ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT - ENVIRONMENT AND SOCIAL MANGEMENT PLAN REPORT FOR

CONSTRUCTION OF APPROACH ROAD FOR 400/220/132KV SUBSTATION AT SONAPUR [PAKAGE H1]

ASSAM INTRA-STATE TRANSMISSION SYSTEM ENHANCEMENT PROJECT AISTSEP Phase I

SUBMITTED TO

ASIAN INFRASTRUCTURE INVESTMENT BANK

SUBMITTED BY

ASSAM ELECTRICITY GRID CORPORATION LIMITED

PREPARED BY: PT FEEDBACK INFRA CONSORTIUM

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ABBREVIATIONS

AH	Affected Household
AIIB	Asian Infrastructure Investment Bank
AEGCL	Assam Electricity Grid Corporation Limited
AIS	Air Insulated Substation
AISTSEP	Assam Intra-State Transmission System Enhancement Project
APCB	Assam Pollution Control Board
AGM	Assistant General Manager
BOQ	Bill of Quantity
CESMP	Contractor's Environmental and Social Management Plan
CPCB	Central Pollution Control Board, Government of India
CBO	Community Based Organization
DisCom	Distribution Company
DPR	Detailed Project Report
DC or D/C	Double Circuit
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement And Construction Management
E&S	Environment and Social
E&S officer	Environment and Social Officer
E&S Specialist	Environment and Social Specialist
ESIA	Environmental and Social Impact Assessment
ESMPF	Environmental and Social Management and Planning Framework
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
ESS	Environmental and Social Standard
GoA	Government of Assam
GoI	Government of India
GHG	Greenhouse Gas
GIS	Gas Insulated Substation
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
HTLS	High Temperature Low Sag
IA	Implementing Agency
IMD	Indian Meteorological Department
INR	Indian Rupee
IPP	Indigenous People Plan
IP	Indigenous Peoples
LA	Land Acquisition
MoEF&CC	Ministry of Environment, Forest and Climate Change
MEA	Multilateral Environmental Agreement
NWBL	National Wildlife Board
NGO	Non-Government Organization
OPGW	Optical Power Ground Wire

PAPs	Project Affected Persons
PFA	Power for All
PIU	Project Implementation Unit
PMC	Project Management Consultancy
PMU	Project Management Unit
RP	Resettlement Plan
RPF	Resettlement Planning Framework
RoW	Right of Way
RFCLARRA	Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013
SBWL	State Wildlife Board
SC or S/C	Single Circuit
SF6	Sulphur Hexafluoride
S/S	Substation
ST	Scheduled Tribe
STU	State Transmission Utility
TRL or T/L	Transmission Line
T&T	Tower and Transmission

WEIGHTS AND MEASURES

Ha. (hectare)	10,000 sq. m = 2.47105 Acre
km (kilometer)	1,000 meters
kV	kilovolt (1,000 volts)
MVA	Megavolt Ampere

EXECUTIVE SUMMARY

To support the implementation of Power for All (PFA) plan, Government of Assam (GoA) has requested the Asian Infrastructure Investment Bank (AIIB), through Government of India (GOI), for financial and technical assistance to upgrade and strengthen the power transmission network in the state of Assam. AIIB has considered supporting enhancement of power transmission to improve the reliability of power supply through "Assam Intra-State Transmission System Enhancement Project" in two phases.

AEGCL, the State Transmission Utility (STU) of Assam, owns and operates intra-state Transmission system of Assam and is responsible for transmission of electricity to the distribution entity of Assam from the Generating Plants of the State as well as from Central Sector Generating Utilities and the power contracted from other sources. AEGCL is the implementing agency of the project. PT Feedback Infra Limited, Indonesia in Association with Jade Consult Nepal and NIPSA, Spain has been engaged by AEGCL as Project Management Consultant (PMC).

The Project under Phase I includes the construction of 10 new substation in 400kV, 220kV and 132kV voltage level along with the associated (332.945 km) transmission lines (TL), Conversion of one no. of existing AEGCL S/S (132/33kV Gohpur) from AIS to GIS; Augmentation of 18 existing substation (replacement of old transformers with new transformers); Augmentation of 186 km of transmission line (restringing of One Single Circuit (S/C) line and two Double Circuit (D/C) line) by High Temperature Low Sag (HTLS) conductors; Replacement of ground wire to Optical Power Ground Wire (OPGW) for 636 km of transmission lines and substation equipment at substation.

The sub-project road does not fall under the environmentally sensitive projects and hence, no environmental clearance is required, as per the Environmental Impact Assessment (EIA) notification of 2006 and its subsequent amendments by the Ministry of Environment, Forest and Climate Change (MoEF&CC).

AIIB determines the Project's category by the category of the Project's component presenting the highest Environmental or social risk including direct, indirect, cumulative and induced impacts as relevant in the project area. It assigns each proposed Project to one out of the 4 designated Categories i.e., Category A, Category B, Category C and Category F1.

In accordance with AIIB's Environmental and Social Standard (ESS), the sub project has been assigned as **Category 'B'**. The anticipated environmental and social risks and impacts of the sub project are limited, short term, reversible in nature and localized only during peak construction activities.

The detail of the various regulatory frameworks pertaining to the project has already been discussed / considered in ESMPF.

AEGCL's working operation safety manual also serves as its commitment towards fulfilling the E&S responsibilities including occupation health and safety.

A baseline study to assess the environmental and socio-economic conditions within the proposed approach road to Sonapur substation area and adjoining areas has been conducted on 28th February, 2023 to gather baseline information of the environmental and social profile by Government of

Assam data base. The baseline conditions of approach road to Sonapur substation are provided in main report.

Environmental sensitive sites are away from the proposed approach road to 400/220 kV Sonapur substation sites. Environmental condition of the proposed approach road to the Sonapur substation sites is quite good.

As assessed from the baseline condition, the impacts are manageable as no major environmental issues have been recorded during site visit. Details of impact and mitigation measures are discussed in the main report. ESMP cost to implement the key environmental & social measures and environmental & social monitoring plan which a part of Engineering Procurement Construction (EPC) Contractor's contract as included in Bill Of Quantity (BOQ) item and as part of their good Engineering practice.

The land for construction of proposed approach road to 400/220 kV Sonapur substation will be acquired from private land owners from 8 (eight) numbers of Project Affected Families (PAFs) as per section 7.3.3 Involuntary acquisition of land mentioned in the approved Environmental and Social Management and Planning Framework (ESMPF) which is under progress.

Public consultations were conducted with local habitants where nine participants were participated in the proposed approach road to Sonapur S/S, like economically poor communities, women, vulnerable groups and other local community leaders nearby proposed approach road to Sonapur substation location on 28th February, 2023. Stake holder consultation also conducted on the proposed approach road on 06th April, 2023. The consultation followed strict protocols to prevent the spread of Covid-19 and to reiterate awareness about safe behavior.

The transcript of these discussions will help AEGCL and EPC contractor for proper needs assessment to ensure the issues raised by people are addressed appropriately. Consultation will be carried out on an on-going basis throughout the sub-project cycle.

Community welcomed the construction of proposed approach road to Sonapur sub- station. No major environmental issues were raised during the consultation process. A few of the affected families has shown their interest on unskilled works on temporary basis when the civil works are initiated.

Local people are waiting eagerly for the implementation to start, so they could receive better all-weather approach road and hoped for some employment generation.

This ESIA - ESMP will be disclosed online on the website of AIIB and AEGCL. Their hardcopies in English are available at the following locations:

PMU: Project Director,
Address: 1st Floor, AEGCL, Bijulee Bhawan,
Contact No.: 0361-2739520
Website: www.aegcl.co.in,
Contact Person: Mr. Balabanta Basumatary

2. PIU:

Name of the T&T Circle	Name of the Project Districts	Package	Sub-Projects	Focal point / Nominated Official	Contact number (Mobile and WhatsApp)	Communication Address
Lower Assam	Kamrup (M)	H_1	Approach Road to 400/220kV Sonapur S/S	Sri Himanshu Saikia, RE	9854738617 (W+C)	O/o The DGM, LATTC, Guwahati, Narengi 781026

This executive summary in English and Assamese can be found at the following locations:

PMU: Project Director,
Address: 1st Floor, AEGCL, Bijulee Bhawan,
Contact No.: 0361-2739520
Website: www.aegcl.co.in,
Contact Person: Mr. Balabanta Basumatary

2. PIU: As mentioned in table above.

3. GRC

Tier 2:

(i) Chief General Manager (CGM, PP&D), AEGCL
Address: 1st Floor, AEGCL, Bijulee Bhawan,
Contact No.: 0361-2739520
Website: www.aegcl.co.in,
Contact Person: Mr. Balabanta Basumatary
(ii) PMU: Project Director,
Address: 1st Floor, AEGCL, Bijulee Bhawan,
Contact No.: 0361-2739520
Website: www.aegcl.co.in,
Contact Person: Mr. Balabanta Basumatary

Tier 1: As mentioned in table above.

The Project provides for the establishment of a Grievance Redress Mechanism (GRM). The GRM is a free system that registers and attempts to resolve concerns or complaints by Project-affected families (PAFs) or construction workers. This process aims to quickly resolve disputes and avoid litigation, thus ensuring the smooth implementation of the project activities.

At all levels of the project Grievance Redress Mechanism, the Grievance Redress Committee members should uphold the objectives of the GRM and strive to achieve them. The primary objectives of GRM are:

- Provide an accessible, transparent, efficient and predictable mechanism for resolution of grievances to all project by:
  - Popularizing the GRM and how it can be accessed for free.
  - Receiving grievances in various possible forms (Written, Verbal, Electronic, Email, Social Media, Telephone, Fax, Suggestion Box)
  - Establishing clear procedures for redress that covers:
    - Registrations in the GRM log all grievances (including minor and verbal).

        - Acknowledgement to the complainant, explaining expected duration for resolution.
        - Investigation of the grievance, proposing a solution to the complainant and if acceptable closure of the complaint. OR
        - Escalation of the grievance to Tier II which should be communicated to the complaint.
        - Investigation of the grievance, proposing a solution to the complainant
        - Provision of feedback and closure of the grievance in the GRM Log.
    - Complaint should be made aware that:
        - There is no retribution or intimidation for complainants.
        - Access of the GRM is free for the complainants.
        - The GRM does not replace the judicial system.
- Observe for any repeated complaints and inform PMU of such for their systemic resolution.
- Providing an environment that fosters free and honest exchange of information, views, and ideas.

The GRM can be accessed through the following channels:

- Project Sign board
- Display in PIU office/T&T Circle office
- To be upload in the AEGCL web site

The Project-affected People's Mechanism (PPM) has been established by AIIB to provide an opportunity for the independent and impartial review of submissions from Project-affected people who believe they have been or are likely to be adversely affected by the AIIB's failure to implement its ESP in situations when their concerns cannot be addressed satisfactorily through the Project-level GRM or the AIIB's management processes. Information about the PPM is available at: https://www.aiib.org/en/policies-strategies/operational-policies/policy-on-the-project-affected-mechanism.html.

1. INTRODUCTION AND PROJECT BACKGROUND

Asian Infrastructure Investment Bank (AIIB) extends financial assistance for "Assam Intra-State Transmission System Enhancement Project" (AISTSEP) to Assam Electricity Grid Corporation Limited (AEGCL), the Implementing Agency (IA), to support the implementation of Power for All (PFA) plan. PT Feedback Infra Limited, Indonesia in Association with Jade Consult Nepal and NIPSA, Spain has been engaged by AEGCL as Project Management Consultant (PMC). The Project under Phase I includes the construction of 10 new substation in 400kV, 220kV and 132kV voltage level along with the associated (332.945 km) transmission lines (TL), Conversion of one no. of existing AEGCL S/S (132/33kV Gohpur) from AIS to GIS; Augmentation of 18 existing substation (replacement of old transformers with new transformers); Augmentation of 186 km of transmission line (restringing of One Single Circuit (S/C) line and two Double Circuit (D/C) line) by High Temperature Low Sag (HTLS) conductors; Replacement of ground wire to Optical Power Ground Wire (OPGW) for 636 km of transmission lines and substation equipment at substation.

1.1 SUB-PROJECT BACKGROUND

The present Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) report focuses on the proposed approach road to 400/220kV Sonapur substation (S/S).

The ESIA/ESMP of the approach road is described here as per the Asian Infrastructure Investment Bank (AIIB) and covers all the details about the ESMP of the Road only.

1.2 OBJECTIVE AND SCOPE OF THE STUDY

The Environment and Social Impact assessment (ESIA) Study has been undertaken against the following reference frameworks:

- Applicable National, State, and Local regulatory requirements
- AIIB Environment and Social Management Plan Framework (ESMPF)

As per the requirement of the AIIB's ESF, the ESIA has been prepared with the following objectives:

- To determine the category of the project depending on the length, extent of land acquisition, location, environmental sensitivity, nature and magnitude of its potential environmental impacts, i.e., screening as per Government of India's regulations and AIIB's Safeguard Policy.
- To determine the appropriate extent and type of Environmental Assessment (EA) required, i.e. scoping.
- To determine whether the project requires environment clearance, forest clearance, wildlife clearance, NOCs for Archaeological Monuments if any, Consents to Establish and Consents to Operate etc. depending on its type of development.
- To establish present environmental conditions of the study area through available data/information supported by field studies, wherever necessary.
- To predict the potential impacts on relevant environmental attributes due to the proposed project and to recommend adequate mitigation measures to minimize/reduce adverse impacts.
- To prepare an ESIA report including ESMP.

1.3 METHODOLOGY ADOPTED FOR ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT STUDY

The adopted methodology for establishing the E&S data involves collection of data for existing conditions on physical, ecological, economic and social aspects, together with the anticipated environmental and social impacts and proposed mitigation measures.

The E&S profiling has been conducted in the proposed approach road to 400/220kV Sonapur GIS substation on 28.02.2023 & 29.11.2023 to gather firsthand information of the environmental and social profile. The team for the E&S assessment comprises of key expert of Environmental & Social and supporting staffs, member from the execution team of PMC and Environmental and Social Safeguard Specialist of PMU. The team was supported by officials from PIU's.

The data generation was supplemented with site visit observations, survey reports and interaction with the community and project personnel of PIU's as ***Annexure A***.

The detail of the E&S baseline conditions of the sub-project location is presented in the Table below.

Table - 1: E&S profile of the proposed approach road to Sonapur substation

Sl. No.	Name of Proposed Substation	Location (District)	Status of Land	Detail of Proposed Site and E&S Conditions
1.	Establishment of proposed approach road to 400 / 220 kV Sonapur GIS substation	Sonapur, Near Star Cement Factory, Kamrup (M).	AEGCL (Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	• The proposed approach road to Sonapur substation is 1.08 km, located in Chamata Pathar (26°07'40.30"N, 92°00'16.65"E) starting from an existing main road connecting brick kin factory. • The proposed road will be constructed over the existing road of 500 m approx. The remaining section of the proposed alignment is barren and swampy in nature, which remains inundated during monsoon. • Approx. 69,000 Cu.m land filling is required in the proposed approach road to 400/220 kV Sonapur S/S. • Approx. 3,600 Cu.m aggregate is required to be procured as per BoQ in the entire construction period of the proposed approach road to S/S. • The proposed approach road is nearby the Star Cement Factory and thus proper emission prevention/dust suppression measures needs to be considered during construction period. • For construction of the approach road, 2.62 ha of land will be acquired, which belongs to 8 nos. of private Land Owners including 1 no. land owner belonging to ST category. The involuntary land acquisition is under process as per **Section 7.3.3 of ESMPF**. • Residential structures are scattered nearby the proposed approach road to Sonapur

Sl. No.	Name of Proposed Substation	Location (District)	Status of Land	Detail of Proposed Site and E&S Conditions
				S/S. Electrical poles, transformer and a boundary wall falling within the RoW may require to be shifted/demolished. • The local inhabitants belong to General/ OBC/MOBC/ST/SC Caste. However, PAFs of the proposed approach road to Sonapur S/S belongs to General/OBC and ST Caste. • No cultural heritage site nearby proposed approach road to Sonapur substation. • A Temple is located at a distance of 50 m (approx.) from starting point of the approach road.

1.4 STRUCTURE OF THE ESIA-ESMP REPORT

This Environmental and Social Impact Assessment and Environment & Social Management Plan Report have been structured based on ESMPF document. The structure of the ESIA Report is as follows:

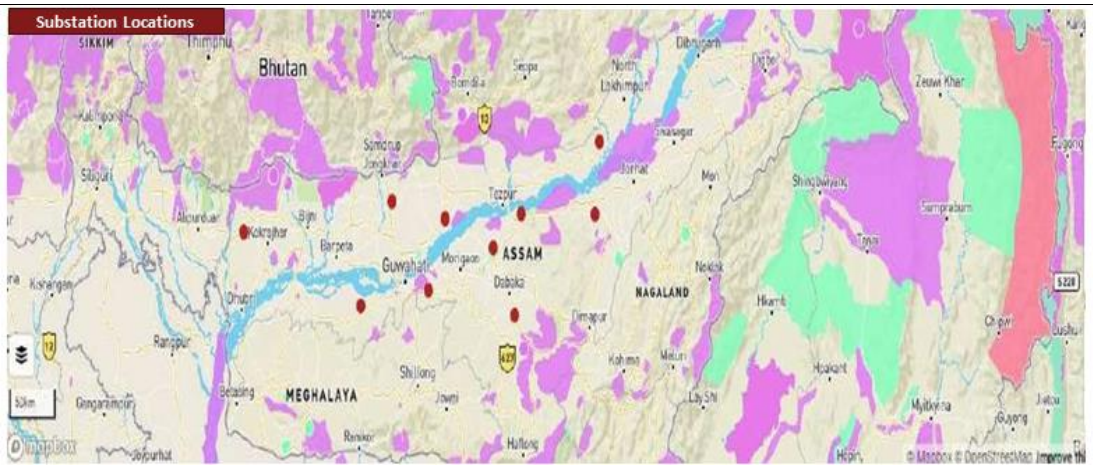
- Executive Summary
- Project Description
- Legal and Regulatory framework
- Description of Environmental & Social Baseline Conditions
- Potential Environmental and Social Impacts and Mitigation Measures
- Environmental and Social Management Plan (ESMP) with specific potential E&S Impacts
- Environmental and Social Management Plan
- Budget for implementation of ESMP specific for activities covered by the ESIA
- Institutional Arrangement for Monitoring and Reporting
- Stakeholder & Public Consultation and Information Disclosure
- Grievance Redressal Mechanism
- Conclusions and Recommendations

2. PROJECT DESCRIPTION

2.1 THE SUB-PROJECT

AEGCL, the State Transmission Utility (STU) of Assam, has planned to execute “Assam Intra-State Transmission System Enhancement Project” to materialize the vision of Govt. of India to provide “Power for All” (PFA) and evacuate power from Generating Plants of the State as well as from Central Sector Generating Utilities and other sources as well as strengthen the Grid Infrastructure of the State reducing the transmission losses. AEGCL is responsible for transmission of electricity to the Distribution Company of Assam.

The sub-projects under AIIB funded AISTSEP are located in different areas of Assam presented in Figure 1 A.



Source: ESMPF

Figure – 1A: Location of Proposed Substations

2.2 THE SUB-PROJECT ROAD

Construction of proposed Approach Road to 400/220/ (2 X 500 MVA) GIS Substation at Sonapur

a. Logistics: The proposed "Approach Road to AEGCL Substation at Sonapur" belongs to Kamrup (Metro), Assam, which is about 1.6 Km from Chamata (Sonapur) Guwahati. The nearest railway station is Tetelia Railway station which is approx. 5 km from Substation. The coordinate of the Start point is Latitude: 26° 07' 40.22" N, Longitude: 92° 00' 16.51" E and End point is Latitude: 26° 07' 52.43" N, Longitude: 91° 59' 56.69" E. The location map of proposed 400/220kV Sonapur substation and approach road is presented in Figure 1 B.

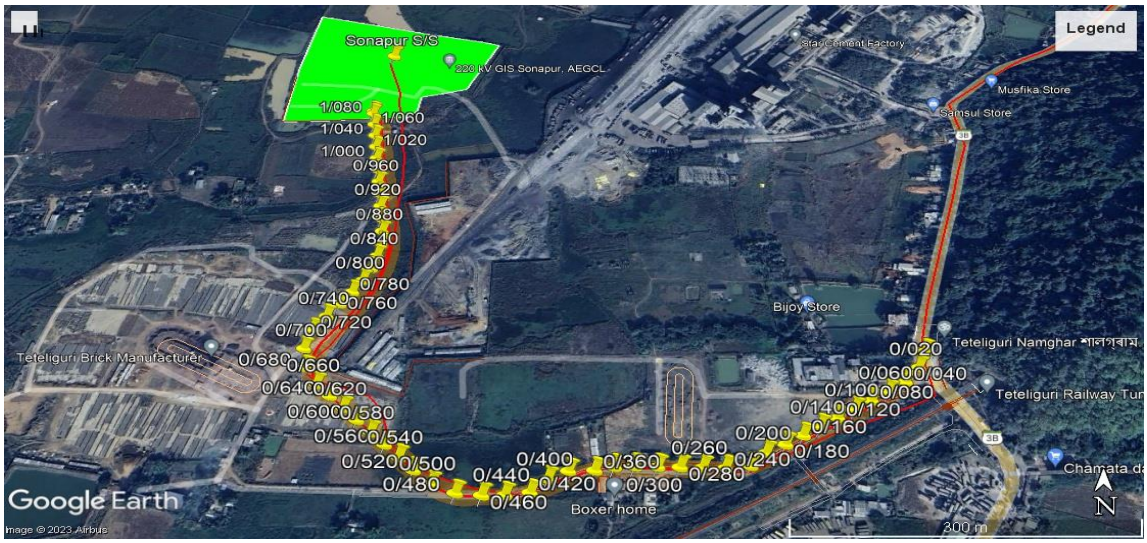


Figure – 1B: Location of Proposed Approach Road to 400/220 kV Sonapur S/S

The total length of the proposed approach road to Sonapur substation is 1.08 Km. The road is considered for construction within the RoW of 12 m to 22 m with formation width of 9 m.

2.3 EXISTING FEATURE OF THE PROPOSED SUB-PROJECT ROAD

The proposed Package H-1 approach road is an integral component of the upcoming 400/220/132 kV Sonapur Gas-Insulated Switchgear (GIS) project. This road is intended for the transportation of

construction materials and equipment necessary for the development of the substation. Currently, there is no pre-existing road leading to the proposed substation site. The only available pathway is an unpaved road, which is owned by the brick industry and also utilized by nearby villagers and vehicles associated with the brick industry.

In light of the existing conditions, it is planned to enhance the accessibility by constructing a new project road. This involves modifying the existing unpaved road and creating the necessary connections to the substation. The current approach road features elements such as electrical poles, a transformer, a private property boundary wall, a swampy area, and a neem tree. It is anticipated that, during the construction phase, the neem tree will require trimming to facilitate the relocation of existing utilities.

To provide a comprehensive overview, please refer to the details presented in Table 2.

Table - 2: Details of the proposed approach road to Sonapur substation and the land ownership & existing utilities Ch. [0.000KM to 1.08 KM]

Sl. No.	Scope of Work	GPS coordinates of Approach road to Sonapur Substation location	Location / Village / Town / Tehsil / District	Consignee / Concerned Division Official	Area as per Appendix-11 of ESMPF (in Hectare)	Area at present (In Hectare)	Slope/ Plain	Type of Land	Ownership
1	Construction of proposed approach road to 400/220 kV (2X500 MVA), GIS Sonapur substation.	**Start point:** 26° 07' 40.22" N, & 92° 00' 16.51" E **End point:** 26° 07' 52.43" N, & 91° 59' 56.69" E.	Sonapur / Kamrup (M)	AGM, Kahilipara, AEGCL	N/A	2.62	Plain	Barren and Swampy	Private (Land ownership transfer to AEGCL is under process)

Left hand side of the road	Right hand side of the road

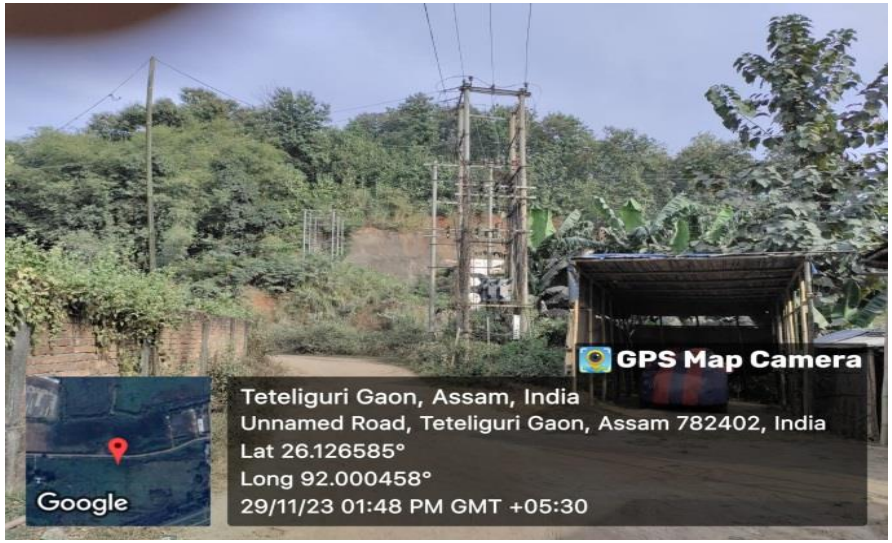



Photo Plate 1- Electric transformer need to shift. (Ch. 25.00 mts)	**Photo Plate 2-** Electrical pole will be required to shift during the widening of the road. (Ch. 00,00 mt)

Photo Plate 3- One number of NEEM tree need to be terming during the construction of the approach road. (Ch. 70.00 mts)

Photo Plate 4- Boundary wall need to demolish during the widening of the road. (Ch. 20.00 mts)

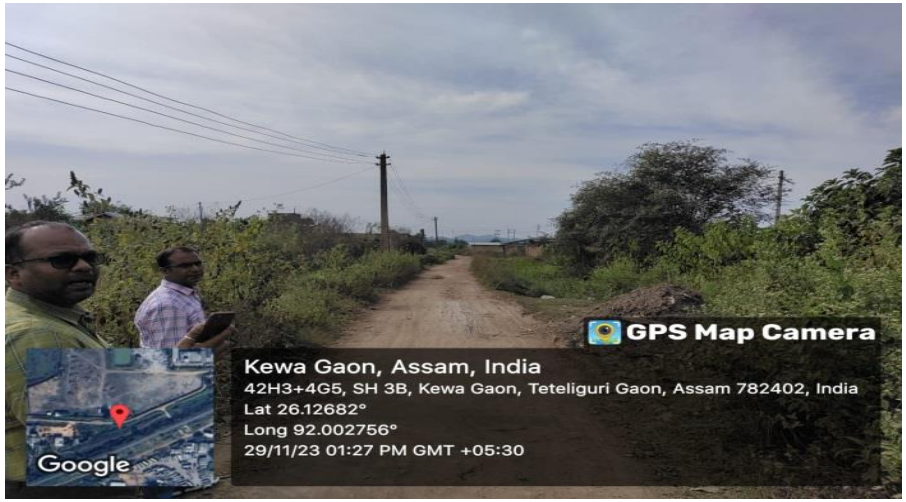


Photo Plate 5- Electrical poles required to shift during the construction of the approach road. (Ch. 180.00 mts)

Photo Plate 6- Boundary wall need to demolish during the widening of the road. (Ch. 75.00 mts)

Photo Plate 7- Swampy area only land filling is required. (Ch. 400.00 mts)

Photo Plate 8- Electrical poles required to shift during the construction of the approach road. (Ch. 450.00 mts)

Photo Plate 9- Barren land of the brick industry. Only land filling is required. (Ch. 600.00 mts)

Photo Plate 10- Electrical pole will be required to shift during the widening of the road. (Ch. 950.00 mts)

2.4 CURRENT AND PROJECTED DAILY TRAFFIC

The existing approach road is used by brick industry for movement of vehicles. Once the sub-project road is upgraded, additional traffic will be generated from developments around the sub-project road. However, it is nearly impossible to quantify these volumes in the absence of clear-cut plans and roadmap.

