social risks. The monitoring plan clearly specifies the parameters to be observed, along with the frequency, timing, responsible stakeholders, and verification mechanisms for each key environmental and social component. It combines site-level implementation by contractors with supervision from the Project Implementation Unit (PIU) and the Design and Supervision Consultant (D&SC).

Monitoring activities shall adopt both proactive (preventive) approaches such as routine inspections, audits, and stakeholder consultations along with reactive (corrective) measures based on incident reporting, grievance redress mechanisms, and non-compliance findings. The monitoring framework is aligned with national environmental regulations set by the Department of Environment (DoE), the World Bank Environmental and Social Framework (ESF), and the internal Environmental and Social Management Guidelines of the Local Government Engineering Department (LGED).

Table 5.2: Monitoring Framework for achieving overall ES Performance

Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
1.	Air Quality / Dust Emission	Dust generation from earthworks and vehicle movement; effectiveness of water spraying	Weekly during construction	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Site inspection, photographic records
2.	Noise Pollution	Noise disturbance near	Weekly / During heavy	Contractor (monitoring &	Field observation,

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
		settlements, schools, and religious institutions	construction	Implementation); PIU/D&SC (verification)	community feedback
3.	Construction Waste Management	Segregation, collection, and proper disposal of construction debris	Weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Site inspection, waste disposal records
4.	Soil Erosion and Land Degradation	Evidence of soil erosion, slope protection measures, roadside stabilization	Monthly and after heavy rainfall	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field inspection
5.	Drainage and Water Flow	Functionality of roadside drains and culverts; prevention of waterlogging	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification
6.	Protection of Surface Water	Prevention of sediment, oil, or construction waste entering ponds, canals, or rivers	Bi-weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Visual inspection, photo documentation
7.	Storage of Construction Materials	Proper storage of sand, soil, bitumen, and aggregates	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Site inspection
8.	Fuel and Chemical Handling	Safe storage and handling of fuel, lubricants, and chemicals	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Inspection checklist
9.	Occupational Health and Safety	Availability and use of PPE (helmet, gloves, boots, reflective jackets)	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Safety checklist, field inspection
10.	Worker Safety Training	Records of safety briefings and toolbox meetings	Monthly	Contractor (Safety Officer); PIU/D&SC (verification)	Training records review
11.	Construction Site Safety	Warning signs, barricades, and safe access control at work	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Field inspection

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
		sites			
12.	Traffic Management	Presence of traffic signs, flagmen, and safe vehicle movement	Weekly	Contractor (Implementation); PIU/D&SC (verification)	Observation, traffic control records
13.	Community Health and Safety	Protection of pedestrians and local residents from construction hazards	Weekly	Contractor (Safety Officer); PIU/D&SC (verification)	Community consultation, site inspection
14.	Access to Local Facilities	Uninterrupted access to homes, markets, schools, mosques, and agricultural land	Weekly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field observation
15.	Protection of Roadside Vegetation	Preservation of existing roadside trees and vegetation	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification
16.	Compensatory Tree Plantation	Plantation of trees where roadside trees are removed	Quarterly	Contractor (Implementation); PIU/D&SC (verification)	Plantation records, site inspection
17.	Borrow Area and Earth Source Management	Proper sourcing of earth materials without damaging agricultural land	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Field verification
18.	Labor Management	Absence of child labor and forced labor; compliance with labor laws	Monthly	Contractor (Implementation); PIU/D&SC (verification)	Labor records review
19.	Worker Welfare Facilities	Availability of safe drinking water, sanitation, and rest areas for workers	Monthly	Contractor (monitoring & Implementation); PIU/D&SC (verification)	Site inspection
20.	Gender and Social Inclusion	Participation of local community including women in	Quarterly	Contractor (recording); PIU (review)	Consultation meeting records

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Sl. No.	ES Aspect / Issue	Monitoring Parameters / Indicators	Frequency / Timing	Responsibility	Means of Verification / Monitoring Method
		consultations			
21.	Grievance Redress Mechanism (GRM)	Number of grievances received and resolved within specified timeframe	Monthly	Contractor (recording); PIU (review)	GRM register review
22.	Community Consultation	Stakeholder engagement and awareness regarding construction activities	Quarterly	Contractor (recording); PIU (review)	Meeting minutes, attendance records
23.	Cultural and Religious Sites Protection	Protection of nearby mosques, graveyards, temples, or cultural structures	As required	Contractor (Implementation); PIU/D&SC (verification)	Field inspection
24.	Compliance with ESMP	Overall implementation status of mitigation measures described in ESMP	Monthly	Contractor (Implementation); PIU (verification)	Monitoring checklist, compliance report
25.	Environmental and Social Reporting	Preparation and submission of ES monitoring reports	Monthly / Quarterly	Contractor (Implementation); PIU/D&SC (verification)	Monitoring reports

5.4 Capacity Development Measures

Effective management of Environmental, Social, and Gender issues in construction projects requires proactive capacity building for all actors involved including the Implementing Agency, Contractors, and Supervision Consultants. To ensure compliance with environmental and social standards, all project stakeholders must be adequately trained and informed about their responsibilities, mitigation measures, and reporting mechanisms. Capacity-building programs through formal trainings, on-site guidance, tool-box meetings, and awareness sessions help strengthen institutional capacity, improve coordination, and ensure that sustainability and gender equity principles are integrated into project planning, implementation, and monitoring.

The following table outlines the recommended capacity-building measures, target participants, training frequency, and key topics to be covered under an ESG management framework for building and road construction projects.

Table 5.3: Capacity-Building and Training Measures for ES Compliance and Management

Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
1	LGED / Project Management Unit (PIU)	Orientation on Environmental and Social Safeguards	To strengthen understanding of E&S policies, legal requirements, and roles in project implementation.	- National environmental & labor laws - World Bank E&S Framework - Grievance Redress Mechanism (GRM) - ESMP implementation & monitoring - Gender Issues in Infrastructure Development Project.	At project start and annually	Environmental & Social Specialists (PIU)/ D&S Consultant
2	Supervision Consultants	Training on E&S Supervision and Monitoring	To ensure that consultants effectively monitor contractors' compliance with E&S standards.	- ESMP & site-specific E&S checklists - Waste management & pollution control - Labor & working condition compliance - Occupational Health & Safety (OHS)	Before mobilization and quarterly refreshers	PIU with support from E&S Experts

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Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
				- Gender-sensitive supervision - Incident reporting & corrective actions.		
3	Contractor's Management Staff	Induction and Periodic E&S Management Training	To ensure site managers and engineers integrate E&S compliance in daily site operations.	- Contractor's ESMP & Method Statements - Environmental and Social Codes of Practices (ESCoPs) - OHS plan implementation - Labor rights and grievance mechanism - Community health & safety - Gender-based violence (GBV) and SEA/SH prevention	Prior to construction & bi-annually, if deemed required.	Supervision Consultant / PIU E&S Team
4	Contractor's Workforce (Skilled & Unskilled Workers)	Toolbox Meetings/ Awareness Sessions	To build awareness and behavioral change for safe, responsible, and inclusive site practices.	- Worksite safety protocols (PPE use, accident prevention) - Environmental cleanliness & waste segregation - Respectful workplace behavior & anti-harassment - Gender equality & inclusion - HIV/AIDS and communicable disease awareness	Weekly or bi-weekly at site	Contractor's E&S Officer / OHS Supervisor
5	Community Representatives / Local	Information & Awareness Session	To enhance local understanding of project impacts,	- Project scope & benefits - Potential impacts & mitigation measures	During pre-construction & as needed	PIU & Contractor's Community

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Sl. No.	Key Actor / Target Group	Type of Training / Guidance	Objectives	Main Topics to be Covered	Frequency/ Timing	Responsible Entity
	Stakeholders		grievance redress, and gender inclusion measures.	- Community safety measures - GRM process - Gender & inclusion awareness		Engagement Officer
6	Gender Focal Points (PIU, Contractor, Consultant)	Gender and Social Inclusion (GESI) Training	To promote integration of gender considerations into project implementation.	- Gender Action Plan implementation - GBV/SEA/SH mitigation & referral pathways - Inclusive employment & equal pay - Women's participation in decision making	At project start & mid-term	PIU Gender Specialist / External Expert

5.5 Tree Plantation Plan

The Government of Bangladesh has long promoted roadside plantation to improve environmental quality, restore ecological balance, and support rural livelihoods through timber, fuel, and other biological resources. Trees absorb carbon dioxide and release oxygen, reduce dust pollution, and provide habitat and economic value. To compensate for project-related tree loss, the Forest Department requires plantation at a 3:1 ratio (three trees planted for every tree felled).

Plantation will be carried out along roadside slopes, embankments, and other available spaces within and beyond the right-of-way, including suitable Upazila-owned land. Native fruit-bearing, flowering, medicinal, and ornamental species will be prioritized, selected in consultation with the Forest Department based on lost vegetation. Saplings (minimum 1 m height) will be protected and maintained through the defect liability period.

The initiative aims to restore biodiversity, enhance greenery, prevent erosion, improve aesthetics, and ensure long-term environmental sustainability while supporting local employment. However, a generic list of species to be used for the plantation is given below in **Table 5.4**, and it is to be noted that the tree species should be native to the project location.

Table 5.4: The List of Selected Species for Tree Plantation

SL No.	Local Name	English Name	Scientific Name
Timber Tree			
1	Debdaru	Indian Mast Tree	<i>Polyalthia longifolia</i>
2	Gurjan	Gurjun	<i>Dipterocarpus turbinatus</i>
3	Silkoroi	White Siris	<i>Albizia procera</i>
4	Segun	Teak	<i>Tectona grandis</i>
5	Akashmoni	Earleaf Acacia	<i>Acacia auriculiformis</i>
6	Katbadam	Bengal almond	<i>Terminalia calappa</i>
7	Jarul	Giant Crape-myrtle	<i>Lagerstroemia speciosa</i>
	Punal	Asian indigo	<i>Callophyllum inophyllum</i>
8	Mahogany	Mahogany	<i>Swietenia mahagoni</i>
9	Epil-Ipil	White Lead Tree	<i>Leucaena leucocephala</i>
Fruit Tree			
10	Am	Mango	<i>Mangifera indica</i>
11	Kathal	Jackfruit	<i>Artocarpus heterophyllum</i>
12	Peyara	Guava	<i>Psidium guajava</i>
13	Jam	Black Berry	<i>Syzygium cumini</i>
14	Khejur	Date Palm	<i>Phoenix sylvestris</i>
15	Tal	Palm	<i>Borassus flabelliformis</i>
16	Amra	Hogplum	<i>Spondias pinnata</i>
17	Narikel	Coconut	<i>Cocos nucifera</i>
18	Chalta	Elephant Apple	<i>Dillenia indica</i>
19	Kul/Boroi	Jujube	<i>Ziziphus mauritiana</i>
20	Lichu	Lychee	<i>Litchi chinesis</i>

SL No.	Local Name	English Name	Scientific Name
21	Tetul	Tamarind	<i>Temarindus indica</i>
22	Jambura	Pumelo	<i>Citrus grandis</i>
23	Bel	Wood Apple	<i>Aegle marmelos</i>
24	Kodbel	Wood Apple	<i>Limonia acidissima</i>
25	Jolpai	Olive	<i>Elaeocarpus floribundus</i>
Medicinal Tree			
26	Neem	Indian lilac	<i>Azarlira chlaindica</i>
27	Arjun	Arjun	<i>Terminalia arjuna</i>
28	Amlaki	Indian gooseberry	<i>Phyllanthus emblica</i>
29	Horitoki	Chebolic Myrobalan	<i>Terminalia chebula</i>
30	Bohera	Beleric Myrobalan	<i>Terminalia belliricha</i>
31	Akando	White Aak Plant	<i>Calotropis gigantea</i>
Fuel Tree			
32	Shimul	Silk Cotton Tree	<i>Bombox ceiba</i>
33	Gab	Malabar ebony	<i>Diospyros spp.</i>
34	Kadam	Burflower Tree	<i>Anthocephalus chinensis</i>
35	Jhau	Tamarisk	<i>Tamarix dioica</i>
36	Pituli	Patchouli	<i>Trewta nudiflora</i>

According to the prevailing practice in Bangladesh, the FD has recommended to plant minimum three trees for each tree cut for the implementation of the proposed project.

Under the proposed tree plantation plan:

- Timber tree species will cover 40% of the total area,
- Fruit tree species will cover 30% of the total area,
- Medicinal tree species will cover 20% of the total area and
- Fuel tree species will cover the rest 10% of the total area.

Apart from roadsides, other places for planting trees shall be proposed at mosques, temples, madrasas, schools, colleges etc. Spacing between each plant shall be calculated according to the available space within the ROW. The tree plantation shall follow the following SOPs provided in Table 5.5.

Table 5.5: Standard of Procedures (SOPs) for Tree Plantation

Plant Selection	Height and Spacing	Planting and Fencing Details	Maintenance
• Most types of trees average height should be more than 1 meter which equals more than 3ft. at the time of planting; • As all tree heights are not		Preparation of plantation pits will involve excavation of pits measuring 600 mm × 600 mm × 450 mm. The excavated soil will be mixed with loamy silty soil and cow dung to create suitable planting media. Saplings will	• Watering: needs two times in a day; Prefer especially rainy season for tree plantation if it is in other season then proper watering is

Plant Selection	Height and Spacing	Planting and Fencing Details	Maintenance
	same, at the time of some specific tree plantation Upazila and Contractor should communicate with Consultant Team; • Tree plantation spacing should be 3m c/c from one tree to another tree	then be planted and securely supported using 1800 mm long Borrak bamboo stakes, tied with jute rope, including the provision of necessary tools and planting materials, all in accordance with the instructions of the E-I-C. In addition, protective tree guards will be provided using high-quality Muli bamboo, measuring approximately 1200 mm in height and 500 mm in diameter. The guards will be constructed using 2 mm thick bamboo splits arranged in a grid pattern with 75 mm × 75 mm square openings, reinforced with additional bamboo splits on both sides and secured with G.I. wire. Each tree guard will be firmly supported by three Borrak bamboo posts of 1800 mm length (63 mm diameter), with at least 600 mm embedded into the ground through proper excavation and backfilling. All works, including supply, preparation, installation, and finishing, will be completed as per the direction of the E-I-C.	needed; • Needs weed out grass and other unnecessary vegetation • Need regular monitoring by Upazila

5.6. Cost of Environmental and Social Enhancement Works in BOQ

The estimated cost of environmental and social enhancement works has been incorporated into the Bill of Quantities (BOQ) for the sub-project covering eight identified community roads across Madaripur Sadar, Rajoir, Kalkini, and Shibchar Upazilas. The detailed road wise estimate, with tentative cost for implementing the ESMP, is given in annexure 1. These costs are specifically allocated to implement mitigation measures and safeguard activities that address environmental and social risks during construction and operation phases. Key components included in the BOQ for ES enhancement works comprise dust suppression through regular water spraying,

The BOQ also includes provisions for occupational health and safety (OHS) equipment for 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. By integrating these costs into the project BOQ, the sub-project ensures that environmental and social safeguards are systematically implemented without compromising project timelines or quality, while promoting sustainable, safe, and resilient road infrastructure that benefits local communities and maintains safe access to flood shelters.

6.0 PUBLIC CONSULTATION MEETING

6.1 Stakeholder Engagement

Stakeholder engagement is a critical component for ensuring that the perspectives, concerns, and suggestions of affected communities and relevant stakeholders are incorporated into project planning and implementation, a comprehensive series of stakeholder engagement and site-specific consultation meetings were conducted for all proposed shelter sites. These meetings were held in March 27-30 and April 13, 2026. Public consultation meetings were conducted in the alongside covering of the twelve (12) identified community roads. Refer to **Annexure 2** for details of the attendance of the meeting. Participants included local residents, community leaders, school authorities, representatives of religious institutions, flood shelter managers, and local government officials. During these consultations, stakeholders were informed about the objectives, scope, and expected benefits of the road improvement works, including enhanced connectivity to flood shelters, improved mobility, and disaster preparedness. Discussions focused on potential environmental and social impacts such as temporary disruption to access, noise, dust, removal of roadside vegetation, and traffic safety during construction. Stakeholders were encouraged to provide feedback on site-specific concerns and suggest measures to minimize negative impacts.

Key outcomes from these consultations included requests for proper traffic management near schools and marketplaces, adequate drainage improvements to prevent waterlogging,

compensation or replanting for affected trees, and timely communication regarding construction schedules. The feedback gathered has been integrated into the Environmental and Social Management Plan (ESMP) to ensure that mitigation measures are responsive to local needs, enhance community safety, and promote transparency and participation throughout the project cycle.

6.2 Methodology

Public consultation meetings were designed to ensure inclusive, transparent, and participatory engagement with local stakeholders. Site-specific consultation meetings were systematically conducted at all proposed flood shelter locations across Madaripur District to ensure inclusive participation and transparent stakeholder engagement in accordance with the Environmental and Social Framework (ESF) prescribed ES Assessment checklist and the project's safeguard requirements. Prior to the consultations, stakeholders —that include local residents, community leaders, school authorities, religious institution representatives, and local government officials, bazar management committee were informed about the purpose, scope, and potential impacts of the proposed road improvements. Meetings were conducted at accessible community locations, such as schools, union parishad offices, and community centers, to maximize participation. During the sessions, project plans and environmental and social considerations were presented using simple visual aids and local language explanations to facilitate understanding. Stakeholders were encouraged to express concerns, provide suggestions, and prioritize site-specific issues, particularly regarding traffic safety, drainage, tree protection, access to flood shelters, and construction-related disturbances. The feedback collected through these consultations was systematically documented, analyzed, and incorporated into the Environmental and Social Management Plan (ESMP) and project design to ensure that mitigation measures are practical, locally relevant, and responsive to the needs and expectations of the affected communities.

This consultative process played a critical role in identifying location-specific issues, such as access constraints, local waterlogging, land use sensitivity, or community preferences, and helped enhance project acceptance and ownership at the grassroots level. Refer to **Figure 6.1** for selected photographs of the participatory public consultation held at the sub-project sites and **Table 6.1** refers to Consultation meeting participants' summary for the sub-project.

Table 6.1: Consultation Meetings Summary

Sl. No.	Name of Community Road	Date DD-MM-YYYY	Venue	Main Participant Groups	No. of Participants
1.	RHW(Ambari)-Joyar.	30.03.2026	Munshi Bari	The local individuals, elites, chairman and/or member of	19
2.	R & H Chokder Kandi GPS	13.04.2026	Chokder Bari		15

Sl. No.	Name of Community Road	Date DD-MM-YYYY	Venue	Main Participant Groups	No. of Participants
3.	Jamadder bari bridge-h/o Tarek Sikder Via Howlader Bari Mosque	29.03.2026	Molladi Faruker Dokan More	respective Union Parishad, teacher, farmer, businessmen, religious leaders, women, labor, fishermen etc.	20
4.	Mollahdi pucca road-Mollahdi GPS via Furkania madrasa	30.03.2026	Proposed Road		20
5.	Ishibpur UP-Goaldi-Sonapara bazar- Ari para bazar	28.03.2026	House of Arif Kalashi		14
6.	Chanpathi-Kachabali Rd	30.03.2026	Munshi Bari & Khalashi Barir Middle Point		20
7.	Solpur More (UZR)-Katchabali bridge (UNR-3028)	28.03.2026	Kamal Talukder Market		14
8.	Mojid Kazi House-Atul Babu House near Kali Mondir Via Khilgram	30.03.2026	Master Bari & School		13
9.	Dhulgram Hat-Choto Bonogram A. Munshi House	29.03.2026	School Side		16
10.	DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque	29.03.2026	Master Bari		08
11.	UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman	29.03.2026	Chairman's House		05
12.	UZR-6, Kamar Bari to Bhadrason Bazar road.	27.03.2026	Chanderchar Bazar		10





Figure 6.1: Public Consultation through FGD's and KII alongside the proposed road

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

During the public consultation meetings conducted in the project influence areas of the proposed community road sub-projects in Madaripur District, local community members, representatives of local government institutions, teachers, farmers, and other stakeholders actively shared their views regarding the planned interventions under the project. During the consultation, participants highlighted several critical issues affecting the project area. These included poor road conditions, particularly during the monsoon season, inadequate drainage systems resulting in waterlogging, damaged culverts obstructing natural water flow, and erosion of road embankments in vulnerable sections. Community members also expressed concerns regarding potential temporary disturbances during the construction phase, such as dust emissions, increased noise levels, traffic congestion, and safety risks for school children and pedestrians.

In response, participants suggested a range of practical mitigation measures. These included the proper repair and installation of culverts and cross-drainage structures to maintain natural water flow and prevent water stagnation. They also stressed the importance of reinforcing road embankments and constructing protective measures such as retaining walls or palisading in erosion-prone areas to improve structural stability. Additionally, participants recommended implementing effective dust and noise control measures during construction, along with appropriate road safety interventions, including warning signage, speed breakers near schools, and improved visibility at intersections.

Ensuring continuous access for local residents and agricultural transport during construction was identified as a key priority. Moreover, the community emphasized the importance of engaging local labor to maximize socio-economic benefits. Overall, the consultation findings highlight the need to incorporate community-driven recommendations into project planning and implementation to minimize environmental and social impacts while enhancing infrastructure resilience and public safety. The issues and recommendations collected during these consultations have been summarized and documented in **Table 6.2**, which will guide the integration of appropriate environmental, social, and safety mitigation measures during project implementation.

Table 6.2: Issues and Recommendations raised by the Participants

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
1.	RHW (Ambari)-Joyar.	30/03/2026 and Munshi Bari	- Existing road surfaces are damaged and become muddy and difficult to use during the rainy season. - Some road sections remain submerged due to poor drainage and low elevation. - Need for community awareness regarding project activities and safety measures. - Need to ensure safe and quick access to flood shelters during emergencies. - Construction waste may be dumped improperly and affect nearby land or water bodies. - Potential impact on nearby agricultural lands and irrigation channels.	- Improve road pavement and strengthen the road base to ensure all-weather accessibility. - Conduct community awareness programs and maintain regular communication with local stakeholders. - Encourage contractors to prioritize hiring local workers where possible. - Raise the road level where necessary and construct adequate side drains and cross-drainage structures. - Design road improvements to ensure uninterrupted connectivity to nearby flood shelters. - Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements.
2.	R & H Chokder Kandi GPS	13/04/2026 and Chokder Bari	- Dust pollution during construction may affect nearby houses, schools, and markets. - Temporary disruption to access of local houses, shops, and agricultural lands during construction. - Need to ensure safe and quick access to flood shelters during emergencies. - Risk of erosion and damage to road	- Regular water spraying and proper management of construction materials to minimize dust generation. - Restrict heavy construction activities during sensitive hours and maintain noise control measures. - Prepare and implement a traffic management plan including warning signs, barriers, and designated detours. - Strengthen road shoulders and provide slope protection and erosion control measures.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			shoulders during heavy rainfall. - Noise and disturbance may occur near schools, mosques, and residential areas. - Traffic congestion and safety risks may occur during construction activities. - Concerns about removal of roadside trees during road widening.	- Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements. - Ensure proper drainage design and avoid blockage of irrigation channels during construction. - Avoid unnecessary tree cutting; where unavoidable, implement compensatory plantation programs. - Maintain temporary access routes and inform the community in advance about construction schedules. - Design road improvements to ensure uninterrupted connectivity to nearby flood shelters.
3.	Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Mosque.	29/03/2026 and Molladi Faruker Dokan More	- Dust pollution during construction may affect nearby households and shops. - Farmers depend on roadside access to transport agricultural products to local markets. - Some households are located very close to the road alignment. - Flood shelter accessibility is important during flood emergencies. - Waterlogging occurs in some low-lying sections of the road. - Road width is narrow in certain segments which creates difficulty for two-way traffic. - Community members requested	- The road surface should be improved with proper pavement and compaction to ensure all-weather accessibility. - Adequate roadside drainage and culverts should be constructed to facilitate smooth water flow and prevent waterlogging. - Minor widening should be considered within the available Right of Way (ROW) to improve traffic movement and safety. - Traffic management measures, warning signs, and temporary safety barriers should be installed during construction. - Construction activities should be planned to avoid blocking access to agricultural lands and transport routes.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			installation of safety signage.	
4.	Mollahdi pucca road-Mollahdi GPS via Furkania madrasa	30/03/2026 and Proposed Road	- Farmers depend on roadside access to transport agricultural products to local markets. - Some households are located very close to the road alignment. - Improper disposal of construction waste may affect nearby agricultural land. - Road width is narrow in certain segments which creates difficulty for two-way traffic. - Dust pollution during construction may affect nearby households and shops. - Movement of construction vehicles may create safety risks for pedestrians and school children. - Roadside trees provide shade and environmental benefits for the community. - Community members requested installation of safety signage.	- Traffic management measures, warning signs, and temporary safety barriers should be installed during construction. - Contractors should maintain safe working distances and ensure minimal disturbance to local residents. - The road improvement should prioritize ensuring safe and quick access to the nearby flood shelter. - Construction work should be scheduled during daytime and equipment should be properly maintained to reduce noise. - Minor widening should be considered within the available Right of Way (ROW) to improve traffic movement and safety. - Regular water spraying and proper construction management should be implemented to minimize dust generation. - Waste materials should be properly managed and disposed of at designated locations. - Road safety signs and markings should be installed near settlements, intersections, and flood shelters.

