



FINAL ENVIRONMENTAL ASSESMENT REPORT
Of
TRANSMISSION AND DISTRIBUTION (T&D) NETWORK
in Mamit District Under
NERPSIPTranche-1, Mizoram



FINAL ENVIRONMENTAL ASSESSMENT REPORT (FEAR-II)

for

TRANSMISSION AND DISTRIBUTION (T&D) NETWORK

In

Mamit Districts Under

North Eastern Region Power System Improvement Project (NERPSIP) Tranche-1,
Mizoram

For



POWER AND ELECTRICITY DEPARTMENT OF MIZORAM (PEDM)
(Government of Mizoram)

GCI/V/PGCIL/MIZORAM/R1/FEAR/01



Prepared By

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(Ministry of Environment & Forests, India Approved Environmental Laboratory)

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For: GREEN CIRCLE, INC.






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FEAR II - Revision 1 - December 10, 2021

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ABBREVIATIONS

ADC	Autonomous District Council
PAPs	Project Affected Persons
AP	Angle Point
ASI	Archaeological Survey of India
CBIS	Capacity Building & Institutional Strengthening
CEA	Central Electricity Authority
CPTD	Compensation Plan for Temporary Damages
CPIU	Central Project Implementation Unit
dB	Decibel
DC	District Collector
DL	Distribution Line
E&S	Environmental and Social
EHS	Environment, Health & Safety
EHV	Extra High Voltage
EMF	Electro Magnetic Field
ESMC	Environment & Social Management Cell
ESPPF	Environment and Social Policy & Procedures Framework
EMP	Environmental Management Plan
EP	Electric Pole
FCA,1980	Forest (Conservation) Act, 1980
FEAR	Final Environment Assessment Report
GCC	General Conditions of Contract
GCI	Green Circle Inc
GIS	Geographic Information System
GPS	Global Positioning System
GOI	Government of India
GoM	Government of Mizoram
GRM	Grievances Redressal Mechanism
GRC	Grievance Redressal Committee
HFL	Highest Flood Level
IA	Implementing Agency
IBA	Important Bird Areas
IEAR	Initial Environmental Assessment Report
IP	Indigenous People
IUCN	International Union for Conservation of Nature
MoEF&CC	Ministry of Environment, Forest and Climate Change
NEEPCO	North Eastern Electric Power Corporation Limited
LOA	Letter of Award
NOC	No Objection Certificate
NER	North Eastern Region
NERPSIP	North Eastern Region Power System Improvement Project
NHPC	National Hydroelectric Power Corporation
O & M	Operation & Maintenance
OPs	Operational Policies
PCB	Pollution Control Board
PCR	Physical Cultural Resources
PED	Power and Electricity Department
PIU	Project Implementation Unit
POWERGRID	Power Grid Corporation of India Ltd.
PPEs	Personal Protective Equipment



FEAR for T&D subprojects in Mamit District
under NERPSIP in Mizoram



PMU	Project Management Unit
PTCC	Power Telecom Co-ordination Committee
RoW	Right of Way
R & R	Rehabilitation and Resettlement
RRM	Random Rubble Masonry
SMF	Social Management Framework
S/S	Substation
SPCU	State Project Coordination Unit
T & D	Transmission & Distribution (T&D)
TL	Transmission Line
TT	Transmission Tower
WB	World Bank

WEIGHTS & MEASURES

GW	Giga Watt
Km	Kilometer
kV	kilovolt
kW	kilowatt
MVA	Megavolt Ampere
MW	Megawatt
Sq.mm.	Square millimeter

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EXECUTIVE SUMMARY

The North Eastern Region Power Supply Improvement Project (NERPSIP) is a World Bank-funded project aimed at improving the poor power transmission and distribution (T&D) system in India's North Eastern states. It is being implemented by Power Grid Corporation of India Ltd. (POWERGRID), the country's single transmission utility (IA). Although the current T&D system covers a large portion of the state, it is insufficient in reach, and due to the lack of a redundant T&D system, any transmission system element failure results in long-term power shortages, making the system highly unreliable.

The present Final Environment Assessment Report (FEAR) II is for the part of priority works of strengthening of T&D System under Tranche-1 of NERSIP in Mamit district of Mizoram State. FEAR II is associated with the construction of proposed 132 kV transmission line & 33 kV distribution line and associated 132/33 kV & 33/11 kV substations in Mamit district. FEAR is undertaken to verify the actual location details of the project elements, identify possible environmental and social issues, to report any effects on the biodiversity of the region/protected area (PA), identification of the project affected people (PAP) and to assess the compliance of the Initial Environmental Assessment Report (IEAR) / Environment Management Plan (EMP) prepared and submitted by the IA. The elements / scope of the FEARI include:

Transmission Lines (TL)

- West Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV) - approx. 50 km

Distribution Lines (DL)

- Bay connection between Existing West Phaileng 33/11 kV substations with proposed West Phaileng 132/33 kV substation – approx. 100 meter

Mizoram is a state in northeast India that comprises 21,081 square kilometres, or 0.64 percent of the country's total land area. The state's latitude ranges from 21°56'N to 24°31'N, and its longitude ranges from 92°16'E to 93°26'E, and it has borders with Mizoram in the west, Assam in the north, and Manipur in the south. Mizoram is also bordered on the east by Myanmar and on the south and west by Bangladesh. The state is characterised by harsh, steep hill ranges with intermittent valleys. The climate in the state ranges from humid tropical to humid subtropical. The annual rainfall ranges from 2,100 mm to 3,500 mm, with temperatures ranging from 11°C to 24°C in the winter and 18°C to 29°C in the summer. From May onwards, there is a lot of rain from May to September. The State has 8 districts, all of which are tribal and hill districts. As per the 2011 census, Mizoram has a population of 1.09 million which is 0.09% of India's population. The rural and urban population constitute 47.89% and 52.11% respectively. The tribal population of the State is 94.43%. The population density of the State is 52 / sq km which is much lower than the national average.

The state's flora and wildlife are diverse, with numerous rare and indigenous plant and animal species. Mizoram has the largest proportion of its geographical area covered by forest cover of all the states. The state's forests are divided into three categories: those owned and controlled by the government, district councils, and village councils. The eastern outskirts of the state, which border Myanmar's Chin Hills, are higher in height and covered in montane subtropical pine forests. This area is cooler and has less annual precipitation than the rest of the country. The common species of montane sub-tropical pine forests include *Pinus kesiya*, *Quercus spp*, *Castanopsis spp*, *Schima wallichii*, *Rhododendron arboreum*, *Rhus semialata* etc.

Mizoram is one of India's biggest bamboo producers, contributing 14% of the country's commercial bamboo. The term "recorded forest area" (RFA) refers to all lands with a tree canopy of more than 10%, regardless of land use, ownership, or legal status, that are more than one hectare in size. It could even feature orchards, bamboo, and palm trees. The word RFA also refers to all geographic areas in government records that are labelled as "Forests." Reserved Forests (RF), Protected Forests (PF), and Unclassified Forest Area (UCF) are the main components of RFA, which were established under the Indian Forest Acts of 1927 and 1980. The State's RFA is 5641 square kilometres, with 4483 square kilometres of RF and 1,158 square kilometres of UCF. Two National Parks and eight Wildlife Sanctuaries constitute the Protected Area (PA) network of the State covering 5.89% of its geographical area. Based on the interpretation of IRS Resourcesat-2 LISS III satellite data of the period Dec 2017 to February 2018, the Forest Canopy Cover in the State is 18,005.51 sq. km. which is 85.41% of the State's geographical area. In terms of forest canopy density classes, the State has 157.05 sq km under Very Dense Forest (VDF), 5,800.75 sq km under Moderately Dense Forest (MDF) and 12,047.71 sq km under Open Forest (OF). Forest Cover in the State has decreased by 180.49 sq km in 2019 as compared to the previous assessment reported in ISFR 2017.

The state of Mizoram is known for its rolling hills, valleys, rivers, and lakes. Due to terrain topography, the towers/poles are constructed mostly in hilly area and special care is taken to prevent erosion. Due to terrain at some points towers/poles which are placed / planned to placed on slopes and erosion prone soils, internationally accepted engineering practices including bio-engineering techniques, wherever, feasible are being undertaken to prevent soil erosion. The back cut slopes and downhill slopes are treated with revetments. Wherever sites are affected by active erosion or landslides, both biological and engineering treatment are carried out, e.g. provision of breast walls and retaining walls, and sowing soil binding grasses around the site. Further, construction is generally undertaken in dry/non-monsoon period.

The proposed project activities include the detailed survey for finalizing the route alignment, and installation of TL and DL and construction of S/S (civil and electrical installation). Lattice poles are then being erected on designated places using normal excavation and foundations thereafter conductors are strung across these using manual/stringing machines. The construction of S/S is regular civil works for small buildings. The electrical installations consist of the transformers, breakers, capacitors etc. and other protection/controlling devices to ensure required power flow.

The RoW width and clearance between conductors and trees for 132 kV transmission lines is 27 m, which includes forest plantation, orange plantation, open forest and bamboo forest, private plantation, and government land. The total length of the project TLs is 50.265 km and total number of 172 towers are being/to be erected for the proposed TL. As a result, the environmental and social footprints have been reduced as envisaged in IEAR by avoiding the environmental sensitive areas like habitation, PA and Forest area.

Total RFA in Mamit District is 1599.13 Sq. Km which is 53% of total Geographical area. Total forest cover in terms of canopy cover in the project district i.e., Mamit is 2716.87 sq km, which is 90 % of the project district's geographical area. In terms of forest canopy density classes, the project districts have 52.02 sq km under VDF, 757.8 sq km under MDF and 1907.05sq km under OF.

Final routes of TL and DL and sites for construction of new S/S don't involve any monuments of historical or cultural significance. It is clear from the FEAR studies that the project area is rich in natural forest resources and biodiversity values. Though careful route selection could avoid the virgin forest and core wildlife habitat of Dampa Tiger Reserve but in spite of taking all precautions involvement of some buffer area of DTR couldn't be achieved completely due to

geographical constraint and location of substations/load centers. The route 132/33 kV West Phaileng to Marpara TL after meticulous planning and ground study is passing through Buffer zone of Dampa Tiger Reserve. Thus, the minimum loss of forest & biodiversity upto great extent is achieved. Total 104.77 Ha of RF of buffer zone of Dampa Tiger reserve is needed to be diverted for the construction of line under NERSIP scheme. Accordingly, Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. The proposed intervention may have both positive and negative consequences. Furthermore, with the implementation of various management measures listed in the EMP and Biodiversity Report, as well as the recommendations and specific conditions in Forest clearance obtained, it is hoped that the intensity of potential impacts will be reduced to the greatest extent possible.

The area of land required for S/S is ranges from 0.5 to 1.0 Acres. In the instant case land required for S/S are already in possession with Power and Electricity Department of Mizoram (PEDM) and hence no fresh land is needed to be acquired. Since no involuntary acquisition is involved, issue related to acquisition of land including possible R&R is not envisaged. The infrastructure facilitates required for the construction and maintenance of S/S like access road, water, transport facility is well available. Hence no new infrastructure demand is envisaged. The present project requires very less vehicular movement and that too restricted to construction period only. During site survey it is observed that project execution is not resulted into large traffic volume in the area.

During the site selection and detailed survey of TL and DL, it has been ensured that these are kept away from oil/gas pipelines and other sites with potential for creating explosions or fires. The equipment installed on lines and S/S are static in nature and do not generate any fumes or waste materials. Apart from this, state of art safety instruments, fire safety equipment and fire fighting design have been included in the design in the S/S on both the ends, so that, the line gets tripped within milliseconds in case of any fault. The lines proposed under this scheme don't involve any tower/ pole to be placed in river bed which could interfere with existing drainage patterns.

The TL and DL are planned at suitable elevation to avoid any chances of impacts due to flood like situation. All the S/S subproject areas are located at such places where least chances of flooding are observed. However, adequate measures are taken into consideration from design stage to implement the flood, erosion protection measures like construction of retaining wall, boundary wall along with sewerage system. The S/S are designed and constructed at suitable elevation from the ground / flood levels and proper storm water drainage system is implemented. In S/S, all drainage channels along or inside S/S are being trained and connected to main or existing drainage to avoid any erosion due to uncontrolled flow of water. This will help to dispose of the storm water collected in the S/S premises, further creating recharge or percolation pits which will help to recharge the ground water table. Almost all S/S are provided with recharge pits. All these mandatory requirements with detailed specifications with respect to equipment design and S/S drainage and sewage design has been included in tender document to avoid any incidence of land and water contamination.

While construction, utmost care was taken to prevent tree felling, mostly, trees were trimmed to carry out work as far as possible. However, in unavoidable situation, in case of trees cutting in forest area, compensatory afforestation on two times the area of degraded forest land is being undertaken by State Forest department subsequently the stipulated conditions recommended in Forest clearances obtained under FCA 1980 and is in implementation process. Tree cutting in non-forest areas are executed strictly under the provisions Electricity Act, 2003/ Indian Telegraph Act, 1885. Also, in Mizoram state Supreme Court has issued the Guidelines for felling



FEAR for T&D subprojects in Mamit District
under NERPSIP in Mizoram



of trees from non-forest areas (Issued in compliance of Supreme Court Order 2004). For felling and conservation of trees species from non-forest area, tree cutting NOC from Divisional Forest Officer (DFO) is required. No felling permission from Forest Department under these guidelines are needed for the species like Aam (*Mangifera indica*), Jamun *Syzium cumini*), Kothal (*Arctocarpus*), all species of Bamboo, Leteku, Paniol and Madhunam as per these guidelines. PEDM pays compensation to affected land owners towards damages and/or utilization of their land for tower footing if any during implementation of transmission project as well as during operation and maintenance phase under this act. For the true value assessment of timber yielding trees, due concern of forest officials is taken and for fruit bearing trees help of Horticulture department is taken. As per existing law, land for tower/pole & ROW is not acquired and ownership of land remains with the owner and agricultural activities are allowed to continue after construction is over. The project has obtained required clearances from Railway Department, Department of Telecommunications, Department of Defence and the Ministry of Aviation.