2.5 RoW AND LAND ACQUISITION

AEGCL has identified the suitable private land for construction of proposed approach road to Sonapur substation. It will be used for access the proposed Sonapur GIS substation. The total length of the proposed approach road to Sonapur substation is 1.08 Km and the width of the approach road is 9 mts. (approx.)

2.5.1 PROPOSED LAND ACQUISITION

For construction of the approach road to 400/220 kV Sonapur GIS substation, 2.62 ha of land will be acquired, which belongs to 8 nos. of private Land Owners including 1 no. land owner belonging to ST category. The involuntary land acquisition will be done as per Section 7.3.3 of ESMPF. The land acquisition for the proposed approach road to Sonapur substation is under process. The compensation for acquisition of land would be paid based on Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (The Act of 2013). The notification of land acquisition is published in local newspaper which is appended at Annexure- G.

2.6 PROPOSED IMPROVEMENTS

The project stretches runs through plain terrain. There is an appreciable deficiency in the horizontal geometry at some locations of the project stretch with respect to design standards. Thus, proper geometric design would play a pivotal role to ensure the proper functioning of the proposed facility. Project Road will receive the following up-gradation under the project:

- Curvature improvement and realignment
- Widening
- Flexible pavement
- Rearrangement of junctions
- Roadside drains
- Cross drainage structures
- Traffic control and safety measures

2.7 ANALYSIS OF ALTERNATIVES

The project has been considered and investigated for three alternatives to reduce the environment and social impacts. The alternatives assessed were not limited to environment and social aspects, but assessment also included the technical and financial impacts.

The details of land ownership and justification of alternate route to the proposed Sonapur substation are tabulated in Table below.

Table - 3: Analysis & Justification for alternatives

Sl. No.	Scope of Work	Area (In Hectare)	Slope/ Plain	Type of Land	Ownership	Proposed approach road length in Km	Remarks
1.	Construction of proposed approach road to 400/220 kV (2X500 MVA), GIS substation at Sonapur	3.4	Plain/ Low land	Barren and swampy	Private land	1.5	Possible demolish of the household structures and brick industry and construction cost of the proposed approach road would be higher.
2.		3.9	Plain / Low land	Barren and swampy	Private land	1.7	Possible involuntary land acquisition of farm/agriculture lands as well as demolish of household structures. The construction cost of the proposed approach road would be higher.
3.		2.62	Plain / Low land	Barren and swampy	Private land	1.08	Minimum impact on social and environment aspect. Involuntary resettlement where number of PAFs is less compare to other two alternative roads. The execution cost also less than other alternatives

2.7.1 JUSTIFICATION FOR ALTERNATIVES ON MAP

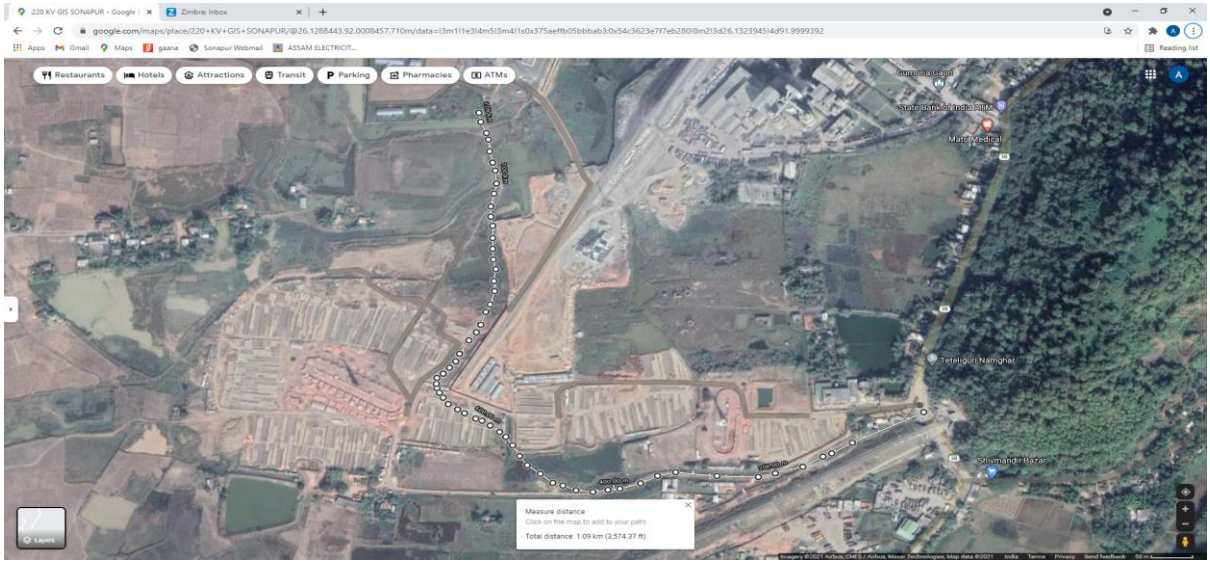


Fig 1C: Alternative one approach road 1.5 km

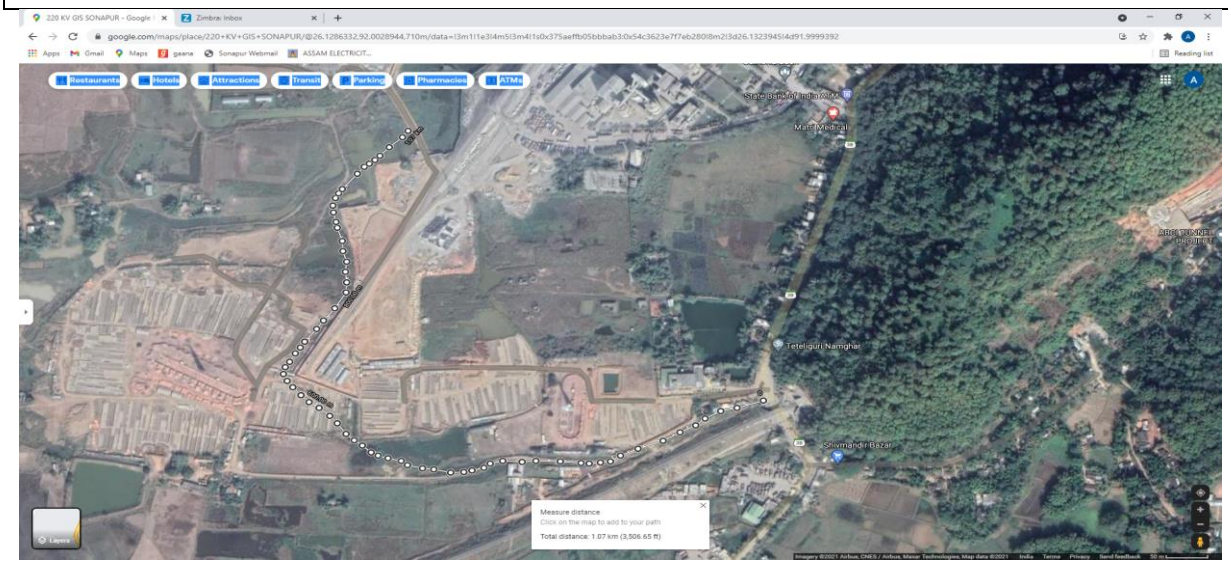


Fig 1D: Alternative two approach road 1.7 km

Fig 1E: Final location of approach road 1.08 km

2.8 CONSTRUCTION MATERIAL REQUIREMENT

Soil and material investigation for a road project is very essential to assess the availability of suitable construction material in the vicinity of the project road. This includes examination of suitable borrow area for borrowing earth and quarries for stone/aggregate material and for the other construction materials like cement, steel, bitumen etc. are recommended to be procured directly from reputed manufacturers spread at different locations in the vicinity of the Project. Material examinations will be carried out to explore the availability of suitable construction material and likely extent of usage in embankment and different pavement courses.

- For improvement work as well as for new carriageway the list of materials includes the following: Granular material for lower sub-base works.
- Crushed stone aggregates for upper sub-base, base, surfacing and cement works.
- Sand for filter material and cement and filling material.
- Borrow material for embankment, sub grade and retaining wall back filling.
- Manufactured materials like cement, steel, bitumen, primer coat, tack coat etc. for other related works.

2.9 MANPOWER REQUIREMENT

About 100 manpower comprising skilled, semi-skilled and unskilled labours in line with engineer and administrative staffs will be required during Construction period.

S. No.	Category of work force	Work force in (No.)
1	Unskilled Labours	60
2	Skilled Labours	20
3	Supervisors	8
4	Engineers	6
5	Officers	6

2.10 ESTIMATED PROJECT COST The total civil cost of the project is estimated about INR 16.50 cr. as per BOQ item including ESIA/ESMP implementation and monitoring

2.11 IMPLEMENTATION SCHEDULE

The project construction period will be 12 months from the date of signing of contract agreement by the contractor for the proposed approach road. The concessionaire will be recruited for the construction and maintenance-related works. The Implementation Schedule will be updated once the contractor on board in due course of time.

2.12 SUB-PROJECT BENEFITS

- Employment opportunities for nearby villagers for skill and unskilled workers.
- Trading opportunities due to procurement of some construction materials locally.
- Clean up operations, landscaping and plantations.
- Increase in road traffic & transportation activities due to faster accessibility to the substation.
- Time saving due to faster movement of traffic.
- Fuel saving due to faster movement of traffic.
- Reduction of dust pollution.
- Reduction of vehicle operating cost.
- Better facilities to road users.

3. LEGAL & POLICY FRAMEWORK

This chapter deals with the laws, regulations and policies of Government of India (GoI), Government of Assam (GoA), International conventions and the AIIB pertaining to E&S risks and impacts need to be considered for effective management of environmental aspects.

3.1 ENVIRONMENTAL POLICIES AND REGULATORY FRAMEWORK

There are several existing national/state level environmental laws and policies applicable to the Project. The below details are the various regulatory frameworks pertaining to the sub-project.

3.1.1 ENVIRONMENT PROTECTION (ACT) 1986 AND ENVIRONMENTAL PROTECTION RULES 1986 AND SUBSEQUENT AMENDMENTS

The GoI has framed an 'Umbrella Act' called the Environment (Protection) Act, 1986 which is designed to provide a framework for the coordination of central and state authorities for protection of environment. This Act was passed as an overall comprehensive act "for protection and improvement of environment". Under this Act, rules have been specified for discharge/emission of effluents and different standards for environmental quality.

3.1.2 EIA NOTIFICATION, 2006 AND SUBSEQUENT AMENDMENTS

EIA notification 2006 and its subsequent amendments list out type of projects that requires EIA and Environmental Clearance from MoEF&CC or State EIA Authority prior to commencement of any developmental work or project expansion. The notification gives stage-wise guidance for processing of Environmental Clearance. The objective of the notification is to formulate a transparent, decentralized and efficient regulatory mechanism to:

- Incorporate necessary environmental safeguards at planning stage
- Involve stakeholders through the public hearing process
- Identify developmental projects based on impact potential
- Securing provision for mitigation efforts

The sub-project associated activities like creation of borrow area (if any) for the project will follow *Assam minor mineral concession rule 2013* and its amendment.

3.1.3 FOREST (CONSERVATION) ACT, 1980 AND SUBSEQUENT AMENDMENTS

The Indian Forest Act (1927) was amended in 1980 to check the rapid deforestation occurring throughout India, and the Forest (Conservation) Act, 1980 came into existence. At the state level, the government was empowered to declare reserves and protected forest and was also given the authority to acquire land for extension and preservation of the forests. Forest (Conservation) Rules, 2003 explains the procedure for procuring clearance for diversion of forests land for non-forest purpose. This Act provides for the conservation of forests and regulating the diversion of forest lands to non-forestry purpose. Any project falling under the forest area will require prior clearance from the relevant authorities under Forest (Conservation) Act 1980.

3.1.4 ANCIENT MONUMENTS AND ARCHAEOLOGICAL SITES & REMAINS ACT 1958 AND SUBSEQUENT AMENDMENTS

This Act is to ensure preservation of ancient and historical monuments and archaeological sites and remains of national importance and for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects. According to this Act, areas within the radii of 100m and 300m from the "protected property" are designated as "prohibited areas" and "regulated areas" respectively. No development activity is permitted in the "prohibited areas".

Development activities are not permitted in the "regulated areas" without prior permission from the Archaeological Survey of India (ASI) if the site/remains/ monuments are protected by ASI or the State Directorate of Archaeology.

3.1.5 WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974 AND SUBSEQUENT AMENDMENTS

The Act is enacted to prevent pollution of water sources through the industrial or any other construction activity and for maintaining or restoring of wholesomeness of water. The Act prohibits discharge of pollutants into water bodies beyond a given standard and lays down penalties for non-compliance with its provisions.

The Act resulted in the establishment of the Central and State Level Pollution Control Boards whose responsibilities include managing water quality and effluent standards, as well as monitoring water quality, prosecuting offenders and issuing licenses for construction and operation of any facility. This will include generation of liquid effluent during construction or from domestic activities in workers colony.

3.1.6 THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT 1981 AND SUBSEQUENT AMENDMENTS

The purpose of this Act is to prevent, and control air pollution and preserve air quality. This Act empowers Central and State Pollution Control Boards for managing air quality and emission standards, as well as monitoring air quality, prosecuting offenders and issuing licenses for construction and operation of any facility.

3.1.7 NOISE POLLUTION (REGULATION AND CONTROL) RULE 2000 AND SUBSEQUENT AMENDMENTS

The Noise Pollution (Regulation and Control) rules are promulgated under Environmental (Protection) Act, 1986. The noise pollution rules lay down terms and conditions as are necessary to reduce noise pollution, including during night hours. The rule provides ambient noise level standards for various zones.

3.1.8 OZONE DEPLETING SUBSTANCES (REGULATION AND CONTROL) RULES 2000

By notification dt. 17th July, 2000 under Sections 6, 8 and 25 of the Environment (Protection) Act 1986, the MoEF&CC has notified rules for the regulation/ control of Ozone Depleting Substances (ODS) under the Montreal Protocol. As per the notification, certain control and regulation has been imposed on manufacturing, import, export, and use of these compounds.

3.1.9 WETLANDS (CONSERVATION AND MANAGEMENT) RULES 2017

Wetlands (Conservation and Management) Rules, 2017 are promulgated under Environmental (Protection) Act, 1986 for prohibiting reclamation and degradation through drainage and landfill, pollution (discharge of domestic and industrial effluents, disposal of solid wastes), hydrological alteration (water withdrawal and changes in inflow and outflow), over-exploitation of their natural resources resulting in loss of biodiversity and disruption in ecosystem services provided by wetlands by conservation of wetlands.

As defined in the rule, 'wetland' means an area of marsh, fen, peatland or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters, but does not include river channels, paddy fields, human-made water bodies/tanks specifically constructed for

drinking water purposes and structures specifically constructed for aquaculture, salt production, recreation and irrigation purposes. Whereas, 'wetlands complexes' means two or more ecologically and hydrologically contiguous wetlands and may include their connecting channels/ducts

The rules shall apply to the wetlands or wetlands complexes of following types-

a. Wetlands categorized as 'wetlands of international importance' under the Ramsar Convention.
b. Wetlands as notified by the Central Government, State Government and Union Territory Administration.

Section 4 of the rule elaborates Restrictions of activities in wetlands.

3.1.10 THE MOTOR VEHICLE ACT, 1988 & MOTOR VEHICLES RULES 1989 AND SUBSEQUENT AMENDMENTS

The Act regulates all aspects of road transport vehicles. It provides in detail the legislative provisions regarding licensing of drivers/conductors, registration of motor vehicles, control of motor vehicles through permits, traffic regulation, insurance, liability, offences and penalties, etc. This Act will be applicable for all construction equipment/plant and machinery including vehicles deployed during implementation. Motor Vehicles Rules, 1989 mandates Pollution under Control (PUC) certificate for motor vehicles/construction equipment.

3.1.11 REGULATIONS RELATED TO WASTE MANAGEMENT

Table 4: Applicability of Waste Management Regulations

Nature of Waste	Rules	Remark
Municipal Solid Waste	Solid Waste Management Rules, 2016	Applicable
Construction and Demolition Waste	Construction and Demolition Waste Management Rules, 2016	Applicable
Hazardous Waste	Hazardous and Other Wastes (Management & Trans boundary Movement) Rules, 2016	Applicable
Used Batteries	Batteries (Management and Handling) Rules, 2001	Applicable

3.1.12 THE BUILDING & OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT & CONDITIONS OF SERVICE) BOCW ACT 1996

As per the Act, the employer is required to provide safety measures at the building or construction work site along with other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation etc. to the workers.

3.1.13 ASSAM FOREST POLICY 2004

The principal aim of this policy is to ensure progressive sustainable development of the forests of Assam, to meet the twin objectives of environmental stability and ecological balance together with improved livelihood support system for her people. The Management Paradigm as envisaged in the policy given below.

- The mega-biodiversity existence in Assam will be protected and developed with the active involvement of the communities.
- Without compromising the basic tenets of forest conservation-the forestry sector will be selectively opened to the people of Assam for income and employment generation.

- The Forest cover of Assam will be progressively increased and maintained through scientific sustainable forest management practices giving emphasis on the traditional knowledge and understanding of the ethnic communities of Assam.

3.1.14 ASSAM BIODIVERSITY RULES 2010

These rules are established in exercise of the powers conferred by Section 63 of the Biological Diversity Act, 2002 (Central Act 18 of 2003), the Government of Assam.

As per the act Indian entities or non-Section 3(2) (as prescribed under Biological Diversity Act, 2002) entities, prior intimation to the concerned SBB is required and for activities pertaining to commercial utilization, or bio- survey and bio-utilization for commercial utilization.

3.1.15 WILDLIFE PROTECTION (ASSAM AMENDMENT) ACT 2009

Under this Act hunting outside the boundary of a national park or wildlife sanctuary is also included as offence punishable under section 51 of the Wildlife Protection Act; and penalties have been made more stringent.

3.1.16 ASSAM (CONTROL OF FELLING & REMOVAL OF TREES FROM NON-FOREST LAND) RULES 2002

The rule regulates felling permission and transit of timber derived from non-forest areas. The Rule mandates permission for felling of various species of trees from Department of Environment and Forest.

3.2 SOCIAL POLICIES AND REGULATORY FRAMEWORK

There are several existing national/state level social laws and policies potentially applicable to the Project. The following sections detail the various regulatory frameworks pertaining to the project.

3.2.1 PROTECTION OF CIVIL RIGHTS ACT 1955

An Act to prescribe punishment for the [preaching and practice of – "Untouchability"] for the enforcement of any disability arising there from for matters connected therewith.

3.2.2 SC/ST (PREVENTION OF ATROCITIES) ACT 1989

An Act to prevent the commission of offences of atrocities against the members of the Scheduled Castes and the STs, to provide for Special Courts for the trial of such offences and for the relief and rehabilitation of the victims of such offences and for matters connected therewith or incidental thereto.

3.2.3 PANCHAYATS (EXTENSION TO SCHEDULED AREAS) ACT 1996 OR PESA

This law was enacted to cover the "Scheduled (under Fifth Schedule) areas" with predominance of tribal population, which are not covered in the 73rd amendment or Panchayati Raj Act of the Indian Constitution. The Act enables Panchayats and Gram Sabhas to implement a system of self-governance with respect to a number of issues such as customary resources, minor forest produce, minor minerals, minor water bodies, selection of beneficiaries, sanction of projects, and control over local institutions.

3.2.4 NATIONAL TRIBAL POLICY (DRAFT) 2006

Ministry of Tribal Affairs had prepared a draft National Tribal Policy in 2006, with objective of providing Regulatory Protection and Socio- Economic Empowerment of STs in the country. A key provision would be the prevention of alienation of land owned by STs and restoring possession of wrongfully alienated lands. However, this policy has not been finalized as invited recommendations are yet to be incorporated.

3.2.5 ASSAM LAND AND REVENUE REGULATION (AMENDMENT) ACT, 1947

This Act of 1947 was to amend Assam Land and Revenue Regulation 1886, and insert Chapter X, which is aimed at protecting land-ownership rights of tribal people of Assam.

3.2.6 ASSAM LAND (REQUISITION AND ACQUISITION) ACT 1964

An Act to amend and consolidate the law for requisition and speedy acquisition of premises and land for certain public purposes such as accommodation, transport, communication, irrigation, flood control and anti-erosion measures.

3.2.7 THE RIGHT TO FAIR COMPENSATION AND TRANSPARENCY IN LAND ACQUISITION, REHABILITATION AND RESETTLEMENT ACT 2013

An Act of Indian Parliament that regulates land acquisition and lays down the procedure and rules for granting compensation, rehabilitation and resettlement to the affected persons in India. The Act has provisions to provide fair compensation to those whose land is taken away, brings transparency to the process of acquisition of land to set up factories or buildings, infrastructural projects and assures rehabilitation of those affected.

3.2.8 The Right to Information Act, 2005

To provide for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.

3.2.9 INDIAN TREASURE TROVE ACT, 1878 AS AMENDED IN 1949

The procedures that is to be followed in case of finding of any treasure, archaeological artifacts etc during excavation.

3.2.10 WORKMEN'S COMPENSATION ACT, 1923

This act provides for compensation in case of injury by accidents arising out of and during the course of employment.

3.2.11 MINIMUM WAGES ACT, 1948

As per this act, the employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government.

3.2.12 THE CHILD LABOUR (PROHIBITION AND REGULATION) ACT, 1986

This Act prohibits employment of children below 14 years of age in Building and Construction Industry covering Railway.

3.2.13 THE SEXUAL HARASSMENT OF WOMEN AT WORKPLACE (PREVENTION, PROHIBITION AND REDRESSAL) ACT, 2013

To provide protection against sexual harassment of women at workplace and for the prevention and redressal of complaints of sexual harassment and for matters connected therewith or incidental thereto.

3.3 INTERNATIONAL CONVENTIONS AND TREATIES

There are followings major global MEAs, to which India is a signatory. These are listed below:

A. Nature conservation

Sl. No.	Nature Conservation	Relevancy to Project
1	Ramsar Convention on Wetlands	No
2	CITES (Convention on International Trade in Endangered Species of Fauna and Flora)	No
3	TRAFFIC (The Wildlife Trade Monitoring Network)	No
4	CAWT (Coalition Against Wildlife Trafficking)	No
5	CBD (Convention on Biological Diversity)	No
6	ITTC (International Tropical Timber Organization)	No
7	UNFF (United Nations Forum on Forests)	No
8	IUCN (International Union for Conservation of Nature and Natural Resources)	No
9	GTF (Global Tiger Forum)	No

B. Hazardous material

Sl. No.	Hazardous material	Relevancy to Project
1	Cartagena Protocol on Biosafety	No
2	SAICM (Strategic Approach to International Chemicals Management)	No
3	Stockholm Convention on Persistent Organic Pollutants (POPs)	No
4	Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and Their Disposal	No
5	Rotterdam Convention on Prior Informed Consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade	No

C. Atmospheric emissions

Sl. No.	Atmospheric emissions	Relevancy to Project
1	UNFCCC (United Nations Framework Convention on Climate Change)	No
2	Kyoto Protocol	No
3	UNCCD (United Nations Convention to Combat Desertification)	No
4	Montreal Protocol (on Ozone Depleting Substances)	No

D. Marine environment

Sl. No.	Marine environment	Relevancy to Project
1	IWC (International Whaling Commission)	No

3.4 AIIB'S ENVIRONMENTAL & SOCIAL FRAMEWORK REQUIREMENTS

The details of the various AIIB'S Environmental & Social regulatory frameworks pertaining to the project are given in below Table 5.