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
5.	Ishibpur UP-Goaldi-Sonapara bazar- Ari para bazar	28/03/2026 and House of Arif Kalashi	- Waterlogging occurs in several low-lying sections of the road during monsoon. - Temporary disruption to local transportation and market access may occur during construction. Movement of school students and pedestrians may be at risk during construction activities. - Dust generation during construction may affect nearby houses and roadside shops. - Noise from construction machinery may disturb nearby residents and institutions. - Some roadside trees may need to be removed during road widening.	- Adequate side drains and cross-drainage structures (culverts) should be constructed or improved to ensure proper drainage. - Contractors should implement traffic safety measures, including warning signage, speed control, and safe pedestrian passage near schools and settlements. - A temporary traffic management plan should be prepared to ensure continued movement of local transport and access to markets such as Kabarstan Hat and Sarker Hat. - Installation of road safety signage, speed breakers, and road markings near market areas is recommended.
6.	Chanpathi-Kachabali Rd	30/03/2026 and Munshi Bari & Khalashi Barir Middle Point	- Noise from construction machinery may disturb nearby residents and institutions. - Some roadside trees may need to be removed during road widening. - Safety concerns near local markets due to increased traffic after road improvement. - Risk of improper disposal of construction waste near agricultural lands. - Community members emphasized the	- The road should be properly improved and strengthened with suitable pavement to ensure all-weather accessibility for local residents and vehicles. - Contractors should implement traffic safety measures, including warning signage, speed control, and safe pedestrian passage near schools and settlements. - Regular water spraying and proper construction material management should be carried out to minimize dust pollution. - Construction work should be scheduled during

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			importance of quick access to flood shelters during emergencies.	daytime and machinery should be properly maintained to reduce noise levels. - Tree cutting should be minimized, and compensatory tree plantation should be undertaken along suitable roadside locations. - The road design should ensure uninterrupted connectivity to nearby flood shelters and maintain the road at an appropriate elevation to remain usable during floods.
7.	Solpur More (UZR)-Katchabali bridge (UNR-3028)	28/03/2026 and Kamal Talukder Market	- Existing road surface is uneven and becomes muddy during monsoon season. - Narrow road width causes difficulty for two-way traffic movement. - Temporary disruption of access to houses, shops, and agricultural lands during construction. - Safety concerns for school children and pedestrians using the road. - Need for reliable road access to nearby flood shelters during emergencies. - Some roadside trees may need to be removed during road improvement works. - Traffic safety concerns near settlements and local markets.	- Implement a traffic management plan with proper signage, barricades, and safety personnel. - Maintain temporary access routes and inform local residents about construction schedules. - Provide pedestrian safety measures, signage, and speed control near schools and populated areas. - Improve the road pavement with proper compaction and surfacing to ensure all-weather accessibility. - Widen the road within the available Right of Way (ROW) where feasible to improve vehicle movement and safety. - Minimize tree cutting where possible and implement compensatory tree plantation along the roadside. - Install traffic signs, speed breakers, and safety markings near populated areas and markets. - Ensure that road elevation, pavement strength, and drainage are designed to remain functional during

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			Risk of accidents during construction due to movement of heavy vehicles and machinery.	flood conditions.
8.	Mojid Kazi House- Atul Babu House near Kali Mondir Via Khilgram	30/03/2026 and Master Bari & School	- Risk of accidents during construction due to movement of heavy vehicles and machinery. - Drainage obstruction could affect nearby agricultural lands. - Waste materials from construction may be dumped near agricultural fields or water bodies. - Waterlogging occurs at several low-lying sections of the road during heavy rainfall. - Dust generation during construction may affect nearby houses, schools, and shops. - Some roadside trees may need to be removed during road improvement works. - Workers' safety during construction activities.	- Construct adequate side drains and cross-drainage structures to ensure proper water flow and prevent waterlogging. - Proper waste management practices should be implemented, and disposal sites should be designated in advance. - Ensure the use of Personal Protective Equipment (PPE) and implement occupational health and safety measures at construction sites. - Establish a maintenance mechanism and monitoring system to ensure long-term road usability. - Regular water spraying and proper material handling should be implemented to control dust pollution. - Minimize tree cutting where possible and implement compensatory tree plantation along the roadside. - Implement a traffic management plan with proper signage, barricades, and safety personnel. - Ensure proper drainage design and avoid blocking natural water channels during construction.
9.	Dhulgram Hat- Choto Bonogram A. Munshi House	29/03/2026 and school side	- Waterlogging occurs in some low-lying sections of the road. - Road width is narrow in certain segments which creates difficulty for	- The road surface should be improved with proper pavement and compaction to ensure all-weather accessibility. - Adequate roadside drainage and culverts should be

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			two-way traffic. - Dust pollution during construction may affect nearby households and shops. - Farmers depend on roadside access to transport agricultural products to local markets. - Some households are located very close to the road alignment. - Flood shelter accessibility is important during flood emergencies.	constructed to facilitate smooth water flow and prevent waterlogging. - Minor widening should be considered within the available Right of Way (ROW) to improve traffic movement and safety. - Regular water spraying and proper construction management should be implemented to minimize dust generation. - Traffic management measures, warning signs, and temporary safety barriers should be installed during construction.
10.	DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque	29/03/2026 and Master Bari	- Existing road surfaces are damaged and become muddy and difficult to use during the rainy season. - Some road sections remain submerged due to poor drainage and low elevation. - Need to ensure safe and quick access to flood shelters during emergencies. - Construction waste may be dumped improperly and affect nearby land or water bodies. - Potential impact on nearby agricultural lands and irrigation channels.	- Improve road pavement and strengthen the road base to ensure all-weather accessibility. - Raise the road level where necessary and construct adequate side drains and cross-drainage structures. - Design road improvements to ensure uninterrupted connectivity to nearby flood shelters. - Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements. - Conduct community awareness programs and maintain regular communication with local stakeholders.
11.	UZR-01, Umedpur UP Bhabon - UZR-10	29/03/2026 and Chairman's House	Noise from construction machinery may disturb nearby residents and	The road should be properly improved and strengthened with suitable pavement to ensure all-

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
	Via H/O Karjon Chairman		institutions. - Some roadside trees may need to be removed during road widening. - Safety concerns near local markets due to increased traffic after road improvement. - Risk of improper disposal of construction waste near agricultural lands.	weather accessibility for local residents and vehicles. - Contractors should implement traffic safety measures, including warning signage, speed control, and safe pedestrian passage near schools and settlements. - Regular water spraying and proper construction material management should be carried out to minimize dust pollution. - Construction work should be scheduled during daytime and machinery should be properly maintained to reduce noise levels. - Tree cutting should be minimized, and compensatory tree plantation should be undertaken along suitable roadside locations.
12.	UZR-6, Kamar Bari to Bhadrason Bazar road.	27/03/2026 and Chanderchar Bazar	- Dust pollution during construction may affect nearby houses, schools, and markets. - Noise and disturbance may occur near schools, mosques, and residential areas. - Traffic congestion and safety risks may occur during construction activities. - Concerns about removal of roadside trees during road widening. - Temporary disruption to access of local houses, shops, and agricultural lands during construction.	- Regular water spraying and proper management of construction materials to minimize dust generation. - Restrict heavy construction activities during sensitive hours and maintain noise control measures. - Prepare and implement a traffic management plan including warning signs, barriers, and designated detours. - Avoid unnecessary tree cutting; where unavoidable, implement compensatory plantation programs. - Maintain temporary access routes and inform the community in advance about construction schedules. - Design road improvements to ensure uninterrupted

Sl. No.	Name of community roads	Date and Site of Consultation	Issues raised and discussed	Recommendations and Comments
			Need to ensure safe and quick access to flood shelters during emergencies.	connectivity to nearby flood shelters. - Strengthen road shoulders and provide slope protection and erosion control measures. - Install road safety signs, speed control measures, and pedestrian-friendly features near schools and settlements.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the environmental and social assessment conducted for Community Roads at Madaripur District under the RIVER Project, it can be concluded that the proposed improvement of twelve (12) community roads across Madaripur Sadar Upazila, Rajoir Upazila, Kalkini Upazila, and Shibchar Upazila in Madaripur District is environmentally and socially feasible, provided that the proposed mitigation and management measures are properly implemented. The improvement of this community roads will significantly enhance rural connectivity, improve year-round accessibility, and ensure safe and reliable access to nearby flood shelters, which is crucial during flood emergencies and other natural disasters. The project is expected to bring considerable socio-economic benefits to the local population by facilitating access to markets, schools, health facilities, and other essential services, while also supporting the transportation of agricultural products and strengthening local economic activities.

The assessment indicates that most of the proposed road improvement works will be carried out within the existing Right of Way (ROW), which minimizes the need for land acquisition and significantly reduces the risk of physical displacement or resettlement. However, some minor environmental and social impacts may arise during the construction phase, including temporary dust and noise pollution, disruption of local traffic and pedestrian movement, temporary obstruction of drainage channels, and short-term access limitations for nearby settlements, agricultural lands, and community institutions. In addition, occupational health and safety risks for construction workers and safety concerns for pedestrians, particularly near schools, markets, and flood shelters, may occur if adequate safety measures are not implemented.

To address these potential impacts, the Environmental and Social Management Plan (ESMP) has been prepared as an integral component of this report. The ESMP outlines practical mitigation and enhancement measures such as dust suppression through regular water spraying, proper management and disposal of construction waste, installation of adequate drainage structures to prevent waterlogging, slope stabilization to reduce erosion, and compensatory tree plantation for any unavoidable vegetation removal. Traffic management measures, including warning signs, barricades, and speed control near sensitive locations, should be implemented to ensure public safety during construction.

In addition, strict compliance with occupational health and safety (OHS) standards should be ensured at all construction sites. Contractors should provide appropriate personal protective equipment (PPE), conduct regular safety training for workers, and implement emergency response procedures to minimize workplace accidents. Environmental monitoring should also be conducted periodically to ensure that construction activities remain within acceptable environmental limits for air quality, noise levels, and waste management.

Stakeholder consultations conducted in the project areas indicate strong community support for the proposed road improvements, particularly due to the anticipated benefits in terms of improved mobility, enhanced disaster preparedness, and better access to essential services. Community members emphasized the importance of proper drainage systems, road safety measures, protection of roadside vegetation, and regular maintenance after completion of the works. These concerns have been incorporated into the ESMP to ensure that the project remains responsive to the needs and expectations of local stakeholders.

In conclusion, the improvement of community infrastructure connecting roads under the RIVER Project in Madaripur District represents a positive intervention that will contribute to sustainable rural infrastructure development and increased resilience of flood-prone communities. With the effective implementation of the recommended environmental and social mitigation measures, continuous monitoring, and active stakeholder engagement, the project will minimize potential adverse impacts while maximizing long-term benefits for the communities in Madaripur Sadar, Rajoir, Kalkini, and Shibchar Upazilas. It is therefore recommended that the project proceed with implementation while ensuring strict adherence to the Environmental and Social Management Plan (ESMP) and relevant regulatory and institutional requirements.

ANNEXURE 1:
ROAD WISE ENVIRONMENTAL AND SOCIAL FINDINGS UNDER MADARIPUR
DISTRICT

ANNEXURE 1: ROAD WISE ENVIRONMENTAL AND SOCIAL FINDINGS UNDER MADARIPUR DISTRICT

Name of Sub-Project: Improvement of Community Road for **RHW(Ambari)-Joyar; ID: 354545001**

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

District: Madaripur

Upazila: Madaripur Sadar

Union: Mostafapur

Name of Community/Local Area: Mostafapur, Ambari, Joyar and Munshibari

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+00 m to 3+000 m, with a proposed carriageway width of 3.0 m. An existing bridge structure measuring 15 m × 4.1 m is located along the road section within the project alignment. This structure will remain unchanged under the current scope of work. No additional structures are proposed along the project corridor. All construction activities will utilize materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be sourced from approved local suppliers in compliance with relevant environmental and procurement guidelines. The project will be implemented within the existing road alignment to minimize environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 9,000 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 3000m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Household area
		R	Canal
300-600	L		Household area
		R	Household area
600-900	L		Household area
		R	Household area
900-1200	L		Paddy Land
		R	Paddy land
1200-1500	L		Paddy land
		R	Household area
1500-1800	L		Household area
		R	Household area
1800-2100	L		Household area
		R	Household area, Paddy land
2100-3000	L		Household area
		R	Household area
		R	Household area



Starting Point Ambari to Joyar Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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 through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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.

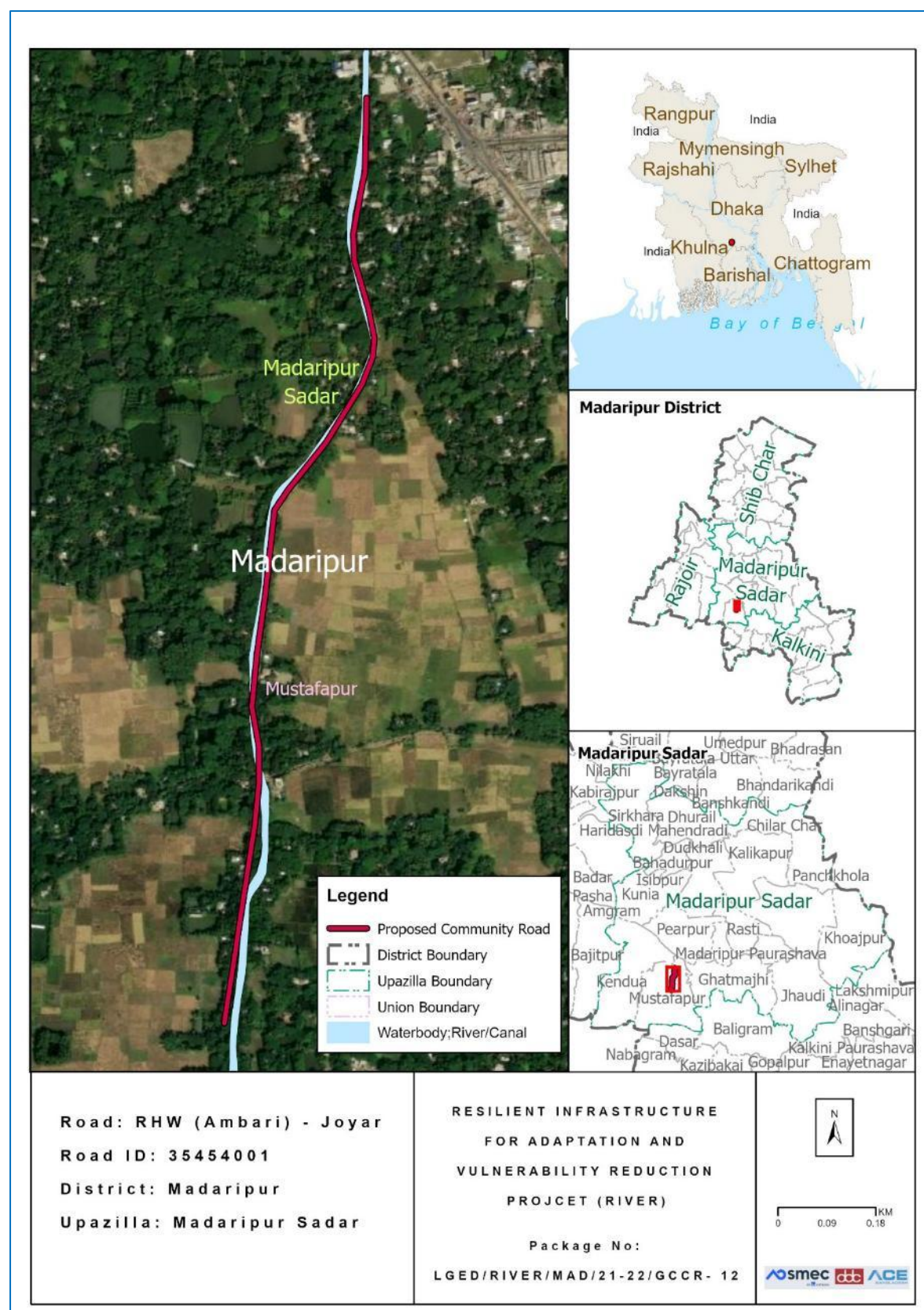
Types of waste to be generated during construction and operation phase:

During construction period solid waste will be generated due to construction activities. The types of wastes are brick pit, unused sand, wood, gravels, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites were identified within the direct influence area of the proposed sub-project. The sub-project is located along the RHW (Ambari)-Joyar road within Mostafapur and Joyar villages under Mostafapur Union, Ward No. 04 of Madaripur Sadar Upazila in Madaripur District. Several environmentally and socially sensitive features—such as residential areas, agricultural land, water bodies, and religious establishments—are situated within approximately one kilometer of the project area. Along the left side of the road alignment, household areas extend from approximately 0 to 900 meters, interspersed with agricultural land in certain sections. On the right side, homesteads and agricultural land are present within roughly 600 meters, with paddy fields observed along multiple stretches. A canal located near the starting section of the road contributes to local drainage and

reflects the area's natural hydrological characteristics. Overall, these features represent a typical rural setting where settlements, agriculture, and water resources are closely interconnected. Within the project influence area, residential settlements, agricultural lands, water bodies, and religious establishments play an important role in sustaining local livelihoods and social cohesion. As the proposed works will remain largely confined within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated. The project design incorporates appropriate measures to ensure that community assets and environmental resources remain protected throughout implementation.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC). According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 3000m.

Sub-project Location:

Important Features	
ID	35454001
District	Madaripur
Upazila	Madaripur Sadar
Union	Mostafapur
WARD	04
Total Chainage	3000 m
Proposed Chainage	3000 m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.154975 N Longitude: 90.137003 E
Road Ending Point Coordinates	Latitude: 23.139644 N Longitude: 90.134840 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is located along the existing RHW (Ambari) - Joyar road under Mostafapur Union, Ward No. 04 of Madaripur Sadar Upazila in Madaripur District. The immediate area of influence of the project includes Mostafapur, Ambari, Joyar and Munshibari which are situated within an approximate one-kilometer radius of the sub-project alignment.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the

existing road alignment.

- iv. Some roadside trees and vegetation may be affected during construction activities.
- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.
- vii. No alternative alignment analysis was conducted, as the proposed work follows the existing road and no significant constraints were identified.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately one kilometer of the project area. Along the left side of the road alignment, household areas extend from approximately 0 to 900 meters, interspersed with agricultural land in certain sections. On the right side, homesteads and agricultural land are present within roughly 600 meters, with paddy fields observed along multiple stretches. A canal located near the starting section of the road contributes to local drainage and reflects the natural hydrological characteristics of the area. As the proposed sub-project activities will be undertaken primarily within the existing road alignment, no significant disturbance or adverse impacts on these nearby establishments are anticipated. Nevertheless, appropriate precautionary measures and environmental management practices will be implemented during the construction phase to ensure the continued protection of these sensitive locations.

Location of environmental and Social important and sensitive areas:

There are no environmentally important or sensitive areas found within the project area, except some roadside vegetation and a canal near the starting section of the road. Several mosques, a roadside graveyard, and human settlements were observed during the field survey. These are not expected to be affected, as the construction activities will be carried out within the existing subproject boundary, and necessary preventive and mitigation measures will be followed during the entire construction period.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, Paddle Van, tractors and bicycles along the existing road surface, which contributes slightly local air

pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be temporary and limited to the construction period.**

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 20 to 80 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and water bodies such as ponds and canals. Common species include ghugu (dove), bok (egret), doel (Oriental Magpie Robin), shalik (myna), and choro (House Sparrow, *Passer domesticus*). These birds play an important role in controlling insect populations, dispersing seeds, and maintaining ecological balance within the rural environment. Small wild mammals such as mongoose, jungle cat (Bon Biral), and fox are occasionally reported in nearby areas, along with common reptiles such as snakes and lizards. These animals act as natural predators and help control rodents and other small pests, which is beneficial for agricultural activities. The presence of these species reflects the typical rural biodiversity of the floodplain region. Overall, the movement of wildlife in the area is limited and mostly confined to agricultural land, homesteads, and vegetation along canals and low-lying areas. No major wildlife movement routes or migration corridors were identified within the project area. With proper management during construction, no significant impact on local wildlife is expected.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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.

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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation is expected to be approximately 15-20 kg per day, and sludge generation may be around 3-5 kg per day during the construction period.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, a canal runs adjacent to the eastern side of the road and functions as a natural drainage channel for the surrounding area. In certain sections, canal flow is partially impeded by access paths constructed by nearby homesteads on the opposite side. The proposed construction activities will remain confined within the existing road alignment; therefore, the likelihood of disturbance or modification to these natural drainage features is low. During construction, appropriate precautions will be implemented to ensure that the existing natural drainage system remains functional and that no obstruction to canal flow occurs.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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) No existing drainage channels or surface water bodies found in the project area, therefore, 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) There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 on the muddy road, 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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: RHW(Ambari)-Joyar

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
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
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-	Sanitation and water	Sanitation facilities (male and female toilets, wash-	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Stage	supply	basins, etc.) for workers and constructor's officials/employees will be provided. Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.		Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. - Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. - Provision of waste bins/ cans, where appropriate, - Litter is to be collected daily. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, within the construction site is not near to any kinds of latrine and soaks well which could be	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative	Contractor	Environmental Consultant of PIU

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		options will be selected during the construction works.		
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. - 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - Records of every training must be kept at site. - All kinds of Child labour are completely prohibited in every site.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Every construction materials storage site will be well fenced by Tin and safety caution tape.		
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. - If ground or surface water is withdrawn for the use	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement of heavy machinery and equipment. - Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. - Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) - Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		hunting, poaching and tree felling. • Adequate facilities ensuring sanitation for labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. - Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. - Working areas are kept clean and tidy at all times. - Construction site is to be checked for spills of substances i.e. chemical, oil, etc. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. - Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. - Refueling areas and other fluid transfer areas will be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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.	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 electrical installation, mobile plant and vehicles, and electrical shocks. - Exposure to health events during construction activities such as manual handling and	- 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. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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 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		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. - 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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.	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i) remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	accidents. The accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	3,600 Sq.m	@38.15 Tk. Per sqm	1,37,340.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	3,000.0m	@ 2.56 BDT	7,680.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

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Sl no.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand	1 no.	LS @ Tk. 10,000	10,000.00

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Sl no.	Description of item	Quantity	Unit price	Total amount
	Contractor's representatives on safety practice and as per direction of the E.I.C.			
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
11.	<u>Working labour shed:</u> 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	30,000.00
12.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			235,666.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **R & H Chokder Kandi GPS; ID: 354545390**

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

District: Madaripur

Upazila: Madaripur Sadar

Union: Ghoyajpur

Name of Community/Local Area: Moddho Chok

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 0+900 m, with a proposed carriageway width of 2.6 m. Existing slope protection works are present along the road between Ch. 80 m and 170 m. In addition, palisading structures are located at multiple portions, specifically from Ch. 80 m to 170 m, 310 m to 330 m, 500 m to 575 m, and 575 m to 900 m. These existing structures will remain unchanged under the current scope of work. No additional structures are proposed along the project corridor. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 2,700 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 900m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Garden-2m, Homestead area-3m, Ditch-3m, Pond-4m,
		R	Homestead area-3m, Pond-2m
300-600	L		Bamboo Garden-2m, Homestead area-3m, Mosque-3m
		R	Canal-2m, Pond-2m, Homestead area-3m, School-6m
600-900	L		Agricultural Land-2m, Homestead area
		R	Homestead Area, Canal



Starting Point R & H Chokder Kandi GPS Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

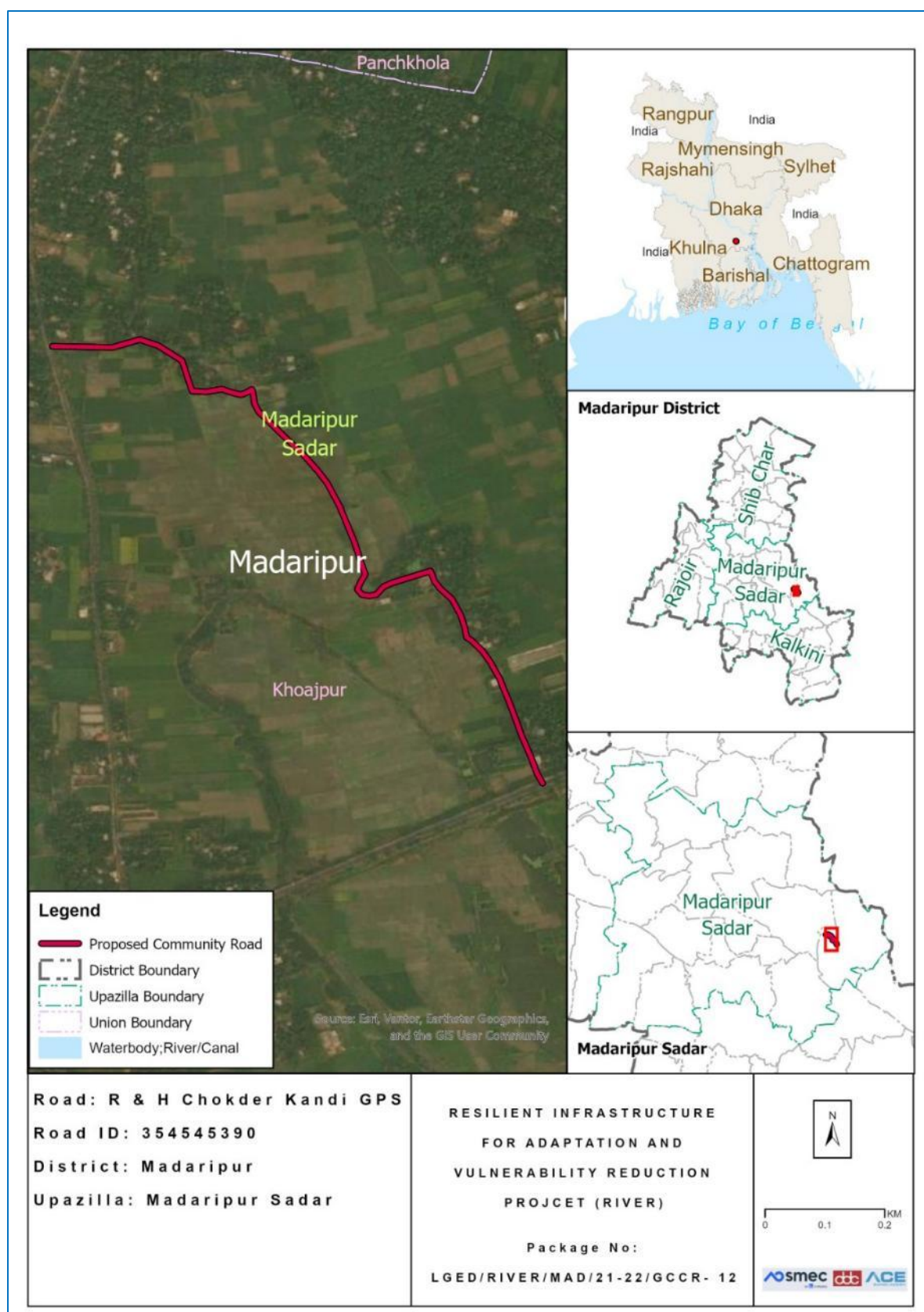
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites were identified within the direct influence area of the proposed sub-project. The sub-project is located along the R & H Chokder Kandi GPS Road within Moddher Chok village under Ghoyajpur Union, Ward No. 06 of Madaripur Sadar Upazila in Madaripur District. Several environmentally and socially sensitive features—such as residential areas, agricultural land, water bodies, and religious establishments—are situated within approximately one kilometer of the project area. Along the left side of the road alignment, these features include bamboo gardens, homestead areas, ponds, ditches, agricultural land, and mosques. On the right side, homesteads, a canal, ponds, and a school are present. Collectively, these elements reflect a typical rural landscape where settlements, agriculture, and water resources are closely interconnected. Within the broader project influence area, residential settlements, agricultural lands, water bodies, and religious establishments play an important role in supporting local livelihoods and social cohesion. As the proposed works will remain largely confined within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated. The project design incorporates appropriate measures to ensure that community assets and environmental resources remain protected throughout implementation.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC). According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 900 m.