During visit to site, it has been observed that excavated pits and all accident-prone areas are appropriately barricaded for safety. All safety measures are in place to avoid fire / explosion hazards. Excavated material from S/S sites are well stored on site and reutilized for levelling and backfilling following C&D Rules 2016 of GoI. Construction management practice has helped in to reduce the soil erosion. No surplus excavated material dumping from S/S site to outside premises is envisaged. Tower footings, pole footings involve very small-scale excavation which is reutilized for backfilling. Impact envisaged during the construction is limited to the boundaries of proposed S/S only. Construction and operation of S/S may raise Ground Noise levels. However, measures like providing sound and vibration dampers and rectification of equipment are undertaken. Environmental quality for Noise and Water is being regularly monitored at S/S locations by construction contractor. Noise levels are observed below the maximum allowable limit which is 90db for 8 hours in the working area. Also, the water quality is observed to be suitable for drinking purpose.

The contractor takes the necessary precautions to ensure the health and safety of the workers, and issues connected to operational health and safety have also been effectively addressed. PPE kits, safety clothing, and provisions for first-aid are provided to the labourers, and plans are in place to transport injured people to neighbouring hospitals. Provisions in the Safety Plan & Contract condition assure compensation for harm and death. In the project locations, proper sanitation facilities and safe drinking water are supplied. The site administrators have been instructed to guarantee that no open defecation occurs.

The project's monitoring committee, or IA, is extremely attentive. It has been noticed that public concerns regarding the project are addressed/informed on a regular basis through a public engagement process that began with project development, continued during construction, and will continue in operation and maintenance as well. According to public records, no written complaint or court lawsuit has been filed against any of the subprojects. Surveys, public forums, and discussions with PAP have revealed that they appreciate the efforts made by both the government and financing entities to upgrade the area's power network. Local residents feel that this project will improve their quality of life and will assist them in obtaining new revenue sources in the near future, such as the employment of trained and semi-skilled persons in T&D subprojects from the surrounding areas.

The project elements' planning and layout have been done with care to ensure the least amount of environmental impact. During the construction phase, IA monitors the implementation of EMP and OHS compliance in accordance with the IEAR on a regular basis. However, the following suggestions may be considered to improve the safeguard measures further;

- When possible, locate transmission and distribution rights-of-way, access roads, lines, towers, and substations to avoid critical habitat by using existing utility and transport corridors for transmission and distribution, and existing roads and tracks for access roads.
- Must ensure that the contractor strictly adheres to the contract provisions/EMP, particularly in terms of worker health and safety during the construction phase.
- During the construction period, the implementing agency must ensure that the contractor follows the contract provisions/EMP, particularly those pertaining to worker health and safety.
- A regular induction and training programme for labourers and engineers is required in all locations.
- PMU personnel will be trained in the monitoring and implementation of EMP, as proposed.
- Health checks of labourers and other working staff must be kept at all sites and rigorously monitored. Keep records of labour registration. Avoid the use of Child labour for any project activities.
- Site demarcation and protection for sites where work has been halted for a variety of reasons in order to prevent accidents and runoff of excavated soil from construction sites.
- Maintaining hygiene in camps and construction sites, as well as training and raising awareness about cleanliness and waste management.

Construction on sites of subprojects is under progress. Our observations from site inspections are concluded that the EMP is being implemented on-site. Regular monitoring of work progress is being carried out. However, the details should be maintained and submitted regularly to IA. The FEAR provides insight on possible environmental & social issues and also describes management measures to minimize/mitigate it based on PEDM's Environmental and Social Policy & Procedures Framework (ESPPF). The present report describes the environmental issues/effects that have been encountered or may arise due to setting up this project in the state of Mizoram and various mitigation measures are being taken care of by POWERGRID during construction and maintenance stages. However regular monitoring and compliance report are recommended to compare the EMP implementation progress periodically and shortcomings if any. This can be a part of the monthly progress report.

Because the subject project area has a severe power shortage, the project will directly benefit the locals by meeting their energy needs. The infrastructural constraints are very real and are a limiting factor in the area's development. The availability of power will also strengthen the area's basic infrastructure, which is critical for development. Thus, in the long run, the project will bring much needed development to the area and significantly improve the locals' living standards.

1 PROJECT DESCRIPTION

1.1 Project Background

India's North East Region (NER) stretches across the eastern foothills of the Himalayan Mountain range and is comprised of seven states including Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura. NER in India is endowed with rich energy resources but faces significant bottlenecks in electricity access and availability levels. The per capita power consumption in NER is one-third of the national average. No significant generation capacity has been added between 2004 and 2011 as a result of which inadequate power supply remains a critical constraint to sustainable and inclusive growth, and to scaling up private investment and economic competitiveness in the NER.

The power-starved NER, comprising Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, is blessed with a huge hydro potential. The region also has abundant resource of coal, oil and gas for thermal power generation. According to the estimates of the North Eastern Electric Power Corporation (NEEPCO), the NER has the potential of about 58971 MW hydro power i.e., almost 40% of the country's total hydro potential; but out of this only less than 2% (1095MW) has so far been harnessed. As per the report status of hydroelectric power potential listed by Central Electricity Authority (CEA) out of the total capacity of 58971MW, only 4029 MW has been tapped, which amounts to less than 7%. The region has a reserve of 151.68 billion cubic feet natural gas, which is capable of generating 7500 MW for 10 years. The region is also blessed with 864.78 million tons of coal against 186 billion tons of reserves in the country. With this reserve in the NE Region, approximately 240 MW/day can be generated for a period of 100 years.

But, in spite of such huge potential, the region ranks lowest in the country in terms of power generation and per capita energy consumption mainly due to lack of proper planning, inhospitable climatic conditions, remote location and inaccessibility. However, with continual improvement of infrastructure and communication facilities, the NE stands to become the power house of India by utilizing its surplus power potential, especially in hydel sector. The region offers a large potential in renewable energy, which is also yet to be exploited. There is also an imbalance between hydel and thermal power, both in terms of generation and availability. The T&D sector are the weakest link of the electricity industry in the NER. Huge T&D losses, estimated to be at over 40 %, lower tariffs as compared to costs of generation and transmission and mounting losses of the state electricity boards, are crippling the electricity sector of the region.

The road-map for development of power sector specifying the need for strengthening of overall Transmission, Sub-transmission system of NER and Sikkim was brought out in the "Pasighat Proclamation on Power" released during the first Sectoral Summit of North Eastern Council (NEC) at Pasighat in Arunachal Pradesh in January 2007. Pursuant to recommendations of Pasighat summit, a Sub-Group was constituted under the Chairmanship of Member (Power System), CEA on Transmission, Sub-transmission related issues in NER.

Recognizing that intrastate T&D systems in the NER states have remained very weak and that there is a critical need to improve the performance of these networks, the CEA developed a comprehensive scheme in December 2007 for the NER in consultation with POWERGRID and the concerned state governments. This scheme is intended to (a) augment the existing T&D infrastructure to improve the reliability of service delivery across all the NER states and (b) build institutional capacity of the power utilities and departments in the NER. This scheme is

part of the Government of India’s (GoI) wider efforts to develop energy resources in the NER for electricity supply within the region, to strengthen transmission networks, expand and strengthen sub-transmission systems, and extend last mile electricity connectivity to household.

GoI with the financial assistance of the World Bank (WB) has planned a composite scheme viz. NERPSIP to create/augment robust intrastate infrastructure/network of T&D in the region. The scheme covers six NER States (Assam, Meghalaya, Manipur, Mizoram, Nagaland & Mizoram) to create a robust power network by improving the intra-state T&D (33kV and above) network with required capacity building initiatives for effective utilization of assets. In 2016, the WB has approved a loan (IBRD 470 USD Million) to the GoI for NERPSIP on 50:50 (WB loan: GoI) basis except the component of capacity building for Rs. 89 crore, which GoI will bear entirely. The scheme is to be taken up under a new Central Sector Plan Scheme of Ministry of Power (MoP).

MoP, GoI has appointed POWERGRID as Implementing Agency (IA) to six NER States for the said project under Tranche-1 in close coordination with the respective State Governments / Utilities. However, the ownership of the assets shall be with the respective State Utilities / State Government which upon progressive commissioning shall be handed over to them for taking care of Operation and Maintenance (O&M) of assets. POWERGRID is also facilitating in building the institutional capacity of the state departments and utilities to continue managing the rehabilitated networks in an efficient manner. The state wise scope of works proposed under Tranche-1 is given below in **Table 1-1**.

Table 1-1 State Wise Scope of Work Proposed Under Tranche-1

State	Transmission/ Sub-station (132kV & above)			Distribution (33kV)		
	Line (km)	New S/s (No.)	Total MVA (New & Aug.)	Line (km)	New S/s (No.)	Total MVA (New & Aug.)
Assam	233	11	1644	479	16	240
Manipur	254	2	160	131	13	229.4
Meghalaya	225	4	940	263	11	135
Mizoram	143	3	125	5	1	6.3
Nagaland	193	5	245	60	10	200
Tripura	261	9	1306.5	1096	34	450.5
Total	1309	34	4420.5	2034	85	1261.2

The project has two components namely Component A: Priority Investments for Strengthening Intrastate Transmission, Sub-transmission, and Distribution Systems, and Component B: Technical Assistance for Capacity Building and Institutional Strengthening (CBIS) of Power Utilities and Departments of Participating States. The total project cost is **Rs. 5111.33 Crore** with financing from both GoI and Bank on 50:50 basis. The Bank is providing financial support to the tune of US\$ 470 million (**Rs. 2511.165 Crore**) under the Loan No.-8631-IN which was signed on 28th November, 2016 and became effective from 20th February, 2017. The loan closing date is 31st March, 2023. The remaining financing including capacity building will be met through Govt. of India funding. Details of State wise funding is placed below in **Table 1.2**.

Table 1-2 State Wise Funding from World Bank Under Tranche-1

State	World Bank	Government of India		Total (Rs. in Cr.)
	Project Cost (Rs. in Cr.)	Project Cost (Rs. in Cr.)	Capacity Building (Rs. in Cr.)	
Assam	729.485	729.485	14.83	1473.803
Manipur	213.690	213.690	14.83	442.213
Meghalaya	381.050	381.050	14.83	776.933
Mizoram	150.965	150.965	14.83	316.763
Nagaland	357.290	357.290	14.83	729.413
Tripura	678.685	678.685	14.83	1372.203
Total	2511.165	2511.165	89.00	5111.33

1.2 Project Justification

The state of Mizoram is spread over an area of about 21081 sq. km with a population of more than 11.2 lakhs (as per 2014). The present per capita energy consumption is of the order of 377 units (kWh) against the regional per capita consumption of about 258 units and national per capita consumption of about 779 units. The state meets its power requirement through about 49 MW of self-generation and about 66 MW of power allocation from various central sector generation projects of NHPC and NEEPCO. The present demand (met) is of the order of 75 MW whereas the un-restricted demand is about 85 MW. As most of the generation projects in the north eastern region are hydro in nature, the state faces shortage of power during low-hydro generation condition.

Presently, the State draws its share of power from central sector generating stations through following inter-state transmission system (ISTS):

- Aizawal(POWERGRID) – Zemabawk(Mizoram) 132kV D/C line
- Badarpur (POWERGRID) – Kolasib (Mizoram) – Aizawal (PG) 132kV S/C ISTS

As per the 18th Electric Power Survey of CEA, the future demand of the State is expected to grow to about 340 MW by year 2016-17 and 472 MW by year 2021-22. This shall be met through various hydro and thermal projects coming up in the north-eastern region in near future, which are as follows:

- Pallatana GBPP : 726 MW
- Bongaigaon TPS : 750 MW
- Kameng HEP : 600 MW
- Lower Subansiri HEP : 2000 MW

The state has a share of about 90 MW from these future generation schemes. With this, the total share of the state from central sector generating stations shall be about 156 MW. A 400 kV interconnection (initially operated at 132 kV level) has been planned to transfer power from these future generation schemes to the state of Mizoram, which is as below:

- Silchar (POWERGRID) – Melriat (POWERGRID) 400 kV D/C line (initially operated at 132 kV) - under construction
- Melriat (POWERGRID) – Simhui (Mizoram) 132 kV D/C line
- LILO of one ckt. of Aizawal (POWERGRID) – Zemabawk (Mizoram) 132kV D/C line at Melriat (PG)

The present intra-state transmission system of the State is quite old & weak and is unable to cater to the growing power requirements of the State. Although the present T&D system covers

many areas of the State, it is inadequate in its reach and appropriate T&D system. Breakdown of any transmission system element results in long term power shortages making the system highly unreliable. Besides, some of the network elements have undergone long term outage due to break-down. Therefore, it has become essential to address the above situation through remedial measures in the T&D system. Accordingly, phase-wise strengthening of T&D system has been proposed.

The transmission schemes proposed under this report are priority schemes under Tranche-1 and are essential for improving the power supply situation in the State. Implementation of these schemes will improve quality, reliability, security and enhancement of the power supply in the State.

