Pre-Feasibility Report

NAME OF THE PROJECT- Construction of Ryambai-Bataw-Borghat-Jalalpur road (63rd km –109.6 km) in districtEast Jaintia Hills, Meghalaya

SUBMITTED BY

Public Works Department (Roads) NEC Division
Government of Meghalaya

1.0 EXECUTIVE SUMMARY

The state of Meghalaya (the abode of clouds) is geographically known as the “Meghalaya Pleateau” or the “Shillong Plateau”. The area is made of the oldest rock- formations. Meghalaya consisit of the Garo, Khasi and Jaintia Hills along with their outliers formed by the Assam ranges. It is the detached north-eastern extension of the Peninsular India. Part of it lies buried under the alluvium deposited by the Ganga- Brahmaputra system of rivers. This gap is known as Malda gap (Between Raj Mahal hills/Chhota Nagpur and the Shillong Plateau).Jaintia Hills District was a district in Meghalaya that was established in 1972 with headquarters at Jowai which was taken from the United Khasi Jaintia Hills District Council.It was once part of the grand Jaintia Kingdom.The present inhabitants of the District are the Pnar, the War, the Bhoi (Karbis), the Lalungs, the Hadem of Saitsama area, the Beates/Biates of the Saipung Sub Division and the Hmars of Khaddum village.The population of the Jaintia district as per 20001 Census is 2, 95,692. The population of male and female is 1, 49,376 and 1, 46,316 respectively. The density of population as per 2001 census is 77 person per square Kilometer and the population for Jowai Town is about 25023. In 2012 the district has been bifurcated into two districts. Viz., East Jaintia Hills district headquartered at Khliehriat and West Jaintia Hills district headquartered at Jowai.

The State of Meghalaya has a traditional agricultural economy. About 85% of the population of the state live in rural areas and depends on agriculture for their livelihood. Total cropped area in the state is has increased to 42% during the last twenty five years. The rice is dominant food crop accounting for over 80% of the food grain production in the state. Other important food grain crops are maize, wheat and a few other cereals and pulses. The state also possesses rich mineral deposits which requires for better transportation and connectivity. The construction of road becomes important since, it provide connectivity to locals residing at border areas of Meghalaya andAssam. It also enables security forces to patrol the porous border with Bangladesh more effectively and in near future can act as a link to border points with a land port at Dwaki on NH-40. The Government of Meghalaya acting through Public Works Department (roads) has taken the needful action to develop this project in the state.

The North East Council (NEC) has mandated the public works department (Roads), Government of Meghalaya to implement the Rymbai-Bataw-Borghat-Borsora-Jalalpur road under NEC scheme. The road from Rymbai to Jalalpur has a total length of 120 Kms (approx.) it starts from Lad Rymbai on NH-44 and runs through Bataw, Borghat, Huroi, Borsora and reaches jalalpur near BSF camp in Assam. The portion of the road from 0 to 63rd Km has already been taken up by NEC during the Xth plan period. The balance length of the road from 63 km to 109.6 km is included in this proposal for consultancy services. Out of total length of 46.60 Kms (design length) proposed for consultancy services.The road length from 63 km to 86.4 km is already an existing road and the portion from 86.4 km to 109.6 km is of new construction. Apart from other minor bridges, the project includes a major bridge over Lukha River on the new alignment. The Public Works Department (roads), Government of Meghalaya has taken up this project report preparation as part of the scheme of the NEC. With this view PWD (roads), Govt. of Meghalaya, invited bid for the Project, the authority has decided to

conduct a feasibility study for determining the technical feasibility and financial viability of the Project and award the project to private entity / Concessionaire through a competitive bidding process. The viability of the project shall be established taking into account the requirements with regard to upgrading and improvement based design, construction of bridges and structures, underpasses, ROB and widening of existing and/or, road safety features, quantities of various items of works, cost estimates vis-à-vis the investment and financial return through toll and other revenues and also to collect and provide the necessary field input data to the private entrepreneur to be executed. The Preliminary Project Report would interalia include GAD for structures (bridges, viaducts etc.) and alignment plan based upon hydraulic and geo-technical investigations and preliminary design calculations, GAD and alignment proposal for ROB, underpasses and interchanges, quantities of various items, detailed working drawings, detailed cost estimates, economic and financial viability analysis, environmental and social feasibility, social and environmental action plans as appropriate and documents required for tendering the project on commercial basis for international / local competitive bidding.