Sub-project Location:

Important Features	
ID	354545390
District	Madaripur
Upazila	Madaripur Sadar
Union	Ghoyajpur
WARD	06
Total Chainage	900 m
Proposed Chainage	900 m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.172848 N Longitude: 90.251819 E
Road Ending Point Coordinates	Latitude: 23.179541 N Longitude: 90.244279 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is located along the existing R & H Chokder Kandi GPS road under Ghoyajpur Union, Ward No. 06 of Madaripur Sadar Upazila in Madaripur District. The immediate area of influence of the project includes Moddho Chok which is situated within an approximate one-kilometer radius of the sub-project alignment.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the existing road alignment.

- iv. Some roadside trees and vegetation may be affected during construction activities.
- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.
- vii. No alternative alignment analysis was conducted, as the proposed work follows the existing road and no significant constraints were identified.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately one kilometer of the project area. Along the left side of the road alignment, these features include bamboo gardens, homestead areas, ponds, ditches, agricultural land, and mosques. On the right side, homesteads, a canal, ponds, and a school are present. As the proposed sub-project activities will be undertaken primarily within the existing road alignment, no significant disturbance or adverse impacts on these nearby establishments are anticipated. Nevertheless, appropriate precautionary measures and environmental management practices will be implemented during the construction phase to ensure the continued protection of these sensitive locations.

Location of environmental and Social important and sensitive areas:

There are no environmentally important or sensitive areas found within the project area, except some roadside vegetation and a canal near the starting section of the road. Several mosques, a roadside graveyard, and human settlements were observed during the field survey. These are not expected to be affected, as the construction activities will be carried out within the existing subproject boundary, and necessary preventive and mitigation measures will be followed during the entire construction period.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, Paddle Van, tractors and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-

related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be temporary and limited to the construction period.**

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 80 to 150 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, April 2026)

Status of wildlife movement:

The area supports a variety of common local bird species frequently observed in surrounding agricultural fields, homestead vegetation, and nearby water bodies such as ponds, canals, and low-lying wetlands. Commonly occurring species include ghugu (dove), bok (egret), doel (Oriental Magpie Robin), shalik (myna), and choro (House Sparrow, *Passer domesticus*). These birds contribute to maintaining ecological balance by controlling insect populations, dispersing seeds, and supporting overall biodiversity within the rural landscape. Small wild mammals such as mongoose, jungle cat (Bon Biral), and fox are

occasionally reported in the vicinity, particularly in areas with dense vegetation or near water bodies. Reptiles, including various snake and lizard species, are also present and act as natural predators that help regulate rodent and small pest populations—an important ecological function for agricultural communities. The presence of these species reflects the typical rural biodiversity of the floodplain region, where agricultural land, homesteads, and wetland features create a mosaic of habitats. Overall, wildlife movement in Shibchar Upazila is limited and localized, primarily occurring along agricultural fields, homestead vegetation, canal banks, and low-lying areas. No major wildlife movement routes or migration corridors were identified within the project area. With appropriate environmental management and good construction practices, no significant adverse impacts on local wildlife are expected during project implementation.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, koroï, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation is expected to be approximately 15-20 kg per day, and sludge generation may be around 3-5 kg per day during the construction period.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal drainage system has been identified along the project alignment. However, a pond and canal are located adjacent to the right side of the road, serving as natural drainage channels for the surrounding area. In certain sections, the canal flow is partially obstructed by access paths leading to nearby homesteads on the opposite side. As the proposed construction activities will remain confined within the existing road alignment, the potential for disturbance or modification to these natural drainage features is considered low. Appropriate precautions and environmental management measures will be implemented during the construction phase to ensure that the existing drainage functions remain uninterrupted.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air

pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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)

No existing drainage channels or surface water bodies found in the project area, therefore, 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)

There are no protected areas in or around project sites, and no known areas of ecological

interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 on the muddy road, 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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: R & H Chokder Kandi GPS

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	people, generating dust and noise)			
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. - Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. - Provision of waste bins/ cans, where appropriate,	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Litter is to be collected daily. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. - Camp and working areas are to be kept clean and tidy at all times. - Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. - Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. - Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	- All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. - Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow.	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Tubewell location wherever required to install, 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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
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. • 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	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		connecting road shall be controlled by watering the path at limited level. Construction materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - 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
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. - If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Increase in road accidents	Maintain safety measures during the movement of heavy machinery and equipment.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.		
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 labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package.		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. - Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: - Waste from the temporary accommodation facilities for labor - Waste from equipment maintenance/vehicles on-site. - The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. - Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. - Working areas are kept clean and tidy at all times. - Construction site is to be checked for spills of substances i.e. chemical, oil, etc.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. - Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. - Refueling areas and other fluid transfer areas will be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		
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.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: The potential for exposure to safety	- All construction equipment will be properly inspected timely. - The risk assessment will be prepared and	Contractor	Environmental Consultant as well as Social Development

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	events such as tripping, working at height activities, fire from hot works, smoking, failure in 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.	communicated prior to the commencement of work for all types of work activities on site. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc.		and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		in sub-project sites 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 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	Pollution of water bodies	• Ensure monitoring of nearby surface and	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity		underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • 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.		Consultant of PIU/D&SC.
Construction Activity	Demobilization of structures, facilities and equipment used during	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are	Contractor	Environmental Consultant of PIU/D&SC, district

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	the project implementation period (including site clearance 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.	anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.		XEN.
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.	Upazila Engineer (UE)	District Executive Engineer, LGED

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	accidents or traffic injuries.			
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	1,080 Sq.m	@38.15 Tk. Per sqm	41,202.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	900.0m	@ 2.56 BDT	2,304.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	5,000.00

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Sl no.	Description of item	Quantity	Unit price	Total amount
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> 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	10,000.00

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Sl no.	Description of item	Quantity	Unit price	Total amount
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Tree Plantation</u> For each tree felled, 3 shall be planted as replacement.	2 no.	@ Tk. 500	3,000.00
11.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
12.	<u>Working labour shed:</u> 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	30,000.00
13.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			237,151.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Jamaddar Bari Bridge - H/O Tarek Sikder via Hawlader Bari Mosque; ID: 354805058**

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

District: Madaripur

Upazila: Rajoir

Union: Bajitpur

Name of Community/Local Area: Molladi, Purbo Mulladi

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 0+958 m, with a proposed carriageway width of 3.0 m. Two existing bridge structures are located along the road, measuring 20 m × 2.45 m at Ch. 70 m and 13.2 m × 4.3 m at Ch. 884 m. These structures will be retained in their current condition under the present scope of work. In addition, a culvert measuring 3 m × 5 m × 5.5 m is proposed at Ch. 70 m to facilitate proper drainage and maintain the natural flow of water. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is approximately 2,874 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 958 m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Canal
		R	Household area
300-600	L		Canal
		R	Household area
600-900	L		Canal
		R	Household area



Starting point Jamadder bari bridge- h/o Tarek Sikder Via Howlader Bari Road

Overall Comments

D&SC conducted consultation meetings with the community regarding the sub-project activities. Local people of the sub-project area expressed positive views about the implementation of the road improvement works and showed willingness to participate during construction. Participants from different groups, including farmers, businessmen, drivers, and students, attended the consultation meeting. The community raised no objection to the construction of this sub-project and appreciated the initiative, as it will improve communication and accessibility, particularly for daily movement and emergency situations. The proposed sub-project is not located within any environmentally sensitive area and is not expected to cause any significant adverse impact on the surrounding environment. Natural drainage features such as khal are present along the road alignment, and no drainage congestion or waterlogging has been observed in the area. These natural drainage systems will remain functional during and after construction. Some roadside trees

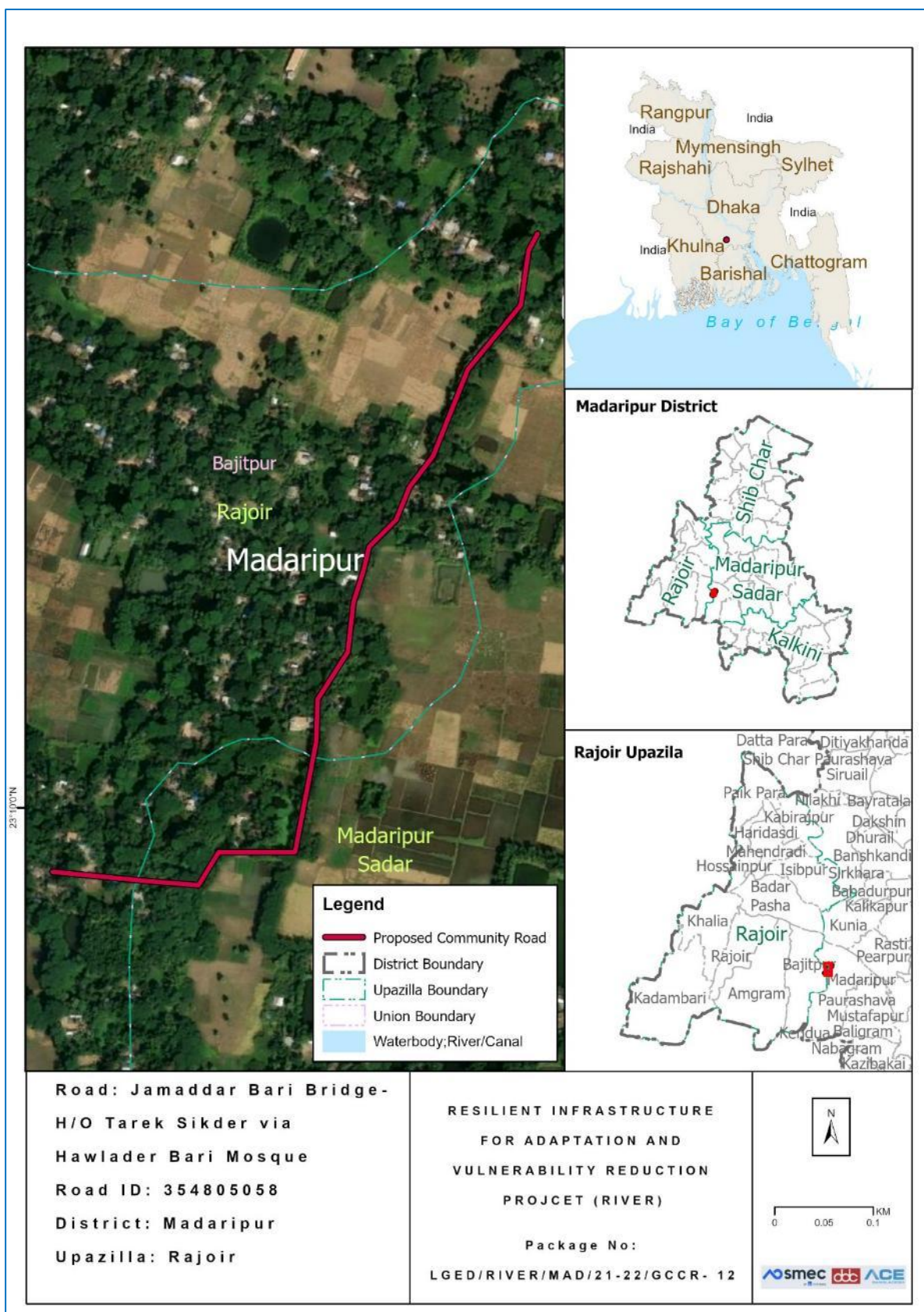
and vegetation, including bamboo, koroi, mehogoni, and other plantation species, may need to be removed in limited sections during construction, and appropriate mitigation and compensatory measures will be taken. No agricultural productive soil will be used for construction purposes, and earth will be compacted properly for stabilization. All construction activities will remain confined within the existing road boundary. It was also discussed during consultation that the project will not require acquisition of homestead land, and no displacement of local people is expected. Minor adjustments to household boundaries made of bamboo or tin may be required in some locations. The importance of maintaining proper drainage during construction was also emphasized to ensure smooth runoff during the rainy season. Overall, the sub-project is not expected to create any significant impact on the local ecosystem and biodiversity. Agricultural activities and fish culture in nearby water bodies will not be affected. Mitigation measures as outlined in the ESMP will be followed to control dust, noise, and air pollution during construction, ensuring environmentally sound implementation of the project.

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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites were identified within the direct influence area of the proposed sub-project. The sub-project is located within the Molladi and Purbo Molladi areas under Bajitpur Union of Rajoir Upazila in Madaripur District. Several environmentally and socially sensitive establishments, including educational and religious institutions, are situated within approximately one kilometer of the project area. Along the left side of the road alignment, key features include a khal (canal), homesteads, agricultural land, and local mosques, as well as settlement areas near Molladi, all located within roughly 600 meters of the project site. On the right side of the alignment, homesteads, agricultural land, and small commercial establishments are present within approximately 600 meters of the road. These institutions and establishments hold significant social, cultural, and economic importance for the local community. As the proposed sub-project activities will be implemented within the existing road alignment, no significant disturbance or adverse impacts on these nearby establishments are anticipated. Appropriate precautionary and environmental management measures will be applied during the construction phase to ensure the continued protection of these sensitive locations.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a **village road**. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through **Bituminous Carpeting (BC)**. According to the project design, the road will be upgraded with **Bituminous Carpeting (BC)** along the entire alignment from **Chainage 00m to Chainage 958 m**.

Sub-project Location:

Important Features	
ID	354805058
District	Madaripur
Upazila	Madaripur Sadar
Union	Bajitpur
WARD	05
Total Chainage	958 m
Proposed Chainage	958m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.166173 N Longitude: 90.097649 E
Road Ending Point Coordinates	Latitude: 23.172154 N Longitude: 90.101869 E

Land ownership

Land is owned by Government.

Expected construction period: 12 (twelve months approx. 2026-2027)

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 proposed sub-project is located along the Jamaddar Bari Bridge-H/O Tarek Sikder Road within Molladi and surrounding areas under Bajitpur Union of Rajoir Upazila in Madaripur District, Bangladesh. The immediate area of influence includes the settlements of Molladi and Purbo Molladi, both situated within an approximate 1-kilometer radius of the sub-project alignment.
- No historical or archaeological sites were found.
- Not required to relocate local community.
- Some roadside trees and vegetation may be affected.
- Very low chance of loss of agricultural land.

- vi. Some household boundaries made of bamboo and tin may require adjustment.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive establishments, including educational and religious institutions, are located within approximately one kilometer of the project area. Along the left side of the road alignment, key features include a khal (canal), homesteads, agricultural land, and local mosques, as well as settlement areas near Molladi, all situated within roughly 600 meters of the project site. On the right side of the alignment, homesteads, agricultural land, and small commercial establishments are also present within approximately 600 meters of the road corridor. As the proposed works will be confined entirely within the existing road alignment, no significant adverse impacts on these surrounding sensitive receptors are anticipated. Nonetheless, appropriate environmental and social management measures will be implemented during construction to ensure continued protection of these nearby establishments.

Location of environmental and Social important and sensitive areas:

There are no environmentally important or sensitive areas found within the project area, except roadside vegetation and natural drainage features such as Canal. Several mosques, local shops, and human settlements were observed during the field survey, including Hawlader Bari Mosque, household areas. These are not expected to be affected, as the construction activities will be carried out within the existing subproject boundary, and necessary preventive and mitigation measures will be followed during the entire construction period.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated due to the movement of locally common vehicles such as motorcycles, auto-rickshaws (CNG and battery-operated easy bikes), rickshaws, van-gari, and small goods carriers along the existing road surface, which contributes slightly to local air pollution. Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will be temporary and limited to the construction period.

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 30 to 150 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 681 μ s/cm, Fe-0.5 to 7.0 mg/l and As-Nil (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, frequently observed in surrounding agricultural fields, homesteads, and canal-side habitats. Notable species include ghugu, bok, shalik, doel, and choro (House Sparrow, *Passer domesticus*). These birds play an important role in controlling insects, dispersing seeds, and maintaining ecological balance within the rural environment. In addition, small wild mammals such as mongoose and Bon Biral (Jungle Cat, *Felis chaus*), along with reptiles such as snakes and lizards, are occasionally observed in nearby vegetation and low-lying areas. These species act as natural predators, helping to control rodents and other small animals, which supports agricultural activities and ecosystem stability. Overall, the presence of birds, small mammals, and aquatic species in nearby canals and ponds indicates a functioning rural ecosystem. However, wildlife movement in the area is limited and generally confined to agricultural land, homesteads,

and vegetation along canals. No major wildlife movement routes or migration corridors were identified within the project area. Proper management during construction will help ensure that local biodiversity remains unaffected.

State of forestation:

Roadside vegetation including bamboo, koroi, mehogoni, palm (Tal Gach), and other local trees are present along both sides of the road. No dense forest area was observed within 200 radical distances.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during construction. Sludge from temporary labor camp latrines and kitchen waste will also be produced. Solid waste may amount to approximately 15-20 kg per day and sludge about 3-5 kg per day during construction.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal drainage system is present; however, canal runs along the left side of the road, acting as a natural drainage channel. three ponds are located at approximately 200 m, 500 m, and 800m distance along the right side adjacent to the the road. Construction activities are not expected to significantly affect this system, and proper measures will be taken to maintain flow.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant light pollution is expected. Minor noise and air pollution may occur due to movement of motorcycles, auto-rickshaws, rickshaws, van-gari, and small vehicles. These impacts will be temporary and localized.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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) No existing drainage channels or surface water bodies found in the project area, therefore, 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) There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 on the muddy road, 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 and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Jamaddar Bari Bridge - H/O Tarek Sikder via Hawlader Bari Mosque

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of livelihood	- Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. - Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	noise)			
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. - Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. - Provision of waste bins/ cans, where	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		appropriate, - Litter is to be collected daily. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. - Camp and working areas are to be kept clean and tidy at all times. - Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. - Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. - Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Construction Activity	Noise from construction works	- Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. - All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		construction works. - Noise producing vehicles and equipment will be kept in maintenance regularly. - Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.		
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. - 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		guards at site office and stack yards, and maintaining a visitor's log book at entrance) • Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. • 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.		
Construction Activity	Traffic Management	• Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. • Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. • Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near	Contractor	Environmental Consultant of PIU

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		sensitive locations (e.g., schools, colleges, hospitals, etc.) Local community will be trained up on traffic management and awareness.		
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 labor camps will be put in place. - Treated water will be made available at site for drinking purpose. - Adequate accommodation arrangements for labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	- A separate grievance mechanism for workers has to be established for the work package. - Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		redressed in weekly manner. Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: - Waste from the temporary accommodation facilities for labor - Waste from equipment maintenance/vehicles on-site. - The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. - Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. - Working areas are kept clean and tidy at all times. - Construction site is to be checked for spills of substances i.e. chemical, oil, etc.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. - Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. - Refueling areas and other fluid transfer areas will be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		
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.	Contractor	Environmental and Social Development Consultant of PIU, PSC
Construction Activity	Health & Safety Risks: The potential for	All construction equipment will be properly inspected timely.	Contractor	Environmental Consultant as well as

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in 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.	- The risk assessment will be prepared and communicated prior to the commencement of work for all types of work activities on site. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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.		Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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 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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.		
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • All precautions to store chemicals/oil/fuel	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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.	- Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. - The contractor must arrange the cancellation of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety.	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	- Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	1149.60 Sq.m	@38.15 Tk. Per sqm	43,857.24
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	958.0m	@ 2.56 BDT	2,452.48
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Sl no.	Description of item	Quantity	Unit price	Total amount
	Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand Contractor's	1 no.	LS @ Tk. 10,000	10,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

SI no.	Description of item	Quantity	Unit price	Total amount
	representatives on safety practice and as per direction of the E.I.C.			
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
11.	<u>Working labour shed:</u> 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	30,000.00
12.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			236,955.44



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Mollahdi pucca road-Mollahdi GPS via Furkania Madrasa; ID: 354805112**

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

District: Madaripur

Upazila: Rajoir

Union: Molladi

Name of Community/Local Area: Molladi, Bajitpur

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 1+050 m, with a proposed carriageway width of 3.0 m. Existing culvert structures are located along the road, measuring 9 m × 2 m between Ch. 0+000 m and 0+009 m, and 10 m × 3.75 m at Ch. 580 m. These structures will remain unchanged under the current scope of work. In addition, a box culvert measuring 4 m × 4 m is proposed at Ch. 0+000 m to support proper drainage and maintain the continuity of natural water flow. Palisading works are also present along selected sections of the road, including a 48 m stretch from Ch. 42 m to 90 m, and an additional 23 m section located near the coordinates (23.169178 N; 90.098826 E). These will be retained as part of the existing protection measures. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 3150 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1050m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Homestead Area, School Mosque-6m
		R	Canal, Pond, School
300-600	L		Homestead area, Garden-5m
		R	Mosque, Pond, Home, Field Ground-10m
600-900	L		Agricultural Field
		R	Graveyard, Club House, Market, Pond, House-10m, Market
900-1200	L		Madrasa, Home, Pond, Graveyard Area-13m
		R	Home, Pond, Market-7m



Starting Point Mollahdi pucca road-Mollahdi GPS Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

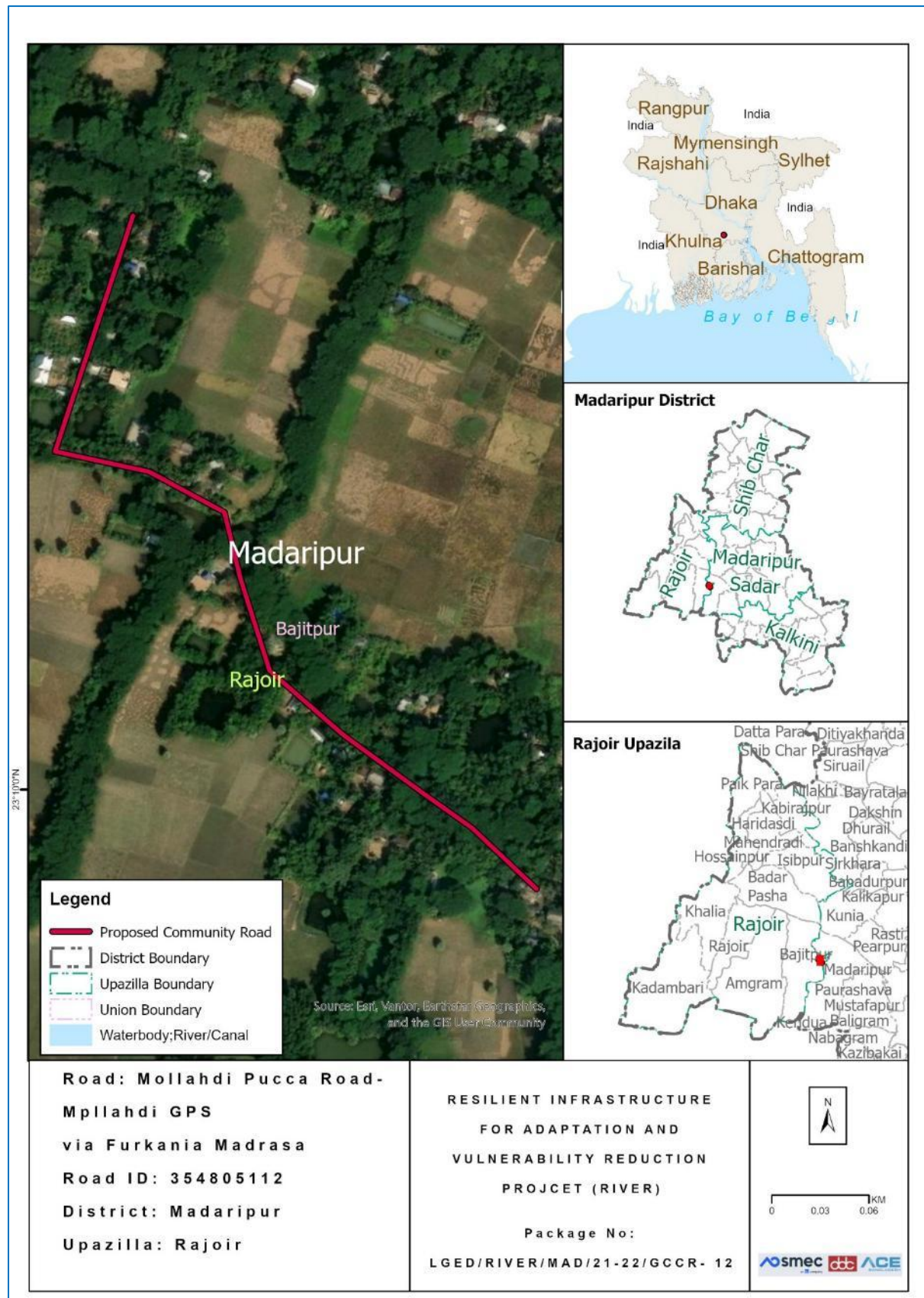
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites have been identified within the direct area of influence of the proposed sub-project. The project is located along the Mollahdi pucca road-Mollahdi GPS via Furkania Madrasa corridor, passing through Molladi and Bajitpur villages under Molladi Union (Ward No. 05) in Rajoir Upazila of Madaripur District. Within approximately 1 km of the project area, several environmentally and socially sensitive receptors are present. On the left side of the road alignment, these include homesteads, agricultural land, a school, mosque, graveyard, pond, and market. On the right side, the area comprises homesteads, small commercial establishments, a mosque, a clubhouse, ponds, a school, and a local market. These features—including residential settlements, agricultural lands, water bodies, and religious establishments—are integral to the local community, supporting both livelihoods and social cohesion. However, as the proposed sub-project activities will be confined primarily within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC). According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 1050m.

Sub-project Location:

Important Features	
ID	354805112
District	Madaripur
Upazila	Rajoir
Union	Molladi
WARD	05
Total Chainage	1050m
Proposed Chainage	1050 m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.166439N Longitude: 90.097659 E
Road Ending Point Coordinates	Latitude: 23.170189 N Longitude: 90.094627 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is situated along the Mollahdi pucca road-Mollahdi GPS via Furkania madrasa road corridor within Molladi Union, Ward No. 05, under Rajoir Upazila of Madaripur District, Bangladesh. The immediate project influence area includes the villages of Molladi and Bajitpur which are directly adjacent to or served by the project road. In addition, several nearby villages—namely Chowrashi and Datta Kendua—are located within an approximate one-kilometer radius of the sub-project.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the

existing road alignment.