1.3 Benefit of the Project

The proposed T&D schemes not only improve overall power supply situation but also improve reliability, quality, security and enhancement of power supply in the State. The availability of power will also strengthen the area's basic infrastructure, which is critical for development. Thus, in the long run, the project will bring much needed development to the area and significantly improve the locals' living standards

1.4 Project Highlights

Table 1-3 Details of project

Sr. No.	Particulars	Details
1	Project Name	NER Power System Improvement Project (NERSPIP)-Tranche- I, Mizoram
2	Location	Different parts of Mizoram State
3	Beneficiary States	Mizoram
4	Project Cost	Rs.316.76 Crores
5	Commissioning Schedule	2019

1.5 Project Scope and Present Study

In line with Environment and Social Policy & Procedures Framework (ESPPF) of Power and Electricity Department, Govt. of Mizoram (PEDM), POWERGRID carried out comprehensive environment and social assessment of each subproject and prepared Initial Environment Assessment Report (IEAR). These reports were subsequently disclosed for public information both on the State Utility, POWERGRID and Bank website after obtaining clearance from the WB.

As mandated in the ESPPF, a Final Environment Assessment Report (FEAR) for each subproject need to be prepared with an objective to assess the compliance of mitigation measures identified in IEAR including implementation of EMP provisions by IA/ Contractor. However, as per Project Agreement signed between POWERGRID and WB such study is required to be undertaken by Independent Agencies as per Term of Reference (TOR) agreed with WB. As a part of this development, POWERGRID appointed GREEN CIRCLE, INC as independent consultant vide LOA Ref No.: NEGW/C&M/NERPSIP/18-19/700-14/LOA-51/468 dated 31stDecember 2018 to carry out FEAR study.

1.5.1 Project Scope Components:

FEAR is undertaken to verify the actual location details of the project elements like 132/33 kV TL, 33/11 kV DL and associated S/S in Mamit district of Mizoram State covered under NERPSIP. The scope covered is identification and examination of deviation of environmental and social issues as addressed in IEAR, reporting of effects on the biodiversity of the region / PA, identification of the project affected people (PAP) and assessment of onsite compliance of the Initial Environmental Assessment Report (IEAR) / Environment Management Plan (EMP) prepared and submitted by the IA. The study is carried out adhering to ESPPF of PEDM, Operation Policies of WB designated for Electric Power T&D projects. Refer **Table No. 1.4** for the project scope components.

Table 1-4 Project Scope Components

Sr. No.	Name of the Line	Name of the New / Existing S/S
A. TRANSMISSION SCHEME		
1	West Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV) - approx. 50.265 km	Establishment of 2 x 12.5 MVA, 132/33 kV new substation at West Phaileng Establishment of 2 x 12.5 MVA, 132/33 kV new substation at Marpara
B. DISTRIBUTION SCHEME		
1	Bay connection between Existing West Phaileng 33/11 kV substation with proposed West Phaileng 132/33 kV substation – approx. 100 meter	--

The project activities include the survey for finalizing the route alignment and installation of TL and construction of S/S (civil and electrical installation). Lattice towers/ poles are then erected on designated places using normal excavation and foundations thereafter conductors are strung across these using manual/stringing machines. The construction of S/S is regular civil works for small buildings. The electrical installations consist of the transformers, breakers, capacitors etc. and other protection/controlling devices to ensure required power flow.

A power map showing the transmission grid of Mizoram highlighting the above lines and other new projects placed as **Figure 1-1 and Annexure 1**. Schematic map showing the various projects covered under the subject FEAR is placed in **Figure 1-2 and Annexure 2**.

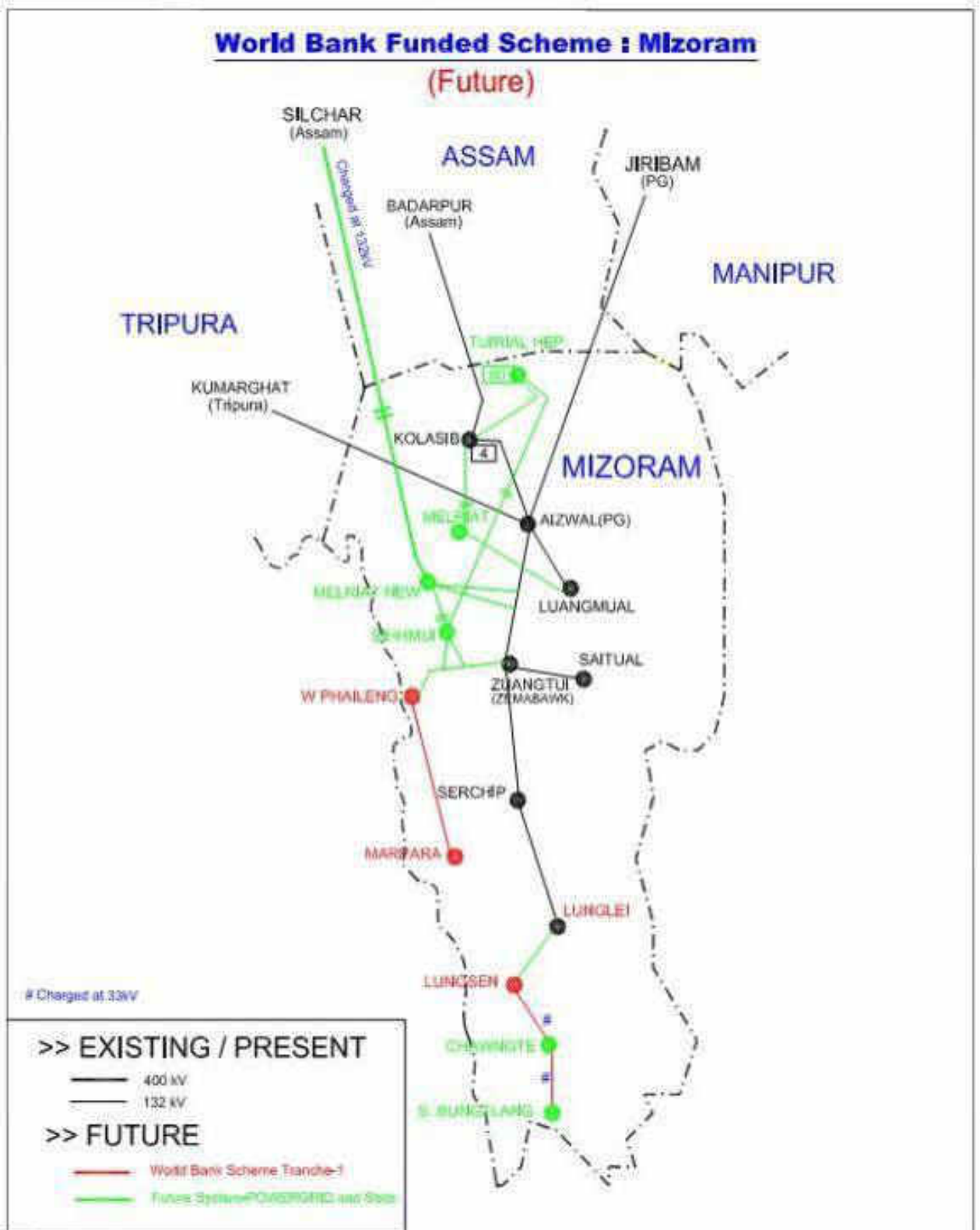


Figure 1-1 Power Map of Mizoram

1.6 Overall Project Progress

A brief status on project implementation progress of various T&D components is presented below;

Table 1-5 Status of the Project Progress as on Date

Sr. No.	Name of the T&D Component
A. TRANSMISSION SCHEME: AGENCY – M/s Sterling and Wilson Pvt Ltd	
1	West Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV)
	TL Length: 50.265 Km <ul style="list-style-type: none"> 65 no. of tower foundations and 45 towers erection completed out of 172 Expected Completion Date: Aug 2022
B. SUBSTATIONS: AGENCY – KSA Powerinfra Pvt Ltd	
1	Establishment of 2 x 12.5 MVA, 132/33 kV new substation at West Phaileng
	<ul style="list-style-type: none"> Site levelling 70 % work completed, 5100 Cum of cutting & filling completed out of 7311 Boundry wall till dated 117 RM Completed. Some minor Trans/React Foundation activities yet to be completed Equipment foundation completed Road Construction As per BOQ, 60 m² of 3.75 m wide road and 165 m² of 5.5 m wide road available. Work not started Drainage, 90 m for section A-A, 90 m for section B-B, 80 m for section C-C, 70 m for section D-D of drain is available. Work not started Expected Completion of work on site: June 2022
2	Establishment of 2 x 12.5 MVA, 132/33 kV new substation at Marpara
	<ul style="list-style-type: none"> Site levelling out of 7118 cum till dated 6121 Cum of cutting & filling completed Boundry wall, RM Out of 532m, 290 completed Equipment foundation till dated 6 foundation executed Expected Completion of work on site: June 2022

1.7 Objective and Study Methodology adopted for FEAR study

The main objectives of the FEAR study are to assess the mitigative measures as suggested in IEAR and/or EMP are effectively implemented/ addressed at the ground during pre-construction & construction stages of project cycles. The study will also help in establishing the status of compliance of various mitigation/management measures provided in the IEAR/EMP and suggests gaps or weaknesses, if any.

To achieve this, GCI undertook a comprehensive biophysical, environmental, socioeconomic data gathering exercise along the TL/ DL line routes and S/S location to assess / verify the actual site-specific measures implemented / being implemented by IA/ Contractor in respect of measure/ actions listed in IEAR/EMP. The project methodology flow chart is given below:

The methodology for the proposed study is inclusive of but not limited to following steps:

- 1. Review of existing reports:** Review of existing reports and data prepared and generated by POWERGRID such as IEAR, ESPPF, Compensatory Plan for Temporary Damage (CPTD) etc. was undertaken and suitably incorporated in the present report.

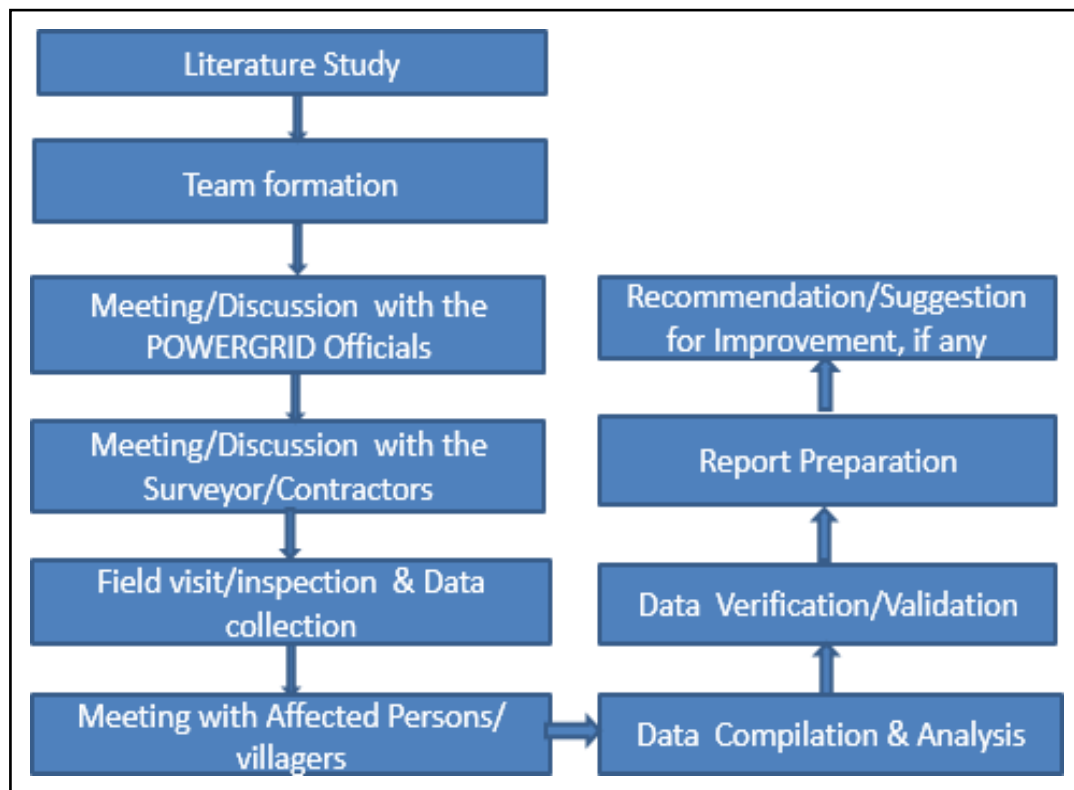


Figure 1-2 Study Methodology for Preparation of FEAR

2. **Literature review / Analysis of Secondary Data:** Review of existing literature are undertaken for collection of secondary baseline data related to physiography, climatic conditions, demography, natural resources including forest/wildlife and socio-economic features of the study area. Sources and data so collected have been mentioned below:
 - Literature from various research papers was reviewed for study biodiversity of the project site
 - A Revised Survey of the Forest Types of India' by Champion and Seth (1968) was used for forest type classification of forests in the study area.
 - Data collected from published literature of Zoological Survey of India (ZSI), Forest Survey of India (FSI), Botanical Survey of India (BSI) and other research and government publications for floral and faunal diversity of the study area.
 - Soil map of the study area was prepared using 'Soils of Mizoram for Optimizing Land Use, NBSS Publ.67b, 2000' published by National Bureau of Soil Survey & Land Use Planning (NBSS & LUP), Nagpur.
 - Conservation status of flora and fauna of the study area as per Indian Wildlife (Protection) Act (1972), threatened status according to IUCN Red List 2020.1, Red Data Book of Indian Plants by Botanical Survey of India, Kolkata.
 - Census of India 2011 for demography of the study area.