The NEC has mandated the PWD (Roads), Government of Meghalaya to plan development of Rymbai-Bataw-Borghat-Borsora-Jalalpur road under NEC schemes. The road from Rymbai to Jalalpur has a total length of 120 Kms (approx.) it starts from Lad Rymbai on NH-44 and runs through Bataw, Borghat, Huroi, Borsora and reaches jalalpur in Assam. The portion of the road from 0 to 63rd Km has already been taken up by NEC during the Xth plan period. The balance length of the road from 63.0 km to 109.60 km is included in this proposal for consultancy services.

The NEC has asked PWD to obtain Environmental Clearance for the project. Subsequently, PWD, Meghalaya submitted application for EC to SEIAA, Meghalaya. **SEIAA, Meghalaya vide its letter no. 834-835 dated 13th October, 2017 communicated that, the PWD shall apply EC from MoEF&CC, New Delhi** as project alignment is located within 5 km of the International Border (Indo-Bangladesh) & Inter-State Border (Assam-Meghalaya) as well as Narpuh Wildlife Sanctuary & its Eco-Sensitive Zone is also located within 5 km.

The construction of highway will provide local communication to villages of East Jaintia Hills district, Meghalaya and border areas of Assam.The Project will enhance economic development in the area through industrial growth, tourism, agricultural, and commercial development and consequent employment generation, savings in travel time in between Meghalaya and Assam and shall provide easy access to social infrastructure. The project will also enhance spread of educational facilities.

The project involves clearance under Forest Conservation Act, 1980 for the diversion of 4.22 ha reserved forest area. Final Forest Clearance has been granted to the project by MoEF&CC, North Eastern Regional Office, Shillong vide MoEF&CC file No. 3-MG B 101/2011-SHI 3434-35 dated 24.10.2016.

a. SALIENT FEATURES OF THE PROJECT

Project name	Consultancy services for obtaining Environmental Clearence for constructution of Rymbai-Bataw-Borghat-Borsora-Jalalpur road (from km 63 to Km 109.6). Out of a total length of 46.60 Kms (Design length) proposed for consultancy services, the road from 63 Km to 86.4 km is already an existing road alignment and the portion from 86.4 Km to 109.6 KM is of new allignment
Location	The proposedlength of the road is 46.60 Km starting from East Jantia hills, Meghala and ends in Jalalpur, Assam (Meghalaya-Assam Border). A proposed major bridge across Lukha river, consisting of 2-lane.
Latitude & Longitude	Start Location : 25° 7' 00"N92°14' 00"E End Location: 25° 2' 00"N92°24'00"E
Land use	Agricultural & Forest land
Nearest railway station	Badarpur Railway Station, Assam-(approx. 60Km)
Nearest Airport	Silchar Airport, Assam (approx.80 Km)
Seismic Zone	Zone-V (As per 1893:2002)

a. PROPOSED PLANNING

Type of project	-	Construction of Rymabai- Bataw-Borghat-Borsora-Jalalpur road (46.60 Km)
Project cost	-	9793.8 lakhs
Project Length	-	46.60 Kms

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

a. IDENTIFICATION OF PROJECT PROPONENT

The North East Council (NEC) has mandated the public works department (Roads), Government of Meghalaya to implement the Rymbai-Bataw-Borghat-Borsora-Jalalpur road under NeEC schemes. The road from Rymbai to Jalalpur has a total length of 120 Kms (approx.) it starts from Lad Rymbai on NH-44 and runs through Bataw, Borghat, Huroi, Borsora and reaches jalalpur in Assam. The portion of the road from 0 to 63rd Km has already been taken up by NEC during the Xth plan period. The balance length of the road from 63 km to 109.6 km is included in this proposal for consultancy services. Out of total length of 46.60 Kms (design length) proposed for consultancy services. The road length from 63 km to 86.4 km is already an existing road and the portion from 86.4 km to 109.6 km is of new construction. Apart from other minor bridges, the project includes a major bridge over Lukha River on the new alignment. The Public Works Department (roads), Government of Meghalaya has taken up this project as part of the scheme of the NEC.

b. BRIEF INFORMATION ABOUT THE PROJECT

The proposed road from Rymbai to Jalalpur has a total length of 120 Kms (approx.) it starts from Lad Rymbai on NH-44 and runs through Bataw, Borghat, Huroi, Borsora and reaches Jalalpur in Assam. The portion of the road from 0 to 63rd Km has already been taken up by NEC during the Xth plan period. The balance length of the road from 63 km to 109.6 km is included in this proposal for consultancy services. Out of total length of 46.60 Kms (design length) proposed for consultancy services.Thereis a major 2- lane bridge crossingLukha River.