- iv. Some roadside trees and vegetation may be affected during construction activities.
- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities that are of cultural, social, and religious significance to the local population. Along the left side of the road alignment, these include homesteads, agricultural land, a school, mosque, graveyard, pond, and market. On the right side, the area comprises homesteads, small commercial establishments, a mosque, a clubhouse, ponds, a school, and a local market. Paddy fields are also present along multiple sections of the alignment, reflecting the agrarian nature of the project area. Given that the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. However, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning of construction activities, avoidance of unnecessary encroachment, and adherence to standard environmental safeguards to minimize any potential disturbance to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the project footprint. The only notable natural features include a limited number of ponds and a canal located near the starting section of the road alignment. Field surveys indicate the presence of several community structures within the broader project influence area, including mosques, schools, a club, small commercial shops, and residential settlements. These features are of local social importance; however, they are not expected to be adversely affected by the proposed sub-project. All construction activities will be confined within the existing sub-project boundary, thereby avoiding any direct encroachment on adjacent properties or community assets. Furthermore, appropriate preventive and mitigation measures will be implemented throughout the construction period to ensure that potential impacts are minimized and that nearby structures and communities remain protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will be temporary and limited to the construction period.

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 120 to 240 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a range of common local bird species that are frequently observed in agricultural lands, homestead vegetation, and nearby wetland habitats. Notable species include ghugu (dove), bok (heron), and choro (house sparrow, *Passer domesticus*). These birds contribute significantly to the local ecosystem by controlling insect populations, dispersing seeds, and maintaining ecological balance within the rural landscape. In addition to avifauna, the area also supports small wild mammals and reptiles. Commonly observed fauna include Bon Biral (jungle cat, *Felis chaus*), fox (Bengal fox, *Vulpes bengalensis*), and various snake species. These animals function as natural predators, helping regulate populations of rodents and other small pests, thereby contributing to natural pest control and supporting agricultural productivity. Aquatic and wetland habitats surrounding the village also sustain a variety of fish species, which play a crucial role in local food security and livelihoods. Seasonal floodplains, ponds, and canals provide important breeding and feeding grounds for these aquatic species. Overall, the presence of diverse fish, birds, reptiles, and mammals in Molladi Bajitpur Village indicates a functioning and interconnected rural ecosystem. Conservation of these species and their habitats is essential for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Therefore, sustainable land use practices, protection of wetland areas, and environmentally responsible construction activities are important to preserve the ecological integrity of the project area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), Koroi, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, natural drainage features are present in the form of ponds and a canal situated in proximity to the road corridor. These features contribute to local surface water storage and drainage. On the left side of the alignment, three ponds are located approximately 300 m, 600 m, and 900 m from the road. On the right side, a canal is situated at an approximate distance of 300 m from the road. Together, these ponds and the canal form part of the local hydrological system and serve multiple functions, including rainwater retention, drainage support, and limited domestic and agricultural use by surrounding communities. In the absence of a structured drainage network, these natural water bodies play a critical role in managing surface runoff within the project area. During the construction phase, appropriate mitigation measures will be implemented to ensure that these ponds and associated natural drainage patterns are not obstructed or adversely affected.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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) No existing drainage channels or surface water bodies found in the project area, therefore, 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) There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Mollahdi pucca road-Mollahdi GPS via Furkania madrasa

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
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
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction	Sanitation and water supply	Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Stage		officials/employees will be provided. Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.		
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. - Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. - Provision of waste bins/ cans, where appropriate, - Litter is to be collected daily. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.		
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. - 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - Records of every training must be kept at site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- 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.		
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
Construction Activity	Waste Management: Improper management and	• Preparation of a waste management plan covering the following aspects:	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	handling of hazardous and non-hazardous waste during construction.	• Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
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.	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 electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during	• 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. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	- 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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 during the construction phase in order to highlight the heat related illnesses of working in		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • The material stockpile sites shall be far away from	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 shall be used on site to manage surface water runoff and minimize erosion. - The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. - 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The impacts are similar to those listed in construction stage: Pollution from waste materials.	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil,	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	Health & Safety risks to workers and local community.	paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		reporting standard set by the ES Consultants of D&SC/PIU.		
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.	Upazila Engineer (UE)	District Executive Engineer, LGED
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	District Executive Engineer, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

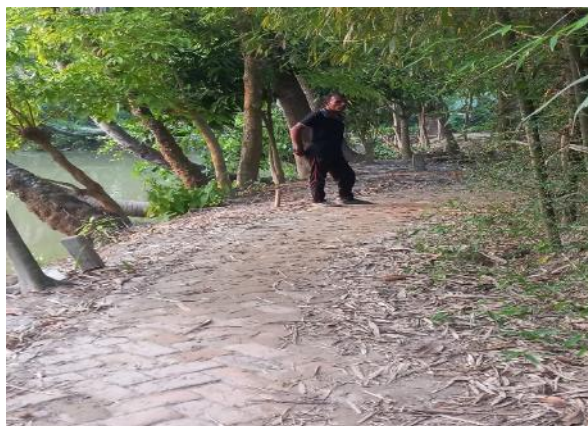
Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	1260 Sq.m	@38.15 Tk. Per sqm	48,069.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1050.0m	@ 2.56 BDT	2,688.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Sl. no.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand	1 no.	LS @ Tk. 10,000	10,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Sl. no.	Description of item	Quantity	Unit price	Total amount
	Contractor's representatives on safety practice and as per direction of the E.I.C.			
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Tree Plantation</u> For each tree felled, 3 shall be planted as replacement.	5 no.	@ Tk. 500	7,500.00
11.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
12.	<u>Working labour shed:</u> 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	30,000.00
13.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			248,902.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road **Ishibpur UP-Goaldi- Sonapara bazar- Ari para bazar; ID: 354803015**

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

District: Madaripur

Upazila: Rajoir

Union: Ishibpur

Name of Community/Local Area: Shubondi Dharaikandi, Satbaria, Aripara

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 4+620 m to 5+420 m, with a proposed carriageway width of 3.0 m. An existing bridge structure measuring 15.6 m × 4.60 m is located along the road section within the project alignment. This structure will remain unchanged under the current scope of work. No additional structures are proposed along the project corridor. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 2,960 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 800m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
4600-4900	L		Agricultural Land-5m
		R	Homestead-6m
4900-5200	L		Agricultural Land, Pond-5m
		R	Mosque, Homestead Area-6m
5200-5500	L		Agricultural Field
		R	Mosque, Homestead Area



Starting Point Ishibpur Up to Aripara Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

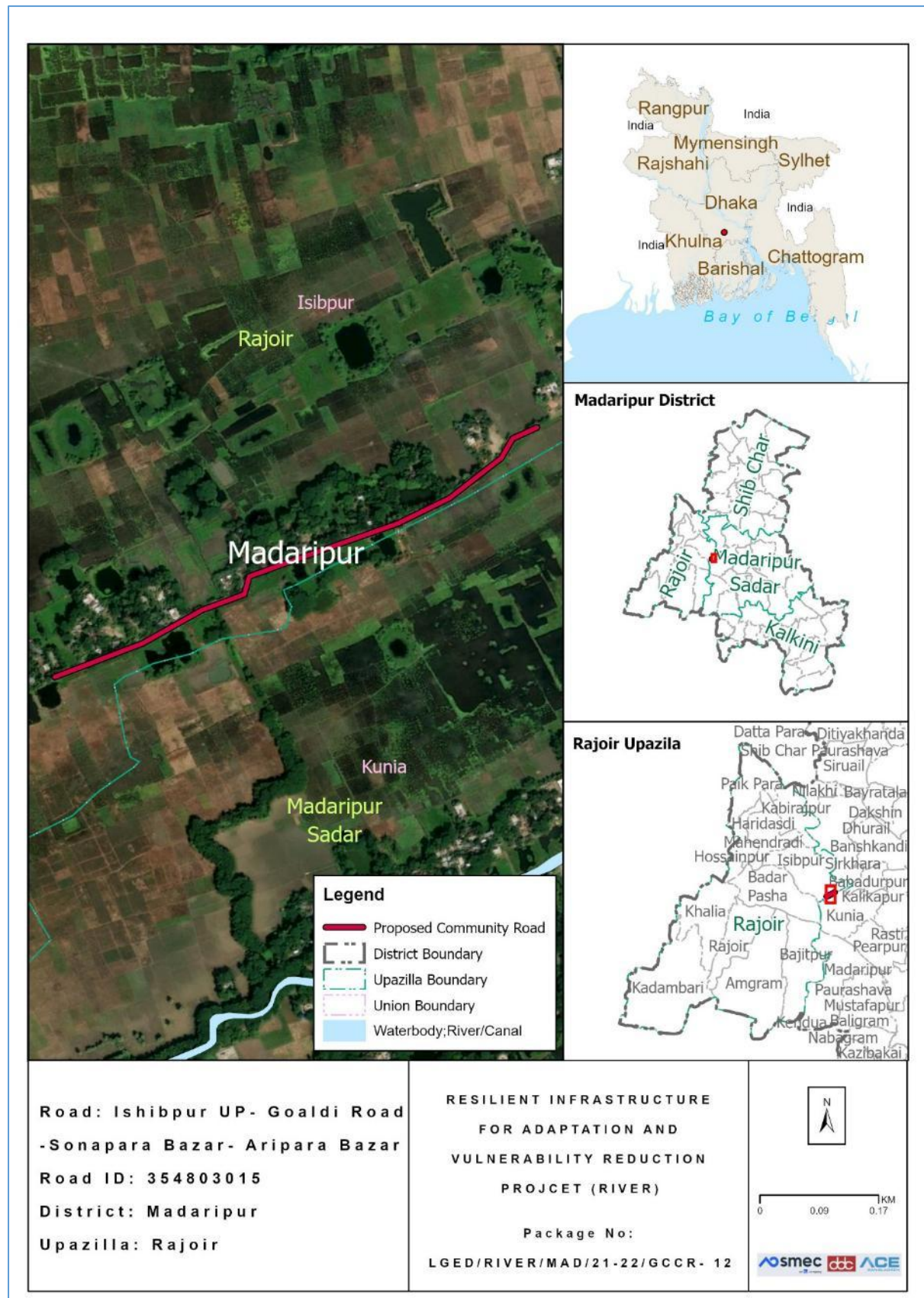
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites have been identified within the direct area of influence of the proposed sub-project. The project is situated along the Ishibpur UP-Goaldi-Sonapara Bazar-Ari Para Bazar corridor, traversing Shubondi Dharaikandi, Satbaria, and Araipara villages under Ishibpur Union (Ward No. 05) in Rajoir Upazila of Madaripur District. Within approximately one kilometer of the project area, several environmentally and socially sensitive receptors are present. On the left side of the road alignment, these include agricultural land, and ponds. On the right side, the alignment passes near homesteads and a mosque. These features—comprising residential settlements, agricultural lands, water bodies, and religious establishments—are integral to the local community, supporting both livelihoods and social cohesion. As the proposed sub-project activities will be confined primarily within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC). According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 800m.

Sub-project Location:

Important Features	
ID	354803015
District	Madaripur
Upazila	Rajoir
Union	Ishibpur
WARD	02
Total Chainage	800m
Proposed Chainage	800m
Road Type	Union Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.222099 N Longitude: 90.107245 E
Road Ending Point Coordinates	Latitude: 23.219125 N Longitude: 90.100759 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is situated along the Ishibpur UP-Goaldi- Sonapara bazar- Ari para bazar road corridor within Ishibpur Union, Ward No. 02, under Rajoir Upazila of Madaripur District, Bangladesh. The immediate project influence area includes the villages of Shubondi Dharaikandi, Satbaria, Aripa which are directly adjacent to or served by the project road.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the existing road alignment.
- Some roadside trees and vegetation may be affected during construction activities.

- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.
- vii. No alternative alignment analysis was conducted, as the proposed work follows the existing road and no significant constraints were identified.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities that are of cultural, social, and religious significance to the local population. Along the left side of the road alignment, the surrounding land use consists primarily of paddy fields and ponds. On the right side, the area is characterized by homesteads, small commercial establishments, and mosques. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. However, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning and scheduling of construction activities, avoidance of unnecessary encroachment beyond the existing alignment, and adherence to standard environmental safeguards to minimize potential disturbances to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the project footprint. The only notable natural features include a limited number of ponds and a canal located near the starting section of the road alignment. Field surveys have also identified several community structures within the broader project influence area, including mosques, which are of local social importance. However, these features are not expected to be adversely affected by the proposed sub-project. All construction activities will be confined within the existing sub-project boundary, thereby avoiding any direct encroachment on adjacent properties or community assets. In addition, appropriate preventive and mitigation measures will be implemented throughout the construction period to ensure that potential impacts are minimized and that nearby structures and communities remain adequately protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be temporary and limited to the construction period.**

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 30 to 60 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The project area supports a variety of common local fauna typically found in rural floodplain environments. Agricultural fields, homestead vegetation, and nearby wetlands provide suitable habitats for a range of bird species. Commonly observed birds include doves (locally known as ghugu), herons (bok), and house sparrows (*Passer domesticus*). These species contribute to the local ecosystem by controlling insect populations, facilitating seed dispersal, and maintaining ecological balance. In addition to avifauna, the area supports small wild mammals and reptiles. Reported fauna include jungle cat (*Felis chaus*), Bengal fox (*Vulpes bengalensis*), and various snake species. These animals serve as natural predators, helping regulate populations of rodents and other small pests, thereby contributing to natural pest control and supporting agricultural productivity. The surrounding aquatic and wetland habitats, including ponds, canals, and seasonal floodplains, support a variety of fish species that are important for local livelihoods and food security. These water bodies provide essential breeding and feeding grounds for aquatic fauna, particularly during the monsoon season. Overall, the presence of diverse fish, birds, reptiles, and mammals in the project area indicates a functioning and interconnected rural ecosystem. Conservation of these species and their habitats is important for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Accordingly, sustainable land use practices, protection of wetland ecosystems, and environmentally responsible implementation of construction activities should be ensured to preserve the ecological integrity of the area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, koro and banana are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, natural drainage features are present in the form of ponds and a canal situated in proximity to the road corridor. These features contribute to local surface water storage and drainage. On the left side of the alignment, a pond is located approximately 300m from the road. This pond form part of the local hydrological system and serve multiple functions, including rainwater retention, drainage support, and limited domestic and agricultural use by surrounding communities. In the absence of a structured drainage network, these natural water bodies play a critical role in managing surface runoff within the project area. During the construction phase, appropriate mitigation measures will be implemented to ensure that these ponds and associated natural drainage patterns are not obstructed or adversely affected.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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)

No existing drainage channels or surface water bodies found in the project area, therefore, 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)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No

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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Ishibpur UP-Goaldi- Sonapara bazar- Ari para bazar

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	accidents to workers/ local people, generating dust and noise)			
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		

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; removal/relocation of utility services	- All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. - Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. - Tubewell location wherever required to install, 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. - Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. - The contractor must ensure sound environment for the local residents near the	PIU & Contractor	Environmental Consultant of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		sub project site.		
Construction Activity	Noise from construction works	- Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. - All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. - Noise producing vehicles and equipment will be keep in maintenance regularly. - Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
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. - 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	Contractor	Environmental Consultant of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		watering the path at limited level. Construction materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - 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
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Engineer. Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. - If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Local community must be consulted before any construction works start.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement of heavy machinery and equipment. - Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. - Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) - Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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 labor camps will be put in place.	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Treated water will be made available at site for drinking purpose. - Adequate accommodation arrangements for labor forces. - Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	- A separate grievance mechanism for workers has to be established for the work package. - Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. - Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: - Waste from the temporary accommodation facilities for labor - Waste from equipment maintenance/vehicles on-site. - The construction debris material generated from the erection of structures and demolition	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		equipment. • Applicability of the Hazardous Waste Management Rules.		
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.	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 electrical installation, mobile plant and vehicles, and electrical shocks. • Exposure to health events during construction activities such as manual handling	• 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. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	- 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		personnel involved 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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) - 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 shall be used on site to manage surface water runoff and minimize erosion. - The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. - 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include:	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	impacts are similar to those listed in construction stage: • Pollution from waste materials. • Health & Safety risks to workers and local community.	(i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.		
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	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		nutrient rich compost soil over time.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.	Upazila Engineer (UE)	District Executive Engineer, LGED

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	cause road accidents or traffic injuries.			
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

SI no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	960 Sq.m	@38.15 Tk. Per sqm	36,624.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	800.0m	@ 2.56 BDT	2,048.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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SI no.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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SI no.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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	10,000.00
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
11.	<u>Working labour shed:</u> 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	30,000.00
12.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			229,317.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road **Chanpathi-Kachabali Road; ID: 354805029**

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

District: Madaripur

Upazila: Rajoir

Union: Kabirajpur

Name of Community/Local Area: Chanpatti, Jogadia

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through reinforced cement concrete (RCC) from Chainage (Ch.) 0+000 m to 1+260 m, with a proposed carriageway width of 3.0 m. In addition, an RCC box culvert measuring 2 m × 5 m × 3 m is proposed at Ch. 530 m to facilitate adequate drainage and ensure the continuity of natural water flow. A U-Drain is also proposed at Ch. 663 m to improve surface water management along the road section. Palisading works are present along selected section of the road, including a 22 m stretch from Ch. 218 m to 240 m and a 47 m stretch from Ch. 1,213 m to 1,260 m. These will be retained as part of the existing slope protection measures. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 3780 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1260m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Shop, Garden, Home-6m, Mosque
		R	Garden, Homestead Area
300-600	L		Homestead Area, Field
		R	Homestead Area, Canal
600-900	L		Paddy Field
		R	Paddy Field
900-1200	L		Homestead Area
		R	Homestead Area



Starting Point Chanpathi-Kachabali Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

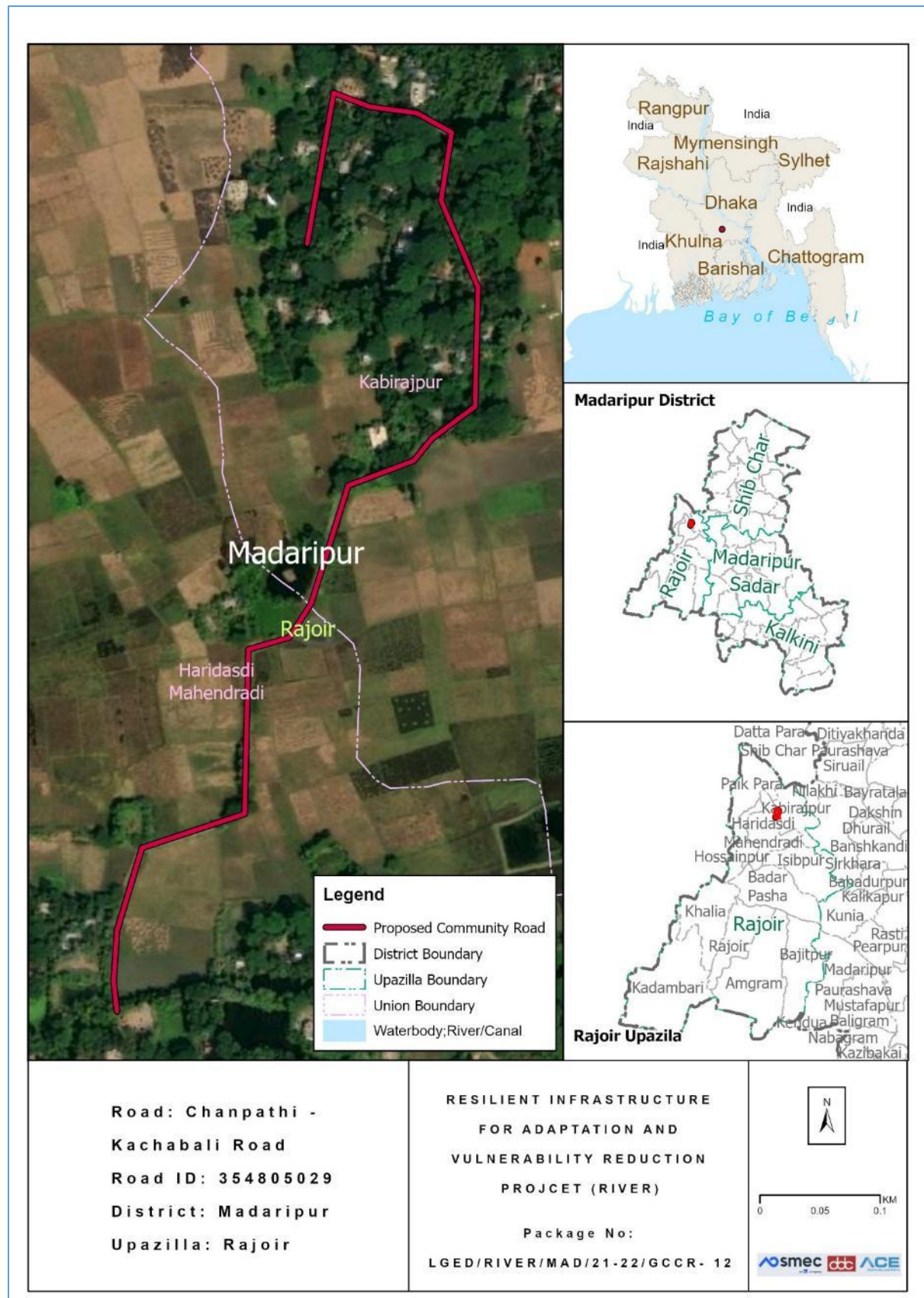
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites have been identified within the direct area of influence of the proposed sub-project. The project is located along the Chanpathi-Kachabali Road corridor, traversing Chanpatti and Jogadia villages under Kabirajpur Union (Ward No. 01) in Rajoir Upazila of Madaripur District. Within approximately one kilometer of the project area, several environmentally and socially sensitive receptors are present. On the left side of the road alignment, these include homesteads, gardens, mosques, shops, and paddy fields. On the right side, the alignment similarly passes near homesteads, gardens, mosques, shops, and paddy fields. These features—comprising residential settlements, agricultural lands, water bodies, and religious establishments—are integral to the local community, supporting both livelihoods and social cohesion. As the proposed sub-project activities will be confined primarily within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC). According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 1260m.

Sub-project Location:

Important Features	
ID	354805029
District	Madaripur
Upazila	Rajoir
Union	Kabirajpur
WARD	01
Total Chainage	1260m
Proposed Chainage	1260m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.286843 N Longitude: 90.061588 E
Road Ending Point Coordinates	Latitude: 23.281261 N Longitude: 90.059712 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is situated along Chanpathi-Kachabali road corridor within Kabirajpur Union, Ward No. 01, under Rajoir Upazila of Madaripur District, Bangladesh. The immediate area of influence of the project includes Chanpatti, Jogadia, which are situated within an approximate one-kilometer radius of the sub-project alignment.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the existing road alignment.

- iv. Some roadside trees and vegetation may be affected during construction activities.
- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.
- vii. No alternative alignment analysis was conducted, as the proposed work follows the existing road and no significant constraints were identified.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities that are of cultural, social, and religious significance to the local population. Along the left side of the road alignment, these include homesteads, gardens, mosques, shops, and paddy fields. On the right side, the area is characterized by homesteads, gardens, mosques, shops, and paddy fields. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. However, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning and scheduling of construction activities, avoidance of unnecessary encroachment beyond the existing alignment, and adherence to standard environmental safeguards to minimize potential disturbances to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the project footprint. The only notable natural features include a limited number of ponds and a canal located near the starting section of the road alignment. Field surveys have also identified several community structures within the broader project influence area, including mosques, which are of local social importance. However, these features are not expected to be adversely affected by the proposed sub-project. All construction activities will be confined within the existing sub-project boundary, thereby avoiding any direct encroachment on adjacent properties or community assets. In addition, appropriate preventive and mitigation measures will be implemented throughout the construction period to ensure that potential impacts are minimized and that nearby structures and communities remain adequately protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be temporary and limited to the construction period.**

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 20 to 160 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The project area supports a variety of common local fauna typically found in rural floodplain environments. Agricultural fields, homestead vegetation, and nearby wetlands provide suitable habitats for a range of bird species. Commonly observed birds include doves (locally known as ghugu), herons (bok), and house sparrows (*Passer domesticus*). These species contribute to the local ecosystem by controlling insect populations, facilitating seed dispersal, and maintaining ecological balance. In addition to avifauna, the area supports small wild mammals and reptiles. Reported fauna include jungle cat (*Felis chaus*), Bengal fox (*Vulpes bengalensis*), and various snake species. These animals serve as natural predators, helping regulate populations of rodents and other small pests, thereby contributing to natural pest control and supporting agricultural productivity. The surrounding aquatic and wetland habitats, including ponds, canals, and seasonal floodplains, support a variety of fish species that are important for local livelihoods and food security. These water bodies provide essential breeding and feeding grounds for aquatic fauna, particularly during the monsoon season. Overall, the presence of diverse fish, birds, reptiles, and mammals in the project area indicates a functioning and interconnected rural ecosystem. Conservation of these species and their habitats is important for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Accordingly, sustainable land use practices, protection of wetland ecosystems, and environmentally responsible implementation of construction activities should be ensured to preserve the ecological integrity of the area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 existing drainage system has been identified along the project alignment.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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: No
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) No
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) No.
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 stagnant water bodies remained for encouraging 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) No existing drainage channels or surface water bodies found in the project area, therefore, 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) There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No

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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Chanpathi-Kachabali Road

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	- Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. - Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Construction	Noise from construction	• Construction activities mostly shall finish at day time	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	works	within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be kept in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.		Consultant of PIU
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. • 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - 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
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of	Water sources (e.g., ground or surface water) for construction works will be determined in	PIU & Contractor	Social Development Specialist and Gender

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	resource base.	consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. • Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		Specialist of PIU
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		locations (e.g., schools, colleges, hospitals, etc.) Local community will be trained up on traffic management and awareness.		
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 labor camps will be put in place. - Treated water will be made available at site for drinking purpose. - Adequate accommodation arrangements for labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	- A separate grievance mechanism for workers has to be established for the work package. - Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: - Waste from the temporary accommodation facilities for labor - Waste from equipment maintenance/vehicles on-site. - The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. - Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. - Working areas are kept clean and tidy at all times. - Construction site is to be checked for spills of substances i.e. chemical, oil, etc. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. - Hazardous waste viz. waste oil etc. will be collected	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		and stored in the paved and bounded area and subsequently sold to authorized recyclers. - Refueling areas and other fluid transfer areas will be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		
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.	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,	- 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. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	smoking, failure in 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.	conditions underfoot; signposted and 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist in sub-project area. - All safety equipment will be available in sub-project		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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	Demobilization of structures, facilities and equipment used during the project implementation period	• Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include:	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	(including site clearance 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.	(i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction	Rigorous Monitoring and Report Preparation and	• The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
and Construction	Submission	and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.		
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.	Upazila Engineer (UE)	District Executive Engineer, LGED

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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	District Executive Engineer, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	1,512 Sq.m	@38.15 Tk. Per sqm	57,682.80
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1260.0m	@ 2.56 BDT	3,225.60
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand	1 no.	LS @ Tk. 10,000	10,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	Contractor's representatives on safety practice and as per direction of the E.I.C.			
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
11.	<u>Working labour shed:</u> 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	30,000.00
12.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			251,554.12