3. **Collection & collation of primary data:** The data was collected by extensive field visits and interaction with various stakeholders such as POWERGRID, Contractor, forest officials, Project Affected People (PAPs) and public at large. The environmental primary data other than vegetation profile is verified and ascertained through the discussion with local people and stakeholders, Site visits and IEAR carried out for the proposed T&D alignment and S/S and final alignment schedule In order to, collect data with respect to final route alignment with important feature & maps, forest involvement/forest clearances, other applicable statutory clearances/consent/ exact number of trees to be filled / damaged both in forest as well as non- forest area, number and profile of PAP along with details of compensation provided to PAPs. This includes collection of any other primary data, which, in the opinion of agency, is required for ascertaining the compliance of the mitigating measures as enlisted in IEAR/EMP. Besides, photographs of important events such as

interaction with various stakeholders, safe working practices, borrow area management, top soil management and construction during lean period etc. was taken as evidence.

- 4. Collection of primary data and Physical verification of construction elements:** To gather primary data/ physical verification, a field visit/ survey of the project area along with IA and Contractor staff was made from February 2019 to May 2021. The data which has been collected from field visit are implementation status of proposed environmental management plan and mitigation measures as suggested in IEAR. Also, the environmental monitoring for ambient Noise levels and water quality is regularly carried out at S/S locations as part of EMP monitoring by construction Contractors

The COVID-19 pandemic creates a special challenge due to the paucity of testing services, weak surveillance system and above all poor medical care. Especially the lockdown strategy & state and interstate restrictions directly affect on physical verification and somewhere construction activities. Due to Covid-19 Shortage of manpower, restriction and lockdown survey period was extended.

Ground truthing/physical verification was made with photographic evidence and verification of record maintained by IA and Contracts for various activities for monitoring the compliance of mitigation measures like Health and Safety measures, Solid waste and sanitation, construction of protection wall/ retaining walls, status of labour camps location of proposed S/S, towers, and T&D Lines alignments. Findings of field survey were consolidated along with secondary data for interpretation and finding the gaps for immediate necessary action.

- 5. Ascertaining the compliance:** Analysis and interpretation of secondary and primary data to ascertain the compliance of the measures as discussed in EMP.
- 6. Survey of flora and fauna:** Phyto-sociological survey is necessary as this is a TL project. Being a TL project, surveys for assessment of vegetation structure/ profile in the proximity of the proposed TL, corridors of TL routes, S/S, etc. were conducted wherein line transect methodology has been followed. Faunal surveys were also conducted along the same transects. As the topography along the routes varied from undulating / plain to top of hill. It was therefore, not feasible to chart the entire routes of proposed TL as large part of the routes has steep slopes and due to issues of accessibility at present. However, during the field surveys it was tried to survey minimum 10% of the route for flora data collection, which in some cases constituted a continuous stretch and, in some cases, could be covered in parts. The stretches were selected considering diversity of flora. At some places along the alignment, forest plantation is recorded e.g., rubber / forest plantation which is homogenous. At some stretches the diversified flora is recorded. As regard substation, the whole substation area was covered. The fauna elements were not found during field surveys in the project areas except some bird and common fauna. Hence the data was collected through consultations with local public, Forest department officials and POWERGRID officials working in the project area. The Flora and Fauna Data is presented in **Appendix A under Heading B.**

The results of the primary field surveys were supplemented with secondary data to fill the gaps and further with the information generated through PRA. In addition, at all the sites bird walks were also undertaken, particularly areas under private plantations nearby the routes to locate nesting sites and for bird sightings.

- 7. Consultation:** During assessment consultation was done with stakeholders like various field officers of consulting team such as Central Project Implementation Unit (CPIU)/ State Project Coordination Unit (SPCU) POWERGRID officials, Contractor, migratory labors, local labors, Gram Burrah (village head) and public representatives to collect data with respect to compliance of suggested Environmental Management Plan (EMP) and implementation of mitigation measures. **The details of exercise are presented at Appendix-B.**



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- 8. Development of Maps:** Geo-referenced and Google maps with superimposed coordinates of project elements were generated to verify locational details and details of physical features of terrain of the project locations (**Please refer to the Annexure A and B**).

1.8 FEAR Structure

Chapter 1: Project Description:

Brief description of the background, objective of the project, resultant benefit and scope of the work.

Chapter 2: Baseline Data:

Description of the relevant physical, physiographical, and socioeconomic condition of the project area including description of natural resources base like forest resources or any other environment sensitive areas like National Park sanctuary etc. along with description of climatic condition, population and other demographic features of the project area.

Chapter 3: Policy, Legal and Regulatory Framework:

Description of the policy, Legal and Regulatory framework applicable to transmission project and the environmental requirement under which environment assessment has been carried out.

Chapter 4: Major Features of Final Route & Environment Impact:

Brief description of the environmental criteria for selection of route and major features of final route alignment, details of forest involvement including number of trees and species of the trees likely to be affected. The details of forest clearance and environmental impact matrix describing in brief the extent of impact of TL.

Chapter 5: Potential Environmental Impact, Evaluation and its Management:

Description of the measures adopted and under implementation for identified impact due to project location, design, construction, O&M details of public consultation and its documentation, details of contractual conditions regarding safeguard issues under scope of contract for compliance and conclusion listing the category of the project based on the impact and analysis.

Chapter 6: Monitoring and Organization Support Structure:

Description of the monitoring plan, reporting pattern/frequency, external monitoring requirement/timing for potential environment & social issues with compliance status of EMP and organization support structure.

2 BASELINE DATA

2.1 Introduction

Impact Assessment defines and assesses the potential physical, biological, and socioeconomic impacts of a project and helps in formulating management and mitigation measures to minimize the impacts to a great extent. This chapter deals with the baseline status of physical, biological, socioeconomic environment in the project districts as well as study area.

2.2 Project Location

The project is an intra-state power sector project located in the State of Mizoram and covers the district of Mamit. **Please refer Map 2-1.** The map showing location of various subprojects is presented in **Map - 2.2.**

Figure 2-1 Location Map of the Project

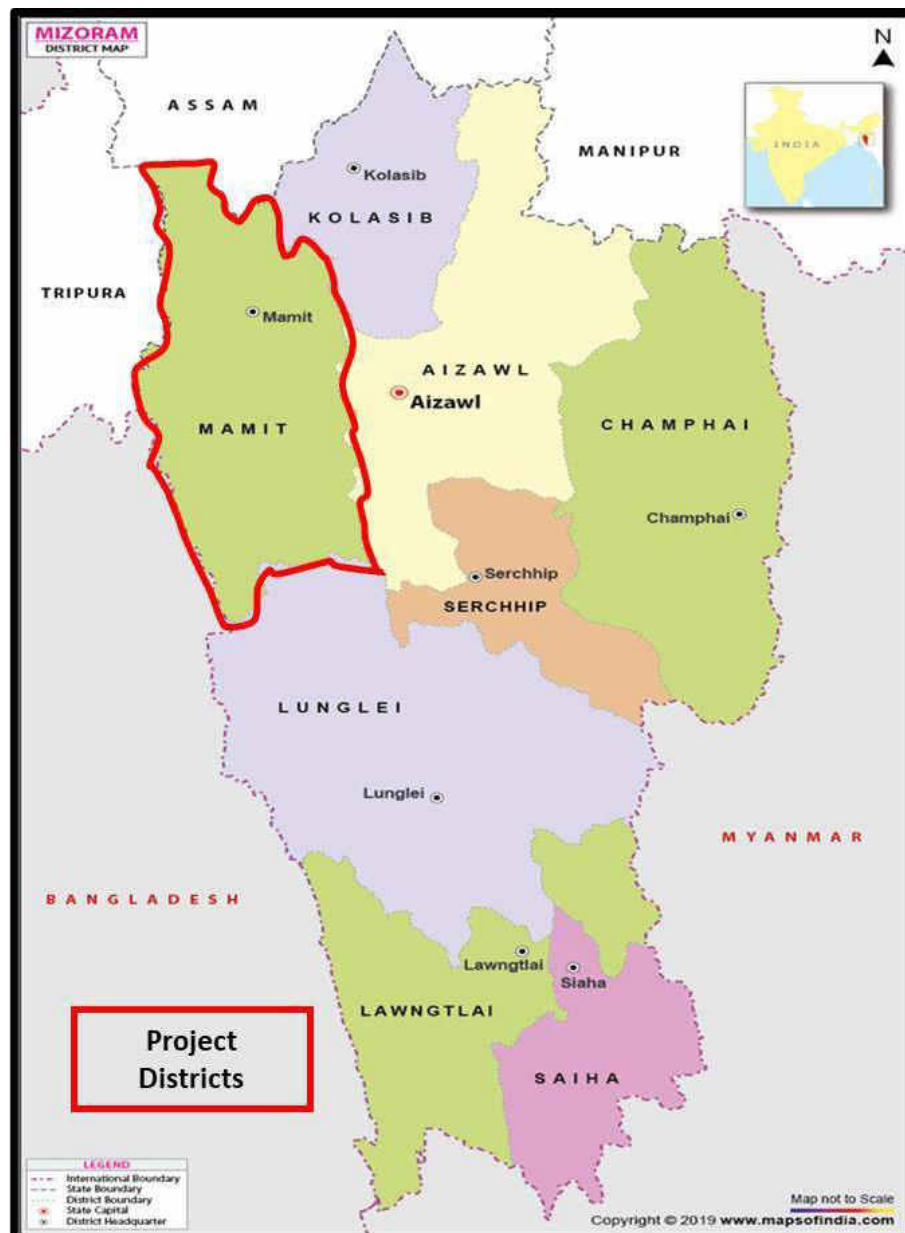
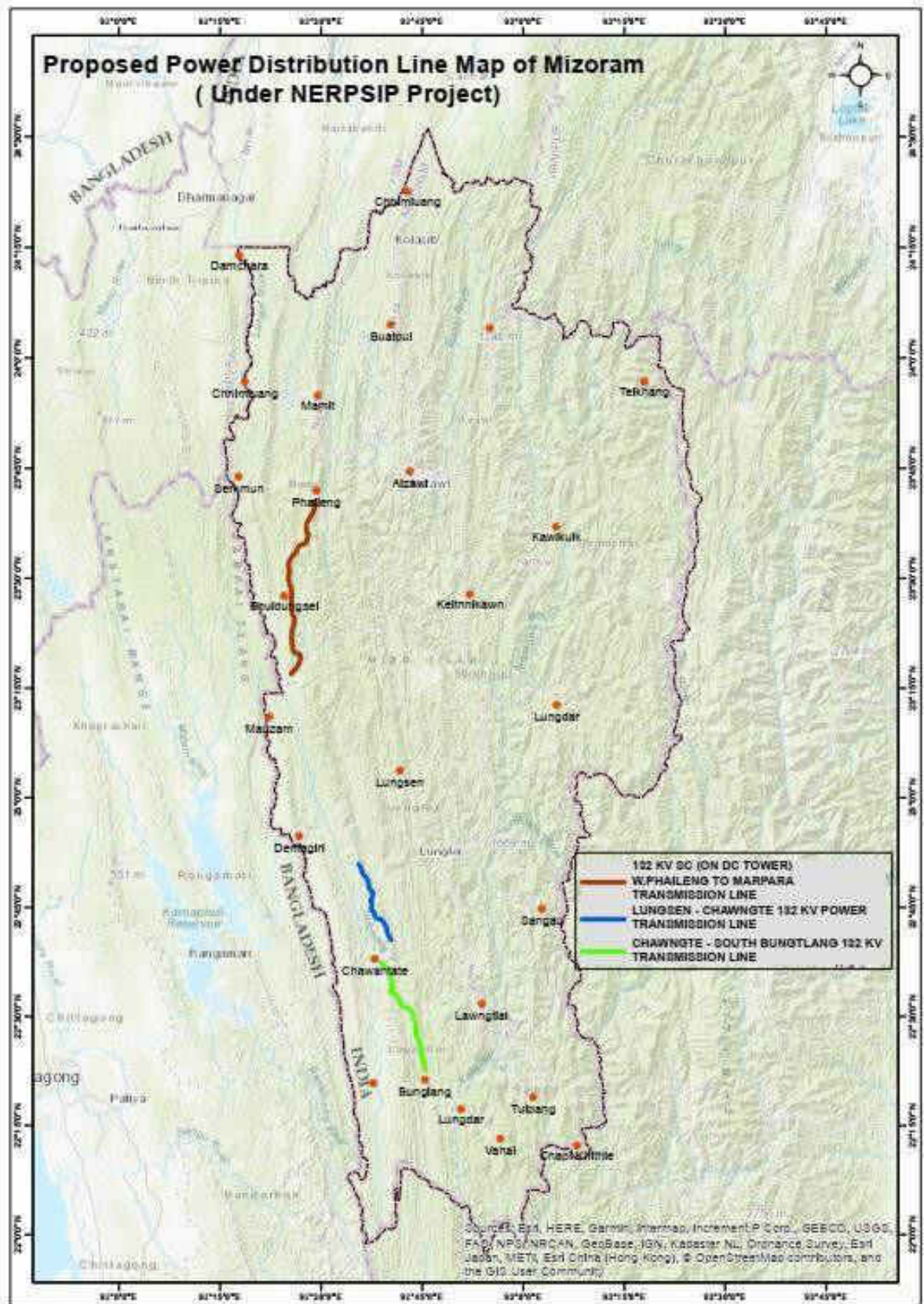


Figure 2-2 Topo Map Showing Subprojects Locations



2.3 District Belonging to Study Area

This is an intra-state power sector project located in the State of Mizoram and study area covers Mamit districts of Mizoram. Mamit is a new district of Mizoram with an area of 3025.75 sq km. It is situated in between 23°15/ - 24°15/ N latitude and 92°15/ - 92° 40/E longitude with an altitude ranging from 40 to 1485 m msl. The district is bounded on the north by Hailakandi district of Assam state, on the west by North Tripura district of Tripura state and Bangladesh, on the south by Lunglei district and on the east by Kolasib and Aizawl districts. The district is dissected by few mountain ranges which run parallel to each other in a north-south fashion. The area is characterized mainly by three main ridgelines and intervening valleys and less prominent ridges. In between these, there are plenty of small and short parallel ridges and are classified as linear ridges with places along the main rivers as subdued hillocks.