c. NEED FOR THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY OR REGION

The state of Meghalaya has the huge potential of Tourism, which needs better connectivity of villages, towns with adjoining areas. The economy of Meghalaya state is mainly based on agricultural and Natural resources. The industrial and agricultural developments have led to higher transport demand. With the higher transport demand and the expansion of the existing business, there is a growing mismatch between the vehicular population and availability of road infrastructure, which has resulted in traffic congestions, deteriorated level of traffic efficiency and road safety in existing National Highway-44. As a result of the aforesaid growth and need to fulfill the mismatch various new infrastructure development projects has been planned across the state.

d. DEMAND-SUPPLY GAP

The construction of highway will provide local communication to villages of East Jaintia Hills district, Meghalaya and border areas of Assam.

e. IMPORTS VS. INDIGENOUS PRODUCTION

Import/Indigenous production does not apply in the present case.

f. EXPORT POSSIBILITY

Not applicable in the present case.

g. DOMESTIC/ EXPORT MARKETS

Not applicable in the present case.

h. EMPLOYMENT GENERATION

The Project will enhance economic development in the area through industrial growth, tourism, agricultural, and commercial development and consequent employment generation, savings in travel time in between Meghalaya and Assam and shall provide easy access to social infrastructure. The project will also enhance spread of educational facilities.

3.0 PROJECT DESCRIPTION

a. TYPE OF PROJECT INCLUDING INTERLINKED AND INTERDEPENDENT PROJECTS, IF ANY

The project is independent project not interlinked with other project.

b. LOCATION

The proposed road from Rymbai to Jalalpur has a total length of 120 Kms (approx.) it starts from Lad Rymbai on NH-44 and runs through Bataw, Borghat, Huroi, Borsora and reaches Jalalpur in Assam. The portion of the road from 0 to 63rd Km has already been taken up by NEC during the Xth plan period. The balance length of the road from 63 km to 109.6 km is included in this proposal for consultancy services. Out of total length of 46.60 Kms (design length) proposed for consultancy services.

c. DETAILS OF ALTERNATE SITES

There are no other alternative sites for the proposed road,which are found to satisfy the geometrics requirements and other design criteria. Again for the new construction, some portion of the road falls in the reserve forest and the most feasible road alignment was decided and fixed taking into consideration the minimum impact on the forest. The road is very important as it will: (i) provide local communication to border villages; (ii) Connects Assam & Meghalaya; (iii) enable security forces to patrol the porous border with Bangladesh more effectively.

d. SIZE OR MAGNITUDE OF OPERATION

Length of the project: 46.60 Km.

e. GEOLOGY

The state of Meghalaya is occupied by:- (a) Archean Gneissic Complex with Acid intrusive (b) Shillong Group of rocks usually friable, Schists, (c) Granite rocks, (d) Lower Gondwana rocks (e) Sylhet traps (f) Cretacious-tertiary sediments viz., Khasi groups, Garo sandstones, Limestone; silt stone, shale and pebbles, clays, conglomerates. The sedimentary rocks are in acomplex form.

Meghalaya is a storehouse of economy minerals. The major minerals that are presently exploited are coal, Limestone, Clay and Sillimanite. These minerals are utilized in several mineral-based industries in the country. Besides, coal and Limestone are also exported to Bangladesh, earning a good amount of foreign exchange.

f. PRODUCTION PARAMETERS

Not Applicable in the present context.

g. DESIGN PARAMETERS

The proposed road shall be constructed to MDR standard. The formation width will be 5.5m.

h. PROJECT DESCRIPTION WITH PROCESS DETAILS

No process is applicable being a construction project.

i. BLASTING

No blasting is proposed to be done.

j. RAW MATERIAL REQUIRED ALONG WITH ESTIMATED QUANTITY, LIKELY SOURCE, MARKETING AREA OF FINAL PRODUCT/S, MODE OF TRANSPORT OF RAW MATERIAL AND FINISHED PRODUCT

The major construction material are Soil, sand, Aggregates, Cement, Steel and Bricks. EPC Contractor before the start of construction would assess the actual quantity required and take necessary approval, if required. However, Steel and Cement would be sourced from Authorized Vendor. Soil, Sand and Aggregate will be procured from operational licensed borrow areas and quarries located around nearby areas. If any new borrow area or quarry site require to be opened, requisite permission will be obtained from concerned department before extraction of materials.

k. RESOURCE OPTIMIZATION/ RECYCLING AND REUSE

Not applicable in the present case.

l. AVAILABILITY OF WATER ITS SOURCE, ENERGY / POWER REQUIREMENT AND SOURCE

• Water Requirement

Water requirement for human consumption, ,construction and dust suppression is 250 KLD, which shall be met from ground water resource as well as surface water i.e. river water.