Table 5: Legal policy framework

Environmental & Social Standards AIIB	Objective and Brief description
ESS 1: Environmental and Social Assessment and Management	ESS1 aims to ensure the environmental and social soundness and sustainability of Projects and to support the integration of environmental and social considerations into the Project decision-making process and implementation. ESS 1 is applicable if the Project is likely to have adverse environmental risks and impacts or social risks and impacts (or both). The scope of the environmental and social assessment and management measures are

	proportional to the risks and impacts of the Project. ESS 1 provides for both quality environmental and social assessment and management of risks and impacts through effective mitigation and monitoring measures during project implementation. The ESS 1 defines the detailed. Requirements of the environmental and social assessment to be carried out for any project to be financed by the Bank.
ESS 2: Involuntary Resettlement	ESS 2 is applicable if the Project's screening process reveals that the Project would involve Involuntary Resettlement (including Involuntary Resettlement of the recent past or foreseeable future that is directly linked to the Project). Involuntary Resettlement covers physical displacement (relocation, loss of residential land or loss of shelter) and economic displacement (loss of land or access to land and natural resources; loss of assets or access to assets, income sources or means of livelihood) because of: (a) involuntary acquisition of land; or (b) involuntary restrictions on land use or on access to legally designated parks and protected areas. It covers such displacement whether such losses and involuntary restrictions are full or partial, permanent, or temporary. The ESS 2 defined detailed requirements of resettlement planning of the projects involving involuntary resettlement.
ESS 3: Indigenous Peoples	The ESS 3 is applicable if Indigenous Peoples are present in, or have a collective attachment to, the proposed area of the Project, and are likely to be affected by the Project. The term Indigenous Peoples is used in a generic sense to refer to a distinct, vulnerable, social, and cultural group possessing the following. characteristics in varying degrees: (a) Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others. (b) Collective attachment to geographically distinct habitats or ancestral territories in the Project area and to the natural resources in these habitats and territories. (c) Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and (d) A distinct language, often different from the official language of the country or region.

3.5 CLEARANCE/PERMISSION REQUIREMENTS

The detail of the various regulatory frameworks pertaining to the sub-project has already been considered in ESMPF and as below

Sr. No.	Item description
1	Permission of Village Panchayat and PollutionControl Boardfor installation of crushers
2	License frominspector of factories or other competent Authority forsetting up batching plant.
3	Miner minerals permission and royalty , transportation etc
4	Clearance of Village Panchayats and PollutionControl Boardfor setting of asphalt plant
5	Permission of Village panchayat and State government for borrow earth.
6	Labor license, Construction all Risk Policy and other permission as per local authority

7	Tree cutting/transplantation/trimming/loping
8	Land compensation for PAF
9	Permission for Utility Shifting from competent authority
10	PUC, Vehicle permission for construction vehicle and machineries
11	Any, other applicable permission for project requirement

3.6 CATEGORY OF THE SUB-PROJECT AS PER AIIB'S FRAMEWORK & MOEF&CC NOTIFICATION 2006 AND AMENDMENTS

The sub-project road does not fall under the environmentally sensitive projects and hence, no environmental clearance is required, as per the Environmental Impact Assessment (EIA) notification of 2006 and its subsequent amendments by the Ministry of Environment, Forest and Climate Change (MoEF&CC).

AIIB uses a classification system to reflect the significance of a project's potential environmental and social impacts. A project's category is determined by the category of its most environmentally and socially sensitive component, including direct, indirect, cumulative, and induced impacts in the project's area of influence. Each proposed project is scrutinized as to its type, location, scale, and sensitivity and the magnitude of its potential environmental and social impacts. It assigns each proposed Project to one out of the 4 designated Categories i.e., **Category A, Category B, Category C** and **Category F1.**

In accordance with AIIB's Environmental and Social Standard (ESS), the sub project has been assigned as **Category 'B'**. The anticipated environmental and social risks and impacts of the sub project are limited, short term, reversible in nature and localized only during peak construction activities.

4. DESCRIPTION OF ENVIRONMENTAL & SOCIAL BASELINE CONDITIONS

As a precursor for the prediction of various types of environmental and social impacts likely to arise due to implementation of the sub-project, it is essential to establish the baseline environmental and social status in project study area. Details of baseline environment and social parameters are required for decision making for the project.

4.1 PHYSICAL ENVIRONMENT

4.1.1 PHYSIOGRAPHY AND TERRAIN

The State can be broadly divided into 3 physiographic domains: Brahmaputra valley, Central Assam Hills and Barak valley. Majority of the areas in Assam State are floodplains of the Brahmaputra and Barak Rivers and the altitude of the plain areas vary from as low as 25 m to as high as 600 m. The eastern plains have an altitude of about 600 m. Cachar plains in the southern part of the state have an altitude of about 25 m. Central and south-central part of the state, comprising Dima Hasao and Rengma Hills, have an altitude ranging from 300 m to 150 m. The western parts of the state comprising North and South Brahmaputra Hills have similar altitude range.

The present physiographic configuration of Assam has taken its shape only during the recent geological time. The geologic and tectonic base of the state has given rise to a variety of land forms under varying climatic conditions and geomorphic processes. The low hill ranges with hot and humid climate and heavy rainfall concentrated to a few months of the year, experience of sheet erosion and landslides. On the other hand, significantly dominant on the valley bottoms and plains where alluvial deposition takes place due to erosion of the higher surfaces by rivers and flooding in the valley. The erosional and depositional processes conspicuously intensified by copious rainfall and frequent seismic movement play dominant role in shaping various physiographic unit of the district. Physiography may be described, in terms of the physiographic elements like plain, floodplain and river valleys. The flood plains of the Brahmaputra including the charlands inside the river lies between north and south bank plains. The flood plains are irregular in its transverse extension due to the occurrence of occasional hillocks and incipient leaves on both the bank of the Brahmaputra

The district Kamrup (Metro) lies approximately between 90º36'E to 92º12'E longitude and between $25^0$43’ N to $26^0$51’ N latitude. The district is bounded on the West and North by the Kamrup district and on the East by the Morigaon district. On the South, lies the state of Meghalaya.

4.1.2 SOIL TYPE AND GEOLOGY

The project area lies on the northern fringe area of the Meghalaya Plateau with topography varying from plain to undulating, with small hills in between. The fringe areas of the Meghalaya Plateau are steep undulating, converging to flat terrains and swampy areas along the Brahmaputra plains. The distinguishing geomorphic units are;

a. Flood plains of river Brahmaputra and its tributaries.
b. Younger alluvial plains occupying a major part of the area with slightly higher elevations than the flood plains.
c. Older alluvial / valley fill, gently sloping with higher elevations than the younger alluvial plains.
d. Piedmont, gently sloping plains along the foothills.
e. Inselberg occurs as very small isolated hills comprising of mostly pre-cambric gneissic rocks
f. Denudated hills consisting of granite, gneissic rocks

The rock formations have been subjected to various soil forming processes of weathering and transportation during different geological ages. Soils comprising of various proportions of sand, silt, clay and organic materials are broadly categories as (a) newer alluvial soils, (b) valley soils and (c) soils in forest and hilly terrains.

4.1.3 CLIMATE AND RAINFALL

With the 'Tropical Monsoon Rainforest Climate', Assam is a temperate region and experiences heavy rainfall and humidity. The climate of Assam is humid, with a sub-tropical nature, having warm humid summers and cool dry winters. Due to its unique geographical location, along with the presence of varied physiography, Assam has an array of climatic conditions. Assam is situated in the high rainfall zone.

The climate of the districts Kamrup (Metro) is characterized by Sub tropical with semi -dry summer & cold in winter. Generally, the weather goes dry and moisture less from February to April; from May to September sufficient rainfall sweeps over the district with heavy moisture in the atmosphere. During the months of October and November, the weather becomes pleasant, and the atmosphere gets foggy. Fogginess remains in the atmosphere till the end of January. Winter starts in the month of November and continues for about four months. The climate is somewhat dry and dusty during the months of February and March. The annual normal rainfall of the district Ranges between 1500 mm to 2600 mm with 96.5 rainy days according to https://kamrupmetro.assam.gov.in/about-us/about-district.

4.1.4 NATURAL HAZARDS

The District Disaster Management Plan for Kamrup Metropolitan district is of prime importance for the multi-hazard prone Kamrup Metropolitan districts and of course Guwahati being the gateway to the North-East India has been prepared and updated by District disaster management authority, Kamrup Metropolitan district for the sake of this safety and security of the people of the district

Kamrup Metropolitan District is vulnerable to various hazards like flood, landslide, storm, riverbank erosion and other manmade disasters occur from time to time. Out of these hazards urban flash food and water logging are annual disaster which occurs in Kamrup (Metro) district every year. In the recent past Guwahati city has witnessed a number of devastating landslides in its hilly belt. This is mainly because of inadequate urban land-use planning and the demand for land becomes such that communities build houses in areas which are environmentally unstable with risks of landslides. (Ref https://kamrupmetro.assam.gov.in/sites/default/files/public_utility/KAMRUP%20%28M%29-%20DDMP%202022.pdf)

Table 6- Natural Hazards of the Kamrup Metropolitan district

Earthquake	As per the latest seismic zoning map of India, the Kamrup Metropolitan district falls under High Risk Zone- V, where a maximum intensity of IX can be expected.
Flood	The general reason of occurrence of flood in Kamrup Metropolitan district is due to overflow of Rv. Brahmaputra and its tributaries, mainly Bharalu, Kolong and Digaru.
Soil Erosion	The soil erosion is major threat to many places in Kamrup Metropolitan district in the Azara and Chandrapur Revenue Circle.
Electrical Hazard	The Electrical Hazard in Kamrup Metropolitan district mainly due to short circuit and careless handling of domestic LPG cylinders in the houses. Mainly Electrical Hazard from March to April when the climate remains very dry and probability is more instance of fire breakout
Cyclone	Air traffic communication to the Capital of the state is likely to be affected due to

	cyclone

4.1.5 LAND USE PATTERN

Agriculture is the pre-dominant occupation of the project districts Kamrup (Metro). The cultivation area is spread over a vast area in the districts. Land use pattern in the Kamrup district is divided primarily among tropical semi-evergreen, moist deciduous, dry deciduous, degraded bamboo forest, sal forest, tea plantation, agriculture and urban land.

Total geographical area of the Kamrup (M) district is 955 sq km. As per the reporting area for landuse (871.50 sq km) considered for the land use pattern classification by the Statistical Handbook Assam - 2020, area of 295.90 sq km falls under forests, area of 238.05 sq km falls under uncultivated land, area of 43.64 sq km falls under other uncultivated land excluding fallow land, area of 11.35 sq km falls under fallow land and the balance 282.56 sq km is net sown area.

4.1.6 NATURAL RESOURCES

Assam is rich in natural resources, minerals, forests and water and has vast tracts of fertile land. It is primarily an agrarian economy, with 74% of its population engaged in agriculture and allied activities. Cereals like paddy, wheat and plantation crops like tea are grown extensively. Amongst mineral resources, oil takes the top place. Oil was first struck more than one hundred years ago and the oil well of Digboi and other areas are a major source of fuel for not only the North-East but for the country as a whole. The economy of Assam can be broadly divided into three sectors- Primary (agriculture, mining etc.) secondary (manufacturing) and tertiary (services like electricity, water, trade, finance, banking, telecommunication etc.)

4.1.7 AIR, WATER, SOIL AND LAND ENVIRONMENT

4.1.7.1 MONITORING PARAMETERS AND STANDARDS

The monitoring data generated in pre-construction phase for ambient air quality, water quality, soil quality and noise level as per AIIB's requirement for proposed approach road location before start of construction work should be considered as baseline data.

4.1.7.2 AMBIENT AIR QUALITY MONITORING

Baseline data for the parameters - particulate matter size less than 10 µm or PM_{10} µg/m^3, particulate matter size less than 2.5 µm or $PM_{2.5}$ µg/m^3, sulphur dioxide (µg/m3), nitrogen dioxide (µg/m3) and lead (µg/m3) in the study has been generated for 24 hours. While selecting the monitoring location specific importance has to be given where ever sensitive environmental receptors and habitation exist.

The baseline study data for PM 10 & PM 2.5 below than CPCB permissible data. The sub project having point source of air pollution i.e. star cement plant and its surrounding area

The ambient air quality monitoring was conducted by the approved vendor M/s Green Tech Environmental Engineering and Consultant, Guwahati on 29th November, 2022 at nearby proposed approach road to Sonapur substation locations are presented in Table below.

Table-7: Air Quality Monitoring Data of nearby area of proposed approach road to sub- station

Name of Monitoring Station	Source	Sampling Period/Date	PM10 (µg/m^3)	PM2.5 (µg/m^3)	Nitrogen Dioxide NO_2 (µg/m^3)	Sulphur Dioxide SO_2 (µg/m^3)	Lead (Pb) (µg/m^3)	Remarks
National Ambient Air Quality Standards			**100**	**60**	**80**	**80**	**1**	**24-hours**

Name of Monitoring Station	Source	Sampling Period/Date	PM10 (µg/m³)	PM2.5 (µg/m³)	Nitrogen Dioxide NO_2 (µg/m³)	Sulphur Dioxide SO_2 (µg/m³)	Lead (Pb) (µg/m³)	Remarks
(NAAQS)								**average**
National Ambient Air Quality Standards (NAAQS)			**60**	**40**	**40**	**50**		**Annual**
Star Cement Factory, Sonapur (Near proposed Approach road)	Air Quality monitoring conducted at site by Green Tech Environmental Engineer & Consultants	29th November, 2022	96	57	9	12	<0.1	Approx. 200m (aerial) from proposed approach road to Sonapur substation location

4.1.7.3 WATER QUALITY MONITORING

The groundwater quality within the state of Assam in term of pH, BOD, Fecal coliform and Total coliform was found satisfactory but the Fluoride content more than permissible limit as per PCB Assam 2014. The sample collection, preservation, storage, transportation, and analysis will be carried out as per the standard methods given in the manual of the American Public Health Association for the Examination of Water and Wastewater (APHA).

Testing of water quality will be conducted after awarding of contract to the contractor for the project during pre-construction stage and construction stage.

4.1.7.4 SOIL QUALITY MONITORING

The suggested parameters for soil analysis are pH, Electrical conductivity, sand (%), silt (%), clay (%), texture, moisture retention capacity (%), infiltration rate (mm/hour), bulk density (gm/cc), porosity (%), organic matter (%), nitrogen (mg/1000g), potassium (mg/1000g), phosphorous (mg/1000g), sulphates and sodium sulphates.

Testing of soil quality will be conducted after awarding of contract to the contractor for the project during pre-construction stage and construction stage.

4.1.7.5 NOISE QUALITY MONITORING

While selecting the monitoring locations specific importance will be given to sensitive environmental receptors like thickly populated areas, hospitals, schools, etc. Testing of noise quality will be conducted after awarding of contract to the contractor for the project during pre-construction stage and construction stage.

4.2 ECOLOGICAL AND BIOLOGICAL ENVIRONMENT

4.2.1 FOREST

Over all area of Assam having reserved forest area (in Hect)- 1359026.70 , National Parks (in No.) – 07 , Wildlife sanctuary (in No)-22 according to statistical hand book Assam 2022 . Total forest cover in the Kamrup (Metro) district is 460.05 km^2, which is 48.17% of the geographical area of the district. In terms of forest canopy density classes, the district has 225 km^2 under Moderately Dense Forest and 235.05 km^2 under Open Forest.[1]

[1] https://forest.assam.gov.in/information-services/forest-types-in-assam.

4.2.2 BIODIVERSITY

Bird Life International (www.birdlife.org) has identified 55 Important Bird & Biodiversity Areas (IBAs) in Assam. These IBAs cover 815.92 sq. km area, which constitute about 3.6% of the state's geographical area. Out of these 55 IBAs, only 2 IBAs i.e. Amchang Hills and Deepor Beel Bird Sanctuary falls in project district.

4.2.3 FLORA AND FAUNA

In 1989 Kamrup (Metro) district became home to the Dipor Bil Wildlife Sanctuary, which has an area of 4.1 km^2.

Kamrup (Metro) is home to one of the few large colonies of greater adjutant storks still in existence. The villagers previously regarded the birds as pests, but outreach efforts including cultural and religious programming, especially aimed at local women, have rallied Kamrup (M) residents to be proud of and protect the storks.

4.2.4 WILD-LIFE AND PROTECTED AREAS

The Protected Area (PA) network in Assam occupies 4069.25 km^2, which constitute about 5.19% of the state's geographical area. The Protected Area Network includes 7 National Park (NP) and 18 Wildlife Sanctuaries (WLS). The State has four Tiger Reserves (TR) namely - Kaziranga, Manas, Orang and Nameri. Manas TR has also been declared as a Biosphere Reserve (BR), the other BR of the state is Dibru Saikhowa WLS. Kaziranga NP and Manas WLS are also included in the World Heritage sites. Out of these, 2 protected areas i.e. Amchang WLS and Deepor Beel falls in Kamrup (Metro) district area.

4.3 SOCIO-ECONOMIC ENVIRONMENT

4.3.1 STATE AND DISTRICT PROFILE

State Profile: Assam, a state situated in the North-East region of India –bordering seven states namely-Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and West Bengal and two countries' viz-Bhutan and Bangladesh. Geographically the state is extending from 22°19' to 28°16' North Latitude and 89°42' to 96°30' East Longitude between the foot hills of the Eastern Himalayas and the Patkai and Naga Hill Ranges The geographical area of the state is 78,438 sq.km. of which 98.4 percent area is rural. As per the Census 2011, the total population of Assam is 3.12 Cr. Thus the population of Assam forms 2.58 percent of India in 2011. Assam has total population of 31,205,576 in which males were 15,939,443 while females were 15,266,133. Assam shares about 2.4% of the country's landmass, providing shelter to 2.6% of India's population as per Census, 2011. For administration and revenue purposes, the state has presently 35 districts, including six newly created districts namely-Biswanath, Charaideo, Hojai, South Salmara, West Karbi-Anglong, Majuli, Bajali and Tamulpur.

District profile: The Present Assam was referred to as Kamrup in many of the ancient Indian literature. It was also known as Pragjyotishpur due to the astrological (Jyotish Shashtra) practices that prevailed in this part of the country during that time. However, "Kamrup" became a more predominant name in the later part of the history. The geographical area of Kamrup (M) is 1528 sq. km with a population of 12,60,419 (2011 census). Kamrup metropolitan district is located between 25°43'and 26°51' N Latitude and 90°36' – 92°12' E Longitude. The district is bounded on the West and North by the Kamrup district and on the East by the Morigaon district. On the South, lies the state of Meghalaya.

4.3.2 ROAD NETWORK

Roads are considered the most important component of infrastructure, to which national economy either directly or indirectly connected. Constructing high-quality roads of international standards has come to reality in the soil of Assam because of the potential will of the Government of Assam. The state is connected to other neighboring states like Nagaland, Meghalaya, Mizoram, and Tripura through all-weather high standard roads. The approaching roads to the main roads have qualitatively improved. In recent years the internal roads connecting villages, hamlets have become R.C.C roads. The roads connecting to Gram Panchayats Road and Taluka (Block) Road have also been constructed through R.C.C. In recent days attempts have been made for constructing roads through Public-Private Partnership (PPP).

4.3.3 DEMOGRAPHIC PROFILE

Assam is a state of heterogeneous population with socio-cultural and ethnic diversity. According to the Census of India, 2011 the population of Assam was 312.05 lakh of which 159.39 lakh were male and 152.66 lakh were female. The decadal growth rate of the state population during 2001-2011 was 17.07% against 17.68% growth for the country as a whole. Out of total population in the state, 86% population lived in rural areas and 14% population in urban areas. The percentage of rural population of the state was higher than all India average (69%). However, the urban population in the state had increased from 12.9% in 2001 to 14% in 2011. The density of population of Assam in 2011 was 398 persons per sq.km. as compare to 340 persons in 2001. The sex ratio(number of female per thousand male) of Assam had increased to 958 in 2011 from 935 in 2001.Compare to overall sex ratio of the state, the child sex ratio(age group 0-6 years) had gradually declined from 975 in 1991 to 967 in 2001 and further to 962 in 2011. On the other hand, sex ratio at birth in Assam as per 2011 census was 957.

Kamrup Metro: In 2011, Kamrup Metropolitan had population of 1,253,938 of which male and female were 647,585 and 606,353 respectively. In 2001 census, Kamrup Metropolitan had a population of 1,059,578 of which males were 571,774 and remaining 487,804 were females. Out of the total Kamrup Metropolitan population for 2011 census, 82.70 percent lives in urban regions of district. In total 1,037,011 people lives in urban areas of which males are 536,523 and females are 500,488. Sex Ratio in urban region of Kamrup Metropolitan district is 933 as per 2011 census data.Schedule Castes and Schedule Tribes/ Social Stratification

4.3.4 SCHEDULE CASTES AND SCHEDULE TRIBES (OR SOCIAL STRATIFICATION)

In the hierarchical system Brahmins enjoyed social superiority, but they were liberal in their outlook regarding occupations, social laws and commensal relations with other castes. Kshatriyas and Vaisyas were absent in Assam. Among the Sudras, the Kayasthas and the Kalitas were regarded as higher castes.

As per census 2011, the Scheduled Caste (SC) & Scheduled Tribe (ST) population of the State stands at 4,074,447 (7%) and 8,917,174 (15%) respectively Considering the distribution of Scheduled Castes (SC) and Scheduled Tribes (ST) population in the Kamrup (M) district, we find that there are 107827 SC persons comprising of 55237 males and 52590 females. The percentage of Schedules Castes population to total population is 7.1%. The total Scheduled Tribes population in the district is 182038 comprising of 92094 males and 89944 females. The percentage of ST population to total population in the district is only 12%.

4.3.5 LITERACY RATE

The total literacy rate of Assam is 72.19% according to the 2011 census study. The male literacy rate is 77.85% and the female literacy rate is 66.27% in Assam. As per the 2011 census, the total population of Assam was 31,169,272.

Average literacy rate of Kamrup Metropolitan in 2011 were 88.71 compared to 88.71 of 2001. If things are looked out at gender wise, male and female literacy were 92.13 and 85.07 respectively. For 2001 census, same figures stood at 88.00 and 77.51 in Kamrup Metropolitan District. Total literate in Kamrup Metropolitan District were 1,001,191 of which male and female were 537,227 and 463,964 respectively.

4.3.6 ECONOMIC PROFILE

The Economy of Assam is largely agriculture based with 69% of the population engaged in it. Regarding the structure of the economy, Assam still has a relatively large primary sector (agriculture, forestry, fishery, mining, and quarrying), which accounted for 27.8% of the state's GDP and 39.4% of all employment in FY2019.

During the period of the last four years i.e. FY 2018-19 to FY 2021-22, the State achieved an annual average growth rate of 8.6 per cent in terms of Gross State Domestic Product (GSDP) at current prices reflected a moderate growth of the State Economy. Agriculture and allied services have been the major driving sector to boost the economy of the State. During the year 2020-21, the agriculture and allied sector achieved a favorable growth rate of 12.98 per cent as against (-) 8.42 per cent and (-) 2.74 per cent in the industry and service sectors respectively.

The overall economy of Assam is estimated to be achieved at 9.1 per cent in FY 2021-22 as compared to 8.7 per cent at the All India level.

4.3.7 OCCUPATIONAL PROFILE

According to 2011 census among total workers Assam constitute 72.57% main workers and 27.42% marginal workers. If one looks at the occupational structure among total main workers 36.12% accounts for cultivators, 10.39% agricultural laborers, 2.78% household industry and 50.68% constitutes other workers. Agriculture is the main occupation of the people in Assam. It accounts for 63 per cent of the state's workforce. The farmers engage in the cultivation of rice, which is the staple diet of Assamese people. Other agricultural crops include pulses, jute, tea and fruit cultivation.

4.3.8 CULTURAL/RELIGIOUS RESOURCES

Assam is the meeting ground of diverse cultures. The people of the enchanting state of Assam are an intermixture of various racial stocks such as Mongoloid, Indo-Burmese, Indo-Iranian and Aryan. The Assamese culture is a rich and exotic tapestry of all these races evolved through a long assimilative process. The natives of the state of Assam are known as "Asomiya" (Assamese), which is also the state language of Assam. The state has a large number of tribes, each unique in its tradition, culture, dress and exotic way of life.

Diverse tribes like Bodo, Kachari, Karbi, Miri, Mishimi, Rabha, etc co-exist in Assam; most tribes have their own languages though Assamese is the principal language of the state. A majority of the Assamese are Vaishnavas (a sect of Hinduism). The Vaishnavas do not believe in idol worshiping and perform "Naamkirtana", where the glory of Lord Vishnu is recited. The two important cultural and religious institutions that influence the cultural fabric of Assam: the "Satras", the site of religious and cultural practice which have been in existence for over 400 years and the "Naamghar", the house of prayers. Villagers generally associate on the basis of membership of a local Centre of devotional

worship called "Naamghar". Villages are usually made up of families from a number of distinct castes.

Assam, being the home to many ethnic groups and different cultures, is rich in folk music. Traditional instruments include "Pepa", an instrument made from buffalo horn and "Bholuka baahor toka", a musical instrument made of split bamboo. The "Dhol" too is an important and a quintessential instrument used in Bihu dance.

4.3.9 ARCHEOLOGICAL AND HISTORICAL MONUMENTS

Construction of proposed approach road to Sonapur substation doesn't involve any monuments of historical or cultural significance. However, during excavation, if any treasure, archaeological artifacts are found the same shall be intimated in writing to District Administration/Archaeology department as per the provisions of Section-4 of "Indian Treasure Trove Act, 1878 as amended in 1949". The Collector shall initiate further action for its safe custody or its shifting to Treasury/ Secure place. The construction activity may be suspended temporarily during this process.