2.4 Physical Environment of District Belonging to study Area

Physiographically, the terrain is mountainous with prominent relief. Hill ranges are trending in the north-south direction. Parallel to sub parallel anticlinal hill ranges, synclinal narrow valleys form deep gorges. Basically, these are structural hills. The process of denudation and weathering is still continuing in response to various natural forces. One of the dominant forces of formation of such landforms is exertion by running water. Based upon lithology, relief, drainage, and structural pattern, the district has been divided into two major units viz denude structural hills and valleys.

Physiographically, the district is represented by parallel to sub parallel hill ranges trending North-South direction. The hills are steep and separated by rivers which flow either to the north or to the south creating deep gorges. The major drainages include Tuirial River flowing to the South. Numbers of perennial streams flow through the district from north to south.

The climate of the district is characterized by tropical humid climate with cool summers and cold winters. Winter temperatures vary between 11° and 13° C in general. The winter season is however, without snow. The normal annual rainfall is 2,216 mm and average annual rainfall is 2,794 mm. the rainfall is due to the monsoons from early May to late September.

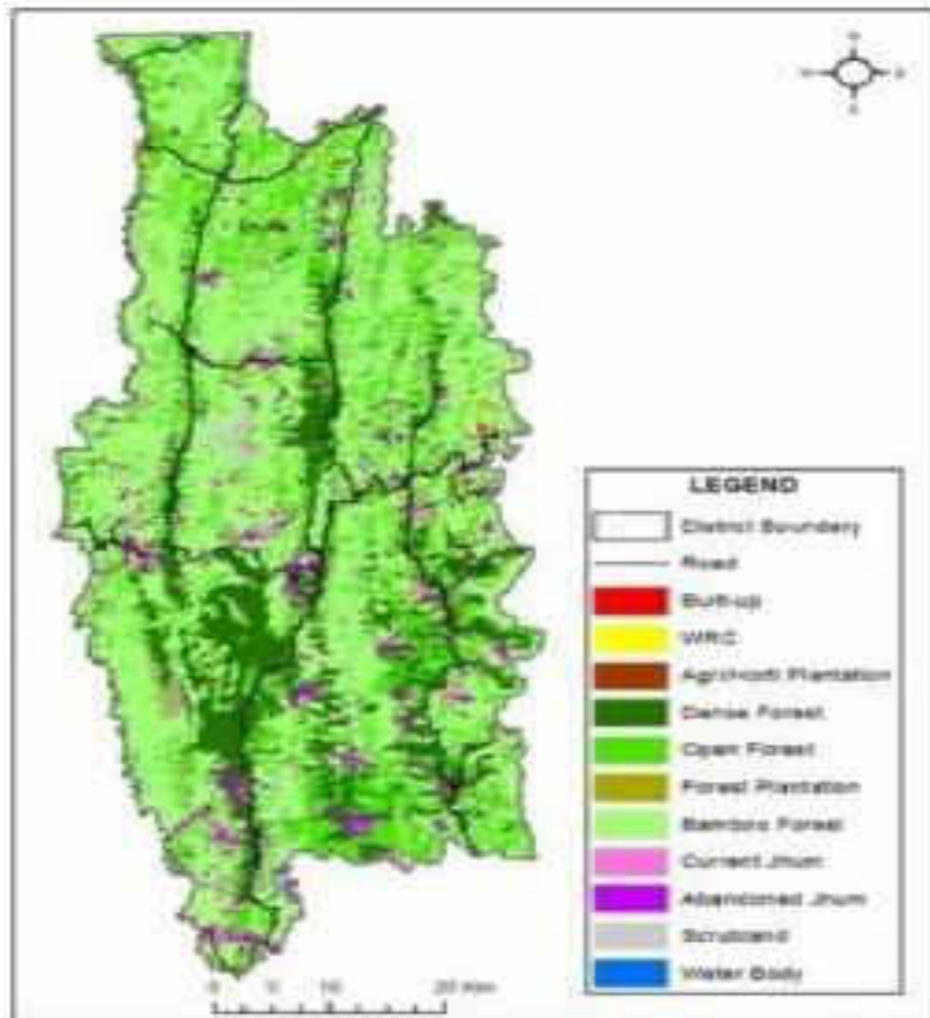
2.4.1 Landuse Pattern

Reporting area for Landuse Majority of the Mamit project district area is given in **Table 2.1**.

Table 2-1 Landuse Pattern of Project District – Mamit

Sr. No.	Land Use Classes	Area in Ha
1	Geographical area	302575
2	Forest Area	249742
3	Land Not Available for Agricultural Use	8344
4	Land under Misc. tree Crops & groves not including in net Area sown	27334
5	Permanent pasture & other grazing land	200
6	Culturable Waste land	4050
7	Fallow Land	Current Fallow
8		Fallow Land Other than Current fallow
9	Net Cropped area	15380
10	Barren Uncultivable land	1030

Figure 2-3 Land use Map of Project District - Mamit



2.4.2 Drainage

The Major rivers flowing through the project district belonging to study area as below;

Table 2-2 Major Rivers Flowing Through Project Districts

Sr. No.	Name of District	Name of River
1	Mamit	Kaladan, Tuiphang Chhimtuipui, Ngengpui, Chawngte Tlawng, Tut, Teirei, Langkaih, Khawthlangtuipui and Mar rivers with its tributaries

The River Maps are presented here in Fig.2.6 for Project district of Mamit. However, the project activity is not going to impact these water bodies in any way as the route alignment of proposed transmission line does not have any such river crossing.

Ground water is used mainly for drinking purpose as there is no major industry in the district. Ground water utilization for irrigation may be considered as negligible. As per study carried out by Central Ground Water Board (CGWB), the estimated gross annual dynamic ground water resource is 4.92 mcm while net annual ground water draft is 0.0069 million cubic metre (mcm) & the stage of ground water development is 0.82%. Natural discharge during non-monsoon

season is negligible. Future provision for domestic and industrial use is 0.01 mcm and for irrigation use, it is 4.41 mcm. Mamit district is under the “Safe” Category.

2.4.3 Wetlands

Mamit district lies in the north western part of the state and share a boundary with Bangladesh and Agartala. The north western part of the district comprises more or less low lying area while the eastern part is made up of medium to high structural hills. The major rivers within the district are Tut, Tlawng, Mar, Teirei and Khawthlangtuipui rivers. The average annual rainfall is 2692 mm. The wetland area estimated is 2167 ha. The Mamit district has around 86 wetlands including 58 small wetlands (area < 2.25 ha.) covering an area of 2167 Ha. River/stream (1951 ha) are the largest wetland type followed by Lake/pond (84 Ha). Detailed wetland statistics of the district is given in **Table 2.3**. However, none of these wetlands are getting involved/impacted in routing/RoW of proposed lines and locating substations.

Table 2-3 Wetland Details – Mamit District

Sr. No.	Wett code	Wetland Category	Number of Wetlands	Total Wetland area	% Of Wetland area	Open Water Post monsoon area	Pre monsoon area
	1100	Inland Wetlands – Natural					
1	1101	Lakes/Ponds	13	84	3.88	79	84
2	1102	Ox-bow lakes/ Cut-off meanders	-	-	-	-	-
3	1103	High altitude wetlands	-	-	-	-	-
4	1104	Riverine wetlands	-	-	-	-	-
5	1105	Waterlogged	7	47	2.17	46	39
6	1106	River/Stream	6	1951	90.03	1951	1951
	1200	Inland Wetlands -Man-made					
7	1201	Reservoirs/Barrages	2	27	1.25	27	27
8	1202	Tanks/Ponds	-	-	-	-	-
9	1203	Waterlogged	-	-	-	-	-
10	1204	Salt pans	-	-	-	-	-
Sub-Total			28	2109	97.32	2103	2101
Wetlands (<2.25 ha), mainly Tanks			58	58	2.68	-	-
Total			86	2167	100.00	2103	2101

Figure 2-4 River Map of Mamit Project District

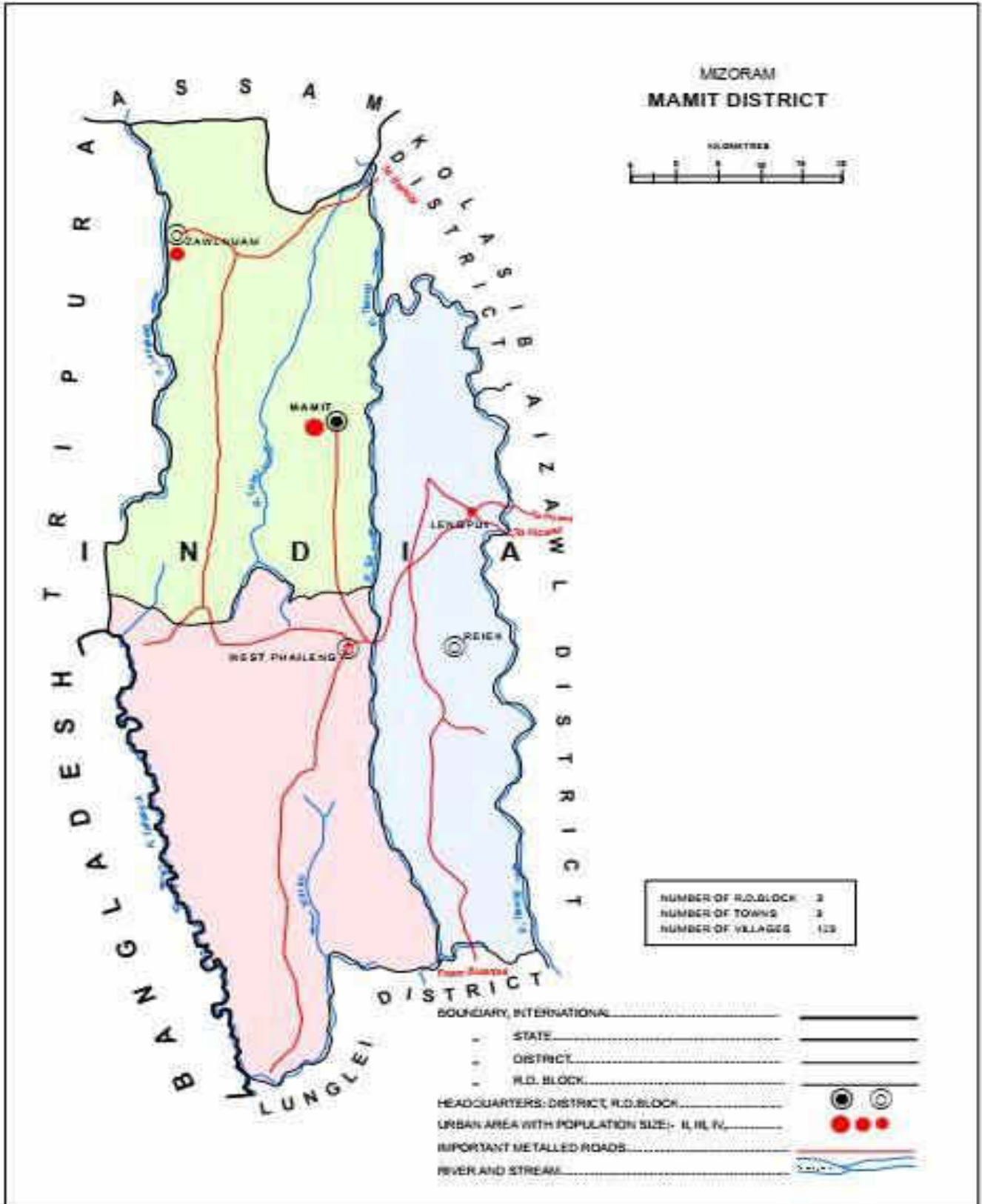
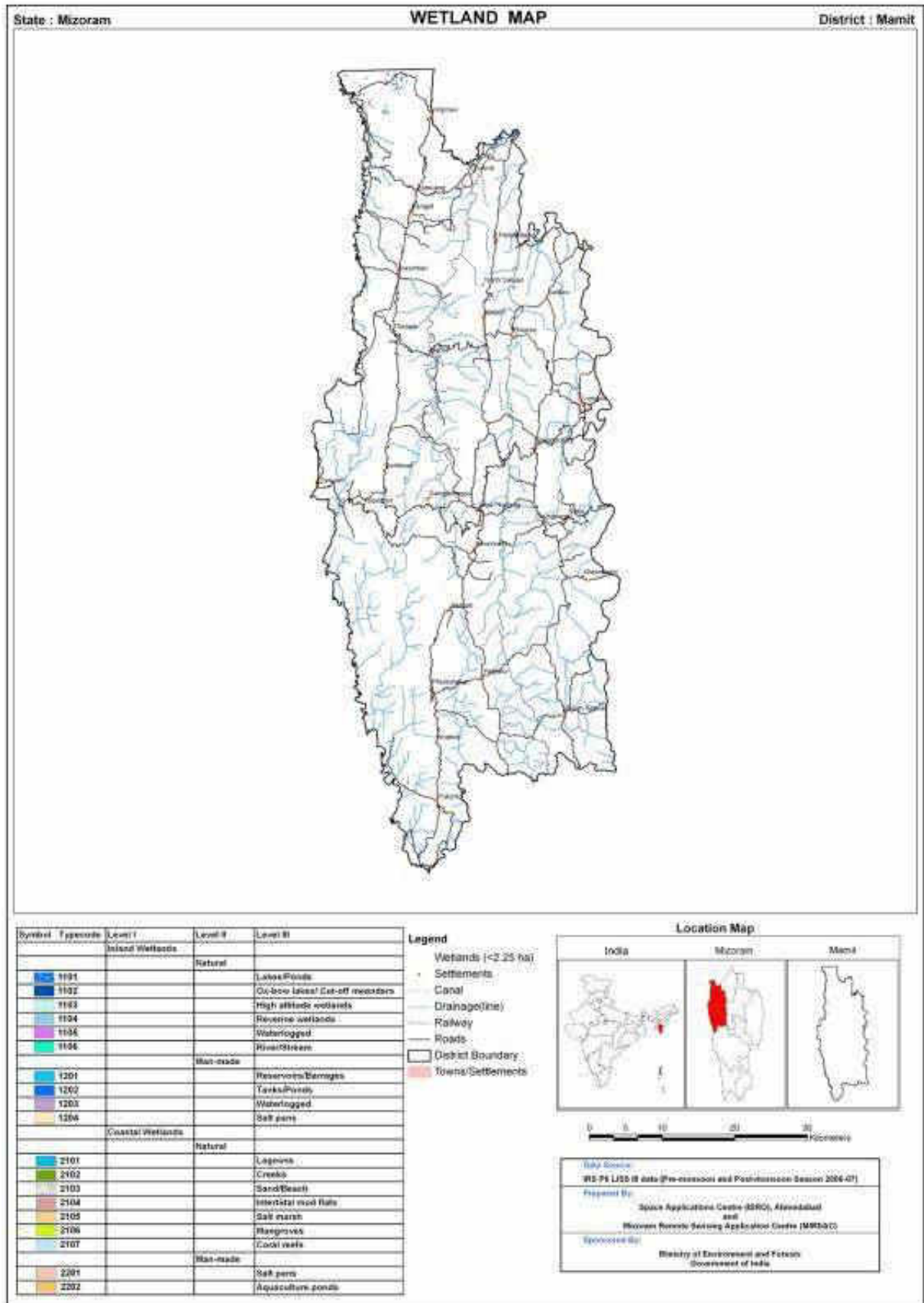