• Power

Diesel generator will provide electricity required for construction equipment. Labour camps will be provided with Kerosene/LPG as fuel sourced from GOI authorized Supplier.

m. QUANTITY OF WASTES TO BE GENERATED (LIQUID AND SOLID) AND SCHEME FOR THEIR MANAGEMENT/ DISPOSAL

• Solid Waste Generation & its Disposal

Solid waste will be generated from construction camp and dismantling of existing structures. Unproductive/wastelands shall be selected for dumping sites away from residential areas and water bodies. The following precaution will be taken for disposal:

- Dumping sites must be having adequate capacity equal to the amount of debris generated.
- Public perception and consent from the village Panchayats has to be obtained before finalizing the location.
- Develop waste management plan for various specific waste streams (e.g., reusable waste,
- Flammable waste, construction debris, food waste etc.) Prior to commencing ofConstruction and submit to BBA for approval.
- Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach.
- Segregate and reuse or recycle all the wastes, wherever practical.
- Prohibit burning of solid waste

- Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route
- Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process.
- Provide refuse containers at each worksite.
- Request suppliers to minimize packaging where practicable.
- Place a high emphasis on good housekeeping practices.
- Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal

• Liquid Effluent

The sewage water generated in construction camp will be disposed through soak pits.

4.0 SITE ANALYSIS

a. CONNECTIVITY

The site is approachable by road. The project starts at 63.0 km and ends at km 109.60 of Rymbai – Jalalpur Road. The district headquarter Khliehriat is 63.0 km away from the project location.

b. LANDFORM, LANDUSE AND LAND OWNERSHIP

• Land Use

The project area is in agricultural land& reserve forest area.

• Land Ownership

The designated RoW area belongs to local village people and Forest department.

c. TOPOGRAPHY

The project area is located in the state of Meghalaya in Northeast India near the district Jaintia hills. The topography in the proposed project area is mainly Hilly and

mountainous.The area is made of the oldest rock- formations. Meghalaya consisit of the Garo, Khasi and Jaintia Hills along with their outliers formed by the Assam ranges. It is the detached north-eastern extension of the Peninsular India.

d. EXISTING LAND USE PATTERN

The existing land use of project area mainly belongs to land use category "Forest, Evergreen/Semi-evergreen" and "Forest plantation"

e. EXISTING INFRASTRUCTURE & SENSITIVE ECOLOGICAL LOCATIONS

S. No.	Areas	Name / Identity	Aerial distance (within 15km.)Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	No	Narpuh Wildlife Sanctuary & its ESZ located within 5 KM
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Yes	Narpuh Wildlife Sanctuary & its ESZ located within 5 KM. Nurpuh Reserved Forest. Forest Clearance has issued by MoEF&CC.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	Yes	Important species of flora & fauna present in Narpuh Wildlife Sanctuary located within 5 km from project site.
4	Inland, coastal, marine or underground waters	Yes	The project alignment crosses Lukha river & Apha River
5	State, National boundaries	Yes	India – Bangladesh boundary is located within 5 km and Assam - Meghalaya
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	No	-
7	Defense installations	No	-
8	Densely populated or built-up area	Yes	Small built up areas & village located near to the proposed alignment.
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	No	Not applicable

10	Areas containing important, high quality or scarce resources. (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	No	Not applicable
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	No	Not applicable
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions) similar effects	Yes	The area falls under seismic zone V. All required precautions have been taken in design.

e. SOIL CLASSIFICATION

Meghalaya has diverse soil types including red-loamy, laterite, red and yellow soils. They have fine textures ranging from loam to silty-loam and alluvial soils. These types of soils support a variety of agricultural crops.The soils of the hills are derived from gneissic complex parent materials; they are dark brown to dark reddish-brown in colour, varying in depth from 50-200 cm. The texture of soils varies from loamy to fine loamy. The soils of the alluvial plains adjacent to the northwest and southern plateau are very deep, dark brown to reddish-brown in colour and sandy-loam to silty-clay in texture.