4.3.10 SENSITIVE RECEPTORS

There are no any sensitive receptors observed along the proposed approach road to Sonapur substation.

5. POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

5.1 INTRODUCTION

This chapter presents key environmental and social impact associated with various aspects of the proposed subproject. The environmental and social impacts caused due to the development of the proposed approach road to Sonapur substation sections can be categorized as primary (direct) and secondary (indirect) impacts. Primary impacts are those which are induced directly by the subproject whereas the secondary impacts are those which are indirectly induced and typically include the associated investment and changing patterns of social and economic activities due to the proposed action.

The immediate benefits of proposed approach road construction and improvement will come in the form of direct employment opportunities during construction for the roadside communities and especially those who are engaged as wage laborers, petty contractors, and suppliers of raw materials.

5.2 POSITIVE ENVIRONMENTAL & SOCIAL IMPACTS DUE TO THE IMPROVEMENT OF SUB-PROJECT ROAD

The positive impacts expected from the improvement of the project road of Sonapur substation includes:

- Improved quality of life for the rural population in the project influence: this as a result of better access to markets, health, education and other facilities and the derived stimulus for local economic activity.
- A more efficient and safe road transport system: through reduced travel times and distance, reduced road accidents, reduced emission, reduced vehicle operating and maintenance costs and reduced transportation costs for goods.
- Direct connectivity to SH 3B which is further connected to NH 27 from Sonapur substation.

5.3 ADVERSE ENVIRONMENTAL & SOCIAL IMPACTS DUE TO THE IMPROVEMENT OF SUB-PROJECT ROAD

The adverse environmental impacts anticipated from the improvement of the proposed approach road to Sonapur substation are.

- Noise, air, water pollution and dust particles from Star cement factory and disposal of construction waste, during construction, will adversely impact the residents. These latter effects should, however, only be temporary/reversible.
- Minor impacts may be caused to local residents and road users from the transportation of construction material including transportation of earth for filling in proposed approach road.
- Temporary deterioration of surface water quality due to runoff from land filling area.
- Social conflict with local people and labours hired from outside by contractor may arise during construction period.

5.4 ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

5.4.1 IMPACTS DURING DESIGN & MITIGATION MEASURES / PRE-CONSTRUCTIONAL PHASE

- Minimum damage/clearance is ensured while final designing of road alignment.

- Replantation will be carried out as instructed by forest Dept. or by the Forest Dept.
- To avoid poaching of animals all construction activity is supervised by competent person.
- The proposed approach road to Sonapur substation will envisage 2.62 hectare of land. There is no forest land which is impacted in the proposed sub-project stretch.
- The proposed approach road have Electrical poles, transformer and a boundary wall falling within the RoW may require to shifted/demolished to accommodate the proposed road improvement works.
- The Labour Camp will be constructed around the built-up area.
- The Labour camp sewage system will be built and operated in such a manner that it will not be polluted to ground/adjacent water bodies/water sources.
- The Garbage bin will be provided with cover and handed over local people as food for pets.
- The underground water sources will be not utilized in construction process. FA-1948, BOCWA-1996 will be compiled in the camp establishment and operation.
- Spoil banks are needed to be finalized in such a manner that it is not impacting natural drainage.
- Land slide, land sinking, accidental black spots are identified and reported to Supervision consultant (PMC) and PIU.
- Hot mix plant will be established away from habitation and agricultural land

5.4.2 IMPACTS AND MITIGATION MEASURES DURING CONSTRUCTION PHASE

Air Quality

The potential sources of air emission during the construction phase of the proposed approach road are (i) dust generation from earthworks including materials loading and unloading; (ii) operation of construction equipment's and machines; (iii) fugitive emissions from unpaved travel on road; and (iv) combustion of fuels in equipment, machinery, and vehicles. Hot mix plant will generate carbon monoxide (CO), un-burnt hydrocarbon, sulphur dioxide, particulate matters, and nitrogen oxides (NOx). These may affect the air quality of nearby areas especially due to emission from low height stack. The deterioration of the air quality within the immediate vicinity of the road construction activities will be significant but temporary.

Mitigation Measures: Following measures are proposed to minimize the dust and emission generation:

- Vehicles delivering loose and fine materials like sand and aggregates shall be covered.
- Loading and unloading of construction materials in the proposed approach road area
- Storage areas should be located downwind of the habitation area.
- Water shall be sprayed on earthworks and unpaved haulage roads regularly.
- Regular maintenance of machinery and equipment.
- Only crushers licensed by PCB shall be used.
- LPG should be used as a fuel source in construction camps instead of wood.
- Mask and other PPE shall be provided to the construction workers.

- Diesel Generating (DG) sets shall be fitted with adequate height as per regulations and Low sulphur diesel shall be used in DG sets as well as machinery.
- Ambient air quality shall be monitored by Contractor as per Environmental and Social Monitoring Plan to ensure that air quality parameter is within permissible limit, suitable control measures must be taken.

Noise Quality

The major source of noise and vibration are from the use of vehicle for material transport, equipment used for cutting, leveling, dumping, pressing, concrete mixing, welding etc. These vehicles/equipment's when operated by the operator generate noise level which is anticipated. This will also have impact on the sensitive receptors if located nearby, resulting in hearing loss, loss in sleep, and other health related problems to the local nearby. Hence noise generated due to various activities in the construction camps may affect workers.

Noise sources identified are:

- Construction activities such as demolition of structures like boundary wall, clearing and grubbing, excavation & earth moving, grading and compacting, structure construction crushing.
- Transportation of construction material/debris/spoil through heavy vehicles

These noises generated by construction activities are a temporary phenomenon and is limited to construction phase only.

Mitigation Measures:

In view of above, following mitigation measures are proposed:

- All construction equipment used for an 8-hour shift shall conform to a standard of less than 90 dB(A). If required, machinery producing high noise as concrete mixers, generators etc., must be provided with noise shields;
- At construction sites within 500 m of human settlements, noisy construction activities shall be stopped between 9.00PM - 6.00AM and near sensitive locations
- Vehicles and construction machinery shall be monitored regularly with particular attention to silencers and mufflers to maintain noise levels to minimum;
- Workers in the vicinity of high noise levels must wear ear plugs and should be engaged in diversified activities to prevent prolonged exposure to noise levels.

5.4.3 IMPACTS AND MITIGATION MEASURES DURING OPERATION PHASE

- Ambient air concentrations of various pollutants shall be monitored as envisaged in the ESMP at pre-designated locations to compare the levels with the pre- construction data.
- Periodical monitoring of noise level will be carried out. If values exceed the standard limits, suitable measures will be taken.
- Traffic Safety Signage and Traffic Management need to be implemented.
- No advertisement/hoardings shall be allowed within the Right of Way limits of the project road.
- Regular maintenance and cleaning of assets such as sign boards, drains etc. shall be undertaken.

- Maintenance of road lighting. Roadside tree plantation shall be carried out as per the relevant norms and conditions mentioned in the tree cutting permission.
- Maintaining the slope protection measures provided at stretches of high embankment and protection measures for bed scouring at cross drainage locations as per maintenance manual to be prepared before operation.
- The drains will be periodically cleared to maintain storm water flow. Road drains will be cleared of debris before onset of every monsoon.
- The PMU/PIU shall monitor the operational performance of the various mitigation/ enhancement measures carried out as a part of the project.

5.5 OTHER E&S ENHANCEMENT/ PROTECTION MEASURES

5.5.1 TRAFFIC MANAGEMENT PLAN (TMP)

The carting of earth filling material will be done in a manner creating least inconvenience/ disturbance/ nuisance/ interference to the flow of vehicular and pedestrian traffic. The temporary diversions, where introduced, will for a minimum required duration and shall conform to standards/guidelines. Following measures requires to be taken by contractor during transportation of earth filling material.

1. Obey the existing traffic management rules and signs of local Transport Authority as far as possible and take advance approval/permission of local Transport Authority/PWD/Police/concerned authority to work on roads. This could include Highways, PWD Roads, Panchayat Roads, other major and minor roads, streets / lanes and roads in industrial, commercial and residential areas.
2. If any changes are required to the existing traffic management system, consult and take advance approval/permission of local Transport Authority/PWD/ concerned authority to work/ transport material on the roads.
3. Prepare site-specific HSE plan including traffic safety measures where required, before commencement of transportation to accommodate the extra load.
4. Notify the road users and communities along the planned route clearly and sufficiently in advance, by providing them with the traffic management plans and creating awareness on the modification made.
5. Provide guidance to road users by using signs, delineators, barricades, cones, pylons, pavement markings and flashing lights etc. wherever required.
6. Use flag men to control and divert traffic, wherever required.
7. Provide adequate measures that control driver behaviour through project's operational zones.
8. Traffic cones of 500mm, 750mm and 1000mm high and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally have retro-reflectorized red and white band shall be used wherever required.
9. Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers.
10. In the same way barricades protect the road users from the danger due to equipment and other temporary structures falling off from height.
11. All barricades shall be erected as per the design requirements of the Employer, numbered, painted and maintained in good condition and also maintain a barricade register on site.
12. The contractor shall fully cover the vehicle transporting construction/ earth filling material; and also water the same to avoid flying dust.

13. The contractor shall not undertake loading and unloading at carriageways obstructing the free flow of vehicular traffic and encroachment of existing roads by the contractor applying the excuse of work execution.
14. The contractor shall ensure the cleanliness of roads and footpaths by deploying proper manpower for the same. The contractor shall have to ensure proper sweeping, cleaning washing of roads and footpaths on all the time throughout the entire stretch till the currency of the contract including disposal of sewerage.
15. Crash Helmets must be made mandatory for both driver and pillion riders on the roads that are being used for transportation of earth filling material.
16. Park the vehicles used for carting the earth only in designated areas.
17. All contractors' vehicles need to follow the speed limits. The contractor should maintain a register and logbook for each of the vehicles deployed.
18. The contractor's vehicles carting earth filling materials should not over take other vehicles.
19. No vehicle will be kept idling for more than 10 seconds; however, for not more than 30 seconds.
20. Both at the material sourcing locations and at unloading locations, all construction workers should be provided with high visibility jackets with reflective tapes. The conspicuity of workmen at all times shall be increased so as to protect from speeding vehicular traffic. In addition to these the following shall be followed:
    - 20.1. Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement.
    - 20.2. Provide safe and clearly marked work and buffer zones.
    - 20.3. All vehicles entering site shall meet the requirements prescribed.
    - 20.4. The contractor shall follow the speed limits as per site guidelines.
    - 20.5. Contractors to conduct, weekly training on Traffic Safety and Barricading.

5.5.2 ROAD SAFETY PLAN

The sub-project road route is an area of a brick industry/village road where road user operating conditions will be affected because of construction and maintenance activities. The construction and maintenance activities would involve movement of workers and construction equipment requiring dedicated space for performing the activities and moving materials for the activities. The presence of regular traffic and works traffic makes the work zone a potential zone of conflict resulting in disruption to normal traffic and hazards. A work zone is typically distinguished by the presence of signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high intensity rotating flashing or oscillating or strobe lights installed on roadside or a vehicle-mounted sign posted to indicate the work zone and continues to delineate the channelized vehicle paths till up to the end road work sign.

5.5.3 POSSIBLE WEATHER EVENTS, RISKS AND ADAPTATION MEASURES IN ROAD TRANSPORT INFRASTRUCTURE

The design objective included ensuring that current infrastructure assets are protected from the long term and acute effects of climate change, and wherever necessary upgrading to new infrastructure systems fit for changing climate conditions have been taken into serious consideration. Those adaptive measures to counter possible risks and their likely effects on project road infrastructure are summarized in Table 8. It must be noted that all these events either simultaneously or in isolation can generate severe disastrous impacts on road infrastructure.

Table 8: Possible Weather Events, Risks, and Adaptation Measures

Sl. No.	Extreme Weather Events	Risks to the Road Infrastructure	Adaptation Measures
1	Extreme rainfall events	i. Overtopping and wash away. ii. Increase of seepage and infiltration pass. iii. Increase of hydrodynamic pressure of roads. iv. Decreased cohesion of soil compaction. v. Traffic hindrance and safety.	a. Certain sections affected by overland flooding of the road raised (vertical alignment, embankment improvement) to be free from the onslaught of flooding events under intense precipitation. b. Critical road sections where the sub-grade strength specification meeting the recent-most IRC specifications will be adopted. c. The highest assessment of design discharge for sizing culverts and bridges from among the several discharge methods as outlined in recent IRC guidelines will be adopted. d. In terms of floodwater conveyance to prevent stagnation, closed concrete drains in settlement pockets will be provided. e. Improved cross-drainage capacities required for the quick conveyance of floodwater by box culverts with higher discharge openings will be considered. f. The bottom of the sub-grade will be kept 0.6m above HFL, to avoid over topping, water-logging of the road surface.
2	Changes in seasonal and annual average rainfall	i. Impact on soil moisture levels, affecting the structural integrity of roads, culverts, bridges standing water on the road base. ii. Risk of floods from runoff, landslides, slope failures and damage to roads if changes occur in the precipitation pattern.	
3	Increased maximum temperature and a higher number of consecutive hot days (heat waves)	i. Concerns regarding pavement integrity, e.g., softening, traffic-related rutting, cracking, fracture etc. ii. Thermal expansion in bridge expansion joints and paved surfaces Temperature break soil cohesion and increase dust volume which caused health and traffic accidents.	a. An adequate binding layer thickness has been proposed to offset the wear, surface fatigue, and rutting under climate stresses. b. In terms of pavement integrity as per IRC specification will be maintained.

5.5.4 HEALTH AND SAFETY PLAN FOR COVID-19

COVID-19 precaution measures to be implemented by PMU/PIU/PMC/EPC

SOP on preventive measures to contain spread of COVID-19 in Workplaces

A. Preventive Measures for Self – The preventive measures include simple public health measures that are to be followed to reduce the risk of infection with COVID-19. These measures need to be observed by all (employees and visitors) at all times. These include:

- Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.'
- If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Avoid close contact with people who are sick
- Individuals must maintain a minimum distance of 6 feet (2 gaj ki doori) in common places as far as feasible
- Use of face covers/masks at all times. They must be worn properly to cover nose and mouth.

Touching the front portion of mask/face covers to be avoided.

- Self-monitoring of health by all and reporting any illness at the earliest to the immediate supervisory officer.
- Spitting shall be strictly prohibited.

B. Preventive Measures for Workplace –

- Entrance to have mandatory hand hygiene (sanitizer dispenser) and thermal screening provisions.
- Only asymptomatic staff/visitors shall be allowed entry.
- There shall be provision for disinfection at-least twice a day of the interior of the vehicle using 1% sodium hypochlorite solution/spray. A proper disinfection of frequently touched surfaces i.e. steering, door handles, keys, etc. should be taken up.
- All officers and staff / visitors to be allowed entry only if using face cover/masks. The face cover/mask has to be worn at all times inside the work premises.
- Meetings, as far as feasible, should be done through video conferencing.
- Proper crowd management in the working premises – duly following physical distancing norms are ensured.
- Specific markings may be made with sufficient distance to manage the queue and ensure physical distancing in the premises.
- Ensure regular supply of hand sanitizers, soap and running water in the washrooms.
- Cleaning and regular disinfection (using 1% sodium hypochlorite) of frequently touched surfaces (doorknobs, elevator buttons, handrails, benches, washroom fixtures, etc.) shall be done in office premises and in common areas at-least twice a day.
- Proper disposal of face covers / masks / gloves left over by visitors and/or employees in covered bins shall be ensured.
- The seating arrangement to ensure a distance of at least 6 feet between patrons as far as feasible.
- Large physical gatherings continue to remain prohibited.

C. Measures to be taken on occurrence of case–

Despite taking the above measures, the occurrence of cases among the employees working cannot be ruled out. The following measures will be taken in such circumstances, when one or few people(s) who share a room/close office space is/are found to be suffering from symptoms suggestive of COVID-19:

- Place the ill person in a room or area where they are isolated from others at the workplace. Provide a mask/face cover till such time he/she is examined by a doctor.
- Immediately inform the nearest medical facility (hospital/clinic) or call the state or district helpline.
- If there are one or two cases reported, the disinfection procedure will be limited to places/areas occupied and visited by the patient in past 48 hours and work can be resumed after disinfection of the work.
- In case of larger number of cases are being reported at the workplace, the whole block or building, as the case may be, should be disinfected.
- Other members to wear disposable gloves when serving and helping affected person in self-isolation
- Avoid visiting public places like entertainment restaurant, malls, market etc.

D. Vaccination: The concerned person of GRC/PMU/PIU/ PMC/EPC Contractor will ensure that, all project related personals must be double vaccinated.

6. ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN (ESMP) WITH SPECIFIC POTENTIAL E&S IMPACTS

Table – 9: Environmental & Social Management Plan (ESMP)

Sl. No.	Project Activity	Potential E&S Impacts	Location/ Sources	Mitigation Measures	Institutional Responsibility
PRE-CONSTRUCTION PHASE					
1.	Land Acquisition	Loss of Land, Livelihood	RoW / CoI	• The acquisition of land and properties (private land) will be carried out through involuntary land acquisition process as per **Section 7.3.3 of ESMPF.** The compensation for acquisition of land would be paid based on Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (The Act of 2013). • To ascertain the environmental and social impacts arising due to the acquisition of land during project implementation shall be addressed and the same shall be integrated in the Resettlement planning report and other relevant contract documents.	PIU / PMC / PMU / Revenue Dept. / Collaborating Agencies
2.	Tree Cutting	Loss of Trees / Vegetation	RoW / CoI	• As far as possible maximum efforts shall be made to restrict tree cutting within construction limit. • Tree cutting within RoW would be only those required for enabling construction or to reduce safety hazard. • Removal of trees shall be done only after the permissions/approvals are obtained from the Forest Department. • Disposal of cutting trees are to be done immediately to ensure that the traffic movement is not disrupted. • Providing and maintaining compensatory tree plantation as per the conditions mentioned in tree cutting permission.	Forest Department Assam / PIU / PMU / PMC
3.	Utility Relocation and common property resources (CPR)	Loss of utility, Loss of CPR	RoW / CoI	• Identify the common utilities to be affected such as Electric pole boundary wall, telephone cables, and electric cables, bore wells, water supply pipelines, hand pumps, etc. • Identify and include list of affected utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase. • Necessary permission and payments should be made to relevant utility • Service agencies to allow quick shifting and restoration of utility services. • In case utilities and common property resources being impacted due to the project, they shall be shifted with prior approval of the concerned agencies before construction starts. • Relocation sites shall be selected in consultation concerned authority; local body and public must be informed through appropriate means about the time of	PIU / PMU / PMC / Contractor

Sl. No.	Project Activity	Potential E&S Impacts	Location/ Sources	Mitigation Measures	Institutional Responsibility
				shifting of utility structures and potential disruption of services if any, so as to ensure that work does not get affected.	
4.	Relocation of Cultural Property	Loss of heritage	RoW / CoI	• In case there is an impact on cultural properties, they will be relocated at suitable locations, as desired by the community before construction starts. • For partially impacted structures enhancement measures shall be applied at the same sites before construction begins, depending on the availability of space, requirement of the communities and fund availability. • Local Community meetings shall be conducted to discuss relocation aspects, siting of structures etc. • Relocation sites for all cultural properties shall be selected in consultation with concerned communities, local administrative authorities / departments as the case may be.	Contractor / PIU / PMU / PMC / Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
CONSTRUCTION PHASE						
1.	Procurement of Machinery - Crushers, Hot-mix Plants & Batching Plants	Air, noise and water Pollution	Crushers, Hot mix plants & Batching Plants	• Specifications of crushers, hot mix plants and batching plants (existing or new) shall comply with the requirements of the relevant current emission control legislations. • Hot-mix and batching plants shall be sited sufficiently away (1000m) away from residential / settlement locations, forest areas, wildlife movement areas and commercial establishments, preferably in the downwinddirection. • The Consent to Establish (CTE) & Consent to Operate (CTO) shall be obtained from the SPCB, Assam for the establishment and operation of these plants. • Only Crushers licensed by the State Pollution ControlBoard (SPCB) shall be used. • Hot mix plant should be fitted with dust extraction unit. • DG sets with stacks of adequate height and use of low Sulphur diesel as fuel.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
2.	Procurement of Other Construction Vehicles, Equipment and Machinery	Air, noise and water Pollution	Throughout the project area	• The discharge standards promulgated under the Environment Protection Act, 1986 shall be strictly adhered to. All vehicles, equipment and machinery to be procured for construction shall conform to the relevant Bureau of Indian Standard (BIS) norms. • Contractor will ensure that all vehicles, equipment and machinery used for construction are regularly maintained and confirm that pollution emission levels comply with the relevant requirements of ASPCB. • Noise limits for construction equipment's to be procured such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws shall not exceed 75 dB (A), when measured at one meter distance from the edge of the equipment in free	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
				field, as specified in the Environment (Protection) Rules, 1986. • The Contractor shall maintain a record of PUC for all vehicles and machinery used during the contract period, which shall be produced to the PMU/PIU for verification whenever required.		
3.	Identification & Selection of Material Sources - Borrow Areas	Air, noise and water Pollution	Borrow areas	• Non-productive, barren lands, upland shall be used for borrowing earth with the necessary permission from Mining Dept. and State Environmental Impact Assessment Authority (SEIAA), Assam. • To the extent possible, borrow areas shall be sited away from habitation. • Follow IRC 10:1961 recommended practice for borrow area for identification of location, its operation and rehabilitation. • No borrow areas shall be opened within 500m of wildlife movement zones and forest areas. The borrow areas shall be at least 300m from schools and village access roads. • The Contractor shall not borrow earth from the selected borrow area until a formal agreement is signed between land owner and Contractor and a copy of this agreement is submitted to PMU/PIU. • The 15 cm topsoil to be stockpiled within the site of identified borrow area for use at the rehabilitation stage as preventive measure. The stockpiles shall be covered with gunny bags / tarpaulin. • Contractor shall rehabilitate the borrow areas as soon as borrowing is over from a particular borrow area in accordance with the guidelines for "Redevelopment of Borrow Areas" recommended in IRC 10:1961.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
4.	Identification & Selection of Material Sources - Quarries	Air, noise and water Pollution	Quarry Locations	• The Contractor shall identify materials from existing licensed quarries with the suitable materials for construction. Apart from approval of the quality of the quarry materials, the Engineer's representative shall verify the legal status of the quarry operation, as to whether approval from Govt of Assam is obtained. • No quarry and/or crusher units shall be selected or used, which is within 1000m from the forest boundary, wildlife movement path, breeding and nesting habitats and national parks/sanctuaries. No plants can be set-up within 1000m from the residential/ settlement locations.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
5.	Identification & Selection of Material Sources – Water for	Water availability, contamination of water sources and	Water sources	• The contractor shall source the requirement of water preferentially from surface water bodies, as rivers and tanks in the project area. The contractor shall be allowed to pump only from the surface Water bodies. Boring of any tube wells shall be prohibited. To avoid disruption/disturbance to other water users, the contractor shall extract water from fixed locations. The contractor shall consult the local people before finalizing the locations.	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
	construction	pollution		• Only at locations where surface water sources are not available, the contractor can contemplate extraction of ground water. Consent shall be taken "no surface water resource is available in the immediate area for the project" is a pre-requisite prior to extraction of ground water. The contractor shall need to comply with the requirements of Central Ground Water Board and seek their approval for doing so.		
6.	Identification & Selection of Material Sources - Sand (all river and stream beds used directly or indirectly for the project)	Contamination of Streams and river beds	Sand Quarries	• The contractor shall identify sand quarries with requisite approvals for the extraction of sand. In case of selection of new sites for sand quarrying, the Contractor shall obtain prior approval. • Where the supplier of sand is another party, the authentic copy of lease agreement that has been executed between the local Tahsildar and the supplier has to be submitted before any procurement is made from such a site. • To avoid accidents and caving in of sand banks at quarry sites, sand shall be removed layer by layer. Digging deeper than the permissible limit has to be completely avoided by the Contractor. Such quarry shall be barricaded 10m away from the periphery on all sides except the entry point, so as to prevent accidental fall of domestic cattle, Wildlife and human beings.	Contractor	PIU / PMU / PMC / Collaborating Agencies
7.	Construction Camp Locations – Selection, Design & Layout	Impacts on host communities, air, noise and water pollution	Villages in the Vicinity of the Campsite	• Construction camps shall not be proposed within 500 m of ecologically sensitive areas. • Location's for stockyards for construction materials shall be identified at least 1000 m from watercourses. The waste disposal and sewage system for the camp shall be designed, built and operated such that no odor is generated. • Layout of the campsite shall be approved prior to its establishment. • Unless otherwise arranged by the local sanitary authority, arrangements for disposal of excreta suitably approved by the local medical health or municipal authorities.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
8.	Planning and identification of Haul Roads	Air, noise and water Pollution	Haul Roads	• Planning of haul roads for accessing borrows materials shall be undertaken during this stage. The haul roads shall be routed to avoid agricultural areas. In case agricultural land is disturbed, the Contractor shall rehabilitate it as per Borrow Area guideline. • Haul roads shall be maintained throughout the operation period of the borrow areas by undertaking the required maintenance and repair works, which may include strengthening, pot hole repairing and diversions. Improvements shall be done to reduce inconvenience to users of these roads, residents living along the haul roads and minimize air and water pollution. • Such measures shall include, but not limited to, frequent sprinkling of water, repairing of the road, road safety provisions (warning and informatory signage, flagmen etc.), and ensuring covering of loaded vehicles by waterproof tarpaulin; consultation with public	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
				and special precautions are required when measures are implemented near schools, health centers and Settlement areas.		
9.	Traffic Diversions and Detours	Air and Noise pollution	Traffic diversions	• Detailed traffic control plans shall be prepared by the contractor and the same shall be submitted. • The traffic control plans shall contain details of temporary diversions, traffic safety arrangements including night time safety measures, details of traffic arrangement after cessation of work each day, safety measures undertaken for transport of hazardous materials and arrangement of flagmen etc. to regulate traffic for smooth movement. • The Contractor shall provide specific measures for safety of pedestrians and workers as a part of traffic control plans. • The Contractor shall ensure that the traffic diversion/detour is always maintained in running condition, particularly during the monsoon to avoid disruption to traffic flow. • The temporary traffic detours will be kept free of dust by frequent water sprinkling. • Traffic controls and diversions marked with signs, lights and other measures (flags) should be provided.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
10.	Establishing access	Loss of access to residences and business along road, movement across road	All along sub-project road	• The Contractor shall provide safe and convenient passage for vehicles, pedestrians and livestock to and from roadsides and property accesses connecting the project road by providing temporary connecting road, as necessary. • Construction activities that shall affect the use of side roads and existing accesses to individual properties, whether public or private, shall not be undertaken without providing adequate provision.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
11.	Temporary Land Requirement	Temporary loss of livelihood	Camp sites, Traffic Diversions	• The contractor as per prevalent rules shall carry out negotiations with the land owners for obtaining their consent for temporary use of lands for construction sites/ hot mix plants /traffic detours /borrow areas etc. • The Contractor shall ensure that the site is cleared prior to handing over to the owner.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
12.	Clearing & Grubbing	Loss of vegetation, damage to trees	Camp area /ROW	• Site clearance including clearance of marked trees for felling and removal has to be carried out much before the actual road construction takes place. • All works shall be carried out in a manner such that the damage or disruption to flora is minimum. Only ground cover/shrubs that impinge directly on the permanent works or necessary temporary works shall be removed with prior approval. • The Contractor, under any circumstances shall not cut or damage trees. Vegetation above 30 cm girth shall be considered as trees and shall be compensated.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
13.	Dismantling	Generation of	Utility/Private	• Utility/Private property wall shall be planned for demolition during dry season when the	Contractor	PIU / PMU /