Figure 2-5 Wetland Map of Mamit District


2.4.4 Soils

Deep, sandy to medium textured soils have a strong relationship with the physiography of the subwatershed areas. According to data from the National Bureau of Soil Survey & Land Use Planning (NBSS&LUP), the soil taxonomic (family) classification of project districts, the project area has been divided into two soil series. Appendix A, heading A, contains information on soil taxonomic classification. The Soil family is defined as follows;

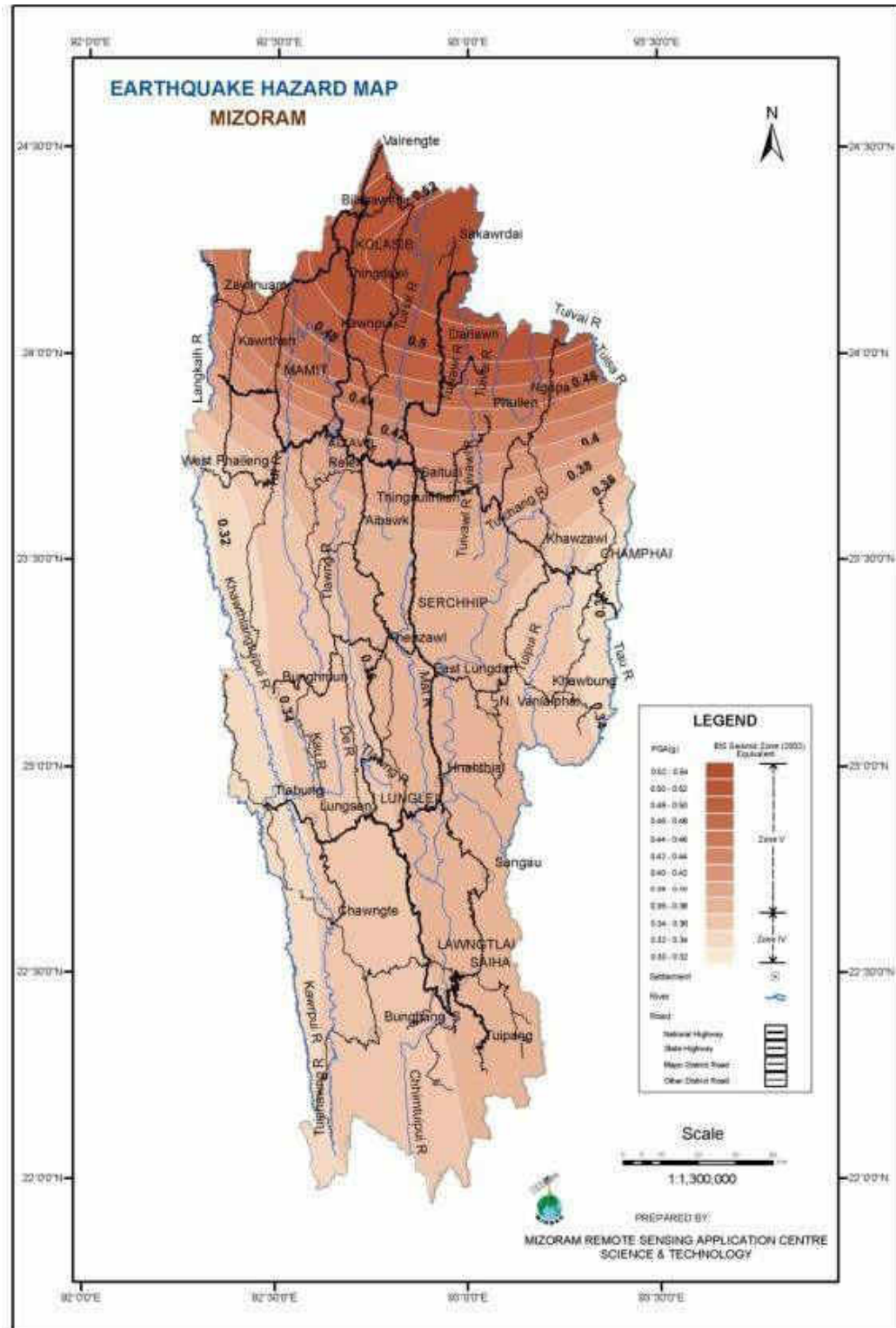
- **Dampa Series:** The Dampa Series is a member of the Humic Hapludults' loamy skeletal, mixed, hyperthermic family. They are a very deep, dark brown, sandy clay to clay horizon that is well drained and highly acidic. It can be found on hillside slopes of various slope categories.
- **West Phaileng series:** This series is a member of the Typic Dystrochrepts fine loamy, mixed, hyperthermic family. They are very deep, dark yellowish brown sandy clay loam horizons that are well drained and extremely acidic. It can be found on a variety of hillside slopes.

2.4.5 Vulnerability

2.4.5.1 Earthquake Vulnerability:

The State forms a part of the most severe seismic zone in the country, namely Zone V of Seismic Zoning Map of India that is referred as Very High Damage Risk Zone. A large number of moderate to large magnitude earthquakes have occurred within the State boundary as well as within 100 km distance around it. Almost complete Mamit district and Project area is in Very high earthquake hazard zones. It is recommended that earthquake resistant designs and construction Guidelines are adopted and implemented for minimizing damages to buildings. Please Refer Map 2-10. Associated vulnerability is studied in detailed for the TL alignment of the project is discussed in the Section 4.3 and Chapter 5 impact mitigations are evaluated.

Figure 2-6 Seismic Hazard Map of Mizoram



2.4.5.2 Landslide and Erosion Vulnerability:

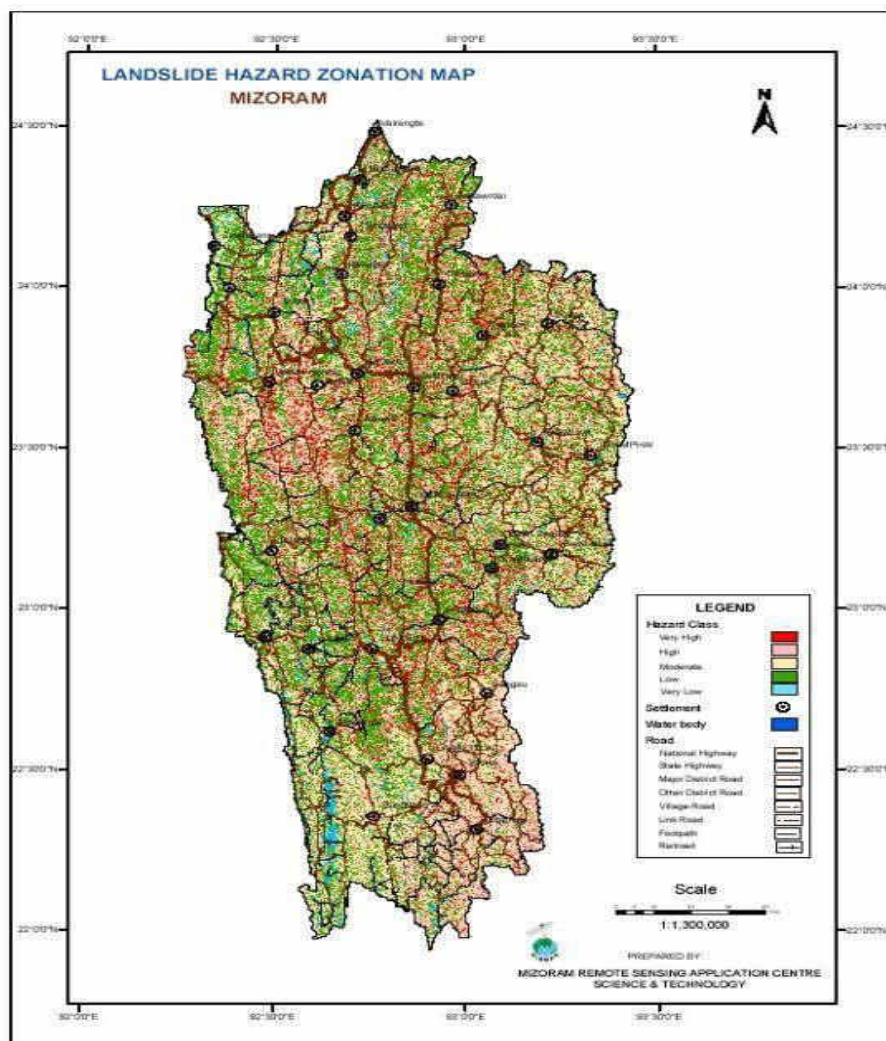
Mizoram, being a hilly terrain is highly prone to landslides. Every year a number of landslides have been usually reported from various localities. These cause a lot of miseries to public, resulting in loss of life and property, disruption of communication network, and also cause economic burden on the society. This is primarily attributed to high slope, immature geology, neo-tectonic activity, heavy rainfall, unplanned and improper land use practice in the State.

Landslide incidents are more prominent during the rainy/monsoon season as the soil structure gets softened by heavy and continuous downpour, especially in areas having high degree of slope. There can be many factors that make an area vulnerable to landslides, both induced by human activities as well as inherent natural composition of the soil. However, in most cases the former factor is a contributing factor, especially in areas where development activities are higher and drainage facilities are neglected.

Landslide, a common phenomenon in hilly region is one of the most important factors of soil erosion. Topsoil and vegetative covers on large scale are considerably lost every year during the monsoon season. Landslides are mainly found below settlement areas, terrace fields, rolling Jhum land and road construction. The possible factors responsible for landslide occurrence may be singular or a combination of several factors.

Unscientific land utilization incompatible with its carrying capacity leads to land degradation which has both environmental and economic consequences. The information on land degradation is needed for a variety of purposes like planning reclamation programs, rational land use planning, for bringing additional areas into cultivation, to improve productivity levels in degraded lands etc. As per the land degradation mapping undertaken by Department of Space, GoI along with partner institutions under National Natural Resources Census (NRC), water and wind are the most important land degradation process that occurs on the surface of the earth. Rainfall, soil, physical properties, terrain slope, land cover and management practices play a significant role in soil erosion.