Existing Surrounding of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Solpur More (UZR)-Katchabali bridge (UNR-3028); ID: 354804024**

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

District: Madaripur

Upazila: Rajoir

Union: Kabirajpur

Name of Community/Local Area: Kachabali Uttar Para, Solpur, Kabirajpur

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project involves the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+500 m to 1+200 m, with a proposed carriageway width of 3.0 m. No additional structures are proposed along the project corridor. All construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 2,100 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 700m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
500-800	L		Canal, Trees
		R	School, Mosque, shop, Homestead Area
800-1100	L		Canal, Trees,

Chainage	(Left/Right)		Environmental and Social Impact
		R	Homestead Area, Mosque
1100-1200	L		Canal, Trees
		R	Shop, Market, Home,



Starting Point Solpur more to Kachabali Bridge Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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 through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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

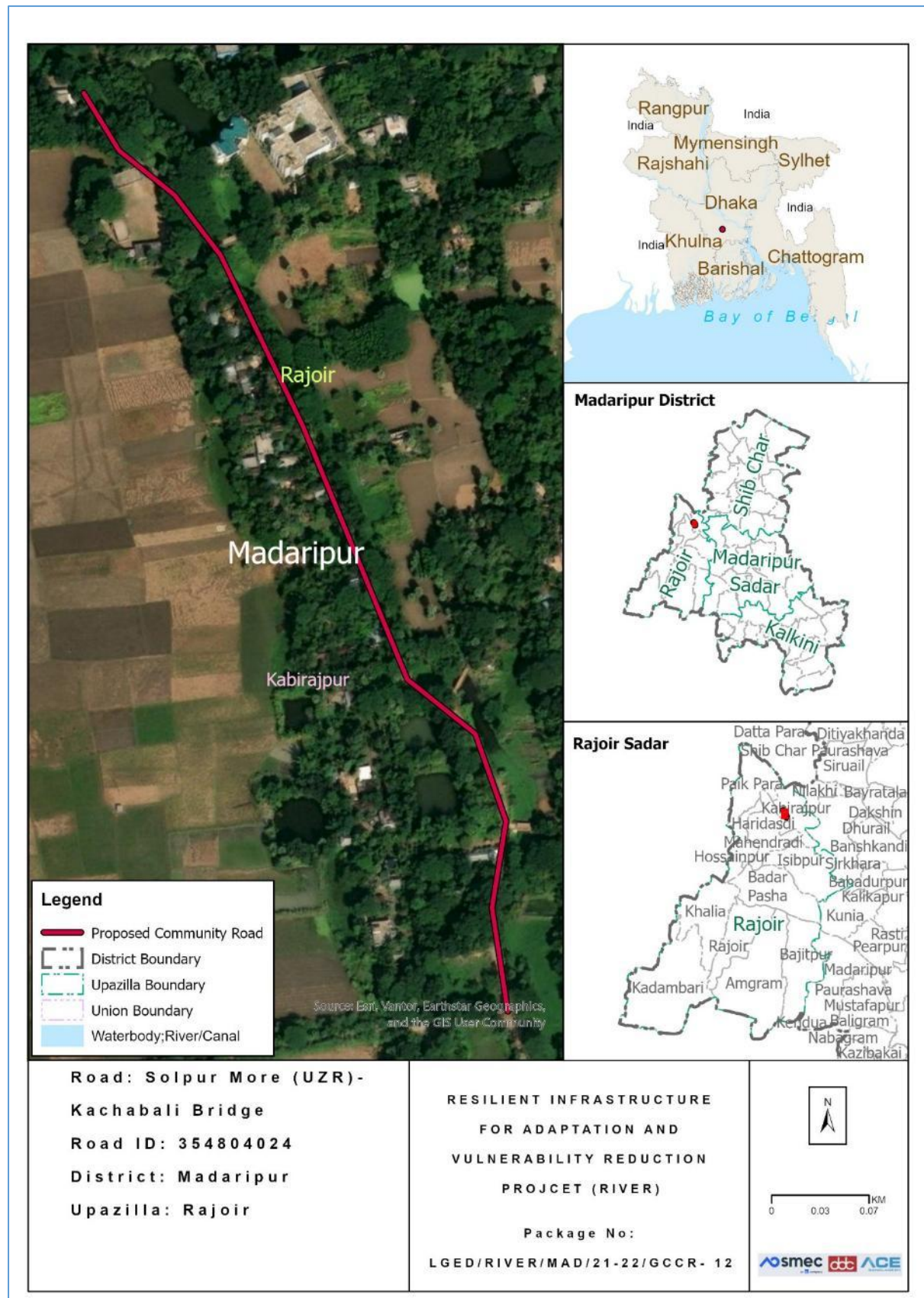
features. No significant impact is expected on the ecosystem and biodiversity, no agricultural land/ activities or fish farming will be disturbed, due to the construction of the sub projects.

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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites were identified within the direct area of influence of the proposed sub-project. The sub-project is located along the Solpur More (UZR)-Kachabali Bridge (UNR-3028) corridor, passing through Kachabali Uttar Para, Solpur, and Kabirajpur villages under Kabirajpur Union (Ward No. 03) in Rajoir Upazila of Madaripur District. Several environmentally and socially sensitive receptors are present within approximately 1 km of the project area. On the left side of the road alignment, these include agricultural land, canals, and roadside trees. On the right side, the area comprises homesteads, small commercial establishments, a mosque, and a local market. Paddy fields are also observed along multiple sections of the alignment. These features—including residential settlements, agricultural lands, water bodies, and religious establishments—are important to the local community and contribute to their livelihoods and social structure. However, as the proposed sub-project activities will be confined primarily within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated. Appropriate mitigation measures and environmental management practices will be implemented during the construction phase to ensure the protection of these sensitive receptors.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC). According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 700 m.

Sub-project Location:

Important Features	
ID	354804024
District	Madaripur
Upazila	Rajoir
Union	Kabirajpur
WARD	03
Total Chainage	700m
Proposed Chainage	700 m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.287112 N Longitude: 90.065878 E
Road Ending Point Coordinates	Latitude: 23.281695 N Longitude: 90.068935 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 situated along the existing Solpur More (UZR)-Katchabali Bridge (UNR-3028) road corridor within Kabirajpur Union, Ward No. 03, under Rajoir Upazila of Madaripur District, Bangladesh. The immediate project influence area includes the villages of Solpur, Kachabali Uttar Para, and Kabirajpur, which are directly adjacent to or served by the project road. In addition, several nearby villages—namely Chander Bazar and Kachabali Dakshin Para—are located within an approximate one-kilometer radius of the sub-project.
- ii. No historical or archaeological sites were found within the project intervention or influence area.
- iii. Not required to relocate local community as the work will be confined within the

existing road alignment.

- iv. Some roadside trees and vegetation may be affected during construction activities.
- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.
- vii. No alternative alignment analysis was conducted, as the proposed work follows the existing road and no significant constraints were identified.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities that are of cultural, social, and religious significance to the local population. Along the left side of the road alignment, the surrounding land use is predominantly characterized by agricultural fields, canals, and roadside vegetation, including mature trees. On the right side, the area consists of residential homesteads, small-scale commercial establishments, a mosque, and a local market. Paddy fields are also present along multiple sections of the alignment, reflecting the agrarian nature of the project area. Given that the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. However, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning of construction activities, avoidance of unnecessary encroachment, and adherence to standard environmental safeguards to minimize any potential disturbance to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the project footprint. The only notable natural features include a limited number of roadside trees and a canal located near the starting section of the road alignment. Field surveys indicate the presence of several community structures within the broader project influence area, including mosques, a school, small commercial shops, and residential settlements. These features are of local social importance; however, they are not expected to be adversely affected by the proposed sub-project. All construction activities will be confined within the existing sub-project boundary, thereby avoiding any direct encroachment on adjacent properties or community assets. Furthermore, appropriate preventive and mitigation measures will be implemented throughout the construction period to ensure that potential impacts are minimized and that nearby structures and communities remain

protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be temporary and limited to the construction period.**

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 120 to 240 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a range of common local bird species, which are frequently observed in agricultural fields, homestead vegetation, and nearby wetland habitats. Notable species include ghugu (dove), bok (heron), and choro (house sparrow, *Passer domesticus*). These birds contribute to the local ecosystem by helping control insect populations, dispersing seeds, and supporting overall ecological balance within the rural landscape. In addition to avifauna, the area also supports small wild mammal species and reptiles. Observed fauna include Bon Biral (jungle cat, *Felis chaus*), fox (Bengal fox, *Vulpes bengalensis*), and various snake species. These animals function as natural predators, regulating populations of rodents and other small pests, thereby contributing to natural pest control and maintaining agricultural productivity. Aquatic and wetland habitats in the surrounding areas also support a variety of fish species, which play an important role in local food security and livelihoods. Overall, the presence of diverse fish, birds, reptiles, and mammals indicates a functioning and interconnected rural ecosystem. The conservation of these species and their habitats is important for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Sustainable land use practices, protection of wetland areas, and environmentally responsible construction activities are therefore essential to preserve the ecological integrity of the project area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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.

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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, natural drainage features exist in the form of ponds located in the vicinity of the road corridor, which contribute to local surface water storage and drainage. On the left side of the alignment, three canals are located at approximate distances of 800 m, 1000 m, and 1,200 m from the road. These canals form part of the local hydrological system and are used for multiple purposes, including rainwater retention, drainage support, and limited domestic and agricultural use by surrounding communities. In the absence of a structured drainage network, these natural water bodies play an important role in managing surface runoff within the area. During the construction phase, appropriate mitigation measures will be implemented to ensure that these ponds and associated natural drainage patterns are not obstructed or adversely affected.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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)

No existing drainage channels or surface water bodies found in the project area, therefore, 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)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No

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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Solpur More (UZR)-Katchabali bridge (UNR-3028)

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
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
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-	Sanitation and water	Sanitation facilities (male and female toilets, wash-	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Stage	supply	basins, etc.) for workers and constructor's officials/employees will be provided. Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.		Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. - Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. - Provision of waste bins/ cans, where appropriate, - Litter is to be collected daily. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, within the construction site is not near to any kinds of latrine and soaks well which could be	PIU & Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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. • Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. • The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	• Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. • All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. • Noise producing vehicles and equipment will be keep in maintenance regularly. • Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative	Contractor	Environmental Consultant of PIU

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		options will be selected during the construction works.		
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. - 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - Records of every training must be kept at site. - All kinds of Child labour are completely prohibited in every site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Every construction materials storage site will be well fenced by Tin and safety caution tape.		
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. - If ground or surface water is withdrawn for the use	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement of heavy machinery and equipment. - Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. - Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) - Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		hunting, poaching and tree felling. - Adequate facilities ensuring sanitation for labor camps will be put in place. - Treated water will be made available at site for drinking purpose. - Adequate accommodation arrangements for labor forces. - Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	- A separate grievance mechanism for workers has to be established for the work package. - Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. - Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: - Waste from the temporary accommodation facilities for labor - Waste from equipment maintenance/vehicles on-site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. - Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. - Working areas are kept clean and tidy at all times. - Construction site is to be checked for spills of substances i.e. chemical, oil, etc. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. - Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. - Refueling areas and other fluid transfer areas will be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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.	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 electrical installation, mobile plant and vehicles, and electrical shocks. - Exposure to health events during construction activities such as manual handling and	- 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. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.	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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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 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		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • The material stockpile sites shall be far away from surface water bodies and areas prone to surface runoff. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. - 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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.	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	accidents. The accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

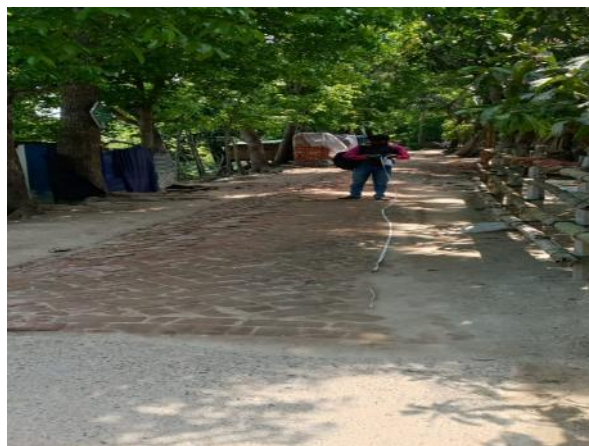
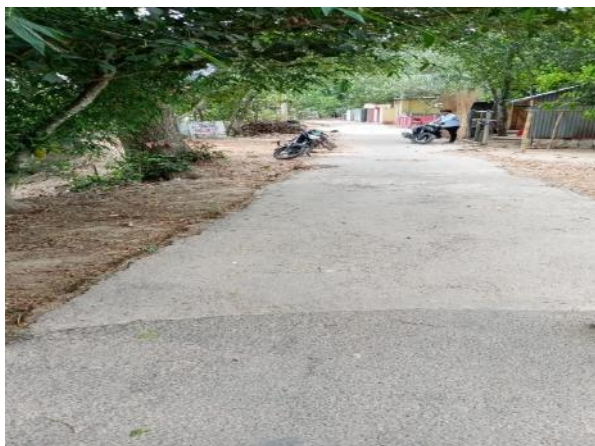
Sl no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> Turfing on embankment top and slope & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. (Payment to be made only when grass is fully grown)	840 Sq.m	@38.15 Tk. Per sqm	32,046.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	700.0m	@ 2.56 BDT	1792.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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Sl no.	Description of item	Quantity	Unit price	Total amount
	full satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand	1 no.	LS @ Tk. 10,000	10,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Sl no.	Description of item	Quantity	Unit price	Total amount
	Contractor's representatives on safety practice and as per direction of the E.I.C.			
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Tree Plantation</u> For each tree felled, 3 shall be planted as replacement.	4 no.	@ Tk. 500	6,000.00
11.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
12.	<u>Working labour shed:</u> 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	30,000.00
13.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			230,483.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for Mojid Kazi House-Atul BHouse Near Kali Mondir Via Khilgram; ID: 354405133

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

District: Madaripur

Upazila: Kalkini

Union: Dasar

Name of Community/Local Area: Khilgram, Kaligram, Poschim Dasar

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 1+512 m, with a proposed carriageway width of 3.0 m. An existing bridge structure measuring 18 m × 2.5 m is located at Ch. 1,279 m and will remain unchanged under the current scope of work. In addition, a culvert measuring 2 m × 4 m × 4 m is proposed at Ch. 1,279 m to ensure proper drainage and maintain the continuity of natural water flow. Palisading works are present along selected sections of the road, covering a total length of 146 m, including from Ch. 0+000 m to 0+046 m and from Ch. 1,104 m to 1,204 m. These will be retained as part of the existing slope protection measures. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 4,536 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1512m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		00 to Chowrasta (West), Pond, Homestead, Drain, Field, Land-5m
		R	Drain, Home, Pond-5m
300-600	L		Pond, Home, Rice Mill Connecting Road
		R	Connecting road, Homestead-5m, Drain-3m
600-900	L		Trees, Pond, Canal, Homestead-8m
		R	Home, Khal, Mosque-20m, Trees
900-1200	L		Pond, Home Connecting Road, Garden-5m
		R	Garden, Temple
1200-1500	L		Homestead, Field, Garden, Drain, Canal
		R	Garden, Homestead, Bridge, Road



Starting Point Mozid Kazi House to Atul Babu House near Kali Monir Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

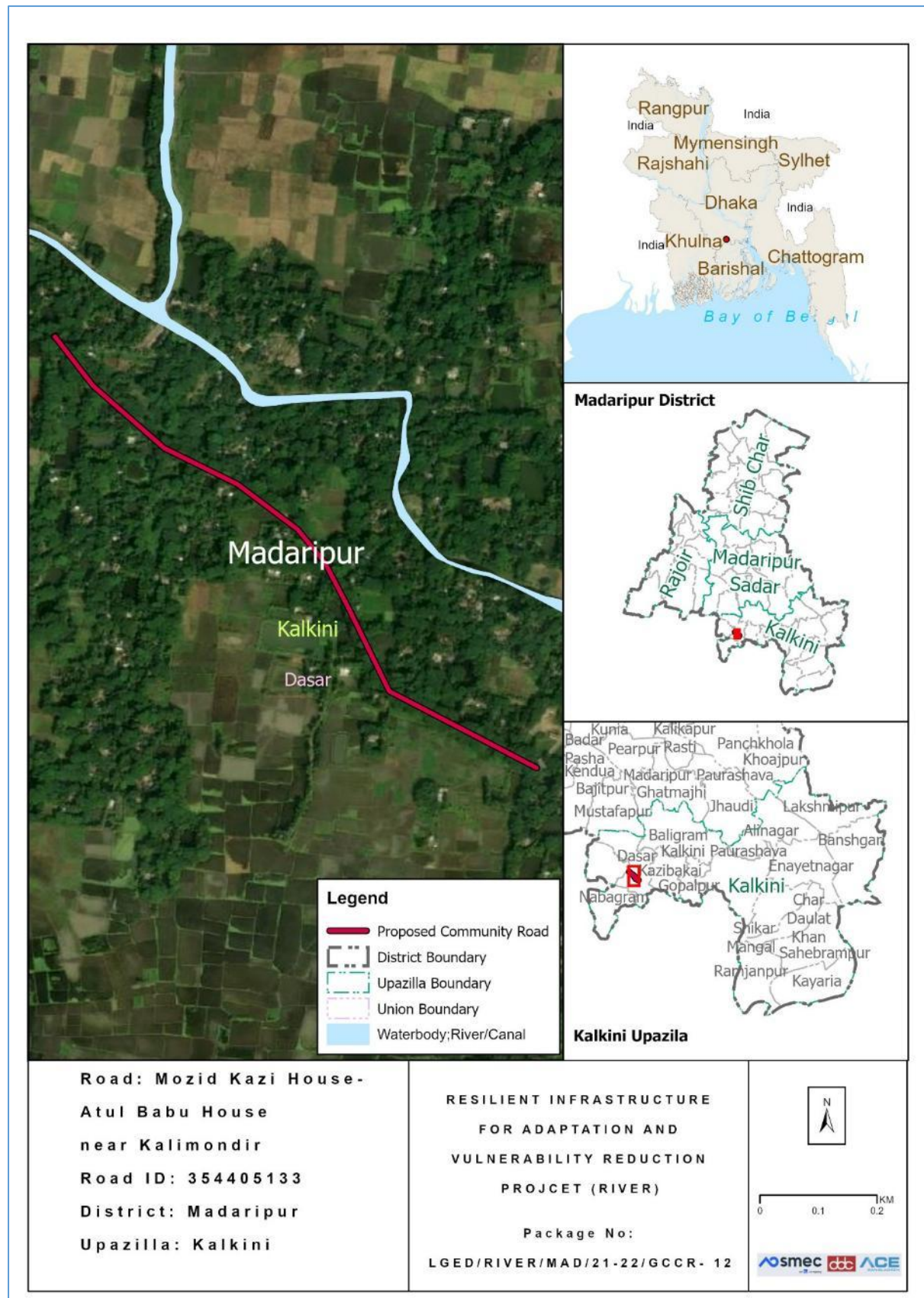
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites were identified within the direct area of influence of the proposed sub-project. The project is located along the alignment from Mojid Kazi House to Atul Babu House near Kali Mondir, passing through Khilgram, Kaligram, and Poschim Dasar villages under Dasar Union (Ward No. 07), in Kalkini Upazila of Madaripur District. Several environmentally and socially sensitive receptors are located within approximately 1 km of the project area. On the left side of the road alignment, these include Chowrasta (West), ponds, homesteads, drains, agricultural fields, a rice mill, canals, gardens, trees, and connecting roads. On the right side, sensitive features include drains, homesteads, ponds, connecting roads, a canal (khal), a mosque (approximately 20 m from the alignment), trees, gardens, a bridge, and a temple. These features—including residential areas, agricultural lands, water bodies, and religious establishments—are important to the local community and contribute to their livelihoods and social and cultural structure. However, as the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these surrounding receptors are anticipated. Nevertheless, appropriate mitigation measures and environmental management practices will be implemented during the construction phase to ensure the protection of these sensitive environmental and social receptors.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC) & Earthen. According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 1512 m.

Sub-project Location:

Important Features	
ID	354405133
District	Madaripur
Upazila	Kalkini
Union	Dasar
WARD	07
Total Chainage	1512 m
Proposed Chainage	1512m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.074845 N Longitude: 90.151502 E
Road Ending Point Coordinates	Latitude: 23.081859 N Longitude: 90.143877 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is located along the existing road corridor from Mojid Kazi House to Atul Babu House near Kali Mondir via Khilgram, within Dasar Union (Ward No. 07), Kalkini Upazila, Madaripur District, Bangladesh. The immediate area of influence of the project includes Khilgram, Kaligram, and Poschim Dasar villages, which are situated within an approximate one-kilometer radius of the sub-project alignment.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the existing road alignment.

- iv. Some roadside trees and vegetation may be affected during construction activities.
- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.
- vii. No alternative alignment analysis was conducted, as the proposed work follows the existing road and no significant constraints were identified.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities of cultural, social, and religious importance to the local population. On the left side of the road alignment, these receptors include Chowrasta (West), ponds, homesteads, drains, agricultural fields, a rice mill, canals, gardens, trees, and connecting roads. On the right side, sensitive features include drains, homesteads, ponds, connecting roads, a canal (khal), a mosque (approximately 20 m from the alignment), trees, gardens, a bridge, and a temple. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. Nevertheless, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning of construction activities, avoidance of unnecessary encroachment, and adherence to standard environmental safeguards to minimize potential disturbances to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the project footprint. The only notable natural features include a limited number of roadside trees and a canal located near the starting section of the road alignment. Field surveys indicate the presence of several community structures within the broader project influence area, including mosques, gardens, ponds, canals, a temple, and residential settlements. These features are of local social importance; however, they are not expected to be adversely affected by the proposed sub-project. All construction activities will be confined within the existing sub-project boundary, thereby avoiding any direct encroachment on adjacent properties or community assets. Furthermore, appropriate preventive and mitigation measures will be implemented throughout the construction period to ensure that potential impacts are minimized and that nearby structures and communities remain adequately protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be temporary and limited to the construction period.**

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 30 to 80 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, which are frequently observed in agricultural fields, homestead vegetation, and nearby wetland habitats such as ponds and canals. Notable species include ghugu (dove), bok (heron), and choro (house sparrow, *Passer domesticus*). These birds contribute to the local ecosystem by helping control insect populations, dispersing seeds, and maintaining ecological balance within the rural landscape. In addition to avifauna, the area also supports small wild mammal species and reptiles that are typical of the rural agro-ecosystem of the Ganges floodplain. Observed fauna include Bon Biral (jungle cat, *Felis chaus*), fox (Bengal fox, *Vulpes bengalensis*), and various snake species. These animals function as natural predators, regulating populations of rodents and other small pests, thereby contributing to natural pest control and supporting agricultural productivity. Aquatic and wetland habitats in the surrounding areas, including ponds, canals, and seasonal water bodies, support a variety of fish species. These aquatic resources play an important role in local food security, nutrition, and livelihoods through subsistence and small-scale fishing activities. Overall, the presence of diverse fish, birds, reptiles, and mammals indicates a functioning and interconnected rural ecosystem. The conservation of these species and their habitats is important for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Accordingly, sustainable land-use practices, protection of wetland areas, and environmentally responsible construction activities are essential to preserve the ecological integrity of the project area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, natural drainage features exist in the form of ponds and nearby canals, which contribute to local surface water storage and drainage within the project area. On the left side of the alignment, several ponds are located at approximate distances of 200 m, 400 m, 600 m, and 800m from the road, along with a nearby canal and associated drainage channels. On the right side, a pond is located approximately 2 m from the alignment, and a drain and a canal (khal) is also present in close proximity. These water bodies form an integral part of the local hydrological system and are used for multiple purposes, including rainwater retention, drainage support, and limited domestic and agricultural use by surrounding communities. In the absence of a structured drainage network, these natural features play a critical role in managing surface runoff in the area. During the construction phase, appropriate mitigation measures will be implemented to ensure that these ponds, drains, and associated natural drainage patterns are not obstructed or adversely affected. Construction activities will be carefully managed to maintain existing flow paths and minimize any disruption to local hydrological conditions.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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) No existing drainage channels or surface water bodies found in the project area, therefore, 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) There are no protected areas in or around project sites, and no known areas of ecological interest.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) No
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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Mojid Kazi House-Atul BHouse Near Kali Mondir Via Khilgram

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	- Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. - Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		involved with the GRM system and representatively included in the project GRCs.		
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	- All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. - Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. - Tubewell location wherever required to install, 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. - Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority.	PIU & Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		The contractor must ensure sound environment for the local residents near the sub project site.		
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. - 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - Records of every training must be kept at site. - All kinds of Child labour are completely	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		prohibited in every site. Every construction materials storage site will be well fenced by Tin and safety caution tape.		
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		available water quality satisfies the required standards for construction works. • If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		
Construction Activity	Increase in road accidents	• Maintain safety measures during the movement of heavy machinery and equipment. • Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. • Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) • Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
Construction	Waste Management:	• Preparation of a waste management plan	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	Improper management and handling of hazardous and non-hazardous waste during construction.	covering the following aspects: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will		Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		
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.	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 electrical installation, mobile plant and vehicles, and electrical shocks.	- 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. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting. - Proper Signpost at any slippery areas will be	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved 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	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE.	Contractor	Environmental Consultant of PIU/D&SC.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) - 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 shall be used on site to manage surface water runoff and minimize erosion. - The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. - 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.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance after the construction). The	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	impacts are similar to those listed in construction stage: • Pollution from waste materials. • Health & Safety risks to workers and local community.	all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. - Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.	Upazila Engineer (UE)	District Executive Engineer, LGED

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	traffic injuries.			
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	1814.4 Sq.m	@38.15 Tk. Per sqm	69,219.36
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1512.0m	@ 2.56 BDT	3,870.72
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> Motivation training (twice: before and after construction start) of the Upazila Engineer 'sand	1 no.	LS @ Tk. 10,000	10,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	Contractor's representatives on safety practice and as per direction of the E.I.C.			
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
11.	<u>Working labour shed:</u> 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	30,000.00
12.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			263,735.8



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road for **Dhulgram Hat-Choto Bonogram A. Munshi House; ID: 354405290**