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
	of brick wall	C & D waste, air and water pollution	property wall	flows are lowest. • In case of perennial streams, water shall be diverted away from the work area temporarily and water way shall be protected from contamination through silt fencing. • Prevent earthwork, stonework, materials and appendage from impeding cross-drainage at streams, water canals and existing irrigation and drainage systems.		PMC/ Collaborating Agencies
14.	Generation & Disposal of Debris	Dust pollution, Water pollution, leachate and water logging	All along the sub-project area of influence	• Debris generated due to the dismantling of the existing road shall be suitably reused in the proposed construction as follows: I. Usually, up to eighty percent (80%) of the sub-grade excavated from the existing road surface, excludingthe scarified layer of bitumen can be reused in thecivil works after improving the soil below the subgrade through addition of sand and suitable cementing material for qualitative up-gradation. II. The dismantled scraps of bitumen can be utilized forthe paving of cross roads, access roads and paving works in construction sites and campus, temporary traffic diversions, haulage routes, parking areas along the corridor or in any other manner. • Disposal sites shall be identified and finalized prior to completion of the earthworks on any particular section of the road. These disposal sites should confirm to the following: I. These are not located within designated forest area II. The dumping does not impact natural drainage courses III. No endangered/rare flora is impacted by such dumping. IV. Settlements are located at least 1.0 km away from the site. • At locations identified for disposal of residual bituminous wastes, the disposal shall be carried out at secure landfill sites with the requisite approvals for the same from the concerned government agencies (or) over a 60 mm thick layer of rammed clay so as to eliminate the possibility of leaching of wastes into the ground water. • Unutilized non-toxic debris shall be suitably dispose off either through filling up of borrows areas located in wasteland or at the identified disposal sites. • Debris generated from pile driving or other construction activities along the streams drainage channels shall be carefully disposed in such a manner that it does not flow into the surface water bodies or form puddles in the area.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
15.	Extraction of Borrow material	Dust and Water Pollution	Borrow areas	• No borrow area shall be opened without permission. • Borrow pits shall not be dug continuously in a stretch. The location, shape and size of the designated borrow areas shall be in accordance to the IRC recommended practice for borrow pits for road embankments (IRC 10: 1961). • The borrowing operations shall be carried out as specified in the guidelines for siting and	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
				operation of borrow areas. • The unpaved surfaces used for the haulage of borrow materials shall be maintained dust free by the contractor. Since dust rising is the most significant impact along the hauled roads, sprinkling of water shall be carried out twice a day along such roads during their period of use.		
16.	Extraction of Quarry Material	Dust and Water Pollution	Quarry Areas	• The Contractor shall obtain materials for quarries only after the approval of Government of Assam Mines & Minerals Department and the District Administration. A copy of this consent must be submitted to PMU/PIU/PMC.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
17.	Extraction of water	Disruption to other water users	At water sources	• Water from surface water bodies will be extracted after prior approval from River Authority / Irrigation Department as appropriate. While working across or close to any perennial water bodies, Contractor shall not obstruct/ prevent the flow of water. Under no circumstances the downstream flow shall be stopped putting the wildlife, the aquatic fauna and the shore line settlement under distress. • Construction over and close to the non-perennial of construction streams shall be undertaken in dry season. Prior intimation activity (at least two weeks advance notice) to be given to downstream users. • Loss of access to safe drinking water due to construction is likely then the Contractor shall make necessary arrangements to provide water in the interim period. • Water quality test shall be done prior to providing / supplying water.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
18.	Transporting Construction material	Air and Noise pollution	All along the sub-project road and haul roads	• All vehicles delivering materials to the site shall be covered to avoid spillage of materials. • All existing highways and roads used by vehicles of the contractor, or suppliers of materials and similarly roads which are part of the works shall be kept clean and clear of all dust/mud or other extraneous materials dropped by such vehicles. • Water spraying shall be done on the unpaved haulage roads and other dust prone areas. • The unloading of materials at construction sites close to settlements shall be restricted to daytime only.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
19.	Storage of Construction material	Dust and water pollution	Material storage areas	• Location for stockyards for construction materials shall be identified at least 500m away from water courses. • Storage areas to be located downwind of the habitation area. • The construction materials containing fine particles shall be covered with tarpaulins or gunny bags to prevent dust rising. • Exposed soil and any stockpiled material on site shall be covered to avoid dust or sprinkle water during dry weather.	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
				• Silt fencing along any streams or water bodies close to material storage areas will be provided to avoid siltation of water.		
20.	Construction of Bridges or Culverts	Spillage causing water pollution	Bridge and culvert locations	• Silt fencing will be provided while working close to cross drainage channels to prevent earthwork, stonework, materials and appendage from impeding cross- drainage at rivers, streams, water canals and existing irrigation and drainage systems. • All extracted material shall be disposed off safely away from water body. The contractor shall ensure that construction materials and excavated materials are enclosed to avoid sediment runoff enter in waterbodies.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
21.	Drainage, Spillage & Flood control	Water contamination /Pollution and Flooding	All along the sub-project corridor	• Silt fencing shall be provided to ensure that no construction materials like earth, stone, ash, waste water generated from construction or appendage disposed off that may block the flow of water of any water course and cross drainage channels or contaminate the water bodies. • Regular visual checks and cleaning of drains shall be done along the alignment to ensure that flow of water is maintained through cross drains and other channels / streams. • Construction vehicles will be maintained and refueled in such a fashion that oil / diesel spillage does not contaminate any drainage channels. • Oil and grease traps and fueling platforms to be provided at re-fueling locations, to prevent contamination of water. • Water Quality monitoring has to be performed as per the Environmental Monitoring Program and in accordance with the general and specific condition of CTO.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
22.	Construction Camp Maintenance	Solid wastes and waste water management	Construction camps	• Collecting kitchen waste at separate bins and disposing of in a pit at designated areas. • Collecting plastics in separate bins and disposing in deep trench at designated areas covering with soil. • Collecting cottons, clothes etc. at separate bins and burning in a pit (with sand bed). • Wastes must be collected, stored and taken to approve disposal site. Adequate water and sanitary latrines with septic tanks with soak pits shall be provided. • Locating soak pits at least 50m from any ground water sources. • Night soil is to be disposed off by putting layer of it at the bottom of a permanent tank prepared for the purpose and covered with 15 cm. layer of waste or refuse and then covered with a layer of earth for a fortnight. • All waste arising from the project are to be disposed off in the manner that is acceptable to the State Pollution Control Board.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
23.	Hot-mix and	Air, water and	Spillage from	• Hot mix plant and batch mix plant shall be fitted with dust extraction units and mist spray	Contractor	PIU / PMU /

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
	Batching plant in operation	land contamination	plant and equipment at construction camp	to keep down the dust emission levels. The suspended particulate matter value at a distance of 40m from a unit located in such a cluster should be less than 500 µg/m3. • Precautions to reduce the level of dust (SPM and RSPM) from crushers, material storage yards, haul roads and construction sites (including earthwork, dismantling, scarification and material mixing sites) by sprinkling of water, mist spray, encapsulation of dust source and erection of screen /barriers shall be undertaken. • Providing impervious platform and oil and grease trap for collection of spillage from construction equipment vehicle maintenance platform. • Collection oil and lubes drips in container during repairing construction equipment vehicles. • Providing impervious platform and collection tank for spillage of liquid fuel and lubes at storage area. • Providing bulk bituminous storage tank instead of drums for storage of bitumen and bitumen emulsion. • Providing impervious base at bitumen and emulsion storage area and regular clearing of any bitumen spillage for controlled disposal. • Reusing bitumen spillage. • Disposing non-usable bitumen spills in a deep trench providing clay lining at the bottom and filled with soil at the top (for at least 0.5 m). • Contractor shall arrange for collection, storing and disposal of oily wastes to the pre-identified disposal sites. All spills and collected petroleum products shall be disposed off in accordance with MoEF&CC and state PCB guidelines.		PMC/ Collaborating Agencies
24.	Construction activities	Occupational health and safety of workers	Construction camp	• Contractor shall provide necessary water supply, sanitation, drainage and medical health facilities at campsite. • Contractor shall provide PPE such as safety goggles, helmets, safety belts, ear plugs, mask etc. to staff, workers and laborers. • Reverse horn for all construction equipment and vehicles should be kept in working order. • Required electrical safety measures such as double earthing for heavy electrical equipment, machinery, providing earth link circuit breaker (ELCB) for all electrical connections shall be undertaken by the contractor. • The contractor shall comply with all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress.	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
				• The contractor shall also ensure that no paint containing lead or lead products is used except in the form of paste or readymade paint. • Contractor shall provide facemasks to the workers when paint is applied in the form of spray or a surface having dry lead paint is rubbed and scrapped. • The Contractor shall mark 'hard hat' and 'no smoking' and other 'high risk' areas and enforce non-compliance of use of PPE with zero tolerance. These shall be reflected in the Construction Safety Plan to be prepared by the Contractor. • Maintaining first aid at construction sites. • Maintaining emergency response system.		
25.	Accidents & Safety	Workers / Road user safety and First Aid	Construction sites; labour camps and construction establishments	• Providing and maintaining traffic management comprising diversion; warning, guiding and regulatory signage; channelizes and delineators; lighting, flagmen; dust control system etc. as specified in the contract. • Conducting periodic mock drilling on critical accident- prone activities. • Conducting periodic training for all personnel working at plant site. • A readily available first aid unit including an adequate supply of sterilized dressing materials and appliances as per the Factories Rules in every work zone. • Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
26.	Operation of Construction vehicles, Machinery & equipment	Air pollution, Noise Pollution and Vibration	Vehicles and Construction machinery	• Contractor shall ensure that all vehicles, equipment and machinery used for construction are regularly maintained and confirm to the air and noise emission standards specified by the CPCB. • Certification obtained from designated/approved authority shall be submitted along with the specified reporting format. • All equipment to be timely serviced and properly maintained. • Construction equipment and machinery to be fitted with silencers and maintained properly. • Only IS approved equipment shall be used for construction activities. • Construction activities particularly near sensitive zones like schools and colleges to be carried out after closing of school and in the weekends / holidays only. • Construction activities near hospitals to be completed on priority basis (in short time period) with alternate provision of traffic. • Manage smooth traffic flow to avoid traffic jams and honking. • Restrict construction activities near residential and built- up areas to daylight hours with prior intimation to local residents.	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
				• Proper PPEs (ear muff) shall be provided to the workers engaged in activities for longtime exposure to increased noise level. • Limits for construction equipment used in the project such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws shall not exceed 75 dB (A) (measured at one meter distance from the edge of equipment in the free field), as specified in the Environment (Protection) rules, 1986.		
27.	Embankment construction	Control of Soil Erosion	At bridge approaches; High embankment sections (Low lying areas) and borrow pits	• The contractor shall construct slope protection works as per design to control soil erosion and sedimentation through use of dykes, sedimentation chambers, basins, fiber mats, mulches, grasses, slope drains and other devices as required under specific local conditions • Turfing works shall be taken up as soon as possible provided the season is favorable for the establishment of grass sods. Other measures of slope stabilization shall include mulching netting and seeding of batters and drains immediately on completion of earthworks. • Along sections abutting water bodies, pitching as per design specification shall protect slopes. In borrow pits, the depth shall be regulated so that the sides of the excavation shall not be steeper than 1 vertical to 2 horizontal, from the edge of the bank.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
28.	In case of finding Archaeological Property	Cultural artefacts	All along the project area including borrow areas	• All fossils, coins, articles of value of antiquity, structures and other remains or things of geological or archaeological interest discovered on the site are the property of the Government and shall be dealt with as per provisions of the relevant legislation. • The contractor shall take reasonable precautions to prevent his workmen or any other persons from removing and damaging any such article or thing. • TheContractor shall seek direction from the Archaeological Survey of India (ASI) to recommence the work at site.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
29.	Clearing of Construction Camps & Restoration	Land pollution	Camp locations	• Contractor to prepare site restoration plans and has to be implemented prior to demobilization. • On completion of the works, all temporary structures shall be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the Contractor's expense.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
30.	Redevelopment of Borrow Areas	Ponding of water and hazardous conditions	Borrow area locations	• Redevelopment of borrow areas shall be taken up in accordance with the approved plans.	Contractor	PIU / PMU / PMC/ Collaborating Agencies
31.	Enhancement		CPR (Selected)	• Enhancement of all incidental spaces shall be planned and carried out prior to completion	Contractor	PIU / PMU /

Sl. No.	Project Activity	Potential E&S Impact	Location / Sources	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
	of Cultural and Common Properties		and Incidental Spaces	of construction, along the project road. Some of the enhancement measures to be considered along the project roads include Avenue tree plantation along the entire stretch of the road, Planting of shrubs in medians, rain water harvesting, adequate storm water drainage, Landscaping at junctions to improve aesthetics etc.		PMC/ Collaborating Agencies
32.	Road side Plantation	Trees lost due to widening	Along the sub-project road in the RoW or identified spaces by community	• The contractor / identified agency (where specifically identified) shall do the plantation at median and / or turfing at embankment slopes as per the tree plantation strategy prepared for the project. • Minimum 80 percent survival rate of the saplings shall be acceptable otherwise the contractor shall replace dead plants at his own cost. The contractor shall maintain the plantation till they handover the project site. • Re-plantation of at least twice the number of trees cut should be carried out along the project road. Since the major portion of the project road may pass through open lands, planting of trees along the entire stretch of the road is recommended as an enhancement measure, which would also serve as a mechanism to delineate ROW and prevent future encroachments / squatters into the right of way, wherever possible. • Growth and survival of trees planted shall be ensured and monitoring done at least for a period of 3 years.	Contractor	PIU / PMU / PMC/ Collaborating Agencies

Table – 10: Environmental & Social Management Plan during Operation Phase (ESMP)

Sl. No.	Environmental & Social Issue	Sources/Location	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
OPERATION PHASE					
1.	Air Pollution	Vehicular gaseous emission	• Ambient air concentrations of various pollutants shall be monitored as envisaged in the pollution-monitoring plan at pre-designated locations to compare the levels with the pre-construction data. • Periodicals monitoring of air pollutants and if values exceed the standard limits, suitable mitigation measures to be taken.	Through SPCB/CPCB approved laboratories by Contractor	PIU / PMU /PMC/ Collaborating Agencies
2.	Noise Pollution	Vehicular	• Periodical monitoring of noise level will be carried out. If values exceed the standard limits, suitable measures will be taken. • Providing and maintaining signage on noise regulation particularly near	Through SPCB / CPCB approved laboratories by	PIU / PMU /PMC/ Collaborating Agencies

Sl. No.	Environmental & Social Issue	Sources/Location	Mitigation Measures	Implementing Agency	Supervising & Monitoring Agency
			sensitive zones like schools, colleges, hospitals, etc.	Contractor	
3.	Road Safety	Traffic and Vehicles Slow moving traffic and Lighting	• Safety Signage and Traffic Management. • No advertisement/hoardings shall be allowed within theRight of Way limits of the project road. • Regular maintenance and cleaning of assets such as signboards, bus stops, drains etc. shall be undertaken. • Maintenance of road lighting.	PIU	PMU
4.	Tree plantation	ROW	• Roadside tree plantation shall be carried out as per the relevant norms and conditions mentioned in the tree cutting permission.	Contractor	Department of Forest GoA/PIU / PMU / PMC/ Collaborating Agencies
5.	Contamination of Soil and Water Resources from Spills due to traffic & accidents	Vehicular Traffic	• Contingency plans to be in place for cleaning up of spills of oil, fuel and toxic chemicals. • Spill of oil, fuel and automobile servicing units withoutadequate preventive systems in place to be discouraged.	PIU	PIU / PMU /PMC/ Collaborating Agencies
6.	Soil Erosion and Sedimentation	-	• Maintaining the slope protection measures provided at stretches of high embankment and protection measures for bed scouring at cross drainage locations as per maintenance manual to be prepared before operation.	PIU	PIU / PMU /PMC/ Collaborating Agencies
7.	Maintenance of Drainage	-	• The drains will be periodically cleared to maintain stormwater flow. • Road drains will be cleared of debris before onset of everymonsoon.	PIU	PIU / PMU /PMC/ Collaborating Agencies
8.	Monitoring and Evaluation of Operational Performance of Environmental Mitigation Measures provided in the Project	Sub-Project influence area	• The PMU/PIU shall monitor the operational performance of the various mitigation/ enhancement measures carried out as a part of the project. • Also, the rehabilitation works at degraded sites along nalas, streams and gullies after soil and water conservation measures has to be inspected, recorded and damages timely repaired for effective functioning and maintenance of such efforts in the field.	PIU	PIU / PMU /PMC/ Collaborating Agencies

Abbreviations

PMU – Project Management Unit

PMC – Project Management Consultancy P&E Wing - Planning and Engineering Wing

SO_2- -Sulphur Dioxide; NO_2- - Nitrogen Dioxide; CO- Carbon Monoxide; EC – Electric Conductivity;

Pb – Lead; $PM_{2.5}$ - Particulate Matter <2.5; PM_{10} - Particulate Matter <10; TSPM- Total suspended Particulate Matter; EC - Electrical Conductivity; DO - Dissolved Oxygen; TSS - Total Suspended Solids;

BOD - Biological Oxygen Demand; NAAQS - National Ambient Air Quality Standards;

NWQS - National water Quality Standards; AEGCL - Assam Electricity Grid Corporation Limited; ORP – Oxidation Reduction Potential, PMC – Project Management Consultancy

PIU – Project Implementation Unit (AEGCL) IFC – International Finance Corporation (World Bank Group), HR – Human Resource

PS – Performance Standards

7. ENVIRONMENTAL AND SOCIAL MONITORING PLAN (ESMOP)

Table - 11: Environmental and Social Monitoring Plan

Environmental Component	Project stage	Parameters to be monitored	Location	Frequency	Standards	Implementation	Supervision
1. Air Quality	A. Pre-construction stage B. Construction Stage C. Operation Stage	NAAQS 2009	RoW/Camp and Plant area	Once Pre-construction, once construction and once post construction	National Ambient Air Quality Standards (NAAQS), CPCB, India	Contractor by CPCB/SPCB approved laboratory	PMU/PIU/PMC
2. Water Quality	A. Pre-construction stage B. Construction Stage C. Operation Stage	Surface Water and Ground Water: As per IS: 10500 : 2012	Nearest downstream spring/hand pump along the Sub-Project site	Once Pre-construction, once construction and once post construction	National water quality standards of CPCB, BIS- Drinking Water Specifications (IS:10500-2012)	Contractor by CPCB/SPCB approved laboratory	PMU/PIU/PMC
3. Noise	A. Pre-construction stage B. Construction Stage C. Operation Stage	Noise level (dB level) On hourly basis for 24 hours	RoW	Once Pre-construction, once construction and once post construction	The Noise Pollution (Regulation and Control)Rules, 2000	Contractor by CPCB/SPCB approved laboratory	PMU/PIU/PMC
4. Soil	A. Pre-construction stage B. Construction Stage C. Operation Stage	Physical, Chemical parameters	RoW/Camp and Plant area	Once Pre-construction, once construction and once post construction	Technical specifications	Contractor by CPCB/SPCB approved laboratory	PMU/PIU/PMC
5. Traffic	A. Pre-	Number & type of vehicles	RoW	Continuous	Increased traffic	Contractor	PMU/PIU/PMC

	construction stage B. Construction Stage	being used for construction Purpose		activity	load in localities		
6. Tree cutting	A. Pre-construction stage	Enumeration of trees during detailed survey	RoW	Once	Documentary evidence to be maintained by Surveyor for counting of trees	Contractor	PMU/PIU/PMC
	B. Construction Stage	Development of inventory of tress before commencement of Civil works	RoW	Once	Marking of tress by concerned authority in presence of contractor and AEGCL officials. Obtaining clearance from concerned department before tree cutting.	Contractor/ Concerned Authority/ PIU	PMU/PMC
	C. Operation Stage	Avenue plantation	RoW	Once	Growth and survival of trees planted shall be ensured and monitoring done at least for a period of 3 years.	Contractor/PIU	PMU/PMC
7. Stakeholder Engagement	A. Pre-construction stage	Mapping of stakeholders	Project Locations/ RoW	Continuous activity	Consultation record with mapped stakeholders (minutes of Consultation and attendance sheet)	Contractor/PIU/ Concerned Authority/ PMC	PMU/PMC
	B. Construction Stage	Listing of identified stakeholders (administrative and project affected people)	Project Locations/ RoW	Continuous activity	Keep record of the Consultation with mapped stakeholders and PAPs (Keep the	Contractor/PIU/ Concerned Authority/ PMC	PMU/PMC

					record MOM of Consultation and attendance sheet)		
	C. Operation Stage	Identified stakeholders at project pre construction and construction stage	Project Locations/ RoW	Continuous activity	Consultation record with identified stakeholders (minutes of consultation and attendance sheet)	Contractor/PIU/ Concerned Authority/ PMU/ PMC	PMU/PMC
8. Grievance Mechanism	A. Pre-construction stage	Identification of officials, NGO, stakeholders to be part Grievance Redressal Committee	Project Locations	Continuous activity	Development of Grievance redress mechanism as per provisions Notification of formulation of GRM and GRC	PIU/PMC/PIU/ Contractor	PMU/ PIU / PMC
	B. Construction Stage	Working files of GRC and GRM records	Project Locations	Continuous activity	Notification of formulation of GRM and GRC and display of GRM procedure in project locations. (In local language) Working records for GRM	Contractor/ PMC/ PMU/ PIU	PMU/ PIU/ PMC/GRC
	C. Operation Stage		Project Locations	Continuous	Notification of formulation of GRM and GRC and display of GRM procedure in project locations. Working records for GRM	PIU / PMU / concerned Revenue Department	PMU/ AEGCL Field officials & PMC
9. Compensation	A. Pre-construction stage	Identification of project affected people/ Mapping and listing of projects affected people's loss of	RoW	During identification of land Parcel of the approach road	Right to Fair Compensation and Transparency in Land Acquisition	Revenue circle & PMC /PIU / PMU / Contractor	PIU/PIU Revenue Department/ PMC

		land due to land acquisition (area m2), (crop damage (area m2), zirat damage (marking of trees & development of inventory), – if applicable			Rehabilitation and Resettlement Act, 2013 and IFC's Performance Standard 5		
	B. Construction Stage	Land compensation / Livelihood assistance to PAP and Skill training, counselling on utilization of compensative amount etc. (where ever require)	RoW	Before commencement of work		Contractor /PMC / Revenue circle / PIU / PMU / Contractor	PIU/PIU Revenue Department/ PMC
	C. Operation Stage	Address Grievance related to compensation if any.	RoW	Continuous activity		PMC / Revenue circle / PIU / PMU / Contractor	PIU/PIU Revenue Department/ PMC
10. Livelihood	A. Pre-construction stage	Identification of any impact on livelihood due to acquisition of land, crop damage and zirat damage.	All project locations	During identification of land Parcel of the approach road	Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013 an IFC's Performance Standard 5	Revenue Department / PIU / PMC / Contractor	PIU/PIU Revenue Department/ PMC
	B. Construction Stage	Assistance for loss of Livelihood, etc. provided as per entitlement matrix	All project locations	Once before commencing construction work		Revenue Department / PIU / PMC / Contractor	PMU/Revenue Department/ PMC & PIU
	C. Operation Stage		All project locations	Continuous activity		Revenue Department / PIU / PMC / Contractor	PMU/Revenue Department /PMC & PIU
11. Restoration	A. Pre-construction stage	Identification of any damage to public utilities and public / private property to be envisaged during	All project locations	Once During identification of land Parcel of the approach road	Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and	Revenue Department/ PIU/ PMC/Contractor	PMU/Revenue Department /PMC & PIU

		construction phase			Resettlement Act, 2013 and IFC's Performance Standard 5		
	B. Construction Stage	Marking and listing of Damage to public utilities/shifting of public utilities and public/private property	All project locations	Continuous activity		Revenue Department/ PIU/ PMC/Contractor	PMU/Revenue Department /PMC & PIU
	C. Operation Stage		All project locations	Continuous activity		Revenue Department/ PIU/ PMC/Contractor	PMU/Revenue Department /PMC & PIU

Abbreviations

PMU – Project Management Unit

PMC – Project Management Consultancy P&E Wing - Planning and Engineering Wing

SO_2- -Sulphur Dioxide; NO_2- - Nitrogen Dioxide; CO- Carbon Monoxide; EC – Electric Conductivity;

Pb – Lead; $PM_{2.5}$ - Particulate Matter <2.5; PM_{10} - Particulate Matter <10; TSPM- Total suspended Particulate Matter; EC - Electrical Conductivity; DO - Dissolved Oxygen; TSS - Total Suspended Solids;

BOD - Biological Oxygen Demand; NAAQS - National Ambient Air Quality Standards;

NWQS - National water Quality Standards; AEGCL - Assam Electricity Grid Corporation Limited; ORP – Oxidation Reduction Potential,

PIU – Project Implementation Unit (AEGCL) IFC – International Finance Corporation (World Bank Group), HR – Human Resource

PS – Performance Standards

8. BUDGET FOR IMPLEMENTATION OF ESMP SPECIFIC FOR ACTIVITIES COVERED BY THE ESIA

ESMP cost to implement the key environmental & social measures and environmental & social monitoring plan which a part of Engineering Procurement Construction (EPC) Contractor's contract Contractors have to comply the Generic ESMP which is attached in Table- 10 & 12 and is integral part of the *tender document*. The cost of compliances shall be included in the quoted amount by the tenders by EPC Contractor for the proposed approach road to Sonapur S/S.