Meghalaya soils are rich in organic carbon, which is a measure of nitrogen supplying potential of the soil, deficient in available phosphorous and medium to low in available potassium. The reaction of the soils varies from acidic (pH 5.0 to 6.0) to strongly acidic (pH 4.5 to 5.0). Most of the soils occurring on higher altitudes under high rainfall belt are strongly acidic due to intense leaching. Base saturation of these soils is less than 35 %. These soils are not suitable for intensive crop production.

f. CLIMATIC DATA FROM SECONDARY SOURCES

The State is directly influenced by the South West monsoon and North Eastern winter winds. The region experiences tropical monsoonal climate that varies from Western to Eastern parts of the plateau. Khasi and Jaintia Hills have high rainfall, moderately warm summer and severe winter with periodic depression below freezing point marked by appearance of ground frost at night and morning over higher elevated areas. The lower elevated areas experience fairly high temperature for most part of the years having a mean maximum of 23 to 26^{o} and a mean minimum of 12 to 17^{0} C. the mean summer temperature is 26^{0} C and the mean winter temperature is 9^{0}C. The mean annual rainfall varies from 2000-4000 mm with most rainfall concentrated from May to September.

g. SOCIAL INFRASTRUCTURE

The social infrastructure like educational facilities (primary and higher secondary schools, Degree College), drinking water supply, post and telegraph, public transportation are by and large are available in the study area.

PLANNING BRIEF

a. PLANNING CONCEPT

b. The Government of Meghalaya acting through Public Works Department (roads) has taken the needful action to develop this project in the state which will act as an alternative route to Assam, and provides connectivity to various villages like Borghat, Hingaria, Huroi, Lehlein etc which are presently not connected to Paved roads.

c. ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL & SOCIAL)

Only basic infrastructure facilities are available in the vicinity of in the study area. The proposed road is essential for the local villagers to reach the basic health & educational facilities.

d. AMENITIES/FACILITIES

Office, Workshop etc.

Proper site services such as First Aid, Rest Shelter, toilet with soak pits & drinking Water will be provided to the workers.

Rest Shelter

Rest shelter along with first-aid station complying with all the provisions of State Rules shall be provided by project proponent.

Water Supply

Water will be supplied for human consumption, dust suppression and for plantation from ground water and surface water sources.

Power Supply

The power supply for project and construction camp will be done through D.G. Sets and State Electricity Board.

Transport of Men and Material

Employee will report to the duty on own means. The material from the site will be transported by trucks / tippers / tractor trolleys.

Communication

Mobile phones shall be used for communication.

Security Arrangements

Appropriate security arrangement shall be made.

5.0 PROPOSED INFRASTRUCTURE

a. CONSTRUCTION SITE

Temporary arrangements like site office, rest shelters, & approach roads etc shall be provided. No permanent infrastructure is proposed.

b. RESIDENTIAL AREA

As the local person shall be employed, no residential building / housing are proposed. However, temporary construction camp will be established.

c. SOCIAL INFRASTRUCTURE

In-line with the Social Responsibility Activities at other operational sites, relevant developmental assistance shall be rendered depending on the local needs identified through studies.

d. CONNECTIVITY

Site is connected to existing NH-44.

e. DRINKING WATER MANAGEMENT

Water requirement for drinking and construction will be 250 KLD, which will be met from underground water resource and surface water.

f. SEWERAGE SYSTEM

No sewerage system is proposed, however mobile toilets / soakpits shall be provided to workers camp & construction site.

g. INDUSTRIAL WASTE MANAGEMENT

Not applicable, as the activity will not be generating any industrial waste.

h. SOLID WASTE MANAGEMENT

No industrial solid waste will be generated. However, municipal / construction waste generated during construction will be disposed in environmental friendly manner.

6.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

There is no resettlement or rehabilitation involved in the project. NOC for the construction of the road has been obtained from Villages.

7.0 PROJECT SCHEDULE & COST ESTIMATES

a. LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION

Project will be started after getting environmental clearances. Completion period will be two years.

b. ESTIMATED PROJECT COST ALONG WITH ANALYSIS IN TERMS OF ECONOMIC VIABILITY OF THE PROJECT

The capital cost of proposed project is estimated to be9793.8 lakhs

8.0 ANALYSIS OF PROPOSAL

a. FINANCIAL AND SOCIAL BENEFITS WITH SPECIAL EMPHASIS ON THE BENEFIT TO THE LOCAL PEOPLE INCLUDING TRIBAL POPULATION, IF ANY, IN THE AREA

The state of Meghalaya has a traditional agricultural economy. About 85% of the population of the state live in rural areas and depends on agriculture for their livelihood. The state also possesses rich mineral deposits which requires for better transportation and connectivity. The construction of road becomes important since, it provide connectivity to local residing at border areas of Meghalaya and Assam. It also enables security forces to patrol the porous border with Bangladesh more effectively and in near future the road can act as a link to border points with a land port at Dwaki on NH-40. The Government of Meghalaya acting through Public Works Department (roads) has taken the needful action to develop this project in the state which will act as an alternative route to Assam, and provides connectivity to various villages like Borghat, Hingaria, Huroi ,Lehlein etc which are presently not connected to Paved roads.