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

District: Madaripur

Upazila: Kalkini

Union: Baligram

Name of Community/Local Area: Sonmandi, Moddhya Dhulgram

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. All construction activities will be carried out within the existing road corridor to the maximum extent possible in order to minimize environmental and social impacts while ensuring improved riding quality and all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 1+145 m, with a proposed carriageway width of 3.0 m. Existing palisading works are present at several locations along the road, including 20 m at Ch. 282 m, 26 m at Ch. 501 m, 67 m at Ch. 535 m, and 18 m at Ch. 786 m. In addition, an existing U-Drain measuring 7.8 m × 1.6 m is located at Ch. 1,139 m. These structures will remain unchanged where not affected by the proposed works. Under the current scope, additional palisading of 67 m is proposed to strengthen slope protection. A U-Drain measuring 7.8 m × 1.6 m is also proposed at Ch. 1,139 m to improve drainage and ensure proper management of surface water along the road section. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 3,900 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1300m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Garden-3m, Pond-7m, Drain, Homestead-11m, Crematorium-13m
		R	Small Garden-4m, Pond-5m, Home-11m, Garden
300-600	L		Pond-0.5m, Homestead-0.9m, Shop-1m
		R	Pond-0.9m, Home-3m, Garden-4m
600-900	L		Home, Garden-3m, Pond-5m,
		R	Home-1m, Mosque-2m, Garden-5m, Pond-7m
900-1200	L		Bamboo Garden-1m, Homestead-3m, Pond-5m
		R	Homestead-6m, Garden-7m
1200-1500	L		Field-0.7m, Pond-10m, Homestead-13m
		R	Field-2m, Homestead-5m, Garden-5m



Starting Point Dhulgram Hat to Choto Bonogram Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

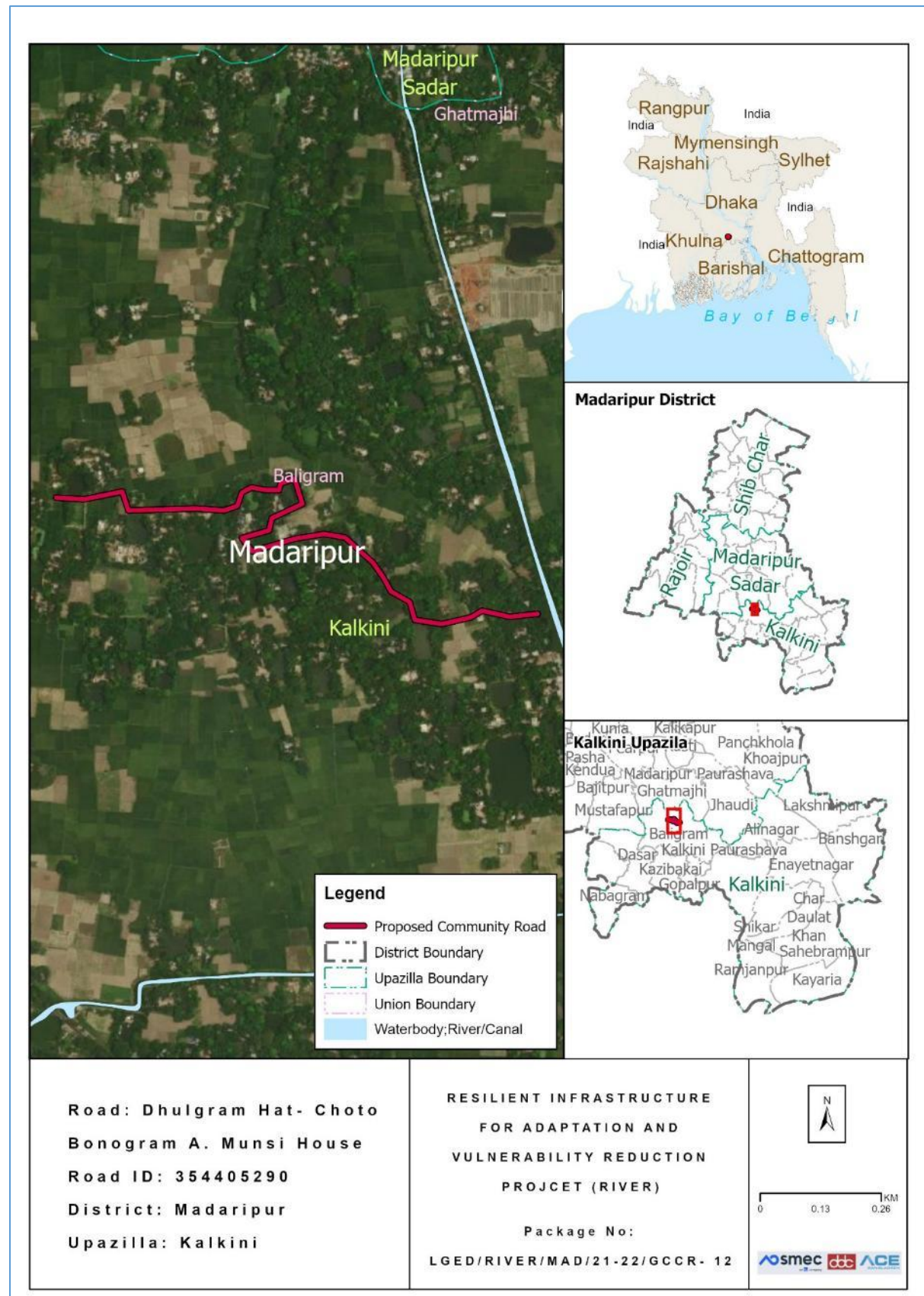
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites have been identified within the direct area of influence of the proposed sub-project. The project is situated along the Dhulgram Hat-Choto Bonogram A. Munshi House corridor, traversing Sonmandi and Moddhya Dhulgram villages under Baligram Union (Ward No. 05) in Kalkini Upazila of Madaripur District. Within approximately one kilometer of the project area, several environmentally and socially sensitive receptors are present. On the left side of the road alignment, these include gardens, ponds, drains, homesteads, a crematorium, shops, bamboo gardens, and agricultural fields, located at varying distances ranging from less than one meter to thirteen meters. On the right side, the alignment passes near homesteads, small gardens, ponds, agricultural field and a mosque, also situated within close proximity. These features—including residential settlements, agricultural lands, water bodies, and religious establishments—are integral to the local community, supporting livelihoods, cultural practices, and social cohesion. As the proposed sub-project activities will be confined primarily within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated. Nevertheless, appropriate mitigation measures and environmental management practices will be implemented during the construction phase to ensure the protection of these sensitive receptors and to minimize any potential disturbance to the community and environment.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC) and Earthen. According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 1300 m.

Sub-project Location:

Important Features	
ID	354405290
District	Madaripur
Upazila	Kalkini
Union	Baligram
WARD	05
Total Chainage	1300m
Proposed Chainage	1300 m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.121028 N Longitude: 90.184919 E
Road Ending Point Coordinates	Latitude: 23.123484 N Longitude: 90.175648 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is located along the existing Dhulgram Hat-Choto Bonogram A. Munshi House Road corridor within Baligram Union, Ward No. 05, under Kalkini Upazila of Madaripur District, Bangladesh. The immediate area of influence encompasses the villages of Sonmandi and Moddhya Dhulgram, which lie adjacent to or are directly served by the project road. Additionally, several nearby settlements, including Panta Para and Korno Para, fall within an approximate one-kilometer radius of the sub-project area.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the

existing road alignment.

- iv. Some roadside trees and vegetation may be affected during construction activities.
- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within approximately one kilometer of the project area. These include educational institutions, religious establishments, and community facilities that hold cultural, social, and religious importance for the local population. Along the left side of the road alignment, sensitive features such as gardens, ponds, drains, homesteads, a crematorium, shops, bamboo groves, and agricultural fields are situated at distances ranging from less than one meter to thirteen meters. On the right side, the surrounding area consists of residential homesteads, small gardens, ponds, agricultural land, and a mosque, all located in close proximity to the road. As the proposed sub-project activities will largely remain confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. Nevertheless, appropriate environmental and social management measures will be implemented during the construction phase, including careful planning of construction activities, avoidance of unnecessary encroachment, and adherence to standard environmental safeguards to minimize potential disturbances to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the sub-project footprint. The only notable natural features consist of a small number of roadside trees and a canal located near the starting section of the road alignment. Field observations also recorded several community structures within the broader project influence area, including mosques, ponds, gardens, a crematorium, and residential settlements. While these features hold local social importance, they are not expected to be adversely affected by the proposed sub-project, as all construction activities will remain confined within the existing project boundary, thereby avoiding direct encroachment on adjacent properties or community assets. In addition, appropriate preventive and mitigation measures will be implemented throughout the construction period to minimize potential impacts and ensure that nearby structures and communities remain adequately protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will be temporary and limited to the construction period.

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 120 to 240 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a range of common local bird species, which are frequently observed in agricultural fields, homestead vegetation, and nearby wetland habitats. Notable avifauna include ghugu (dove), bok (heron), and choro (house sparrow, *Passer domesticus*), which contribute to the local ecosystem by controlling insect populations, dispersing seeds, and maintaining ecological balance. In addition to birdlife, the area also supports small wild mammals and reptiles. Species such as Bon Biral (jungle cat, *Felis chaus*), Bengal fox (*Vulpes bengalensis*), and several snake species have been recorded, functioning as natural predators that help regulate rodent and small pest populations, thereby supporting agricultural productivity. The surrounding aquatic and wetland habitats also sustain a range of fish species that play an important role in local food security and livelihoods. Overall, the presence of diverse birds, mammals, reptiles, and fish indicates a functioning and interconnected rural ecosystem. Conservation of these species and their habitats is essential for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Sustainable land-use practices, protection of wetland areas, and environmentally responsible construction activities are therefore critical to preserving the ecological integrity of the sub-project area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, natural drainage features are present in the form of ponds located near the road corridor, which contribute to local surface water storage and natural drainage processes. On the left side of the alignment, several ponds are situated at approximate distances of 5 m, 7 m, and 10 m from the road. These water bodies form an integral part of the local hydrological system and are used for multiple purposes, including rainwater retention, drainage support, and limited domestic and agricultural use by surrounding communities. In the absence of a structured drainage network, these natural features play a critical role in managing surface runoff within the area. During the construction phase, appropriate mitigation measures will be implemented to ensure that these ponds and associated natural drainage pathways are not obstructed, altered, or adversely affected by project activities.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to

movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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)

No existing drainage channels or surface water bodies found in the project area, therefore, 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)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No

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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: Dhulgram Hat-Choto Bonogram A. Munshi House

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	- Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. - Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		involved with the GRM system and representatively included in the project GRCs.		
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
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-	Site Selection for workers	Workers camp, site office and stack yard should	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Stage	camps, stack yards & implementing interventions: Generation of ESHS issues.	be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly		Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. - Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. - Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Construction Activity	Noise from construction works	- Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. - All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. - Noise producing vehicles and equipment will be keep in maintenance regularly. - Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
Construction Activity	Dust	Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter),	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices. - 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 materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - 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
Construction	Traffic Management	Because of the sensitivity of the proposed	Contractor	Environmental

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity		project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.		Consultant of PIU
Construction Activity	Increase in road accidents	- Maintain safety measures during the movement of heavy machinery and equipment. - Proper signage to be displayed at major junctions; and road diversions and closures to be informed well in advance to the local community. - Vehicular movement to be controlled near sensitive locations (e.g., schools, colleges, hospitals, etc.) - Local community will be trained up on traffic management and awareness.	Contractor	Environmental Consultant of PIU
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	Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
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.	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 electrical installation,	• 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. • Provide walkways that are clearly designated as a walkway; all walkways shall be provided with	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	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.	good conditions underfoot; signposted and 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites will be ensured. Proper Emergency evacuation response plan will exist		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 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	Pollution of water bodies	Ensure monitoring of nearby surface and underground water bodies for signs of	Contractor	Environmental Consultant of

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • 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.		PIU/D&SC.
Construction	Demobilization of structures,	• Provision to proper measures of mitigation and	Contractor	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	facilities and equipment used during the project implementation period (including site clearance 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.	monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. • The contractor must arrange the cancellation of all temporary services.		Consultant of PIU/D&SC, district XEN.
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	Contractor	Environmental Consultant of PIU, Union Parishad Member

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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.		
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: - The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. - Widened road, lack of road safety signage or speed-	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over	Upazila Engineer (UE)	District Executive Engineer, LGED

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	speeding. All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	1560 Sq.m	@38.15 Tk. Per sqm	59,514.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1300.0m	@ 2.56 BDT	3,328.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	5,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Sl. no.	Description of item	Quantity	Unit price	Total amount
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> 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	10,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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Sl. no.	Description of item	Quantity	Unit price	Total amount
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Tree Plantation</u> For each tree felled, 3 shall be planted as replacement.	2 no.	@ Tk. 500	3,000.00
11.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
12.	<u>Working labour shed:</u> 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	30,000.00
13.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
Total amount for this Road				256,487.72



Existing Surrounding of the Sub-Project

Name of Sub-Project: Improvement of Community Road **DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque; ID: 354405134**

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

District: Madaripur

Upazila: Kalkini

Union: Dasar

Name of Community/Local Area: Dasar, Poschim Dasar, Uttor Khilgram

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 0+800 m, with a proposed carriageway width of 3.0 m. Slope protection through palisading is proposed along selected sections of the road, including from Ch. 0+100 m to 0+187 m, as well as at additional locations at Ch. 200 m to 376 m, Ch. 440 m, and Ch. 580 m, to enhance stability and reduce the risk of erosion. In addition, a box culvert is proposed at Ch. 583 m to facilitate adequate drainage and maintain the continuity of natural water flow. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 2,400 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 800m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Graveyard, Home-2m
		R	Canal
300-600	L		Home, Pond-3m
		R	Home, Pond, Mosque-2m
600-900	L		Home, Rice Mill-10m
		R	Home, Canal



Starting Point DK Ideal Degree College to Poschim Dasar Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

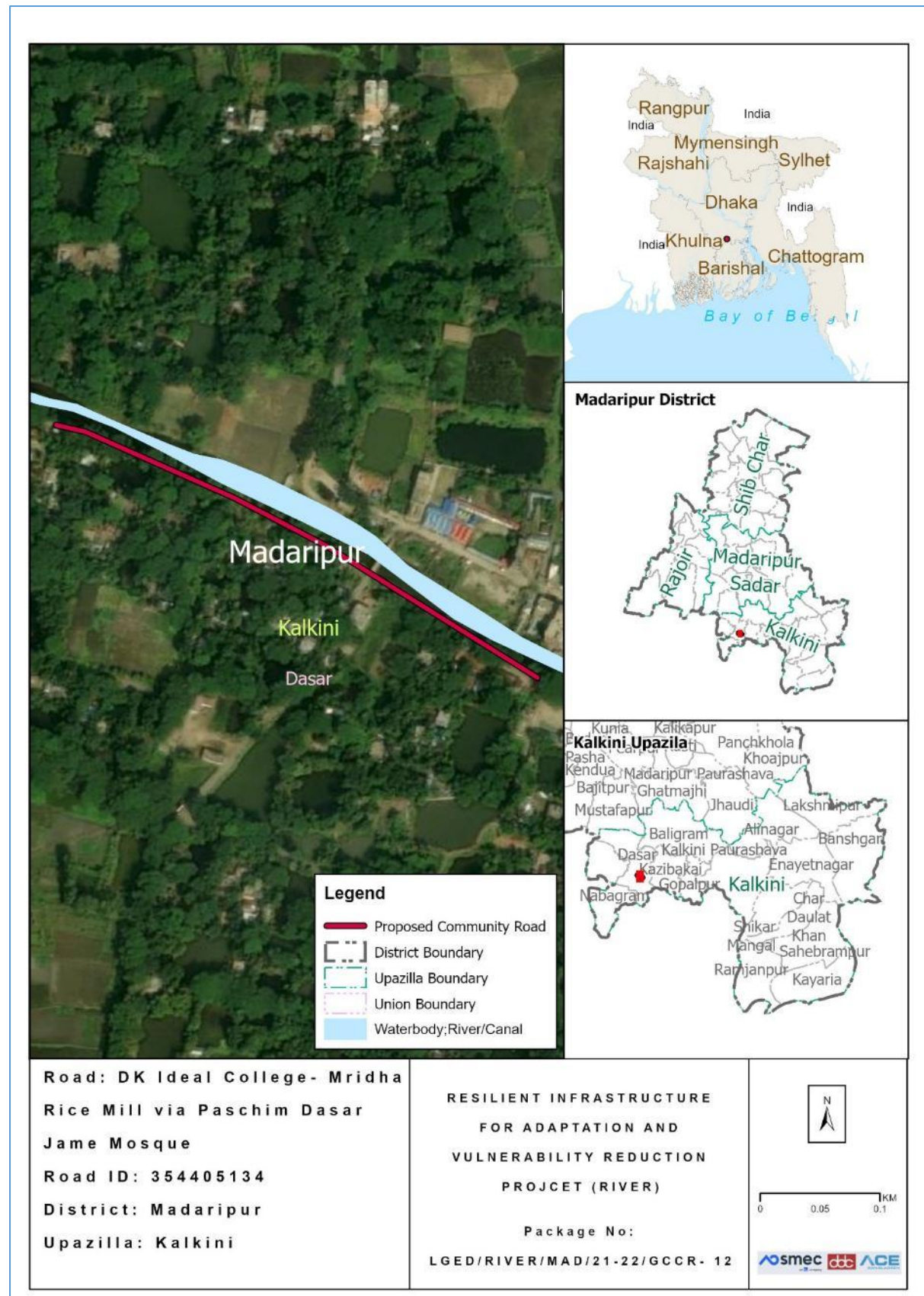
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites have been identified within the direct area of influence of the project. The proposed sub-project is located along the DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque corridor, traversing Dasar, Poschim Dasar, and Uttor Khilgram villages under Dasar Union (Ward No. 08) in Kalkini Upazila of Madaripur District. Within approximately one kilometer of the project area, several environmentally and socially sensitive receptors are present. On the left side of the road, these include homesteads, a graveyard, a rice mill, and ponds, while on the right side the alignment passes near a mosque, canals, and ponds. These features—comprising residential settlements, agricultural lands, water bodies, and religious establishments—are integral to the local community, supporting both livelihoods and social cohesion. As the proposed activities will be confined primarily within the existing road alignment, no significant adverse impacts on these surrounding features are anticipated, and the project design ensures that community assets and environmental resources remain safeguarded.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC). According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 800m.

Sub-project Location:

Important Features	
ID	354405134
District	Madaripur
Upazila	Kalkini
Union	Dasar
WARD	08
Total Chainage	800m
Proposed Chainage	800 m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.075947 N Longitude: 90.154247 E
Road Ending Point Coordinates	Latitude: 23.077725 N Longitude: 90.148400 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 along the existing road corridor from DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque, within Dasar Union (Ward No. 08), Kalkini Upazila, Madaripur District, Bangladesh. The immediate area of influence of the project includes Dasar, Poschim Dasar, Uttor Khilgram, which are situated within an approximate one-kilometer radius of the sub-project alignment.
- ii) No historical or archaeological sites were found within the project intervention or influence area.
- iii) Not required to relocate local community as the work will be confined within the existing road alignment.

- iv) Some roadside trees and vegetation may be affected during construction activities.
- v) Very low chance of loss of agricultural land.
- vi) Some household boundaries made of bamboo and tin may require minor adjustment.
- viii) No alternative alignment analysis was conducted, as the proposed work follows the existing road and no significant constraints were identified.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities that are of cultural, social, and religious significance to the local population. On the left side of the road, these include homesteads, a graveyard, a rice mill, and ponds, while on the right side the alignment passes near a mosque, canals, and ponds. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. However, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning and scheduling of construction activities, avoidance of unnecessary encroachment beyond the existing alignment, and adherence to standard environmental safeguards to minimize potential disturbances to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the project footprint. The only notable natural features include a limited number of ponds and a canal located near the starting section of the road alignment. Field surveys have also identified several community structures within the broader project influence area, including mosques and graveyards, which are of local social importance. However, these features are not expected to be adversely affected by the proposed sub-project. All construction activities will be confined within the existing sub-project boundary, thereby avoiding any direct encroachment on adjacent properties or community assets. In addition, appropriate preventive and mitigation measures will be implemented throughout the construction period to ensure that potential impacts are minimized and that nearby structures and communities remain adequately protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but **short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.**

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will **be temporary and limited to the construction period.**

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 30 to 150 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The project area supports a variety of common local fauna typically found in rural floodplain environments. Agricultural fields, homestead vegetation, and nearby wetlands provide suitable habitats for a range of bird species. Commonly observed birds include doves (locally known as ghugu), herons (bok), and house sparrows (*Passer domesticus*). These species contribute to the local ecosystem by controlling insect populations, facilitating seed dispersal, and maintaining ecological balance. In addition to avifauna, the area supports small wild mammals and reptiles. Reported fauna include jungle cat (*Felis chaus*), Bengal fox (*Vulpes bengalensis*), and various snake species. These animals serve as natural predators, helping regulate populations of rodents and other small pests, thereby contributing to natural pest control and supporting agricultural productivity. The surrounding aquatic and wetland habitats, including ponds, canals, and seasonal floodplains, support a variety of fish species that are important for local livelihoods and food security. These water bodies provide essential breeding and feeding grounds for aquatic fauna, particularly during the monsoon season. Overall, the presence of diverse fish, birds, reptiles, and mammals in the project area indicates a functioning and interconnected rural ecosystem. Conservation of these species and their habitats is important for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Accordingly, sustainable land use practices, protection of wetland ecosystems, and environmentally responsible implementation of construction activities should be ensured to preserve the ecological integrity of the area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, natural drainage features are present in the form of ponds and a canal situated in proximity to the road corridor. These features contribute to local surface water storage and drainage. On the left side of the alignment, a pond is located approximately 300m from the road. This pond form part of the local hydrological system and serve multiple functions, including rainwater retention, drainage support, and limited domestic and agricultural use by surrounding communities. In the absence of a structured drainage network, these natural water bodies play a critical role in managing surface runoff within the project area. During the construction phase, appropriate mitigation measures will be implemented to ensure that these ponds and associated natural drainage patterns are not obstructed or adversely affected.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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)

No existing drainage channels or surface water bodies found in the project area, therefore, 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)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No

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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: DK Ideal College-Mridha Rice Mill via Paschim Dasar Jame Mosque

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be involved with the GRM system and representatively included in the project GRCs.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
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

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		

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; removal/relocation of utility services	- All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. - Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. - Tubewell location wherever required to install, 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. - Existing utility services must be relocated or adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. - The contractor must ensure sound environment for the local residents near the sub project site.	PIU & Contractor	Environmental Consultant of PIU
Construction Activity	Dust	Acceptable range of emission of CO, particulate matter [SPM (Suspended particulate matter),	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		PM2.5, 10] and Hydrocarbons must be maintained through good construction work practices. - 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 materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - 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
Construction	Traffic Management	Because of the sensitivity of the proposed	Contractor	Environmental

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity		project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.		Consultant of PIU
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. - If ground or surface water is withdrawn for the use of construction works from outside of the	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.		
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 labor camps will be put in place. - Treated water will be made available at site for drinking purpose. - Adequate accommodation arrangements for labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction	Labour related issues and	A separate grievance mechanism for workers has		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Activity	grievances	to be established for the work package. - Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. - Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: - Waste from the temporary accommodation facilities for labor - Waste from equipment maintenance/vehicles on-site. - The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. - Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs.	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Working areas are kept clean and tidy at all times. - Construction site is to be checked for spills of substances i.e. chemical, oil, etc. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. - Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. - Refueling areas and other fluid transfer areas will be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		
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	Contractor	Environmental and Social Development Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		with proper care and vigilance to avoid or minimize the impacts.		
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 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.	- 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. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		about the safety and maintenance of Electrical equipment; works will be carried out on live systems. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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 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		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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.	Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		The contractor must arrange the cancellation of all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	trigger road safety issues like traffic accidents. The accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	960 Sq.m	@38.15 Tk. Per sqm	36,624.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	800.0m	@ 2.56 BDT	2,048.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	throughout the working period for attending minor injuries, etc. all complete as per requirement and full satisfaction of Engineer-in-charge.			
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u>	1 no.	LS @ Tk.	10,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	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.		10,000	
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
11.	<u>Working labour shed:</u> 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	30,000.00
12.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			229,317.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road **UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman; ID: 354875320**

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

District: Madaripur

Upazila: Shibchar

Union: Umedpur

Name of Community/Local Area: Ram Rayer Kandi, Alepur

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 1+436 m, with a proposed carriageway width of 3.0 m. Existing palisading works are present along selected sections of the road, including 25 m from Ch. 495 m to 520 m and 55 m from Ch. 780 m to 835 m. In addition, U-Drain structures are located at Ch. 614 m and Ch. 701 m, each measuring 4.2 m × 1.8 m, and at Ch. 940 m measuring 4.2 m × 1.0 m. These structures will remain unchanged under the current scope of work. No additional structures are proposed along the project corridor. All construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 4500 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 1500m. 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:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Homestead Connecting Road
		R	Homestead Connecting Road-8m
300-600	L		Homestead Connecting Road-3m
		R	Homestead Connecting Road-2m
600-900	L		Homestead-9m
		R	Homestead-6m
900-1200	L		Homestead & Empty Place
		R	Homestead & Empty Place
1200-1500	L		Betel Leaf Plantation
		R	Betel Leaf Plantation



Starting Point Umedpur UP Bhabon - H/O Karjon Chairman Road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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 through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites have been identified within the direct area of influence of the proposed sub-project. The project is located along the alignment from UZR-01, Umedpur UP Bhaban to UZR-10 via the residence of Karjon Chairman, passing through Ram Rayer Kandi and Alepur villages under Umedpur Union (Ward No. 07) in Shibchar Upazila of Madaripur District. Several environmentally and socially sensitive receptors are situated within approximately 1 km of the project area. On both sides of the road alignment, these include homestead areas, betel leaf plantations, and connecting roads. These features—particularly the residential areas—are of importance to the local community, contributing to their livelihoods as well as their social and cultural fabric. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these surrounding receptors are anticipated. Nevertheless, appropriate mitigation measures and environmental management practices will be implemented during the construction phase to safeguard these sensitive environmental and social receptors.

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Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC) & Earthen. According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 1500 m.

Sub-project Location:

Important Features	
ID	354875320
District	Madaripur
Upazila	Shibchar
Union	Umedpur
WARD	07
Total Chainage	1500 m
Proposed Chainage	1500m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.330410 N Longitude: 90.206478 E
Road Ending Point Coordinates	Latitude: 23.333394 N Longitude: 90.193185 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 along the existing road corridor UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman, within Umedpur Union (Ward No. 07), Shibchar Upazila, Madaripur District, Bangladesh. The immediate area of influence of the project includes Ram Rayer Kandi, Alepur villages, which are situated within an approximate one-kilometer radius of the sub-project alignment.
- ii) No historical or archaeological sites were found within the project intervention or influence area.
- iii) Not required to relocate local community as the work will be confined within the existing road alignment.
- iv) Some roadside trees and vegetation may be affected during construction activities.