Table - 12: Estimation of Environmental and Social Monitoring Plan

S. No.	Description	Quantity (in No.)	Rate (in INR approx.)	Amount (in INR approx.)
1	ESMP which is attached in Table- 10 & 12, and is integral part of the tender document. The cost of compliances shall be included in the quoted amount by the tenders by EPC Contractor for the proposed approach road to Sonapur S/S.	Up to completion and hand over of project to AEGCL	As actual proposed by EPC against the AIIB compliance*	As actual proposed by EPC against the AIIB compliance*

* The actual value of ESMP as per implementation and AIIB compliance requirement. It should be revealed in his Construction Environmental and Social Management Plan by EPC contractor

9. INSTITUTIONAL ARRANGEMENT FOR MONITORING AND REPORTING

9.1 MONITORING OF ESIA/ESMP COMPLIANCE:

Implementation and Monitoring (a) Execute the Project in compliance with the Environmental and Social Management Framework (ESMPF) and Environmental and Social Impact Assessment/Environmental and Social Management Plan (ESIA/ESMP), or any other environmental and social instruments approved by the Bank, as well as adhering to all environmental and social obligations outlined in the Legal Agreements for the Project; (b) Continuously monitor the advancement of the Project in relation to the implementation of these instruments and obligations; (c) Identify and promptly implement corrective actions as necessary to address any deviations or shortcomings in meeting environmental and social standards; (d) Thoroughly document the results of monitoring activities and detail the corrective actions taken to address any identified issues; (e) Develop and submit periodic monitoring reports to the Bank within an agreed-upon timeframe, ensuring a minimum frequency of at least annually. These reports should comprehensively outline the Client's environmental and social performance under the Project (f) Facilitate the disclosure of monitoring reports in accordance with the relevant provisions outlined in Sections 19 through 21 of this Environmental and Social Safeguards (ESS) document ESS 1

The Environmental and Social staff of AEGCL-PMU will ensure that site engineers and contractors adhere and comply with all measures and procedures identified in the ESIA/ESMP. Activities to be monitored should include, but are not limited to:

- All planning, coordination and management activities related to the implementation of E&S safeguard issues;
- The identification of corrective and preventive actions;
- Records of health and safety matters and training activities;
- Consultations with project affected people (as and when needed, particularly during the implementation);
    - Feedback, trouble shooting and project related grievances;
    - Ensuring that livelihoods, where negatively impacted, are restored to pre-Project levels;
    - Preparation of progress and monitoring reports as required by the funding agency, and
    - Verifying the projects overall compliance with safeguard measures and its progress towards achievingthe intended loan outcomes.

9.2 MONITORING OF ESMP COMPLIANCE OF CONTRACTOR:

Environmental Parameters to Be Monitored:

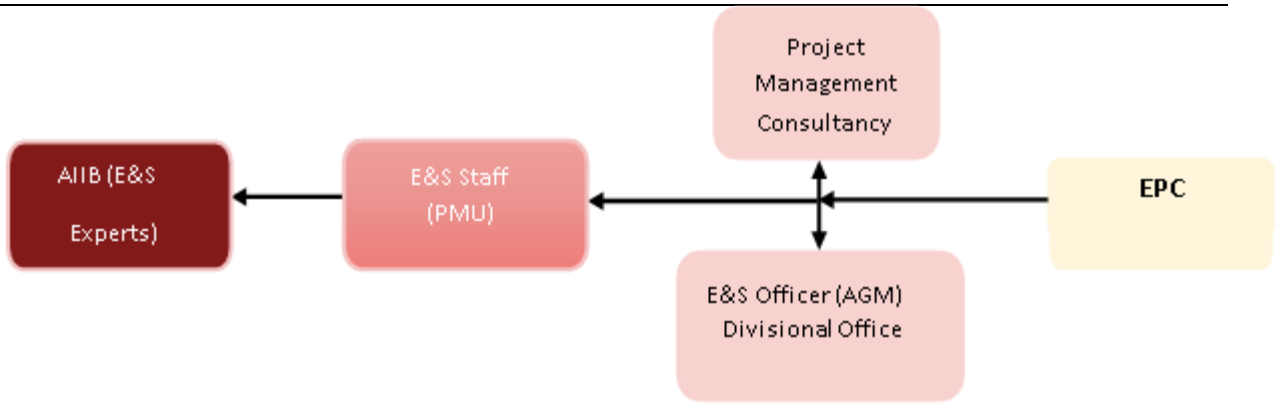
To ensure that project would not generate negative impacts to the environment and affected communities, monitoring of environmental and social parameters has to be performed by PMU- AEGCL and PMC as per contract provisions. The monitoring activities of the project include site supervision, verification of permits, monitoring of water quality, soil, noise and air, traffic disruptions, livelihood restorations, Occupational, Health and Safety, etc. Monitoring of the quality of water, soil, air and noise during the construction stage is the responsibility of the PMC. The ESMP compliance will be monitored by E&S staff of PMU. The awarded contractor, denoted as L1, is obligated to submit

documentation for approval to the PMC E&S team. This submission should encompass information from the PIU/PMU AEGCL. The Contractor's Environmental and Social Management Plan (C-ESMP) must comply with PCC sub-clause 16.2 for proper implementation, and obtaining approval from the AIIB is imperative. Traffic Management Plan to ensure social aspect of local communities from diversion/construction traffic.

- Water resource protection plan to prevent contamination of drinking water.
- Proper waste water management plan /including septic tank provision.
- Baseline /Regular environmental quality monitoring teat from E&S AECGL/PMC approved lab [ie AAQ, ANQ, Ground water quality , Surface water quality , Soil quality] report with calibration certificate, evidence photos taken during monitoring activities, interpretation in 3 stage preconstruction/baseline, construction phase –all working location on quarterly basis, and post construction.
- Boundary Marking and Protection Strategy for mobilization and construction to prevent offsite adverse impacts
- Strategy for obtaining Consents/Permits prior to the start of relevant works such as opening a quarry or borrow pit
- Gender based violence and sexual exploitation and abuse (GBV/SEA) prevention and response action plan.

9.3 REPORTING LINE

The mitigation measures outlined in the ESIA/ESMP specific to construction shall be integrated into civil works contracts, and the contractors bear primary responsibility for their implementation. Additionally, contractors must regularly submit monthly Environmental & Social progress reports to the PMC/PMU detailing the execution of ESMP measures. The PMU – AEGCL & PMC is tasked with reporting biannually to AIIB E&S experts on the progress achieved regarding ESMP activities and milestones. These progress reports will furnish comprehensive information, including descriptions of implementable activities and their status, identification of responsible parties overseeing implementation, and the provision of project management schedules, timeframes, and associated costs. The illustration of reporting line is provided in **Figure** below.



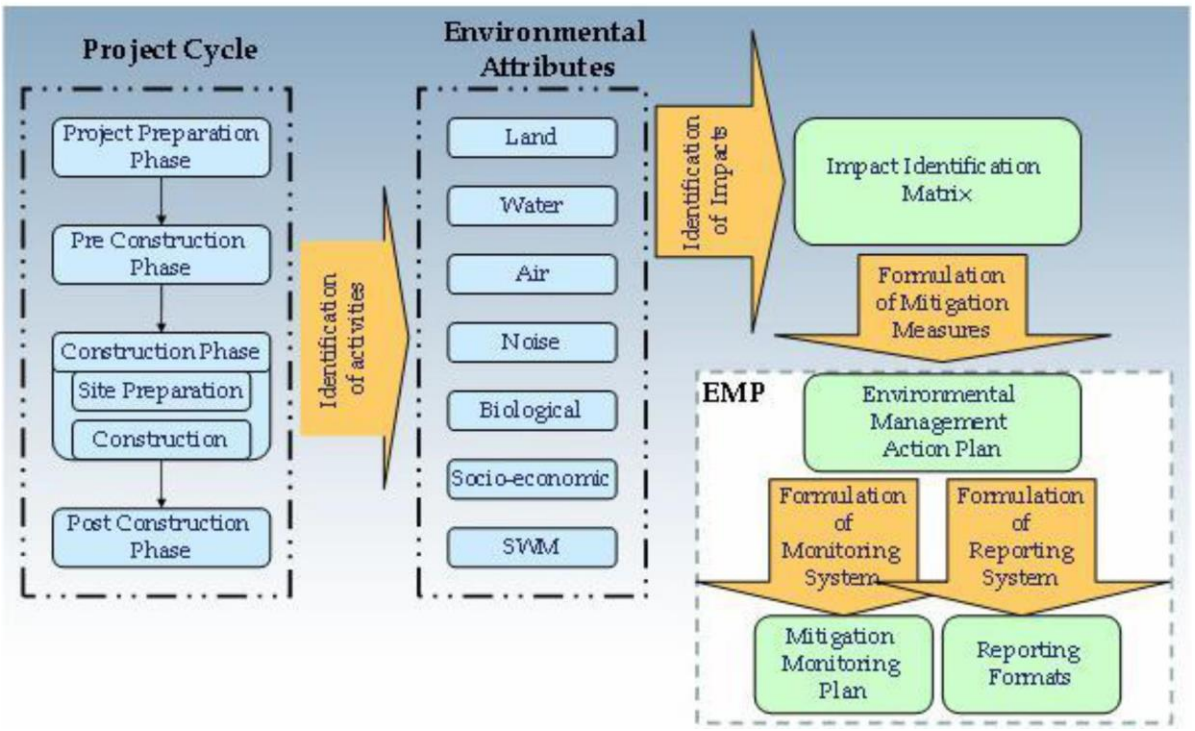


Figure -2: Illustration of monitoring and reporting Line of ESMP

The EPC Contractor is responsible for submitting the environmental monitoring report, inclusive of hologram-validated results (with hologram being a prerequisite for report validity), instrument calibration certificates, credentials of the environmental monitoring agency staff, and photographic evidence of monitoring activities. These details will be incorporated into the contractor's monthly environmental and social report, forwarded to the PMC, PMU and AEGCL, and subsequently reviewed for adequacy by the Environment and Social Staff of PMU in consultation with the PMC E&S staff.

The contractor is required to submit a monthly report by the 7th day of each month to the PMC. The PMC will review the report and provide feedback to the contractor in coordination with the PMU AEGCL. Prior to commencing work, the contractor must deploy suitable key personnel (as outlined in Section III, Evaluation, and Qualification Criteria, Clause 5 - Key Personnel) and ESHS Metrics (as specified in Section VIII, GCC Appendix B). These key personnel and ESHS Metrics reports shall be submitted to PMC/PIU/AEGCL to ensure compliance with the environmental and social banking requirements, as approved personnel mentioned in the tender document.

10. STAKEHOLDER & PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

Carry out meaningful consultation with Project-affected people and other stakeholders and facilitate their informed participation in the consultations. Meaningful consultation is an interactive process to provide information and facilitate informed decision-making that: (a) begins early in the preparation stage of the Project to provide accurate information on the proposed Project, minimize misinformation and unsupported expectations, and obtain initial views on the Project;

(b) Is carried out on an ongoing basis throughout the implementation and life cycle of the Project;

(c) Is designed so that all relevant parties have a voice in consultation, including national and subnational governments, the private sector, nongovernmental organizations and people affected by the Project, including, as applicable, Indigenous Peoples;

(d) Provides additional support as needed so that women, elderly, young, disabled, minorities and other vulnerable groups participate;

(e) provides timely disclosure of relevant and adequate information, including availability of the Project's GRMs and of the PPM or other Bank-approved IAM, which is understandable and readily accessible to the people affected by the Project and other relevant stakeholders; (f) is undertaken in an atmosphere free of intimidation or coercion; (g) is gender sensitive, inclusive, accessible, responsive and tailored to the needs of vulnerable groups; and (h) enables the consideration of relevant views of people affected by the Project and other concerned stakeholders in decision-making. Continue consultation with Project-affected people throughout Project implementation as necessary on issues related to environment

10.1 PUBLIC CONSULTATION

Public consultations were conducted with local habitants where nine participants were participated in the approach road to Sonapur S/S) like economically poor communities, women, vulnerable groups and other local community leaders nearby approach road to Sonapur substation location on 28th February, 2023. Stake holder consultation also conducted on the proposed approach road on 06.04.2023. The consultation followed strict protocols to prevent the spread of Covid-19 and to reiterate awareness about safe behavior.

The transcript of these discussions will help AEGCL and EPC contractor for proper needs assessment to ensure the issues raised by people are addressed appropriately. Consultation will be carried out on an on-going basis throughout the sub-project cycle.

Community welcomed the construction of proposed approach road to Sonapur sub- station. No major environmental issues were raised during the consultation process. A few of the affected families has shown their interest on unskilled works on temporary basis when the civil works are initiated.

Local people are waiting eagerly for the implementation to start, so they could receive better all-weather approach road and hoped for some employment generation.

Details of consultation with public are provided in **Annexure-B.**

Table - 13: Summary of Public Consultation

Issues Discussed	People's views and perceptions
General Perception	Majority communities (including women) were aware of the construction of proposed approach road to Sonapur substation. Some have heard it but not sure about the details of the proposed approach road. All the people were positive and supportive towards the construction of proposed approach road to substation.
Support of local people for the construction of proposed approach road to substation.	Most of the communities expressed their support during implementation of the construction of proposed approach road to substation, as it has been perceived to be great prerequisite/necessary for the people of the area. They are happy for contribution of Government of India's effort towards construction of proposed approach road to substation. Most of the communities expressed that there should be no adverse impact due to the construction of proposed approach road to substation.
Critical issue and concern by the local people for the proposed approach road to substation locations.	Most of the communities expressed that there were no critical issues regarding the construction of proposed approach road to Sonapur substation.
Project site selection criteria (Proposed approach road)	The community held the view that the project should avoid/minimize harm to vegetation's and places of community importance such as structure/CPR or community gathering places etc. Some of them suggested that necessary precautions must be taken to ensure safety of people during construction of construction of proposed approach road to Sonapur substation.
Employment potential in the construction of proposed approach road to Sonapur substation.	Across the communities, majority felt that, during construction/operation of the proposed approach road to Sonapur substation there may opportunities to local unemployed people for self-supporting business activity like establishment of small hotel/tea stall/ grocery shop etc. Some of them requested that they should be involved not only in unskilled labour job but also in the supervisory work. They complained that the construction work is generally handed over to contractors who would bring their own labour force from outside. They hoped that instead of hiring people from outside the local people should be given employment. Some others felt that construction of all-weather proposed approach road under the project will ensure proper and better road and as a result small and medium scale business can be started in the area.
Socio economic standing: land use, cropping pattern	The major sources of livelihood for the communities were agriculture, wage labour and small business. Most of the communities practiced one time cropping in a year, mainly paddy and vegetable cultivation.
Source of drinking water	The main sources of drinking water were hand pump. The other sources of

Issues Discussed	People's views and perceptions
	drinking water were ring well. The availability of water is good as the water table remained high. However, in few people complained about the taste of the drinking water due to iron content in the water and thus they are using simple sand filter for portable use of water.
Negative impact on food grain, availability /land use	In general, the communities did not see any adverse impact on food/grain availability, as the constructions of proposed approach road to Sonapur substation will be in the existing brick industry road and land will be acquired by AEGCL from private land owners.
Will project cause widespread imbalance by cutting fruit and commercial trees in the locality	As there is no tress in the proposed approach road to Sonapur S/S, the communities were not foreseeing any impact.
Will project cause health and safety issues	Most of the communities did not foresee any health or safety issues from the construction of proposed approach road to Sonapur substation. Some of them suggested that necessary precautions must be taken to ensure safety of people during construction of proposed approach road to substation.
Protected areas	No protected area envisaged in the vicinity of the proposed approach road.
Will project setting change migration pattern of animals	None of the communities consulted were conscious of the presence of any migrant birds or animals in their localities and nearby proposed Sonapur substation. They therefore did not foresee any impacts on animals, birds or their habitats from the construction of proposed approach road to Sonapur substation.
Migration pattern	Majority of the communities reported outward migration of young generation especially the boys to big cities in search of work. The popular destinations of migration were Guwahati for security guard and helper job as well as for factory jobs. There are very few cases of migration to capital cities of north eastern states in search of work.
Perceived benefits from project	Across the communities majority of them viewed that the construction of proposed approach road to Sonapur substation would contribute to minimize the prevailing energy crisis such as load shedding, and low voltage in the region. For some it will increase the rate of rural electrification and provide impetus to open small and medium business units in the area. At community level, the people hoped that project will address the problems of low voltage, and irregular power supply to the households.
Perceived loss	It will be temporary in nature due to loss of boundary wall and structure and can be compensated by AEGCL.

Annexure – D gives the names of all participants of the public consultation conducted by the team during the site visit in the project area. The transcript of these discussions will help AEGCL and the EPC contractor for proper needs assessment to ensure the issues raised by people are addressed appropriately.

10.2 CONTINUOUS CONSULTATION AND PARTICIPATION

AEGCL with PMC will carry out meaningful consultation as per requirement (Monthly consultation with local people nearby the S/S by PMU, PIU and PMC along with EPC Contractor) with affected people and other concerned stakeholders, including civil society and facilitate their informed participation. Consultation process undertaken under the directions of the PMU (i) will begin in the sub-project preparation stage and will be carried out on an on-going basis throughout the sub-project cycle (ii) will provide timely disclosure of relevant information that is understandable and readily accessible to groups and individuals, and specially women; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) will be gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) shall enable the incorporation of all relevant views of affected people and other stakeholders into decision making, such as subproject design, mitigation measures, the sharing of development benefits and opportunities and implementation issues. Consultation will be carried out in a manner commensurate with the impacts on affected communities. The consultation process and its results will be documented and reflected in the environmental and social monitoring report. Feedback about project should be obtained time to time from PAFs during consultation. PAFs may approach GRC if any grievances arise.

10.3 PUBLIC CONSULTATION INFORMATION DISCLOSURE

AEGCL will submit to AIIB the following documents for disclosure on AIIB's website: (i) the final ESIA; (ii) a new or updated ESIA and corrective action plan prepared during sub-project implementation, if any; and (iii) the environmental monitoring reports.

AEGCL will provide relevant environmental information, including information from the above documents in a timely manner, in an accessible place and in a form and local language(s) understandable to affected people and other stakeholders in accordance with the AIIB's ESP 2019.

ESIA results will also be communicated to the local community before commencement of construction through posting on the website of AEGCL and other suitable means as well as providing a mechanism for the receipt of comments.

ESIA - ESMP will be disclosed online on the website of AIIB and AEGCL. Their hardcopies in English are available at the following locations:

1. PMU: Project Director,

   Address: 1st Floor, AEGCL, Bijulee Bhawan,

   Contact No.: 0361-2739520

   Website: www.aegcl.co.in,

   Contact Person: Mr. Balabanta Basumatary
2. PIU (Refer Table, Page no 93)

This executive summary in English and Assamese can be found at the following locations:

1. PMU: Project Director,

   Address: 1st Floor, AEGCL, Bijulee Bhawan,

Contact No.: 0361-2739520

Website: www.aegcl.co.in,

Contact Person: Mr. Balabanta Basumatary

2. PIU: (Refer Table, Page no 93)
3. GRC

Tier 2:

(i) Chief General Manager (CGM, PP&D), AEGCL

Address: 1st Floor, AEGCL, Bijulee Bhawan,

Contact No.: 0361-2739520

Website: www.aegcl.co.in,

Contact Person: Mr. Balabanta Basumatary

(ii) PMU: Project Director,

Address: 1st Floor, AEGCL, Bijulee Bhawan,

Contact No.: 0361-2739520

Website: www.aegcl.co.in,

Contact Person: Mr. Balabanta Basumatary

Tier 1: (Refer Table, Page no 93)

ESMPF is disclosed in AEGCL website: **https://www.aegcl.co.in/aiib-project-details/**

11. GRIEVANCE REDRESS MECHANISM

General overview of the Grievance Redress Mechanism

Assam Intra-State Transmission System Enhancement Project

Objectives

The Assam Intra-State Transmission System Enhancement Project (the Project) aims to strengthen Assam's electricity transmission system. As the Project is funded by the Asian Infrastructure Investment Bank (AIIB), it complies with the Environmental and Social Framework and the Policy on the Project-affected People's Mechanism of the AIIB.

The Environmental and Social Management and Planning Framework (ESMPF) of the Project provides for the establishment of a Grievance Redress Mechanism (GRM). The GRM is a free system that registers and attempts to resolve concerns or complaints by Project-affected people (PAPs) or construction workers. This process aims to quickly resolve disputes and avoid litigation, thus ensuring the smooth implementation of the project activities.

At all levels of the project Grievance Redress Mechanism, the Grievance Redress Committee members should uphold the objectives of the GRM and strive to achieve them. The primary objectives of GRM are:

- Provide an accessible, transparent, efficient and predictable mechanism for resolution of grievances to all project by:
    - Popularizing the GRM and how it can be accessed for free.
    - Receiving grievances in various possible forms (Written, Verbal, Electronic, Email, Social Media, Telephone, Fax, Suggestion Box)
    - Establishing clear procedures for redress that covers:
        - Registrations in the GRM log all grievances (including minor and verbal).
        - Acknowledgement to the complainant, explaining expected duration for resolution.
        - Investigation of the grievance, proposing a solution to the complainant and if acceptable closure of the complaint. OR
        - Escalation of the grievance to Tier II which should be communicated to the complaint.
        - Investigation of the grievance, proposing a solution to the complainant
        - Provision of feedback and closure of the grievance in the GRM Log.
    - Complaint should be made aware that:
        - There is no retribution or intimidation for complainants.
        - Access of the GRM is free for the complainants.
        - The GRM does not replace the judicial system.
- Observe for any repeated complaints and inform PMU of such for their systemic resolution.
- Providing an environment that fosters free and honest exchange of information, views, and ideas.

Stakeholders with Grievances

It is likely the following categories of stakeholders may have grievances and file the grievances for redressal. They are

- Individuals, **both men and women**
- Communities/ Groups of individuals
- Project workers – local and migrant
- Community Based Organizations or Common Interest Groups

- Firms, Companies, Enterprises, Service Providers, and other businesses
- National/ International NGOs

Roles and Responsibilities of GRC Members

PMU/ PIU GRC Members	Community GRC Members
➢ Receives grievance from complainant and record them in a logbook. ➢ Acknowledge receipt of complaints with a written record. ➢ Arrange for GRC meetings to consider the grievances. ➢ Work closely with the GRC members to develop and implementing actions to resolve grievances. ➢ Prepare minutes of GRC meetings and record solutions. ➢ Provide feedback information on the status of resolution to the complainant within assigned timeline. ➢ Review grievance response and submit to Contractor/PIU/PMU for approval or implementation. ➢ Submit proposed solutions to the complainant within assigned timeline. ➢ Ensure proper logging, escalation, tracking, reporting, and following up on all project specific grievances. ➢ Swiftly escalate any grievances that cannot be resolved at the project level or may pose a big reputational risk to the project. **This includes any complaints related to the health, safety, dignity, and wellbeing of any person (both men and women).** ➢ **Notify PMU within 12 hours of any grievances that require investigation or intervention by the police or other relevant authorities.** ➢ Provide monthly update to a member of the PMU who will track grievances and always include a section on grievance management in the monthly progress report.	➢ Popularize the existence, functions, and accessibility of the GRM among all project-affected people, **both men and women.** ➢ Encourage key community members to facilitate submission of complaints, if needed. ➢ Attend regularly and actively participate in GRM meetings to review and provide solutions to project related grievances. ➢ Facilitate and mediate resolution of grievance. ➢ Accept and record grievances from community members. ➢ Facilitate the communication of the response of the GRC to complainants/ aggrieved. ➢ Keep communicating project related matters to GRC/ PIU.

Most Common Grievances and Redressal

Common Grievance Categories	Issues and Likely Solutions
Technical/ Engineering	➢ Design related – Suit the design to the site. Restrict the width according to the available land and modify the design accordingly ➢ Alignment related – Always use GPS coordinates. In case of problem contact Revenue department to correct the alignment ➢ Quality related – Get the materials and finished product tested at reputed laboratories and publicize the results
Environmental	➢ Storm water – Do not obstruct or divert natural drainage. Provide for culverts or bridges where necessary ➢ Stone blasting – Take precautions as per law and inform the communities accordingly ➢ Dust – Keep watering as required so that dust doesn't spread or rise.