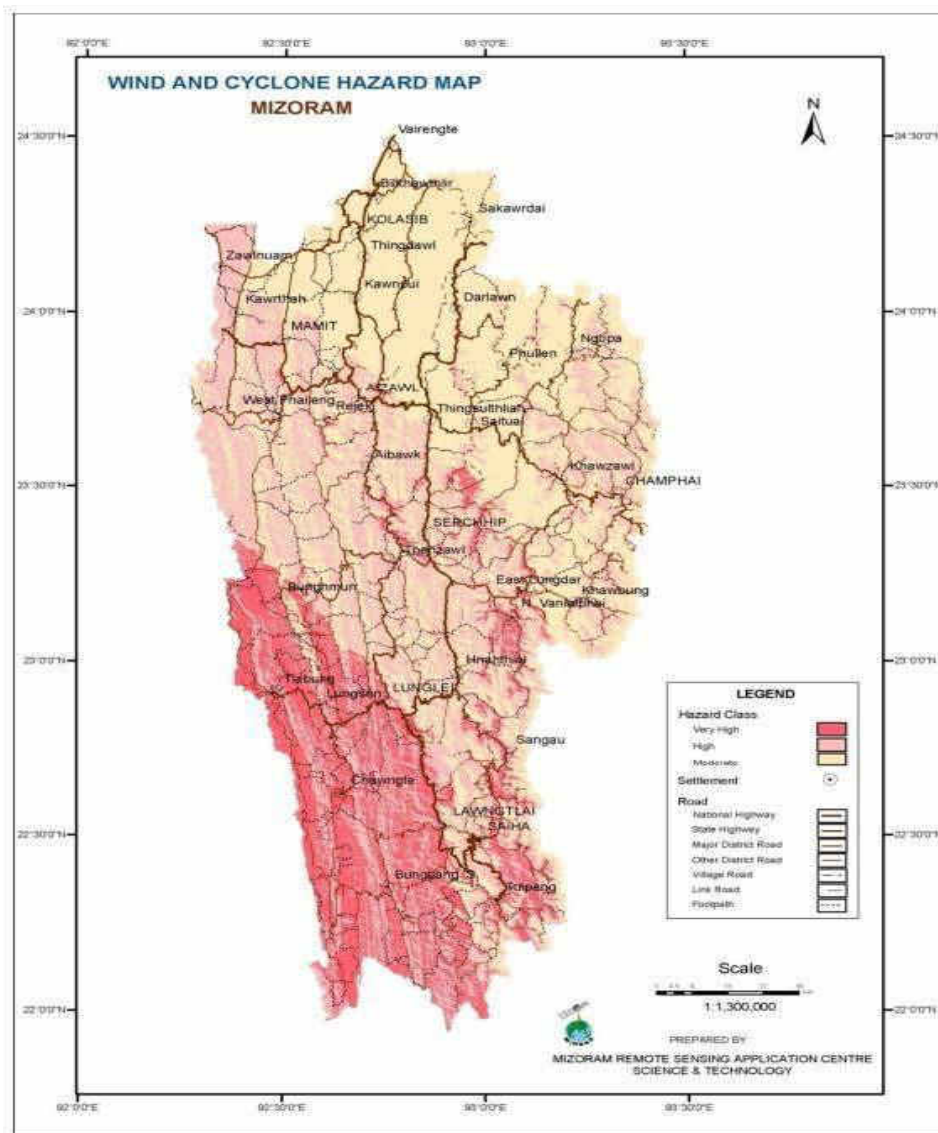
Figure 2-7 Landslide Hazard Map of Mizoram



2.4.5.3 Cyclone and Wind Vulnerability:

As far as wind hazard is concerned, the design wind speed in the whole state is 55m/s (198km/h) which is the highest value specified in the country, occasionally reached when cyclonic wind made landfalls crossing Bangladesh and southern Myanmar. In such events, weakly built homes of wood, bamboo, thatched etc., as in Category X in the atlas, and sloping roofs such as thatched and tiles and those AC sheet and corrugated galvanized iron (GGI) sheet roofs which are not fully anchored and integrated will suffer much damage. The damages occurring in such high winds are of localized nature and do not result in a disaster at the State level. Almost all part of Mizoram is cyclone prone area. Mamit district falls under high risk zone to Cyclone Hazard. It is recommended and wind resistant construction Guidelines are adopted and implemented for minimizing wind damages to buildings. Please Refer Map 2-12.

Figure 2-8 Map 2-12: Wind and Cyclone Hazard Map of Mizoram



2.4.5.4 Flood Vulnerability:

The State having hilly terrain does not have major flood problem. Under the action of heavy rain, flash floods may be caused resulting in bank erosion and some local damage. In Mizoram, floods

occur in river valleys, when flow exceeds the capacity of the river channel, particularly at bends or meanders. Compared to other hazards like landslides and cyclones, the damage caused by floods within the state is the lesser. Floods often cause damage to homes, public places and crop lands if they are placed in natural flood plains of rivers. Settlements lying in close proximity to the rivers are prone to flood hazard and hence drowning often happens due to occupational and recreational activities close by the river. This happens especially during the monsoon period. In general, most significant damages occur only to the crops and erosion of cropland lying in the fluvial flood plains of Mat, Chhimtuipui, Tlawng, Tut, Teirei, Khawthlang tuipui, Tuirial, Tuivawl and Tuivai rivers, etc. Please refer Map 2-13. Flood vulnerability is studied in detailed for each alignment of the project TL and DL and same are discussed in the Section 4.3. The project district and area is falling in Low risk Zone of flood. However, adequate mitigation measures have been given in the EMP and same are followed to avoid any chances of getting affected by flood vulnerable areas. In addition, any work is avoided in rainy days.

2.4.5.5 Fire Vulnerability:

Fire accidents are quite common especially during the dry seasons. Habitations in Urban and Rural areas in Mizoram are vulnerable to fire incidents due to many reasons, most of which has been attributed to accidents caused by erroneous human activities leading to outbreak of fire. The State is also becoming increasingly vulnerable to electric accidents. The main causes of such accidents are:

- Use of sub-standard electrical fittings.
- Lack of routine check-up of over-utilized electrical items.
- Lack of trained electricians for wiring of homes.
- Faulty electrical wirings of home.
- A combination of the above factors

Forest fires are another form of fire hazard that affects the State every year. Majority of the cause can be attributed to uncontrolled burning of jhum fields and unattended fires adjoining forest areas. The vegetation composition is also a factor influencing the vulnerability of area to forest fires.

2.4.5.6 Hazard Classification with Respect to Project Districts:

The project districts are classified as per vulnerability to hazard. It is given as below. The Impact assessment and mitigation measures are discussed in the Chapter 5. All the project sites are falling in Very High Earthquake Hazard zone, High Landslide and Cyclone Hazard Zone. However, the project sites are low vulnerable to Flood Hazard.

Table 2-4 Hazard Classification of Project Districts

Sr. No.	Name of the District	Head Quarters	Subdivisions	Earthquake	Landslide	Cyclone	Flood
1	Mamit	Mamit	Mamit	Very High	High	High	Low
			Kawrthah	Very High	High	High	Low
			West Phaileng	Very High	High	High	Low

Figure 2-9 Flood Hazard Map of Mizoram

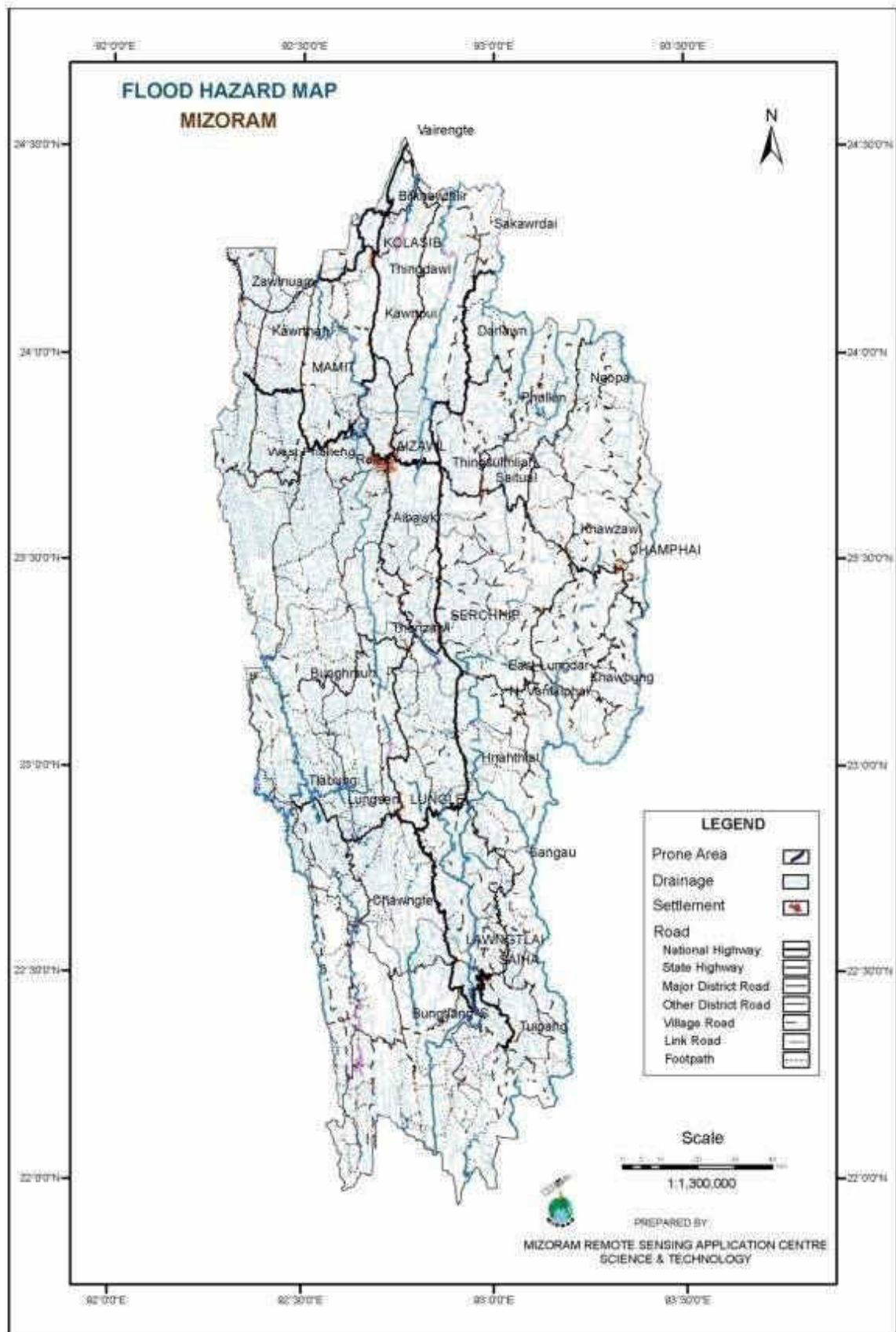
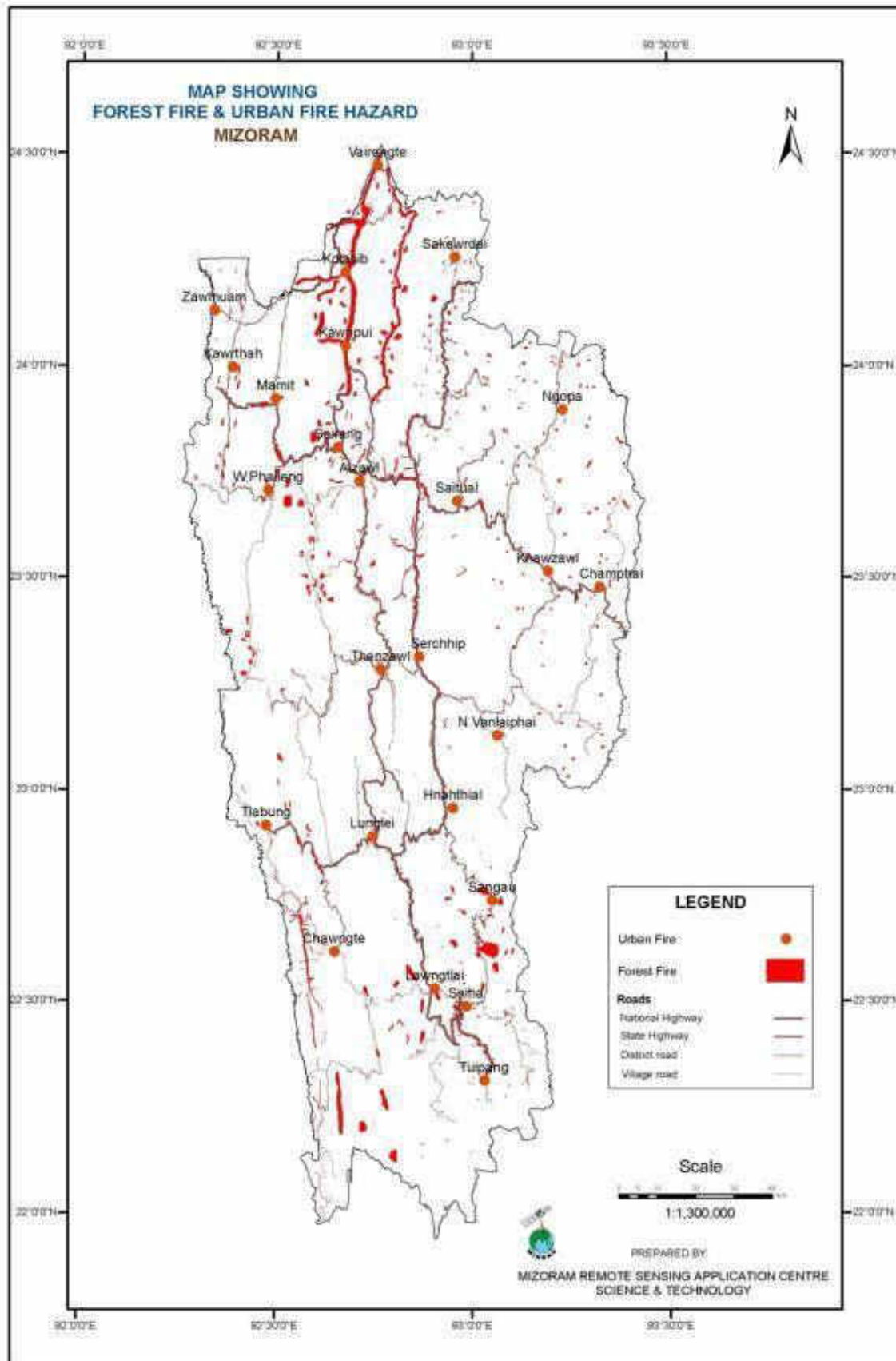


Figure 2-10 Forest Fire and Urban Fire Hazard Map of Mizoram



2.5 Biological Environment

It is pertinent to mention that, in the present project, forest area/land covered under Forest (Conservation) Act, 1980 has been tried to avoid with careful selection of route alignment. All line routes and s/s locations have been selected in such a way that it successfully avoided any kind of PA and RF.

In order to analyse the impacts and plan mitigation measures, it is imperative to study baseline information for TL and surrounding or proximity area as well (study area), which includes forest areas under the control of individual / community / village councils. The conditions of the RoW biological ecosystem are shown in the next several pictures.