- v) Very low chance of loss of agricultural land.
- vi) Some household boundaries made of bamboo and tin may require minor adjustment.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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: Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities of cultural, social, and religious importance to the local population. On both sides of the road alignment, homestead areas, betel leaf plantations, and connecting roads are also present. These features—particularly the residential areas—are vital to the local community, supporting livelihoods and reinforcing the social and cultural fabric. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. Nevertheless, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning of construction activities, avoidance of unnecessary encroachment, and strict adherence to standard environmental safeguards to minimize potential disturbances to nearby communities and sensitive locations.
Location of environmental and Social important and sensitive areas: No environmentally critical or ecologically sensitive areas have been identified within the project footprint. The only notable natural features consist of a limited number of roadside trees and betel leaf plantations located on both sides of the alignment. While these features hold local social importance, they are not expected to be adversely affected by the proposed sub-project. All construction activities will be confined within the existing sub-project boundary, thereby avoiding direct encroachment on adjacent properties or community assets. Furthermore, appropriate preventive and mitigation measures will be implemented throughout the construction period to minimize potential impacts and ensure that nearby structures and communities remain adequately protected.
Baseline air quality and noise levels: Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air pollution. Construction activities during the dry season and the transportation of large quantities of

construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will be temporary and limited to the construction period.

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 10 to 60 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, which are frequently observed in agricultural fields, homestead vegetation, and nearby wetland habitats such as ponds and canals. Notable species include ghugu (dove), bok (heron), and choro (house sparrow, *Passer domesticus*). These birds contribute to the local ecosystem by helping control insect populations, dispersing seeds, and maintaining ecological balance within the rural landscape. In addition to avifauna, the area also supports small wild mammal species and reptiles that are typical of the rural agro-ecosystem of the Ganges floodplain. Observed fauna include Bon Biral (jungle cat, *Felis chaus*), fox (Bengal fox, *Vulpes bengalensis*), and

various snake species. These animals function as natural predators, regulating populations of rodents and other small pests, thereby contributing to natural pest control and supporting agricultural productivity. Aquatic and wetland habitats in the surrounding areas, including ponds, canals, and seasonal water bodies, support a variety of fish species. These aquatic resources play an important role in local food security, nutrition, and livelihoods through subsistence and small-scale fishing activities. Overall, the presence of diverse fish, birds, reptiles, and mammals indicates a functioning and interconnected rural ecosystem. The conservation of these species and their habitats is important for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Accordingly, sustainable land-use practices, protection of wetland areas, and environmentally responsible construction activities are essential to preserve the ecological integrity of the project area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 existing drainage system has been identified along the project alignment.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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)

No existing drainage channels or surface water bodies found in the project area, therefore, 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)

There are no protected areas in or around project sites, and no known areas of ecological interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No

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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: UZR-01, Umedpur UP Bhabon - UZR-10 Via H/O Karjon Chairman

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	- Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. - Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		involved with the GRM system and representatively included in the project GRCs.		
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
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	- Transportation of construction materials to the site will be carried out by covering the materials as a whole. - Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	- Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. - Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	- Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. - No trees, shrubs will be removed or vegetation stripped without prior permission of the Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. - Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. - Provision of waste bins/ cans, where appropriate, - Litter is to be collected daily. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. - Camp and working areas are to be kept clean and tidy at all times. - Stack materials will be covered with tarpaulins/	Contractor	Environmental Consultant of PIU

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
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. • 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 materials should be covered properly while carrying in vehicles to the site.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - 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
Construction Activity	Traffic Management	- Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP. - Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. - If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or 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 start.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labor Base Camp: Conflicts with the local residents	Awareness building session will be undertaken about prevention of child abuse, child	Contractor	Social Development Specialist and Gender

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 labor camps will be put in place. • Treated water will be made available at site for drinking purpose. • Adequate accommodation arrangements for labor forces. • Labor code of conduct is to be disclosed through consultation.		Specialist of PIU
Construction Activity	Labour related issues and grievances	• A separate grievance mechanism for workers has to be established for the work package. • Complaints box (preferably for anonymous reporting) /grievance register will be provided to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times. • Construction site is to be checked for spills of substances i.e. chemical, oil, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. • Refueling areas and other fluid transfer areas will be imperviously paved. • Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. • Applicability of the Hazardous Waste Management Rules.		
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.	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	• 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.	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	works, smoking, failure in 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.	- Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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 containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors,		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		thermometer, etc. in sub-project sites 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 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		

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		are being used.		
Construction Activity	Pollution of water bodies	• Ensure monitoring of nearby surface and underground water bodies for signs of contamination. Parameters include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results are to be compared with Bangladesh Environmental Quality Standards of DoE. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered (e.g., pond, canal, ditch's side will be protected by palisading, etc.) • 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 shall be used on site to manage surface water runoff and minimize erosion. • The overall slope of the work areas and stack yards shall be kept to a minimum to reduce the erosive potential of surface water flows elsewhere. • All precautions to store chemicals/oil/fuel properly so that no chance of spill.	Contractor	Environmental Consultant of PIU/D&SC.

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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.		
Construction Activity	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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.	- Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i) remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. - The contractor must arrange the cancellation of all temporary services.	Contractor	Environmental Consultant of PIU/D&SC, district XEN.
Construction	Odours and pollution caused by	Preventative maintenance schedule should be	Contractor	Environmental

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activity	leaking latrines and faecal sludge, and solid wastes impacting surrounding water bodies, flora and fauna	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.		Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues like traffic accidents. The accidents may also be due to	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the road safety. - Traffic signs will be provided to facilitate road	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED
Operation & Maintenance	Pollution of water bodies	Third party monitoring should be ensured for nearby surface and underground water bodies for signs of contamination. Parameter include: pH, TDS, TSS, Coliforms, Pb, Cd and Hg. Test results to be compared with Bangladesh Environmental Quality Standards of DoE	PIU	PSC / UP representative

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	1800 Sq.m	@38.15 Tk. Per sqm	68,670.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	1500.0m	@ 2.56 BDT	3,840.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	1 no.	LS @5000 Tk. Per box	5,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
	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.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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Sl. no.	Description of item	Quantity	Unit price	Total amount
8.	<u>Motivation training</u> 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	10,000.00
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
11.	<u>Working labour shed:</u> 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	30,000.00
12.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			263,155.72



Existing Surroundings of the Sub-Project

Name of Sub-Project: Improvement of Community Road **UZR-6, Kamar Bari to Bhadrason Bazar road.**; ID: 354875135

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

District: Madaripur

Upazila: Shibchar

Union: Umedpur

Name of Community/Local Area: Umedpur, Chander Chor

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.): The proposed sub-project involves the improvement of an existing village road through the application of Bituminous Carpeting (BC). The project also includes the rehabilitation, replacement, and construction of drainage structures along the road alignment to facilitate the proper drainage of floodwater and maintain natural water flow. The primary objective of the sub-project is to improve road durability, ensure safe and reliable transportation, and enhance connectivity for the surrounding rural communities. The road improvement works will involve site preparation, earthworks, subgrade and base preparation, and the application of bituminous carpeting. These activities will be carried out largely within the existing road corridor to the maximum extent possible in order to improve riding quality and ensure all-weather accessibility. The sub-project includes the improvement of an existing road section through bituminous carpeting (BC) from Chainage (Ch.) 0+000 m to 0+750 m, with a proposed carriageway width of 3.0 m. No additional structures are proposed along the project corridor. Construction activities will require materials such as sand, aggregates, cement, bitumen, bricks, steel, and water, which will be procured from approved local suppliers in accordance with applicable environmental and procurement guidelines. The project footprint will remain largely within the existing road alignment in order to minimize potential environmental and social impacts. Appropriate road safety measures and Environmental and Social Mitigation measures have been incorporated into the project design and cost estimates to ensure the safety, sustainability, and resilience of the sub-project.

Estimated footprint / land area for this sub-project is 2,250 sqm.

Important Environmental and Social Features near site:

Detail Chainage Length of the sub-project: 750m. Detail Environmental features within 100m of the both sides from the centre line were collected @300m longitudinal intervals. The findings of the survey for the aforementioned road can be seen in the table below:

Table: Detailed Chainage length of the Sub-Project

Chainage	(Left/Right)		Environmental and Social Impact
00-300	L		Shop-1m, Homestead-5m
		R	Nurul Hoque College-3m

Chainage	(Left/Right)		Environmental and Social Impact
300-600	L		Garden-8m
		R	Homestead-11m
600-900	L		Canal-3m, Homestead-7m
		R	Homestead-2m
900-1200	L		Homestead
		R	Homestead



Starting Point Kamar Bari to Bhadrason Bazar road

Overall Comments

D&SC conducted consultation meeting with community regarding the sub-project activities. 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 this sub-project. The community also appreciated the initiative for having easily accessible and better communication facilities especially for school and local movement. The proposed sub-project is not located within any remarkable environmentally sensitive area and will not cause any severe effect 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 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.

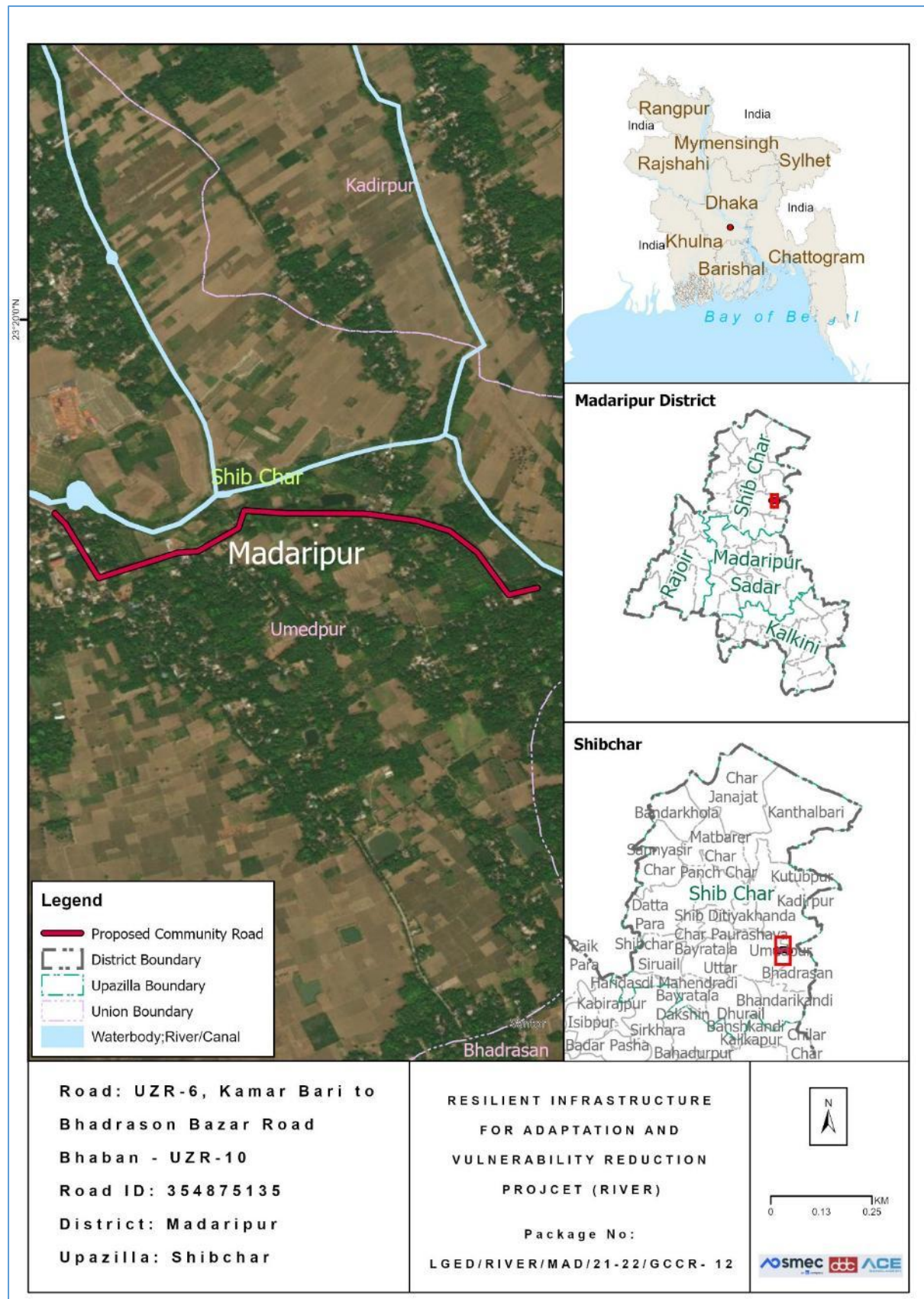
It has been revealed that this project's scope of works does not intend to overtake their area of lodgment and funding entity has no intention to do so. Moreover, other issue has also been brought to their attention that drainage through canal and natural flow will be maintained during rainy season. The proposed Sub-project area for the construction included flat 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, bitumen etc. Negligible amount of plastic, fuel etc. in equipment yards. Human wastes might be deposited in labor camp.

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

No historical or archaeological sites have been identified within the direct area of influence of the proposed sub-project. The project is located along the alignment from UZR-6, Kamar Bari to Bhadrason Bazar Road, passing through Umedpur and Chander Char under Umedpur Union (Ward No. 06) in Shibchar Upazila of Madaripur District. Several environmentally and socially sensitive receptors are situated within approximately 1 km of the project area. On the left side of the road alignment, these include homestead areas, gardens, canals, and shops. On the right side of the alignment, sensitive receptors include homestead areas and a college. These features—particularly the residential areas—are of importance to the local community, contributing to livelihoods as well as the social and cultural fabric of the area. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these surrounding receptors are anticipated. Nevertheless, appropriate mitigation measures and environmental management practices will be implemented during the construction phase to safeguard these sensitive environmental and social receptors.



Location Map of the proposed Community Road

Completed environmental and social screening forms are given below:

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The sub-project is classified as a village road. Based on the field survey, this sub-project involves the rehabilitation of damaged sections through Bituminous Carpeting (BC) & Earthen. According to the project design, the road will be upgraded with Bituminous Carpeting (BC) along the entire alignment from Chainage 00m to Chainage 750 m.

Sub-project Location:

Important Features	
ID	354875135
District	Madaripur
Upazila	Shibchar
Union	Umedpur
WARD	06
Total Chainage	750 m
Proposed Chainage	750m
Road Type	Village Road
Proposed Intervention Type	Bituminous Carpeting (BC)
Road Starting Point Coordinates	Latitude: 23.331534 N Longitude: 90.201882 E
Road Ending Point Coordinates	Latitude: 23.327782 N Longitude: 90.221717 E

Land ownership

Land is owned by Government.

Expected construction period: 12 months; 2026-2027 (approx.)

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 proposed sub-project is located along the existing road corridor from UZR-6, Kamar Bari to Bhadrason Bazar road, within Umedpur Union (Ward No. 06), ShibcharUpazila, Madaripur District, Bangladesh. The immediate area of influence of the project includes Umedpur and Chander Char villages, which are situated within an approximate one-kilometer radius of the sub-project alignment.
- No historical or archaeological sites were found within the project intervention or influence area.
- Not required to relocate local community as the work will be confined within the existing road alignment.
- Some roadside trees and vegetation may be affected during construction activities.

- v. Very low chance of loss of agricultural land.
- vi. Some household boundaries made of bamboo and tin may require minor adjustment.

Section B: Environmental and Social Screening

B.1: Environmental and Social 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:

Several environmentally and socially sensitive receptors are located within an approximate one-kilometer radius of the project area. These include educational institutions, religious establishments, and community facilities of cultural, social, and religious importance to the local population. On the left side of the road alignment, these include homestead areas, gardens, canals, and shops. On the right side of the alignment, sensitive receptors include homestead areas and a college. These features—particularly the residential areas—are of importance to the local community, contributing to livelihoods as well as the social and cultural fabric of the area. As the proposed sub-project activities will be largely confined within the existing road alignment, no significant adverse impacts on these sensitive receptors are anticipated. Nevertheless, to ensure their protection, appropriate environmental and social management measures will be implemented during the construction phase. These measures will include careful planning of construction activities, avoidance of unnecessary encroachment, and strict adherence to standard environmental safeguards to minimize potential disturbances to nearby communities and sensitive locations.

Location of environmental and Social important and sensitive areas:

No environmentally critical or ecologically sensitive areas have been identified within the footprint of the proposed sub-project. The only notable feature of social importance is a canal located on the left side and a college located on the right side of the alignment. While this institution holds local significance, it is not expected to be adversely affected by project activities. All construction works will be confined within the existing sub-project boundary, thereby avoiding direct encroachment on adjacent properties or community assets. In addition, preventive and mitigation measures will be implemented throughout the construction period to minimize potential impacts and ensure that nearby structures and communities remain adequately protected.

Baseline air quality and noise levels:

Dust: Ambient air quality data for the project area was not readily available; however, the overall air quality appears to be good due to the rural environment and the presence of surrounding vegetation and agricultural land. A small amount of dust is generated by the movement of vehicles such as motorcycles, auto-rickshaws, tempos, trolleys, tractors, Paddle Van, and bicycles along the existing road surface, which contributes slightly local air

pollution.

Construction activities during the dry season and the transportation of large quantities of construction materials may create additional dust and increase the concentration of vehicle-related pollutants. This may temporarily affect people who live and work near the project site. However, these impacts are expected to be negative but short-term, site-specific within a relatively small area, and reversible or preventable through appropriate mitigation measures.

Noise: The existing noise level in the project area is generally low. Noise mainly originates from the daily activities and movement of local residents and vehicles. During the construction period, noise levels may temporarily increase due to the operation and transportation of construction equipment and materials. However, these impacts will be temporary and limited to the construction period.

Baseline soil quality:

The sub-project area is mainly characterized by floodplain soils typical of the Ganges delta region of Bangladesh. The soils in Madaripur are predominantly composed of silt loam, silty clay loam, and clay loam, formed from riverine alluvial deposits. These soils are generally moderately to highly fertile due to regular sediment deposition during seasonal flooding and are widely used for agricultural activities in the surrounding rural areas.

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

Groundwater is the main source of potable water in the sub-project area. Local people primarily depend on shallow and deep tube wells for their daily domestic water needs. The groundwater table in this area is generally shallow and varies seasonally, typically occurring within 20 to 30 feet below ground level. Studies indicate that both groundwater and surface water (ponds and canals) in Madaripur are generally slightly alkaline in nature and are widely used for domestic and agricultural purposes. However, groundwater quality in this region may contain elevated levels of iron and arsenic, which are common issues in many parts of Bangladesh and may create health and aesthetic concerns if consumed without treatment. Therefore, appropriate public health measures, including iron removal systems, regular water quality monitoring, and community awareness, are necessary to ensure safe drinking water. Local people often prefer deep tube well water for drinking and domestic purposes, as deeper aquifers generally provide comparatively safer water quality.

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 (Field Study Report, March 2026)

Status of wildlife movement:

The area supports a variety of common local bird species, which are frequently observed in agricultural fields, homestead vegetation, and nearby wetland habitats such as ponds and canals. Notable species include ghugu (dove), bok (heron), and choro (house sparrow, *Passer domesticus*). These birds contribute to the local ecosystem by helping control insect populations, dispersing seeds, and maintaining ecological balance within the

rural landscape. In addition to avifauna, the area also supports small wild mammal species and reptiles that are typical of the rural agro-ecosystem of the Ganges floodplain. Observed fauna include Bon Biral (jungle cat, *Felis chaus*), fox (Bengal fox, *Vulpes bengalensis*), and various snake species. These animals function as natural predators, regulating populations of rodents and other small pests, thereby contributing to natural pest control and supporting agricultural productivity. Aquatic and wetland habitats in the surrounding areas, including ponds, canals, and seasonal water bodies, support a variety of fish species. These aquatic resources play an important role in local food security, nutrition, and livelihoods through subsistence and small-scale fishing activities. Overall, the presence of diverse fish, birds, reptiles, and mammals indicates a functioning and interconnected rural ecosystem. The conservation of these species and their habitats is important for maintaining biodiversity, ecological stability, and long-term environmental sustainability. Accordingly, sustainable land-use practices, protection of wetland areas, and environmentally responsible construction activities are essential to preserve the ecological integrity of the project area.

State of forestation:

Patches of vegetation with mature roadside trees such as palm (Tal Gach), bamboo, Siris, banana, and jackfruit are present along both sides of the proposed sub-project road, generally within a short distance (approximately 200 m) of the alignment. No dense forest area was observed in the project vicinity.

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):

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. 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 vii) steels viii) Bitumen are the most common type of road materials used in construction.

Identification of access road for transportation (Yes/No):

Yes. The paved road can offer space adjacent labor camp to facilitate material unloading. However, considerations need to be taken account for avoiding disturbance at points where mosque, graveyard, primary school and high school is located. 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:

Adjacent to labor camp or different location is available. However, this will need placement on open fields and should be consulted with local committee.

Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.):

Earth/soil, sand, brick chips, cement dust, and construction debris may be generated during road improvement works, which can be identified as solid wastes. Limited quantities of bituminous materials and small amounts of steel and packaging materials may also be produced. In addition, sludge will be generated from temporary labor camp latrines, and kitchen waste will mainly consist of organic materials such as food residues, vegetables, and other biodegradable matter. A small portion of the kitchen waste may include plastics or other non-biodegradable materials. Solid waste generation during the construction period is estimated to be approximately 15-20 kg per day, while sludge generation from sanitation facilities may be around 3-5 kg per day.

B.3: Construction Phase

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

Residual waste from the labor camps will be generated. Equipment maintenance/vehicles on-site and scrap material will occur during construction work which are mostly solid wastes. Leftover oils or spills from machinery can be a high probability generating liquid waste. Waste from civil works. And the quantity will be tentatively 350 kg.

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.

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 formal or engineered drainage system has been identified along the project alignment. However, natural drainage features are present in the form of ponds and a canal situated in proximity to the road corridor. These features contribute to local surface water storage and drainage. On the left side of the alignment, a pond is located approximately 300m from the road. This pond form part of the local hydrological system and serve multiple functions, including rainwater retention, drainage support, and limited domestic and agricultural use by surrounding communities. In the absence of a structured drainage network, these natural water bodies play a critical role in managing surface runoff within the project area. During the construction phase, appropriate mitigation measures will be implemented to ensure that these ponds and associated natural drainage patterns are not obstructed or adversely affected.

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

Low. Under the improvement of this intervention, the effect of destruction or damage of lives, endangered species or ecosystem is very low. In the site area not observed such occurrence of lives that's life cycle and or movement areas disturbed (i.e. Insects - Ant, bees, earthworm, reptiles, birds etc.).

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

Scope of work leading to low scale effects of landslide. The impacts are negative but short-term and site-specific. It can be managed through 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 significant impact on light pollution is expected, as construction activities will be carried out during daytime. However, minor impacts on noise and air quality may occur due to movement of construction vehicles, machinery operation, and material handling. Dust generation and vehicle emissions may temporarily affect the surrounding areas, particularly near homesteads and roadside settlements. These impacts are expected to be short-term

and localized. With proper management measures, such as regular water spraying, maintenance of vehicles, and controlled working hours, the overall impact on noise and air pollution will remain low.

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:

No

Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description)

No

Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description)

No.

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 stagnant water bodies remained for encouraging 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)

No existing drainage channels or surface water bodies found in the project area, therefore, 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)

There are no protected areas in or around project sites, and no known areas of ecological

interest.

Activities leading to landslides, slumps, slips and other mass movements in road cuts:

The entire sub-project component area is nearly flat, thus no such type of impacts is anticipated.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation)

No

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 on the muddy road, 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 (<0.5sqm)

Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Proposed Community Road: UZR-6, Kamar Bari to Bhadrason Bazar road.