Common Grievance Categories	**Issues and Likely Solutions**
	➢ Noise – Use barriers at sensitive receptors and take up work at appropriate timings. ➢ Uncovered borrow areas – Dig barrow pits as per specifications. ➢ Waste Disposal – Dispose of waste at designated places only.
Social	➢ Disruption of other existing public services e.g. hospitals, schools, Water and electricity supply – Consult communities and minimize the disruption of service. Provide alternative supplies. ➢ Historical and Cultural sites – Follow the government guidelines on this. Do not deface any historical or cultural sites. ➢ HIV/AIDS/ Covid-19 issues – Follow the government SoP for these. Conduct awareness campaigns among the communities and workers. ➢ Child labour – Avoid child labour. No children below 14 years on work. No children below 18 years on hazardous work. ➢ Rape / sexual and Gender-Based Violence – Conduct awareness camps among workers and community. Have a code of conduct. Set up Internal Complaints Committees to redress gender related grievances.
Land, Compensation and Resettlement	➢ Non-payment of compensation money – Do not take possession of land before paying full compensation ➢ Underpayment of compensation money – All compensation valuation has to be done as per the LA Act 2013 and verified before payments ➢ Disputes of land ownership – Refer to Revenue Department for measurement and survey to decide on the ownership ➢ Injurious affections such as cracks in buildings, damages to properties – Do take care not to cause damage to houses. Repair all damages and bring them back to original status. ➢ Boundary queries between PAFs – Do not get involved in this. Leave these matters to PAPs to decide themselves.
Road Safety	➢ Accidents – Report immediately to PIU/ PMU. ➢ Humps – Do not erect humps without the permission of PIU. The hump has to be as per the design. No private person can built humps ➢ Signage – All signage has to be fixed by PIU/ Contractor. ➢ Cutting of pavement by utility companies – No utility company can cut the pavement without the permission ➢ Overloaded vehicles/ Road littering – Such incidents to be reported to PIU for action.
Occupational Health and Safety	➢ Protective gear – The workers must wear protective gear at all times during the work. ➢ HIV/AIDS / Covid-19 services – The workers and communities must be educated about these. They should follow the SoP.
Governance	➢ Procurement – To be transparent and all matters related to procurement to be disclosed ➢ Contractor highhandedness – All contractors to be instructed not to deal with the communities directly. Always involve PIU in dialogue with communities ➢ Corruption – Such cases to be sent to the respective agencies for enquiring and investigation.

DOs and DON'Ts for GRC Members

DOs	DON'Ts
➢ **Respect** complaints. ➢ Follow the established GRM procedures ➢ Popularize the GRM's existence, accessibility, and free access. ➢ Establish accessible compliant receipt locations and channels for vulnerable groups considering their constraints. ➢ Maintain logbooks. ➢ Establish clear timetables for resolving grievances. ➢ Assign each compliant a unique ID, track and report its resolution. ➢ Work with the complainant to find a resolution throughout the GRM. ➢ Keep complainant informed of resolution process. ➢ Seek feedback from the complainant to improve GRM functionality.	➢ Intimidate, threat, or harass complaints. ➢ Set unrealistic redress durations. ➢ Exclude vulnerable groups. ➢ Create constraints in filing grievances. ➢ Create barriers or compound the procedures for grievance filing receipt. ➢ Disclose aggrieved identity to others. ➢ Make false promises to the complainant. ➢ Be biased in redressal. ➢ Expect or seek any compensation or benefits from complainants.

General overview of the Grievance Redress Mechanism

Assam Intra-State Transmission System Enhancement Project

Project Introduction

The Assam Intra-State Transmission System Enhancement Project (the Project) aims to strengthen Assam's electricity transmission system. The Project will facilitate connection of remote areas, enhance the capacity and reliability of the system, improve voltage profile, and reduce losses and ultimately enhance satisfaction for all categories of consumers. As the Project is funded by the Asian Infrastructure Investment Bank (AIIB), it complies with the Environmental and Social Framework and the Policy on the Project-affected People's Mechanism of the AIIB.

The construction activities under the Project may cause some minor disturbances to the physical environment and communities. These are typical of civil works, such as generating dust, noise, air pollution, and construction debris, influx of construction workers and limited need to acquire permanently or temporary land. Thus, a multi-tiered Grievance Redressal Committee (GRC) will be applicable to the project in its entirety. To honor the GRM, Assam Electrical Grid Corporation Limited (AEGCL) will adopt the practice to resolve any major/ minor grievances, where AEGCL shall accept, review and address issues or problems raised by Project Affected Persons (PAPs), local people and project workers related to project works. GRC will review grievances involving all resettlement benefits, compensation, relocation, replacement cost, other additional assistance for vulnerable groups including Indigenous Peoples (IPs) and grievances related to environmental issues (if any).

The Environmental and Social Management and Planning Framework (ESMPF) provide guidelines how to reduce potential risks and mitigate impacts. Site-specific Environmental and Social Management Plans (ESMP) [2]gives specific measures for specific locations.

Overview of the Grievance Redress Mechanism

The Project provides for the establishment of a Grievance Redress Mechanism (GRM). **The GRM is a free system that registers and attempts to resolve concerns or complaints by Project-affected people (PAPs) or workers/employees arising from project activities.** This process aims to quick resolve of disputes and avoid litigation, thus ensuring the smooth implementation of the project activities.

Every person, man, woman, or construction worker employed in Project activities, who feels that they have been adversely affected by the Project, can file their concerns **for free** to the GRM. **The Project guarantees that there will be no reprisals or retributions for raising grievances**. The GRM process does not prevent project affected people to seek their rights through the judicial system but provides an additional and free way to resolve problems. Anonymous grievances are acceptable, but it will be impossible to inform the complainant of the outcome. In this case, the grievance and the proposed resolution will be publicized on site.

Complaints which may be arises during the project implementation period (Pre Construction, During Construction and Post Construction) will be handled according to the following procedure:

1. Project-affected person approaches a member of the CGRC (Tier-1) in person or via the phone/WhatsApp. (Dedicated phone number will be assigned)

2. The Circle level GRC (Tier 1) member receives the grievances and records the details in the GRM logbook.

[2] The site specific HSESMP (Health, Safety, Environment and Social Management Plan) to be prepared by EPC after finalization of ESMP template from AIIB's end.

3. The CGRC (Tier-1) acknowledges the receipt of the grievance and provides a dated proof (official slip, text or WhatsApp message).
4. The CGRC (Tier-1) gathers information, visits site and interviews people to evaluate if they can find a resolution of the grievance within 10 working days.
5. The CGRC (Tier-1) informs grieved party of the proposed resolution in writing.
    a. Grieved party can accept the proposed solution, which is duly recorded.
    b. Grieved party may not accept the proposed solution, which is duly recorded.
6. If the CGRC (Tier-1) is unable to find a solution, or if the grieved party does not accept the proposition, the CGRC can automatically escalate the issue to the Tier -2 GRC, if grieved party agrees.
7. The Tier-2 GRC acknowledges the receipt of the grievance and provides a dated proof (official slip, text or WhatsApp message).
8. The Tier 2 GRC gathers information, visits site and interviews people to evaluate if they can find a resolution of the grievance within 20 working days.
9. The Tier 2 GRC informs grieved party of the proposed resolution in writing.
    a. Grieved party can accept the proposed solution, which is duly recorded.
    b. Grieved party may not accept the proposed solution, which is duly recorded.
10. The grieved party may seek their rights in the court of law.

The members of the Tier-1 GRC and their communication details in the project Districts are

Name of the T&T Circle	Name of the Project Districts	Package	Sub-Projects	Focal point / Nominated Official	Contact number (Mobile and WhatsApp)*	Communication Address
Lower Assam	Kamrup (M)	H_1	Proposed approach road to 400/220kV Sonapur S/S	Sri Himanshu Saikia, RE	9854738617 (W+C)	O/o The DGM, LATTC, Guwahati, Narengi 781026

The members of the Tier-2 GRC and their communication details in the corporate level

SL. No.	Designation	Position in the Committee	Communication Address		Website & Email id
1.	Chief General Manager(PP&D), AEGCL	Chairman	Assam Electricity Grid Corporation Ltd, (AEGCL) First Floor, Bijuli Bhawan Guwahati-781001	Contact No.: 0361-2739520	Website: www.aegcl.co.in Mail Id: gm.eap@aegcl.co.in
2.	Project Director(EAP) Projects, AEGCL	Deputy Chairman		Mobile No.: 9859181640	
3.	Dy. General Manager (EAP), PMU, AEGCL	Member		Mobile No.: 7002649012	
4.	E&S Safeguard Specialist, PMU, AEGCL	Member		Mobile No.: 9854339228	

5.	Project Related AGMs(EAP), AEGCL	Members		Mobile No.: 9706078551 9864602779 9864577672	
6	Joint Secretary (Power, Electricity), GoA	Member	GoA, Power (Electricity Dept.), Assam Secretariat, Dispur, Guwahati-781006 Contact No.: 0361-2237260		dy.secy.powe@gmail.com
7	Team Leader, PMC	Members	PTFI- Guwahati		aegcl.pmc@feedbackinfra.com
8	Sr Environment Expert	Members	PTFI- Guwahati		aegcl.pmc@feedbackinfra.com
9	Sr Social Expert	Members	PTFI- Guwahati		aegcl.pmc@feedbackinfra.com

If any unwanted situation like danger, sexual harassment and other life threatening, the victim person may reach to the concerned officials who belong to the Tier-1 and Tier-2 committee and may contact for further needful action or the matter should be informed to AIIB immediately.

Grievance Register

Grievance Register	
Date of Grievance Recorded	* The mobilisation of EPC is awaiting and once EPC starts their work in the propose approach road, then the grievances may arise if any, the record will be maintained accordingly
Grievance Recorder	
Grievance submitted through	
Name of Complainant	
Complainant Preferred Contact	
Complainant Address	
Type of Grievance	
Describe Grievance	
Date of Grievance Occurrence	
Date of Acknowledgement	
Mode of Acknowledgement	
Brief Outline of Proposed Resolution	
Action Taken	
Action Taken on	
Outcome	
Outcome communicated to PAH on	
Status Update	
Mode of Complainant Update	

Acknowledged by	
Date Closed	
Days to Close Grievance	
Date of Grievance Received to Tier 2	
Date of GRC meeting (2nd Tier)	
Estimated Time for Resolution	
Action Taken	
Action Taken on	
Outcome	
Outcome communicated to PAH on	
Status Update	
Mode of Complainant Update	
Acknowledged by	
Date Closed	
Days to Close Grievance	

12. CONCLUSION

The planned route for the construction of the proposed approach road to the 400/220/132 kV Gas Insulated Substation (GIS) has undergone thorough scrutiny from both environmental and social standpoints. The road construction necessitates the acquisition of land along the project stretch. Anticipated environmental and social impacts are expected to be minimal and of a temporary nature. The implementing agency and EPC contractors commit to implementing appropriate precautionary measures outlined in the Environmental and Social Management Plan (ESMP) throughout the construction and operational phases to mitigate any adverse effects.

The project implementation will lead to access the people residing nearby the proposed approach road in general and transportation and communication of materials for construction of proposed Sonapur substation in particular. Some of the important project benefits are – mainly to access the proposed Sonapur substation particularly the transportation of construction materials and equipment's. Moreover, transport and communication system will lead to sustainable development of the economic growth and integrity of the people residing nearby the approach road, as well as improvement of living standards and livelihoods of local population and boosts the economic growth of the people residing nearby the approach road as a whole.

ANNEXURE – A: ENVIRONMENTAL AND SOCIAL CHECKLISTS

Checklist for identification of Environmental/Social/ Project Impacts

Screening Checklist	Yes	No	Remarks
A. Project Siting: Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
1. Cultural heritage site		No	No cultural heritage site nearby proposed approach road to Sonapur substation.
2. Legally protected Area (core zone or buffer zone)		No	The proposed substation site is approx. 11 km away from Amchang Wildlife Sanctuary.
3. Wetland/ Mangrove/ Estuarine		No	Ponds of bricks industry are within 10-20 mts from the proposed approach road to Sonapur substation.
4. Special area for protecting biodiversity		No	The proposed approach road to Sonapur substation site is approx. 11 km away from Amchang Wildlife Sanctuary.
B. Potential Environmental Impacts: Will the Project cause			
1. Impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical cultural resources?		No	
2. Disturbance to precious ecology (e.g. sensitive or protected areas)?		No	
3. Alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?	Yes		Alteration of surface water hydrology may occur due to silt runoff from land filling for construction of proposed approach road to Sonapur substation.
4. Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in Construction?	Yes		Alteration of surface water hydrology may occur due to silt runoff from land filling for construction of proposed approach road to Sonapur substation.
5. Increased air pollution due to project construction and operation?	Yes		Moderate air pollution may takes place during construction of proposed approach road to Sonapur substation.
6. Noise and vibration due to project construction or operation?	Yes		Moderate noise and vibration may occur during construction of proposed approach road to Sonapur substation.
7. Involuntary resettlement of people? (physical displacement and/or economic displacement)		No	
8. Disproportionate impacts on the poor,		No	

Screening Checklist	Yes	No	Remarks
women and children, Indigenous Peoples or other vulnerable groups?			
9. Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?		No	Contractor will hire local labour to extent possible and provide adequate facility to labour camp and work site for those hired from outside. Contractor will provide regular health checkup and awareness camp regarding transmission of communicable diseases (such as COVID 19, STI's and HIV/AIDS).
10. Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		No	
11. Social conflicts if workers from other regions or countries are hired?		No	Contractor will hire local labour to extent possible. To avoid social conflict, contractor will provide adequate facility to the labour to stay within camp site for those hired from outside.
12. Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		No	During construction of proposed approach road to Sonapur substation, contractor will purchase water through water tankers from approved vendors or will use water from other sources after taking appropriate permission from competent authority. Filtration water must be done for drinking purpose.
13. Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	Yes		Any intervention in safety at proposed approach road to S/S will be taken care by implementing proper precautionary measures as per safety procedures. Use of PPE's during construction and operation of the proposed approach road to Sonapur substation will also be ensured.
14. Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?		No	
15. Community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of		No	

Screening Checklist	Yes	No	Remarks
the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			
16. Generation of solid waste and/or hazardous waste?	Yes		Solid waste and/or hazardous waste will be generated during construction and operation of the proposed approach road to Sonapur substation.
17. Use of chemicals?	Yes		
18. Generation of waste water during construction or operation?	Yes		Waste water from Septic Tank will be generated during construction and operation of proposed approach road top Sonapur substation.

Checklist for identification of Social Impacts (Proposed Approach road to Sonapur S/S)

Particulars		Observation
A. Proposed Site Location		
1.	Land requirement for the project (GPS parcel border for approach road to Sonapur Substation)	AEGCL will acquire land from private land owners under Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013 GPS (Longitude, Latitude) 26°07'40.30"N 92°00'16.65"E
2.	Landownership of the project area: Govt. / Private lands	The Construction of proposed Sonapur approach road to substation location having 2.62 ha land belongs to Private land owner.
3.	Does the project require acquisition of land or transfer of Govt. land/structures? If yes please mention the area of land, number of affected structures, Households	Yes. AEGCL will acquire land from private land owner under Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act, 2013. A total of 2.62 ha of the land would require for the proposed approach road. The number of affected families is 8 nos. No structure and CPR would be affected.
4.	Present usage of the land parcels is for: Agricultural purposes Residential purposes Commercial purposes Other purposes (Indicate)	Existing access using by Brick industry nearby the proposed approach road.
5.	Will the project lead to loss of housing?	No

Particulars		Observation
6.	Will the project lead to loss of agricultural land?	No
7.	Will the project cause damage to private property/assets? (Structures, crops, trees, etc.)	No
8.	Will the project lead to loss of common property resources?	No
9.	Will the project lead to loss of livelihood – directly or indirectly?	No
10.	Does the project require relocation of encroachers / squatters? If yes, please elaborate number, gender and nature, if possible.	No
11.	Does the project require relocation of community facilities/Govt. establishment or any object that are of religious, cultural and historical significance.	No
12.	Is the proposed project site encountering any site of archaeological/historical value? Cultural/Symbolic value?	No
13.	Proposed project onsite/off-site support infrastructures are located in an area where residents are: All Mainstream / All Indigenous peoples/Majority Mainstream or Non-indigenous peoples/ Majority Indigenous peoples.	Majority Mainstream (The local inhabitants belong to General/ST/SC/OBC/MOBC Caste).
B. Potential Social Impacts- Will the Project cause		
1.	Involuntary resettlement of people? (physical displacement and/or economic displacement)	No
2.	Impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?	No
3.	Will community facilities require relocation?	No
4.	Poor sanitation and solid waste disposal in construction camps and work sites	No
5.	Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?	May occur at the time of construction EPC will take necessary measure if required
6.	Social conflicts relating to inconveniences in living conditions where construction interferes with preexisting roads	May occur at the time of construction
7.	Will a Resettlement Plan be required?	Yes, it will be required
8.	Impact on local economy – Fisheries, local tourism related businesses, market places, etc.?	Not Applicable
9.	Livelihood- Direct impact due to loss of land and structures?	Not Applicable
10.	Indirect impact due to loss of commercial	Not Applicable

Particulars		Observation
	grounds, market places, places for hawker stalls, etc.?	
11.	Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	Any intervention in safety at the proposed approach road to Sonapur S/S will be taken care by implementing proper precautionary measures as per safety procedures. Use of PPE's during construction and operation of the proposed approach road to Sonapur substation will also be ensured.
12.	Other social concerns relating to inconveniences in living conditions in the project areas?	May occur at the time of construction EPC will take necessary measure if required
13.	Social concerns relating to local inconveniences associated with project operation, if any? (e.g. increased volume of traffic, greater risk of accidents, GBV/SE communicable disease transmission)	May occur at the time of construction EPC will take necessary measure if required
14.	Does the project related work affect any objects that are of religious and cultural significance to the IPs?	Not Applicable
15.	Which are the 3 main economic activities that are conducted by the IP population? Will these be affected by the proposed project development and how?	Not Applicable
16.	Is there a requirement for an in-depth Indigenous people's plan? (IPP)	Not Applicable
17.	Describe any other impacts that have not been covered in this screening form	Not Applicable
18.	Describe alternatives, if any, to avoid or minimize displacement from private and public lands	Not Applicable

Project Impact Assessment Checklist

Sl. No.	Potential Environmental Impacts Will the Project cause	Yes	No	Remarks (If yes, what is the proposed mitigation measures and indicate which Environmental and Social Management Standard will be implemented)
1.	Encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?		No	Not Applicable
2.	Encroachment on precious ecosystem (e.g. Sensitive or protected areas)?		No	The site is approx. 11 km away from Amchang Wildlife Sanctuary.

Sl. No.	Potential Environmental Impacts Will the Project cause	Yes	No	Remarks (If yes, what is the proposed mitigation measures and indicate which Environmental and Social Management Standard will be implemented)
3.	Alteration of surface water hydrology of water ways crossed by roads and resulting in Increased sediment in streams affected by increased soil erosion at the construction site?	Yes		Alteration of surface water hydrology may occur due to silt runoff from land filling for construction of proposed approach road to Sonapur substation.
4.	Deterioration of surface water quality due to silt Runoff, sanitary wastes from worker-based camps and chemicals used in construction?	Yes		Temporary deterioration of surface water quality may take place due to silt runoff from land filling (if any) for construction of proposed approach road to Sonapur substation. To minimize the above impact, land filling will be proposed to done in dry season with soil compaction.
5.	Increased local air pollution due to rock crushing, cutting and filling?	Yes		Crushers if any required to be operated will be done after obtaining consent to Establish and Consent to Operate from SPCB and follows the conditions of SPCB.
6.	Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	Yes		Any intervention in safety at proposed approach road to Sonapur S/S will be taken care by implementing proper precautionary measures as per safety procedures. Use of PPEs during construction and operation of substation will also be ensured.
7.	Chemical pollution resulting from chemical clearing of vegetation for construction site?		No	
8.	Noise and vibration due to civil works?	Yes		Moderate noise and vibration may occur during construction of proposed approach road to substation. Proper Noise barrier will be installed as per requirement to minimize the Noise. To minimize noise and vibration from civil works, all construction vehicles, machineries and equipment's will be maintain regularly and with a valid PUC certificate.

Sl. No.	Potential Environmental Impacts Will the Project cause	Yes	No	Remarks (If yes, what is the proposed mitigation measures and indicate which Environmental and Social Management Standard will be implemented)
9.	Dislocation or involuntary resettlement of people?		No	Not Applicable
10.	Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		No	Not Applicable
11.	Social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?		No	May occur at the time of construction EPC will take necessary action as and when necessary.
12.	Hazardous driving conditions where construction interferes with pre-existing roads?		No	Not Applicable
13.	Creation of temporary breeding habitats for vectors of disease such as mosquitoes and Rodents?		No	Not Applicable
14.	Dislocation and compulsory resettlement of people living in right-of-way of the power Transmission lines?		No	Not Applicable
15.	Environmental disturbances associated with the maintenance of lines (e.g. routine control of vegetative height under the lines)?		No	Not Applicable
16.	Facilitation of access to protected areas in case corridors traverse protected areas?		No	Not Applicable
17.	Disturbances (e.g. noise and chemical pollutants) if herbicides are used to control vegetative height?		No	Not Applicable
18.	Large population influx during project construction and operation that cause increased burden on social infrastructure and services (Such as water supply and sanitation systems)?		No	May occur at the time of construction EPC will take necessary action as and when necessary
19.	Social conflicts if workers from other regions or countries are hired?		No	May occur at the time of construction EPC will take necessary action as and when necessary
20.	Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from Workers to local populations?		No	May occur at the time of construction EPC will take necessary action as and when necessary
21.	Risks to community safety associated with		No	May occur at the time of

Sl. No.	Potential Environmental Impacts Will the Project cause	Yes	No	Remarks (If yes, what is the proposed mitigation measures and indicate which Environmental and Social Management Standard will be implemented)
	maintenance of lines and related facilities?			construction EPC will take necessary action as and when necessary
22.	Community health hazards due to electromagnetic fields, land subsidence, lowered Groundwater table, and salinization?		No	May occur at the time of construction EPC will take necessary action as and when necessary
23.	Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other Chemicals during construction and operation?		No	May occur at the time of construction EPC will take necessary action as and when necessary
24.	Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g. high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		No	May occur at the time of construction EPC will take necessary action as and when necessary
	Involuntary Resettlement Screening			
1.	Will the activity be undertaken in public land or existing right of way (RoW)?		No	Public land, AEGCL will acquire land from private land owner.
2.	If no 1 is yes, are there any non-titled people (squatters) who live at the site or within the public land/RoW? Please provide gender disaggregated number.		No	All affected persons are title holder. There are 8 nos. PAFs whose land will be acquired from the land owner.
3.	Will the activity be undertaken in private land but acquired, and then it has been acquired in the anticipation of the program or in the last three years?		No	AEGCL will acquire land from private land owner.
4.	If no 3 is yes, when the private land was acquired, the land acquired legally under GoI law? (unknown =No)		NA	Land acquisition is under process. Land will be acquired as per GoI law.
5.	If no 3 is yes, are there any outstanding Complaints about the land acquired?		No	Not applicable
6.	Will the activity require new private land acquisition or use?		No	Not applicable

Sl. No.	Potential Environmental Impacts Will the Project cause	Yes	No	Remarks (If yes, what is the proposed mitigation measures and indicate which Environmental and Social Management Standard will be implemented)	
7.	If no 6 is yes, the land will be obtained through negotiated settlement or donation?		No	Not applicable	
8.	If no 6 is yes, will it require compulsory land Acquisition?		No	Not applicable	
9.	If no 6 is yes, then will the activity require permanent or temporary relocation or Displacement of any people (titled or non-titled)?		No	Not applicable	
10.	If no 8 is yes, then will there be any loss of housing/accommodation or severely affected households more than 10% of their productive Asset?		NA		
11.	In all cases, will there be any loss of vegetable gardens or agriculture?		No	In all cases crop may be temporarily damaged. Compensation will be paid as per Government norms.	
12.	In all cases, will there be any losses of crops, fruit Trees or private structures?	Yes		In all cases crops, fruit Trees or private structures may be damaged. Compensation will be paid as per Government norms.	
13.	In all cases, will any small or informal businesses have to be moved or closed temporarily or Permanently?		No		
14.	In all cases, will there be temporary or permanent loss of employment as a result of the renovation?		No		
15.	In all cases, will there be temporary or permanent impact on women or vulnerable groups?		No		
Indigenous Peoples Screening		**Yes**	**No**	**Not Known**	**Remarks**
16.	Are the subproject areas located in scheduled Tribe area?		Yes		Tribal belt
17.	Do the applicants belong to scheduled tribes?		Yes		Only one PAF belongs to ST caste.
18.	Will the project directly or indirectly affect Indigenous Peoples' traditional socio-cultural and belief practices? (e.g. child-rearing, health, education, arts, and governance)		No		Not applicable

Sl. No.	Potential Environmental Impacts Will the Project cause	Yes	No	Remarks (If yes, what is the proposed mitigation measures and indicate which Environmental and Social Management Standard will be implemented)	
19	Will the project affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)		No		Not applicable
20.	Commercial development of the cultural resources and knowledge of Indigenous Peoples?		No		Not applicable
21.	Physical displacement from traditional or Customary lands?		No		Not applicable
22.	Commercial development of natural resources (such as minerals, hydrocarbons, forests, water, hunting or fishing grounds) within customary lands under use that would impact the livelihoods or the cultural, ceremonial, spiritual uses that define the identity and community of Indigenous Peoples?		No		Not Applicable
23.	Establishing legal recognition of rights to lands and territories that are traditionally owned or customarily used, occupied or claimed by Indigenous peoples?		No		Not Applicable
24.	Acquisition of lands that are traditionally owned or customarily used occupied or claimed by indigenous peoples?		No		Not Applicable

ANNEXURE – B: DETAILS OF PUBLIC CONSULTATION AT PROPOSED APPROACH ROAD TO SUBSTATION

Proposed approach road to Sonapur substation

Site/Location: Sonapur, **Village-**Chamatha Pathar and Sonapur Pathar, **Circle/Block**–Sonapur, **District**–Kamrup Metro,
Date of Consultation: 28.02.2023
Type of Area (Urban/Rural/ Highly Congested Urban: Rural

Sl. No.	Issues	Participants' Opinion, Comments and Suggestions
SOCIAL		
1.	Have you heard about the Project or Do you have any information about the project?	Yes, majority of the local people were aware of the proposed set up of approach road.
2.	What is your opinion about this Project?	Local people are happy about the progress of finalization of the approach road. The improvement of the approach road will lead to better transportation and communication.
3.	Do you support this Project?	Yes, there is a broad support for the project based on perceived economic and social benefits.
4.	Do you think that the Project is necessary?	Yes, it will improve better transportation and communication. and provide impetus to open small and medium business units in the area
5.	What are your main concerns/issues about the project?	No issue. Establishment of GRM which registers and attempts to resolve concerns or complaints by Project-affected families (PAFs) or local people/workers/employees arising from project activities is highly appreciated step.
6.	Can you suggest how best to address your concerns/issues?	Every person, man, woman or construction worker employed in project activities, who feels that they have been adversely affected by the project, can file their concerns for free to the GRM.
7.	The proposed new land which may be government or privately owned. Would you volunteer to donate or sell the land for the Project?	Approach Road- Private Land.
8.	Do you expect any kind of compensation if there is loss to land or crops or trees during construction?	Yes, for approach road compensation is required and payment will be made according to the GoI and GoA acts.
	If you need compensation, what	Cash/Online Account Transfer

9.	kinds of compensation will you are expecting (cash or kind) in case of land acquisition?	
10.	Health status, Availability of Hospitals and over all environmental condition. Is there any chronic disease prevalent in this area and are you aware about HIV/AIDS and STD?	Public Health Centre (3 km), Sonapur District Hospital (5 km). No Chronic disease, Aware about COVID 19, HIV/AIDS. The workers and communities must be educated about Covid-19 rules and guidelines. They should follow the Government SoP.
11.	What positive impacts and/or benefits do you think the project will have?	The improved roads will lead to better transportation and communication. The people hoped that project will address the problems of the commuters to the local resident.
12.	What negative impacts do you think the project will have?	For approach road, loss of land will be compensated by project authority.
13.	How safe do you think or consider the distribution feeder?	Not Applicable
14.	Any criteria you would like to be considered for project design, construction and operation stage?	As the area is water logged during rainy season proper drainage system and culverts should be provided.
15.	How long have you been living in this area?	From Birth
16.	Are there any indigenous people/ tribal people or ethnic minority living in this area? If yes, how far and what is the name of tribe group and what is their number of Households etc.?	Tribal people are there in the village.
17.	If you are from indigenous people/tribal do you expect any impacts from projects on your culture, territory, and livelihood impacts?	No
ENVIRONMENT		
1	Protected areas (national park, protected forest, religiously sensitive sites, historical or archaeological sites), if any	Not applicable
2	Access to the forest land and the use of the forest land (if any)	No
3	Current environmental conditions in the area – air, dust, noise	The proposed approach road to substation location is nearby Star cement factory. The peak operational load

	conditions in the area.	of manufacturing of cement will be impact the AAQ. As per PCB Assam the ground water sample found high range of fluoride contact during analysis.
4	Will the project siting adversely impact the water or soil resource in the locality	Temporary deterioration of surface water quality may occur due to runoff from land filling area.
5	Type of trees in the area: Fruit/non fruit/forest/ rare/endangered species etc.	Mixed Fruit/non fruit trees in the village nearby the area of proposed approach road.
6	Wild, endemic, endangered animals in the area.	Not observed
7	Is the consultation useful	Yes
8	Would you support and participate during the implementation of Project	Yes, local people wish for early implementation of the project.
9	Any other Suggestions?	Necessary safety precautions must be taken and involvement of local people should be ensured.

ANNEXURE – C: SOME PHOTOGRAPHS OF THE PUBLIC CONSULTATION OF APPROACH ROAD

ANNEXURE – D: ATTENDANCE SHEET OF PUBLIC CONSULTATION

AEGCL

FEEDBACK Making Infrastructure Happen

ASSAM INTRA-STATE TRANSMISSION SYSTEM ENHANCEMENT PROJECT

Attendant Sheet of Public Consultation

Name of the Sub Project 400/220 kV Sonapur GIS Substation (AIIB)

Date 28/02/2023 **Venue** Sonapur Approach Road

Sl. No.	Name	Designation	Contact Number	Signature
1	Yakub Ali	Driver	9954058787	ইয়াকুব আলি
2	Haidur Nobbor/Fojol Ali	HW	8011784090	[illegible]
3	Faizul Ali	Labour		FH
4	Ashma Khatun	HW	8011636871	[illegible]
5	Zamaluddin	Business	—	[illegible]
6	Bakar Ali	Labour	—	Bak Ali
7	Sanker Sonar	Private Service	8011820485	Sankar
8	Manash Nath	"	—	Manash Nath
9	নুরুল ইসলাম	"	6001582892	নুরুল ইসলাম
8	HIMANSHU SAIKIA	D.M	9854738617	[illegible]
9.	Suresh Kumar	Env Expt	8757028108	[illegible]
10	Bodhaditya Roy	Env. Safeguard Consultant, PMU AEGCL	9706663284	[illegible]
11.	Dibya Jyoti Baruah	E&S Safeguard Specialist.	9854339228	[illegible] 28/02/2023
12	Rahul Choudhury	Env. Safeguard Specialist, PMU	9864476471	[illegible] 28/02/2023
13.	Sukanta Bhattacharjee.	Social Safeguard Specialist, PMU	7002203355	[illegible] 28/02/2023
14.	Bijit Borah	Env. Mr. Officer	7002852186	[illegible]
15	Khanin Baishya	Social Safeguard Exp, PMC	9864223185	[illegible]

ANNEXURE-E: CODE OF CONDUCT FOR CONTRACTOR'S WORKERS

As Bona fide Contractor, [*enter name of Contractor*] for the project (enter name of the project) we have signed a contract with [*enter name of Employer*] for [*enter specific description of the Works*]. These Works will be carried out at [*enter the Site and other locations where the Works will be carried out*]. Our contract requires us to implement measures to address environmental and social risks related to the Services and Works, including the risks of misdemeanor in workplace / worker's camps, sexual exploitation, abuse, harassment, and gender-based violence.

This Code of Conduct is part of the measures to deal with environmental and social risks related to the Works. This involves all workers, labor camps and the workplace. It applies to all our staff, laborers and other employees at the Works Site or other places where the Works are being carried out. It also applies to the personnel of each subcontractor and any other personnel assisting us in the execution of the Works. All such persons are referred to as "**Contractor's Personnel"** and are subject to this Code of Conduct.

This Code of Conduct identifies the conduct that is required from all Contractors' Personnel.

In our workplace, unsafe, offensive, abusive, or violent behavior will not be tolerated, and all persons should feel comfortable raising issues or concerns without fear of retaliation.

Contractor's Personnel shall:

General Conduct

1. Make earnest efforts to understand his/her responsibilities detailed in this Code of Conduct and any other documents and trainings, as directed by the Employer. Proactively seek clarifications to enable work to be undertaken in strict compliance with this Code of Conduct.
2. Carry out his/her duties competently and diligently.
3. Comply with this Code of Conduct and all applicable laws, regulations, and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Workers, colleagues working under the same contractor and any other person.
4. Maintain a safe working environment by:
    a. Abiding by safety guidelines to ensure that workplaces, machinery, equipment, and processes under each person's control are safe and without risk to health.
    b. Using required Personal Protective Equipment.
    c. All works are conducted with safety clearance and under appropriate supervision.
    d. Using appropriate measures relating to chemical, physical, and biological substances, and agents.
    e. Following applicable emergency operating procedures.
    f. Providing separate, safe, and easily accessible working and accommodation facilities for women and men working on the site.
5. Report to the Supervisor about work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she believes presents an imminent and danger to his/her life or health.
6. Treat other people with respect, and not discriminate against specific groups such as women, persons with different sexual orientation, people with disabilities, migrant workers, or children.

7. Not engage in sexual harassment which includes unwelcome sexual advances, requests for sexual favors, and other unwanted verbal or physical conduct of a sexual nature in the workplace or with respect to neighboring communities.
8. Engage with the community and/or project affected persons with utmost respect. Intimidation, threats, and coercive behavior will not be tolerated.
9. Not engage in sexual exploitation and abuse, which means any actual or attempted abuse of position of vulnerability, differential power, or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially, or politically from the sexual exploitation of another.
10. Not engage in sexual assault, which means any form and/or threat of non-consensual sexual contact.
11. Not engage in any form of sexual activity with individuals under the age of 18.
12. Not make any inappropriate and unwanted sexual advances to people in the adjoining (host) communities or settlements.
13. Not work or be present in the worksite(s) under the influence of any intoxicating substances, such as alcohol or drugs.
14. Not possess alcohol or any other illegal/ intoxicating substances while on duty or in the labor camps.
15. Return to the labor camp no later than 22:00, unless working on night shift.
16. Participate and complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, Gender-based violence (GBV), Sexual Exploitation, Abuse and Harassment (SEAH).
17. Report violations of this Code of Conduct.
18. Not retaliate against any person who reports violations of this Code of Conduct, whether to AIIB or the Employer, or who makes use of the grievance mechanism for Contractor's Workers or the project's Grievance Redress Mechanism.

RAISING CONCERNS (*Please refer to section on GRM in the bidding document and provide information as needed:* *An appropriate GRM shall be constituted by the contractor for grievances in the worksite. This should include an effective mechanism for receiving and promptly addressing allegations of SEA and/or SH from the Contractor's or Employer's Personnel or any other person including third parties.*)

If any person observes a behavior that he/she believes may represent a violation of this Code of Conduct, or that otherwise concerns him/her, he/she should raise the issue promptly. This can be done in either of the following ways:

1. Contact [*enter name of the Contractor's Social Expert*] in writing at this address [X] or by telephone at [X] or in person at [X]; or

2. Call [X] to reach the Contractor's hotline *(if any)* and leave a message.

The Complainant's identity will be kept confidential, unless reporting of allegations is mandated by the country law. Anonymous complaints or allegations may also be submitted and will be given all due and appropriate consideration. We take seriously all reports of possible misconduct and will investigate and take appropriate action. We will provide warm referrals to service providers that may help support the person who experienced the alleged incident, as appropriate.

There will be no retaliation against any person who raises a concern in good faith about any behavior prohibited by this Code of Conduct. Such retaliation would be a violation of this Code of Conduct.

CONSEQUENCES OF VIOLATING THE CODE OF CONDUCT

Any violation of this Code of Conduct by Contractor's Personnel may result in serious consequences, up to and including termination and possible referral to legal authorities.

The information contained in this note will be disseminated to all Contractors' Personnel. At the time of engagement of any worker/ personnel, the above information will be provided verbally, and a copy of the Code of Conduct will be provided signed by the Personnel and countersigned by the Contractor. A prototype is provided below:

FOR CONTRACTOR'S PERSONNEL:

I have received a copy of this Code of Conduct written in [X] language that I understand. I recognize that if I have any questions about this Code of Conduct, I can contact [*enter name of Contractor's contact person with relevant background in handling gender-based violence*] requesting an explanation.

Name of Contractor's Personnel: [insert name]

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Contractor: [insert name]

Signature: _____

Date: (day month year): _____

ATTACHMENT 1: Behaviors constituting Sexual Exploitation and Abuse (SEA) and behaviors constituting Sexual Harassment (SH)

The following non-exhaustive list is intended to illustrate types of prohibited behaviors:

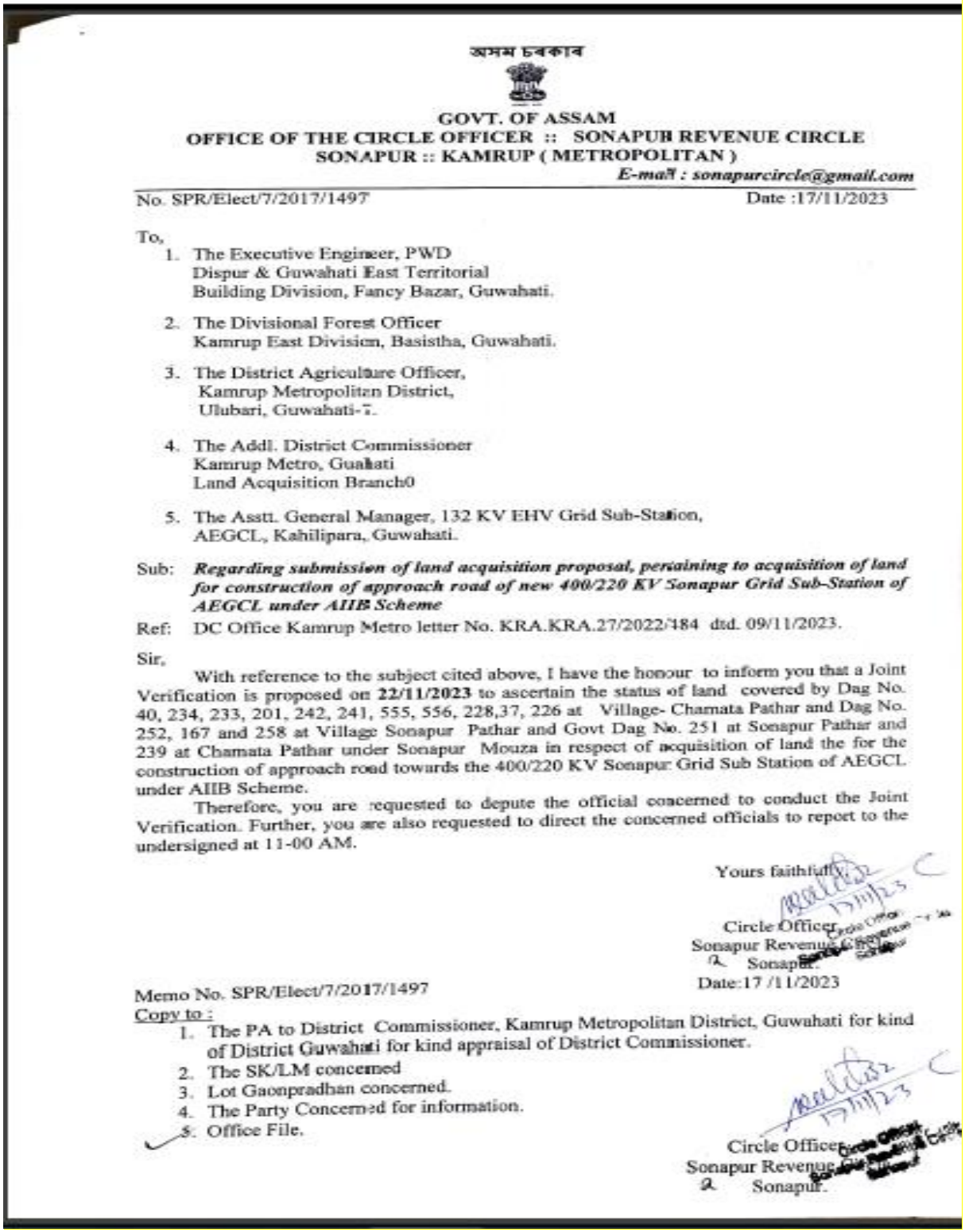
1. Examples of sexual exploitation and abuse include, but are not limited to:

- A Worker/Expert tells a member of the community that he/she can get those jobs in the work site (e.g., cooking and cleaning) in exchange for sex.
- A Worker/Expert that is connecting electricity input to households says that he can connect women headed households to the grid in exchange for sex.
- A Worker/Expert rapes, or otherwise sexually assaults a member of the community.
- A Worker/Expert denies a person access to the Site unless he/she performs a sexual favor.
- A Worker/Expert tells a person applying for employment under the Contract that he/she will only hire him/her if he/she has sex with him/her.

2. Examples of sexual harassment in a work context

- A Worker/Expert comment on the appearance of another Worker/Expert (either positive or negative) and sexual desirability.
- When a Worker/Expert complains about comments made by another Worker/Expert on his/her appearance, the other Worker/Expert comment that he/she is “asking for it” because of how he/she dresses.
- Unwelcome touching of a Worker/Expert or Employer’s Personnel by another Worker/Expert.
- A Worker/Expert tells another Worker/Expert that he/she will get him/her a salary raise or promotion if he/she sends him/her naked photographs of himself/herself.

ANNEXURE – F: COMMUNICATION LATTER AND JOINT VERIFICATION ATTENDANCE SHEET REGARDING PROPOSED APPROACH ROAD TO SONAPUR SUBSTATION



অসম চৰকাৰ

GOVT. OF ASSAM
OFFICE OF THE CIRCLE OFFICER :: SONAPUR REVENUE CIRCLE
SONAPUR :: KAMRUP (METROPOLITAN)
E-mail : sonapurcircle@gmail.com

No. SPR/Elect/7/2017/1497 Date :17/11/2023

To,

1. The Executive Engineer, PWD
   Dispur & Guwahati East Territorial
   Building Division, Fancy Bazar, Guwahati.
2. The Divisional Forest Officer
   Kamrup East Division, Basistha, Guwahati.
3. The District Agriculture Officer,
   Kamrup Metropolitan District,
   Ulubari, Guwahati-7.
4. The Addl. District Commissioner
   Kamrup Metro, Guahati
   Land Acquisition Branch0
5. The Asstt. General Manager, 132 KV EHV Grid Sub-Station,
   AEGCL, Kahilipara, Guwahati.

Sub: ***Regarding submission of land acquisition proposal, pertaining to acquisition of land for construction of approach road of new 400/220 KV Sonapur Grid Sub-Station of AEGCL under AIIB Scheme***

Ref: DC Office Kamrup Metro letter No. KRA.KRA.27/2022/484 dtd. 09/11/2023.

Sir,

With reference to the subject cited above, I have the honour to inform you that a Joint Verification is proposed on **22/11/2023** to ascertain the status of land covered by Dag No. 40, 234, 233, 201, 242, 241, 555, 556, 228,37, 226 at Village- Chamata Pathar and Dag No. 252, 167 and 258 at Village Sonapur Pathar and Govt Dag No. 251 at Sonapur Pathar and 239 at Chamata Pathar under Sonapur Mouza in respect of acquisition of land the for the construction of approach road towards the 400/220 KV Sonapur Grid Sub Station of AEGCL under AIIB Scheme.

Therefore, you are requested to depute the official concerned to conduct the Joint Verification. Further, you are also requested to direct the concerned officials to report to the undersigned at 11-00 AM.

Yours faithfully,

Circle Officer
Sonapur Revenue Circle
Sonapur.
Date:17 /11/2023

Memo No. SPR/Elect/7/2017/1497

Copy to :

1. The PA to District Commissioner, Kamrup Metropolitan District, Guwahati for kind of District Guwahati for kind appraisal of District Commissioner.
2. The SK/LM concerned
3. Lot Gaonpradhan concerned.
4. The Party Concerned for information.
5. Office File.

Circle Officer
Sonapur Revenue Circle
Sonapur.

GOVERNMENT OF ASSAM
OFFICE OF THE DEPUTY COMMISSIONER
KAMRUP METROPOLITAN DISTRICT, GUWAHATI
(LAND ACQUISITION BRANCH)

Telephone- 03612540149
Fax- 03612544452
E-mail- dlkamrupmetro@
Web site- www.kamrupmetro.nic.in

No.KRA.27/2022/ 62 Date: 09/11/2022

To

The Chief General Manager (PP & D), AEGCL
Bijuli Bhawan, Paltanbazar,Guwahati-1

Sub:- Regarding direct purchase of land for construction of approach road of new 400/220 KV Sonapur Grid Sub Station of AEGCL under AIIB Scheme.

Ref:- 1.Your letter No. AEGCL/MD/AIID/CPF/SONAPUR/2021/15 dated 05/05/2022.
2. This office letter No.KRA.27/2022/382 dated 05/05/2022

Sir,

With reference to the subject cited above I have the honour to inform you that **FORM-A alongwith Appendix 1 to Form-A & Appendix 2 to Form-A,** were submitted from your end, in connection with direct purchase of land measuring **09B-02K-10Ls** under Sonapur Revenue Circle by way of negotiated settlement for construction of an approach road of new 400/220 KV Sonapur Grid Sub-Station of AGECL vide letter under reference at SL.1.

It is pertinent to mention here that the Circle Officer, Sonapur Revenue Circle has submitted a fresh proposal for land measuring **19B-03K-06Ls** after conducting joint survey vide letter No.SPR/Elect/7/2017/3428 dated 01/11/2022.

You are therefore requested to submit the fresh requisite **From-A alongwith Appendix 1 to Form-A & Appendix 2 to Form-A** for land measuring **19B-03K-06Ls** to the undersigned at the earliest.

This is for favour of your information and necessary action.

Yours faithfully

Branch Officer
Land Acquisition Branch
Kamrup Metropolitan District
Guwahati

Memo No.KRA.27/2022/ Dated 09/11/2022

Copy forwarded for information and necessary action to:-

1. The Chief General Manager (O & M), AEGCL, Bijuli Bhawan, Guwahati-1
2. The Circle Officer Sonapur Revenue Circle
3. The Asstt. General Manager, 132 KV EHV Grid Sub Station AEGCL, Kahilipara Guwahati
4. PA to Deputy Commissioner, Kamrup(Metro) District for kind appraisal of DC

Branch Officer
Land Acquisition Branch
Kamrup Metropolitan District
Guwahati

Joint verification for construction of approach road of new 400/220 KV Sonapur Grid Sub-station of AEGCL under AIIB Scheme, in presence of representatives of Sonapur revenue circle, PWD officials, Divisional forest dept. officials, District agriculture dept. officials, Land acquisition branch, Kamrup (M) officials and AEGCL officials on 22nd November'2023

SL NO	NAME	OFFICE/ DEPARTMENT	SIGNATURE
1.	Sushil Kalita	Rev. Circle Sonapur	[signature]
2.	Chelima Begum	D.C office L.A branch	[signature]
3.	Biresh Kr Das	R/O S Range	[signature]
4.	Ganesh ch. Saikia	J.E. PWD (Bldg)	[signature]
5.	Nirod Ch. Nath.	ADO, Sonapur Agriculture Dept.	[signature]
6.	Himangshu Saikia	DM, AEGCL	[signature]
7.	Manoranjan Barman	R.O. Sonapur Range.	[signature] 22/11/23
8.	Rupjyoti Saurav.	AEGCL	[signature] 22/11/23
9.			
10.			
11.			
12.			
13.			
14.			
15.			

ANNEXURE – G: NOTICE TO THE LAND OWNERS PUBLISHED IN LOCAL NEWSPAPER

Assam Tribune (English daily)
Dtd: 07-12-2022

NOTICE

No. KRA.27/2022/

It is for information of all concerned that in the interest of public service and following the Notification of Govt. on "Land Acquisition through Direct purchase by way of negotiated settlement for all departments in the State of Assam" published Vide No. RLA.177/2021/3 dated 07.03.2022, the following schedule of land has been proposed for direct purchase on the basis of joint inspection report submitted by the Circle officer, Sonapur Revenue Circle vide letter No. SPR/Elect/7/2017 dated 01.11.2022 for construction of an approach road of new 400/220 KV Sonapur Grid Sub Station of AEGCL.

In this regard, if there is any objection the concerned pattadars/Tenants/interested person may file objection within 30 days from the date of publication of this notice in the Office of the Deputy Commissioner, Kamrup Metropolitan District (Land Acquisition Branch) during the working hours on all working days.

Sl. No.	Name of village	Name of pattadar/ Interested person	Patta No.	Dag No.	Area of land proposed for direct purchased (B-K-L)
1.	Chamata Pathar	Padumi Kalita, W/o Haldhar	5	40	01K-9Ls
2.		Archana Bagla, D/o Satya Narayan Bagla	5	40	0K-16Ls
3.		Padumi Kalita, W/o Haldhar	5	234	03K-19Ls
4.		Fajar Ali	5	234	01K-13Ls
5.		Padumi Kalita, W/o Haldhar	33	233	01B-0K-16Ls
6.		Haladhar Kalita, S/o Madhuram	59	201	01B-03K-02Ls
7.		Kangkan Kalita S/o Haladhar Kalita	25	242	02B-02K-08Ls
8.		Padumi Kalita, W/o Haldhar	33	241	03B-01K-08Ls
9.		Smt. Megha Agarwala, D/o Rakesh Agarwala	156	555	03K
10.		Archana Bagla, D/o Satya Narayan Bagla	156	555	03K-01Ls
11.		Smt. Megha Agarwala, D/o Rakesh Agarwala	157	556	01K
12.		Archana Bagla, D/o Satya Narayan Bagla	157	556	01K
13.		Haladhar Kalita, S/o Madhuram	16	228	03B-0K-12Ls
14.		Padumi Kalita, W/o Haldhar	16	37	0B-03K-16Ls
15.		Padumi Kalita, D/o Ananda Kalita	54	226	01K-10Ls
16.	Sonapur Pathar	Radha Suwen, W/o Damodar Kalita	16	252	01B-01K-17Ls
17.		Radha Suwen, W/o Damodar Kalita	58	167	01B-04K-15Ls
18.		Bismita Malakar, D/o Bhagawan	19	258	02K-04Ls
				Total	19B-03K-06Ls

Sd/- Deputy Commissioner, Kamrup (Metro), District Guwahati

Janasanyog/CF/3272/22