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 in or nearby areas of the sub-project, or for any sub-project related activities. Therefore, no mitigation measures are suggested in this respect. - If and whenever any land/physical assets related grievances are raised at any point of the subproject implementation, project GRCs will take due course of actions to resolve the issues or grievances.	PIU	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Loss of livelihood	- Under this subproject, there is no scope of negative impact on the livelihoods of adjacent communities or people. - Contractors will be encouraged to engage local labors (both skilled and unskilled) as priority at their construction works, and women labor would get higher priority in recruitment.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU
Pre-Construction Stage	Stakeholders Engagement	- All of the project stakeholders should be consulted - Separate community level consultation meeting with the potential affected HHs - All the safeguard documents will be disclosed to all relevant stakeholders. - People living in nearby communities will be	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		involved with the GRM system and representatively included in the project GRCs.		
Pre-Construction Stage	Transportation and Storage of Construction materials (disturbance to traffic system and pedestrians, potential accidents to workers/ local people, generating dust and noise)	• Transportation of construction materials to the site will be carried out by covering the materials as a whole. • Store the materials in designated places, with proper fencing and coverings.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Sanitation and water supply	• Sanitation facilities (male and female toilets, wash-basins, etc.) for workers and constructor's officials/employees will be provided. • Potable water supply will be ensured for every workers/employees in the site. Water sample will be checked at local DPHE laboratory to ensure the portability, and water should be filtered through appropriate filtering system, before supplying to the consumers.	Contractor	Environmental Consultant of PIU
Pre-Construction Stage	Site Selection for workers camps, stack yards & implementing interventions: Generation of ESHS issues.	• Workers camp, site office and stack yard should be located at a site favorable for the workers and proposed by the contractor & approved by the Environmental Specialist of D&SC. • No trees, shrubs will be removed or vegetation stripped without prior permission of the	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		Environmental Consultants. If any tree is required to remove for an unavoidable circumstance, 3 (three) numbers of trees will be planted for each tree removed and budgetary allocation for taking care of those trees for 12 months has to be ensured. • Construction of sanitary latrine with septic tank for both male and female workers and staffs; and ensure regular cleaning of those. • Provision of waste bins/ cans, where appropriate, • Litter is to be collected daily. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site pre-approved by Environmental Specialist of D&SC. • Camp and working areas are to be kept clean and tidy at all times. • Stack materials will be covered with tarpaulins/ polythene in the yard and end parts of the reinforced steel bar/ iron rod will be properly covered with safety caps or clothes/jute sacks, etc. for avoiding any accidental events from those. • Hazardous materials, including oil, paints, etc. will be stored on a bunded area or wooden		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		platform with polythene lying over it. • Proper fencing around the storage area and working site in order to get secured, to minimize the risk of crime and to be safe from access by students, children, animals, etc.		
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage; removal/relocation of utility services	• All Sites must avoid the low land near the water bodies or natural flow path to avoid the flash flood or any kind of surface runoff. • Construction facilities including materials are to be placed at least 10m distance from any water body in order to minimize the impacts on water bodies and natural water flow. • Tubewell location wherever required to install, 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. • Existing utility services must be relocated or	PIU & Contractor	Environmental Consultant of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		adjusted where they obstruct the works or pose a risk of damage, in close cooperation with the appropriate authority. The contractor must ensure sound environment for the local residents near the sub project site.		
Construction Activity	Noise from construction works	- Construction activities mostly shall finish at day time within 05:00 PM, and must confirm proper measures for avoiding any disturbance. - All Personal Protective Equipment (PPEs) must be available at sites before starting any kind of construction works. - Noise producing vehicles and equipment will be keep in maintenance regularly. - Since expensive engineering controls (e.g., acoustic curtains, noise barriers, etc.) may not be feasible in terms of availability and scope of the project works, noise reduction muffler or less expensive alternative options will be selected during the construction works.	Contractor	Environmental Consultant of PIU
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. - Dust generation must be limited as a result of clearing, leveling and site grading operations	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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 materials should be covered properly while carrying in vehicles to the site.		
Construction Activity	Safety Issues	- Unauthorized entry is completely prohibited in construction site and take necessary measures for preventing this problem (e.g., employing guards at site office and stack yards, and maintaining a visitor's log book at entrance) - Before works start Contractor must provide proper training and guidance on health and safety issues to the labors and associated staff. - 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
Construction Activity	Traffic Management	Because of the sensitivity of the proposed project site in relation to traffic management, contractor must produce a detail Traffic Management Plan (TMP), incorporating all forms of alternative routes, schedule, work plan, emergency arrangement, etc. in the TMP.	Contractor	Environmental Consultant of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
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Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Contractors will maintain proper route for traffic management which is to be consulted with and confirmed by the district Executive Engineer. - Local traffic police department should be contacted, if traffic problem becomes more complex.		
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	- Water sources (e.g., ground or surface water) for construction works will be determined in consultation with the local DPHE office, considering the availability of nearby resources and technical options, and potential risks of extracting water from the same sources used by other consumer groups especially during the critical period. - Water from any installed tubewell or an existing surface water bodies within the nearby places will be used for construction works, if the available water quality satisfies the required standards for construction works. - If ground or surface water is withdrawn for the use of construction works from outside of the other selected places, adequate approvals from the appropriate authority need to be taken before extraction or setting up bore wells. - Any type of consent letter or agreement for	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		withdrawing water from either surface or underground sources will be kept on site. Local community must be consulted before any construction works start.		
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 labor camps will be put in place. - Treated water will be made available at site for drinking purpose. - Adequate accommodation arrangements for labor forces. - Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU
Construction Activity	Labour related issues and grievances	- A separate grievance mechanism for workers has to be established for the work package. - Complaints box (preferably for anonymous reporting) /grievance register will be provided		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		to each construction sites; and will be checked and redressed in weekly manner. • Appropriate notification or training to the workers about the scope and procedure of the grievance system will be provided at the starting of the work. All new workers recruited at different times/phases will be oriented about the same.		
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: • Waste from the temporary accommodation facilities for labor • Waste from equipment maintenance/vehicles on-site. • The construction debris material generated from the erection of structures and demolition works (wherever applicable), and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers. • Ring slab septic tank will be installed before starting construction works in order to provide a better sanitation facility to the workers and staffs. • Working areas are kept clean and tidy at all times.	Contractor	Environmental Consultant of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		- Construction site is to be checked for spills of substances i.e. chemical, oil, etc. - Bins and/ or skips should be emptied regularly and waste/ debris should be disposed off at waste disposal areas and/ or at the site. - Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers. - Refueling areas and other fluid transfer areas will be imperviously paved. - Workers will be trained on the correct transfer and handling of fuels and chemicals and the response to spills (incl. equipment deployment) and the site will be provided with portable spill containment and cleanup equipment. - Applicability of the Hazardous Waste Management Rules.		
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.	Contractor	Environmental and Social Development Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
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 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.	- 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. - Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and 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	Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		equipment; works will be carried out on live systems. • Provision to first aid box containing adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. in sub-project sites 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 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.		

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		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	Demobilization of structures, facilities and equipment used during the project implementation period (including site clearance 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.	- Provision to proper measures of mitigation and monitoring to minimize or reduce the environmental and social impacts during demobilization, which are anticipated to be similar to those identified for the construction phase. Some of the measures include: (i)remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; (ii) ensure that all affected structures rehabilitated/compensated; (iii) the area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. Disposal of faecal sludge from latrines is to be undertaken properly, if management on site becomes problematic; (iv) all imported materials are to be removed and the area shall be re-vegetated/re-grassed as per specification that forms part of this document. - The contractor must arrange the cancellation of	Contractor	Environmental Consultant of PIU/D&SC, district XEN.

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		all temporary services.		
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.	Contractor	Environmental Consultant of PIU, Union Parishad Member
Pre-Construction and Construction	Rigorous Monitoring and Report Preparation and Submission	- The Contractor shall appoint (i) ES Manager (ii) Env. Officer, (iii) Social Officer (iv) Community Organizer and (v) H&S Officer for strict management and monitoring of all ES related works at each site and the budget for this engagement shall be borne from the Contractor's management budget. - Contractor shall submit regular monthly monitoring report to the D&SC and PIU as per reporting standard set by the ES Consultants of D&SC/PIU.	Contractor	Environmental Consultant of PIU
Operation & Maintenance	Road Safety. Impacts include: The increased vehicular movement and speed may trigger road safety issues	- Road safety issues can be minimized in following ways: - By enforcing speed limits and imposing penalties on the traffic violators will ensure the	Upazila Engineer (UE)	District Executive Engineer, LGED

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	like traffic accidents. The accidents may also be due to tiredness of drivers. Widened road, lack of road safety signage or speed-breakers at crossings/strategic locations and sidewalks, and reckless driving may cause road accidents or traffic injuries.	road safety. - Traffic signs will be provided to facilitate road users about speed limits, rest/parking areas, no-horn areas, etc. Warning messages will also be displayed at appropriate locations to aware drivers about likely accidents due to over speeding. - All the lanes, median, sharp bends will be reflectorized to facilitate travelers in the night time.		
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	District Executive Engineer, LGED

Cost of Environmental and Social Enhancement Works in BOQ

In consideration to the above-mentioned environmental impacts and their mitigation measures for this sub-project, the following items are included in the BOQ of this sub-project.

Cost of Environmental Enhancement Works in BOQ

Sl. no.	Description of item	Quantity	Unit price	Total amount
1.	<u>Grass Turfing</u> 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)	900 Sq.m	@38.15 Tk. Per sqm	34,335.00
2.	<u>Dust suppression measures</u> Dust suppression measures like water sprinkling on aggregates/unpaved roads, in and around the work site and as per direction of E-I-C	750.0m	@ 2.56 BDT	1,920.00
3.	<u>Water Supply and Sanitation</u> 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.	<u>First Aid Box</u> 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	5,000.00

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Sl. no.	Description of item	Quantity	Unit price	Total amount
5.	<u>Drinking Water Facilities</u> 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	30,000.00
6.	<u>Traffic Management</u> 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	15,000.00
7.	<u>Personal Protection Equipment for Workers</u> 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	30,000.00
8.	<u>Motivation training</u> 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	10,000.00

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Environmental & Social Assessment and Management Report of Community Roads for Madaripur District

Sl. no.	Description of item	Quantity	Unit price	Total amount
9.	<u>Waste disposal facility</u> 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	5,000.00
10.	<u>Tree Plantation</u> For each tree felled, 3 shall be planted as replacement.	3 no.	@ Tk. 500	4,500.00
11.	<u>Water Test (Drinking Water samples)</u> 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	5,000.00
12.	<u>Working labour shed:</u> 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	30,000.00
13.	<u>Environmental management</u> Environmental management costs of the Environment & 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 person to be appointed for 12 roads]	Each	@ Tk. 35000	35,000.00
	Total amount for this Road			231,400.72



Existing Surrounding of the Subproject

ANNEXURE 2: ATTENDANCE OF CONSULTATION MEETING

ANNEXURE 2: ATTENDANCE OF CONSULTATION MEETING

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Local Government Engineering Department (LGED)
Public Consultation with Stakeholders

Name of Community Road: RHW (Ambari) - Joyar Date: 30.3.26
Road ID: 35454001
Place of Consultation: Mumshubari
Village: Joyar Ward No.: 04 Union: Mostapur Upazila: Sadar
District: Madaripur

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
০১	স্বাধীন হাও		২৫	ব্যবসা	আমবাড়ী		
০২	ইউনুস হাও		৬৫	কৃষক	ত্র		
০৩	ফোটিক মন্ডল		৭৫	মেনাফি	আমবাড়ী		
০৪	হাকিম শিকদার		৭০	কৃষক	আমবাড়ী		
০৫	মিরজুল হক		৬৫	কৃষক	আমবাড়ী		
০৬	হাকিম হাও		৭৭	কৃষক	আমবাড়ী		
০৭	বজল শিকদার		৫০	ব্যবসা	আমবাড়ী		
০৮	আনওয়ার হোসেন		৭০	চলক	আমবাড়ী		
০৯	আলহক জেথ		৬৭	ব্যবসা	আমবাড়ী		
১০	মোমতাজ হোসেন		৬৬	কৃষক	আমবাড়ী		
১১	মন্ত্রাদ শিকদার		৭২	আদেম			
১২	মাহবুব শিকদার		২৩	ছাত্র	আমবাড়ী		
১৩	মাহবুব হাও		৪৫	ব্যবসা			
১৪	কালিমামান্না		৬২	কৃষক	আলপাড়া		
১৫	কালিদাস		৫২	শিক্ষক	জুমাই		
১৬	নীলী আক্তার		৬২	গৃহিনী	আমবাড়ী		
১৭	সুপ্রা আনম		৫৯	গৃহিনী	আমবাড়ী		
১৮	মজামান্না		৫২	গৃহিনী	আমবাড়ী		
১৯	মিজানামান্না		৫০	ব্যবসা	আমবাড়ী		

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: RSH - Chokderi Kandi Gp6.

Date: 13.04.26

Road ID: 354545390.

Place of Consultation: Chokderi Bari.

Village: Madha chak. Ward No: 07

Union: হুগলিগুপ্তা

Upazila: মাদারিপুর সদর

District: Madaripur.

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
১	কামিলে আফিয়া	F	40	H/T	রসুলপুর/চক		
২	ফরিদা আফিয়া	M	৪৭	কৃষক	চক		
৩	মোহাম্মদ হোসেন	M	63	রসুলপুর	চক		
৪	আবদুল হক	M	68	H/T	চক		
৫	মো: মজিব	M	41	চক	চক		
৬	সালিম কোম	F	43	শ্রমিক	১১		
৭	সালিম কোম	F	29	১১	১১		
৮	মুজিব শাহান	M	২3	শ্রমিক	১১		
৯	এমদুল্লাহ	M	26	কৃষক	১১		
১০	সালিম কোম	F	39	শ্রমিক	১১		
১১	তাহিরা	F	3৪	১১	১১		
১২	মোহাম্মদ হোসেন	F	43	১১	১১		
১৩	মোহাম্মদ হোসেন	M	35	শ্রমিক	১১		
১৪	রশিদ রশিদ	M	২3	student	১১		
১৫	মোহাম্মদ হোসেন	M	২৭	business	১১		
১৬							
১৭							
১৮							
১৯							
২০							

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Jomadar Bari Bridge - h/o Tarek Siddik Date: ২.৩.২৬

Road ID: 354805058

Place of Consultation: Molladi Faruker Dokan Mor.

Village: Purbo Molladi Ward No.: 05

Union: বাজিপুর

Upazila: ব্রাহ্মণ

District:

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
১.	ফেলো শাহুসক	পু.	৬৬	কৃষি	তাম্রাবি		ফেলো শাহুসক
২.	জালাল শাহুসক	পু.	৪৬	কৃষি	তাম্রাবি		জালাল শাহুসক
৩.	জাহাঙ্গীর	পু.	৬৪	কৃষি	তাম্রাবি		জাহাঙ্গীর
৪.	নাজমুল শাহুসক	পু.	২৬	কৃষি	তাম্রাবি		নাজমুল
৫.	জান্না শাহুসক	পু.	৬২	কৃষি	তাম্রাবি		জান্না শাহুসক
৬.	চন্দ্র (জামাল)	পু.	৬৬	কৃষি	তাম্রাবি		চন্দ্র
৭.	শাজাহান খান	পু.	৪৪	কৃষি	তাম্রাবি		শাজাহান
৮.	রফিকুল	পু.	৪৬	কৃষি	তাম্রাবি		রফিকুল
৯.	মুহাম্মদ হুসেন	পু.	৪৭	কৃষি	তাম্রাবি		মুহাম্মদ হুসেন
১০.	কাজিম বিহার	পু.	২৭	কৃষি	তাম্রাবি		কাজিম বিহার
১১.	বাহু গোবিন্দ	পু.	৬৪	কৃষি	তাম্রাবি		বাহু
১২.	শহিদুল শাহুসক	পু.	৬০	কৃষি	তাম্রাবি		তাম্রাবি
১৩.	বাহা মল্লিক	পু.	৭০	কৃষি	তাম্রাবি		হাঃ বাহা মল্লিক
১৪.	সাদিক মল্লিক	পু.	২০	কৃষি	তাম্রাবি		সাদিক মল্লিক
১৫.	আলম তবাজী	পু.	৬৬	কৃষি	তাম্রাবি		আলম
১৬.	সিদ্দিক তবাজী	পু.	২৬	কৃষি	তাম্রাবি		সিদ্দিক
১৭.	সাদিক তবাজী	পু.	৬০	কৃষি	তাম্রাবি		সাদিক
১৮.	হুমম মল্লিক	পু.	৪২	কৃষি	তাম্রাবি		হাঃ হুমম
১৯.	সাদিক তবাজী	পু.	৪০	কৃষি	তাম্রাবি		সাদিক
২০.	হাঃ তাম্রাবি	পু.	২০	কৃষি	তাম্রাবি		তাম্রাবি

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Molla holi puch Road - Molladi GDS via Date: 30.03.26

Road ID: 35480912 Puchoria Madaripur

Place of Consultation: Proposed Road

Village: Molladi Baripura Ward No.: 05

Union: ~~05~~ 05

Upazila: Rajoir

District: Madaripur

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
01.	জাহাঙ্গীর হাভেলদার	M	৫০	গার্ডিয়ান	মল্লাহলী		জাহাঙ্গীর
02.	মল্লিক ২য়	M	৫৫	স্বাক্ষর	১১		মল্লিক
03.	জাহাঙ্গীর ২য়	M	৩০	স্বাক্ষর	১১		জাহাঙ্গীর
04.	স্বাক্ষর স্বাক্ষর	M	২৫	স্বাক্ষর	১১		স্বাক্ষর
05.	স্বাক্ষর স্বাক্ষর	M	৫০	স্বাক্ষর	১১		স্বাক্ষর
06.	স্বাক্ষর স্বাক্ষর	M	৫৭	স্বাক্ষর	১১		স্বাক্ষর
07.	জাহাঙ্গীর ২য়	M	২৫	১১	১১		জাহাঙ্গীর
08.	স্বাক্ষর স্বাক্ষর	M	৫০	স্বাক্ষর	১১		স্বাক্ষর
09.	স্বাক্ষর স্বাক্ষর	M	৭০	স্বাক্ষর	১১		স্বাক্ষর
10.	স্বাক্ষর স্বাক্ষর	M	৫৫	স্বাক্ষর	১১		স্বাক্ষর
11.	স্বাক্ষর স্বাক্ষর	M	৬০	স্বাক্ষর	১১		স্বাক্ষর
12.	স্বাক্ষর স্বাক্ষর	M	৭০	স্বাক্ষর	১১		স্বাক্ষর
13.	স্বাক্ষর স্বাক্ষর	M	৭০	স্বাক্ষর	১১		স্বাক্ষর
14.	স্বাক্ষর স্বাক্ষর	M	৬০	স্বাক্ষর	১১		স্বাক্ষর
15.	স্বাক্ষর স্বাক্ষর	M	২৫	স্বাক্ষর	১১		স্বাক্ষর
16.	স্বাক্ষর স্বাক্ষর	M	২৫	স্বাক্ষর	১১		স্বাক্ষর
17.	স্বাক্ষর স্বাক্ষর	M	৫০	স্বাক্ষর	১১		স্বাক্ষর
18.	স্বাক্ষর স্বাক্ষর	M	৫০	স্বাক্ষর	১১		স্বাক্ষর
19.	স্বাক্ষর স্বাক্ষর	M	৫০	স্বাক্ষর	১১		স্বাক্ষর
20.	স্বাক্ষর স্বাক্ষর	M	৫০	স্বাক্ষর	১১		স্বাক্ষর

Name of Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project
Local Government Engineering Department (LGED)
Public Consultation with Stakeholders

Name of Community Road: Ishikpur UP - Gwaldi-Sonapara bazar Date: ২৬.০০.২০
Road ID: E-354803015 Ani Para bazar.

Place of Consultation:
Village: সানতাপুর Ward No.: Union: মৈত্রী- Upazila: মাদারীপুর
District: মাদারীপুর

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
1.	আমি: সানতাপুর	M	৫৫	CP Member	Satbaria		
২.	আবুল কালাম	M	৪০	কৃষক	৫		
৩.	মি. সানতাপুর		৫০	কৃষক	৫		০১৭৪৫৩৭৫৩৩
৪.	আবুল কালাম	M	৪০	৫	সুপার		আমি
৫.	আবুল		৩৪	৫	সুপার		আমি: সানতাপুর
৬.	আবুল কালাম	M	৪৫	কৃষক	১১		১১/১১
৭.	মি. সানতাপুর	M	২০	৫	আবুল কালাম		সানতাপুর
৮.	আবুল-সানতাপুর	M	২৭	কৃষক	সানতাপুর		আবুল-সানতাপুর
৯.	আবুল কালাম	M	৫০	কৃষক	সানতাপুর		০১/১০/১৮
১০.	আবুল কালাম	M		কৃষক	আবুল কালাম		০১/১১/১৮
১১.	আবুল কালাম	M		কৃষক	সানতাপুর		০১/১১/১৮
১২.	আবুল কালাম	M		কৃষক	৫		২০/১৮
১৩.	আবুল কালাম	F		কৃষক	৫		০১/১৮
১৪.	আবুল কালাম	F	১১	১১	১১		০১/১৮

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Champathi - Kachabali Rd

Date: 30.03.2026

Road ID: 3548 0502.9

Place of Consultation: মুন্সিগাঁও ৩ নং ওয়ার্ড কাছাবালি

Village: Bakhin chaur/Ward No.: 01

Union: Kobarajpur Upazila: Rajoir

District: Madaripur

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
01.	স্বাঃ চিত্তাঞ্জন রায়	M	69	স্বাঃ (মৃগী)	D. Champathi		[Signature]
02.	স্বাঃ. ব্রজেন রায়	M	60	কৃষক	চাঁদমাড়ি		[Signature]
03.	স্বাঃ. বাবুল	M	35	কৃষক	চাঁদমাড়ি		[Signature]
04.	স্বাঃ. জামি রায়	M	55	স্বাঃ	"		[Signature]
05.	স্বাঃ. রায়	M	40	কৃষক	"		[Signature]
06.	স্বাঃ. সাদিক	F	30	স্বাঃ	"		[Signature]
07.	স্বাঃ. রায়	M	25	কৃষক	"		[Signature]
08.	স্বাঃ. রায়	M	32	কৃষক	"		[Signature]
09.	স্বাঃ. রায়	F	53	স্বাঃ	"		[Signature]
10.	স্বাঃ. রায়	M	17	কৃষক	"		[Signature]
11.	স্বাঃ. রায়	F	30	স্বাঃ	"		[Signature]
12.	স্বাঃ. রায়	M	59	কৃষক	"		[Signature]
13.	স্বাঃ. রায়	M	50	কৃষক	"		[Signature]
14.	স্বাঃ. রায়	M	50	কৃষক	"		[Signature]
15.	স্বাঃ. রায়	F	42	স্বাঃ	"		[Signature]
16.	স্বাঃ. রায়	M	40	কৃষক	"		[Signature]
17.	স্বাঃ. রায়	M	50	কৃষক	"		[Signature]
18.	স্বাঃ. রায়	M	35	কৃষক	"		[Signature]
19.	স্বাঃ. রায়	M	52	কৃষক	"		[Signature]
20.	স্বাঃ. রায়	M	33	কৃষক	"		[Signature]

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Solpur More (U22)-Kachabali bridge Date: - 28.01.2026

Road ID: 3548040281.

Place of Consultation: Road side of Market - Kamal Talukden Market.

Village: Solpur

Ward No.:

Union: Kabirajpur

Upazila: Rajoir

District: Madaripur.

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
১	সাজ্জাদ হোসেন	M	৪৭	কৃষক	সাজ্জাদ		
২	মিলন কুমার	M	৫৫	কৃষক	II		
৬	কামাল হোসেন	M	৪০	কৃষক	II		
৪	মুহম্মদ হাঃ	M	৪০	কৃষক	II		
৫	মহাক্তারুল ইসলাম	M	৫০	কৃষক	II		
৬	মহম্মদ হাঃ	M	২০	কৃষক	II		
৭	মুহম্মদ হাঃ	M	৫২	কৃষক	II		
৮	মুহম্মদ হাঃ	M	৪০	কৃষক	কাজীরা		
৯	মুহম্মদ হাঃ	M	৫০	কৃষক	II		
১০	মুহম্মদ হাঃ	M	৫৭	কৃষক	কাজীরা		
১১	মুহম্মদ হাঃ	M	৪০	কৃষক	কাজীরা		
১২	মুহম্মদ হাঃ	M	২৭	কৃষক			
১৩	মুহম্মদ হাঃ	M	৫৪	কৃষক	II		
১৪	মুহম্মদ হাঃ	M	৫৫	কৃষক	II		

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Mojid kazi house - Atulbabu house near Date: 30.03.2026

Road ID: 354405133

Place of Consultation: Master baria school

Village: paxwin Dasari Ward No.: 07. Union: Dasari

Upazila: kalkini

District: Madaripur

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
১.	আবুল কালাম	M	47	চিকিৎসা	চিন্তামার		আবুল
২.	মাহিদুল ইসলাম	M	46	ডাঃ	১১		মাহিদুল
৩.	আবুল কালাম	M	52	ডাঃ	১১		আবুল
৪.	রাফি আলম	M	50	গরুর	১১		রাফি
৫.	ফাহিম আলম	M	55	৷	৷		ফাহিম
৬.	ইমাম আলম	M	70	৷	৷		ইমাম
৭.	আবুল কালাম	M	38	৷	৷		আবুল
৮.	মাহিদুল ইসলাম	M	৫০	৷	৷		মাহিদুল
৯.	আবুল কালাম		57	UPAZILA	১১		আবুল
১০.	আবুল কালাম		55	UPAZILA	৷		আবুল
১১.	আবুল কালাম	M	65	RT ST	P. kumar		আবুল
১২.	ARJUN	M	50	Business	P. kumar		ARJUN
১৩.	আবুল কালাম	M	43	AT	Dasari		আবুল
১৪.	৷						

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: Dhulgram Hat - Choto Boro gram A. Date: 20.03.2026

Road ID: 354405290, Munshi House

Place of Consultation: School side

Village: Modho Dhulgram Ward No.: - 05

Union: Baligram

Upazila: Kalkini/Basar

District: Madaripur.

Public Consultation Participants List

Sl. No.	Name	Male/Female	Age	Occupation	Village/Address	Mobile No.	Signature
০১.	শ্রী: সাজিদুর রহমান	M	65	Upcharan	সাজিদুর		
০২.	শ্রী: জাহাঙ্গীর শাহ	M	53	Number	Modhadur		
০৩.	শ্রী: মোহাম্মদ হোসেন	M	53				
০৪.	শ্রী: মোহাম্মদ হোসেন	M	55	Teacher	শ্রী: মোহাম্মদ		
০৫.	শ্রী: জাহাঙ্গীর শাহ	M	35	House	LI		
০৬.	শ্রী: জাহাঙ্গীর শাহ	M	43	শ্রী: জাহাঙ্গীর	LI		
০৭.	শ্রী: জাহাঙ্গীর শাহ	M	32	শ্রী: জাহাঙ্গীর	LI		
০৮.	শ্রী: জাহাঙ্গীর শাহ	M	35	শ্রী: জাহাঙ্গীর	LI		
০৯.	শ্রী: জাহাঙ্গীর শাহ	F	23	শ্রী: জাহাঙ্গীর	LI		
১০.	শ্রী: জাহাঙ্গীর শাহ	M	20	শ্রী: জাহাঙ্গীর	LI		
১১.	শ্রী: জাহাঙ্গীর শাহ	F	20	শ্রী: জাহাঙ্গীর	LI		
১২.	শ্রী: জাহাঙ্গীর শাহ	F	21	শ্রী: জাহাঙ্গীর	LI		
১৩.	শ্রী: জাহাঙ্গীর শাহ	F	30	LI	LI		
১৪.	শ্রী: জাহাঙ্গীর শাহ	M	39	Teacher	LI		
১৫.	শ্রী: জাহাঙ্গীর শাহ	F	46	Teacher	LI		
১৬.	শ্রী: জাহাঙ্গীর শাহ	M	50	Teacher	Dhulgram		
১৭.	শ্রী: জাহাঙ্গীর শাহ	M	38	Teacher	Dhulgram		

Public Consultation with Stakeholders

District: Madaripur.

[illegible]

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Local Government Engineering Department (LGED)

Public Consultation with Stakeholders

Name of Community Road: UZR-6, Kamarbari to Bhadravasan bazar Date: 27.03.26
road.

Road ID: 354875135

Place of Consultation: Chandarbar Bazar

Village: Kacikata

Ward No.:

Union: Omedpur

Upazila: Sirindha

District: Madaripur

Public Consultation Participants List

Sl. No.	Name	Male/ Female	Age	Occupation	Village/Address	Mobile No.	Signature
১	খানেক ফারিহ	পুরুষ	৫০	কৃষি	উমেদপুর		খানেক ফারিহ
২	আনোয়ার	৫৫	৪৮	কৃষি	উমেদপুর		আনোয়ার
৩	আব্দুর আমাদ	৫২	৫২	কৃষি	উমেদপুর		আব্দুর আমাদ
৪	রফিক	৫৫	৪৮	ব্যবসা	উমেদপুর		রফিক
৫	জোনাথান	৫২	৫২	কৃষি	উমেদপুর		জোনাথান
৬	আনোয়ার	৫২	৪২	কৃষি	উমেদপুর		আনোয়ার
৭	ইলিয়াহ	৫০	৫০	ব্যবসা	উমেদপুর		ইলিয়াহ
৮	মিরাজ	৫৫	৫৫	কৃষি	উমেদপুর		মিরাজ
৯	আলমাস	৫০	৫০	কৃষি	উমেদপুর		আলমাস
১০	আন ফারিহ	৫৫	৫৫	কৃষি	উমেদপুর		আন ফারিহ

১০