2.5.1 Floristics – Project District

Total RFA in Mamit District is 1599.13 Sq. Km which is 53% of total Geographical area. Total forest cover in terms of canopy cover in the project district i.e., Mamit is 2716.87 sq km, which is 90 % of the project district’s geographical area. In terms of forest canopy density classes, the project districts have 52.02 sq km under VDF, 757.8 sq km under MDF and 1907.05 sq km under OF. The details of forest cover of subproject districts are given below in **Table 2.5** and **Map 2-6**.

Table 2-5: Forest Area Classification– Project Districts

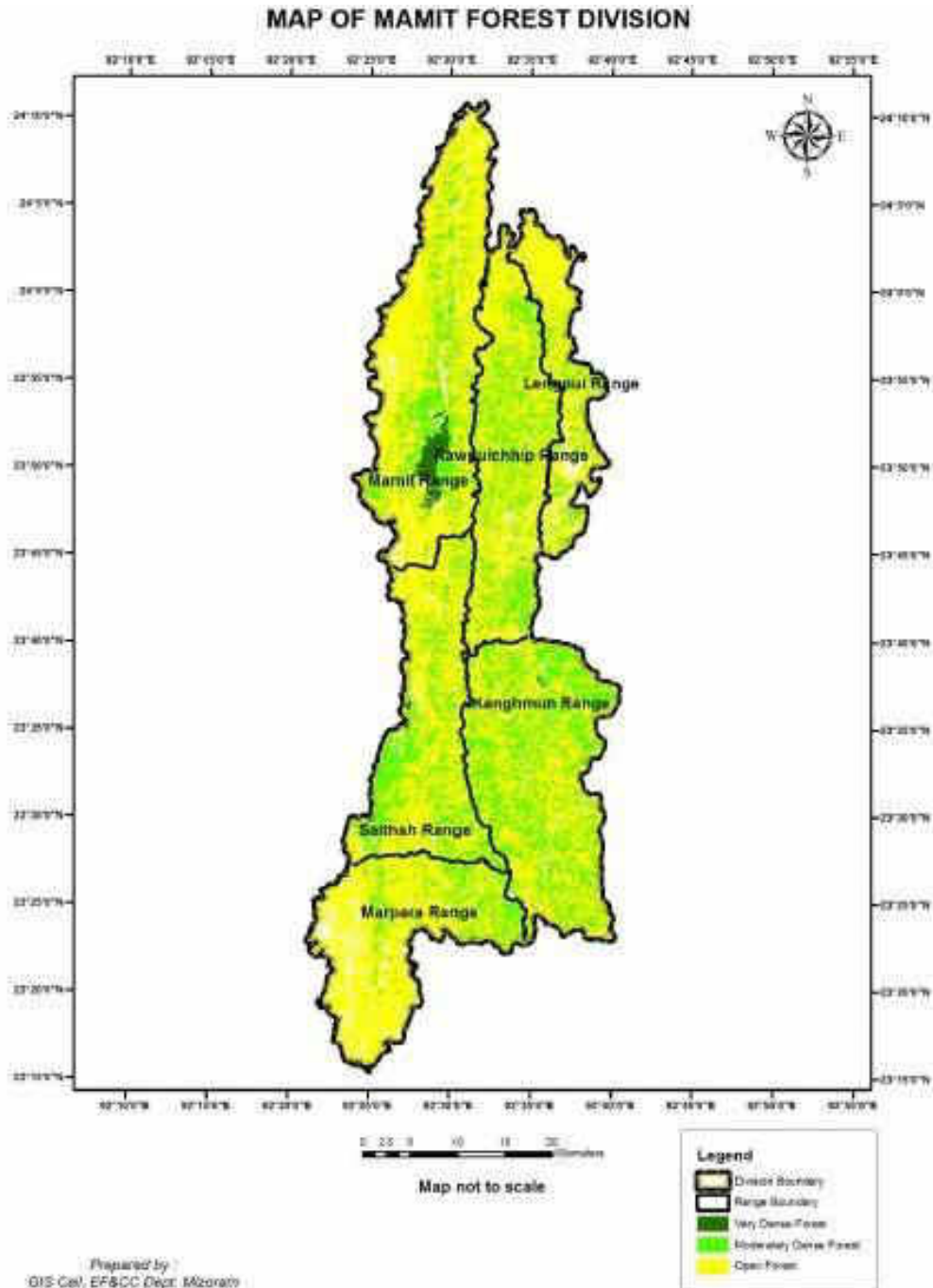
District	2019 Assessment Forest area Sq. Km				
	Geographical area of Project District Sq. Km	RF	Riverine RF	Total	% Total of District GA
Mamit	3025.75	1126.63	472.50	1,599.13	53

Table 2-6 : Forest Canopy Cover – Project Districts

District	2019 Assessment Forest area Sq. Km					
	Geographical area of Project District Sq. Km	VDF	MDF	OF	Total	% Total of District GA
Mamit	3025.75	52.02	757.80	1907.05	2716.87	90

The final layout of TLs has been carefully selected from three given options. Final routes of TL and DL and sites for construction of new S/S don’t involve any monuments of historical or cultural significance. It is clear from the FEAR studies that the project area is rich in natural forest resources and biodiversity values. Though careful route selection through meticulous planning and ground study the IA could avoid the virgin forest and core wildlife habitat of Dampa Tiger Reserve (DTR), but in spite of taking all precautions involvement of some buffer area of DTR couldn’t be achieved completely due to geographical constraint and location of substations/load centers. The approximately 33km of route 132/33 kV West Phaileng to Marpara TL is passing through Buffer zone of DTR. The Detailed Map and Alternative alignment analysis is given in **Annexure 3**. Thus, the minimum loss of forest & biodiversity upto great extent is achieved. Total 104.77 Ha of RF of buffer zone of DTR is needed to be diverted for the construction of line under NERSIP scheme. Accordingly, Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. The copy is given in **Annexure 4**. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20. Apart from this, biodiversity assessment studies have been also carried out to integrate site specific mitigation measures on ground during actual execution of the project. The proposed intervention entails possible positive as well as negative impacts. Also, with implementation of various management measures as listed in EMP and Biodiversity Report along with the recommendations and specific conditions in Forest clearance obtained, it is envisaged that intensity of possible impacts is nullified to the extent possible. Since, the subject project area experiences acute shortage of power, the project will directly benefit the locals in meeting their energy needs. The infrastructural constraints are very real and pose a limiting factor on the development of the area. The availability of power will also strengthen the basic infrastructure in the area, which is essential for development of the area. Thus, project in long run will bring much needed development in the area and significantly improve living standard of the locals.

Figure 2-11 Forest Classification Map, Mamit District



2.5.2 Study Area Baseline Data Collection

The study area for the floristic surveys has already been defined in the Chapter 1 which is defined as area in the proximity of the proposed TLs on both left and right sides, corridors of TL routes and S/S. The description of the vegetation is based upon these observations and data collected around each site collected through transects as already mentioned above.

In general, the vegetation in and areas around sampling sites is comprised of tropical wet evergreen and moist deciduous floral elements. Therefore, field surveys for the assessment and composition of vegetation were conducted to assess the floral wealth in the proximity to the towers, S/S and along the routes of TL.

A series of transects were identified along the routes of TL covering the corridors between the ROW of TL and s/s. The basis of data collection is along the route of the TL considering a RoW of 27 mts for 132 kV line. For homogenous stretches / sections of the route like along paddy field, along tea garden etc. data collection is carried out section wise. During the surveys, 10 to 50 % of total route length was covered to collect baseline data, because entire route is not accessible at present. As regard substation, the whole S/S area was covered. Details of transects locations selected for phytosociological survey are as given in **Table 2.7**.

Table 2-7 Transmission Lines and Transects Locations for Vegetation Sampling

Sr. No.	Name of Line and Locations of samplings	Stretch Covered and No. of Poles	Section Length	% Covered for Line Survey
1	West Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV) - approx. 50.265 Km	AP-1 to 12 AP-20 to 31 AP- 34 to 47 AP-50 to 108	33 km	50%

2.5.2.1 Taxonomic Diversity of Project TL alignment:

A total of 203 species of plants belonging to 160 genera and 73 families were documented from the study site. Out of this, 96 species of trees; 86 species of herbs, shrubs and climbers; and 21 species of bamboo, orchids and ferns were documented. Conservation status of plant species found in the study area was assessed using IUCN Red list of Threatened Species Version 2020.1 (accessed in 2021) as well as Red Data Book of Indian Plants by BSI. The list is well given in **Appendix A under Heading B with IUCN Status**. During present study the actual tree enumeration in the complete corridor was carried out by IA. Total 138648 trees are counted amongst which 35686 trees may be impacted during construction of said TL in buffer zone for construction of 78 towers considering an area of each tower base and 6m below conductor for 33km stretch of line. In Nonforest Area total 3450 trees likely to be affected.

Dominant species recorded in the project area are *Tamarindus Indica*, *Emblica Officinalis*, *Anacardium Occidentale*, *Andrpgraphis Paniculata*, *Adina cordifolia*, *Bamboo*, *Lagerstroemia Parviflora*, *Chukrasia Tabularis*, *Brassaia Actinophylla*, *Albizzia lebbeck*, *Adena Cardifolia*, *Gmelin Arborea*, *Artocarpus Heterophyllus*, *Phoebe Attenuata Nees.*, *Chukrasia Tabularis*, *Syzigium Cumini*, *Mesua ferea*, *Chukrasia Tabularis*, *Ficus Religiosa*, *Ficus Bengalensis*, *Tamarindus indicus*. On the basis of Rare, Endangered, threatened assessment of the species, it was found that most of the species were in the not evaluated category as per the IUCN category list. However, one

species found of high conservation importance i.e., *Dipterocarpus indicus* (Endangered category).

2.5.2.2 Economically Important Plant Species

The people of the area use wild plants in their daily life as food, medicine, fibre, fodder, fuel wood, timber, vegetables, fruits and various minor forest products. Horticulture is the major occupation in the project area with fruit bearing trees cultivated. Among horticultural crops are pineapple, banana, orange, passion fruit, jackfruit, guava, ziziphus, jamun, imli etc. Among vegetable Chili, Colocasia, leafy vegetables, tapioca, pumpkin and ginger are common. Among Timber wood teak is very major portion. Bamboo plantation is in vast area. Few photographs are given below;



2.5.2.3 Biodiversity with Respect to Dampa Tiger Reserve

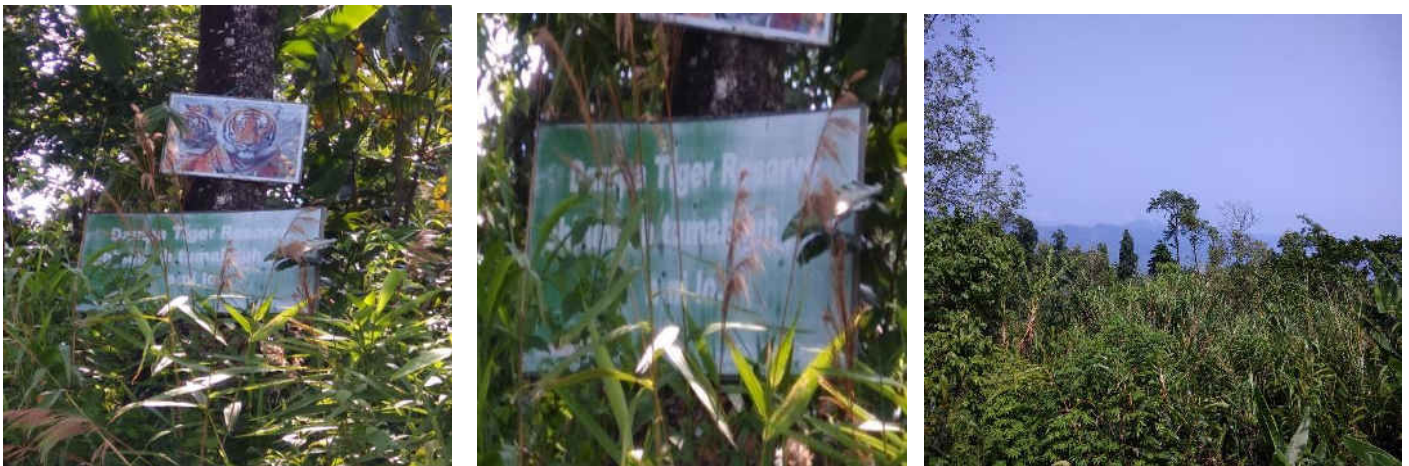
The State of Mizoram has 10 protected areas (National Parks and Wildlife Sanctuaries) constituting about 1240.75 Sq. Km. of total geographical area. Out of the 10 protected areas in the State, Dampa Tiger Reserve, the largest protected area in Mizoram is a part of the Indo Myanmar biodiversity hotspot. Dampa has one of the last remaining low to mid-elevation forests in western Mizoram. In Mizoram it is a biodiversity hotspot with a variety of flora and fauna of Indo-Malayan origin. The Reserve is rich in vegetation and floristic diversity that are well preserved. Haridasan et al. (2016) found that the Dampa Tiger Reserve not only shelters a good number of threatened plants but also harbors a large pool of important species which are directly beneficial to the fauna. The Reserve also supports a considerable number of species that contribute to the livelihood and health security of the surrounding community. Dampa is also known as one of the Important Bird Area (IBA) known for rich avian fauna. It is also an area where the highest diversity of primates in India has been recorded (Choudhury 2001). Notable ones are the Hoolock Gibbon (*Hylobates hoolock*), Phayre's Leaf Monkey (*Trachypithecus hayrei*) and Slow Loris (*Nycticebus coucang*).

The Leaf Monkey is reportedly endemic to the Reserve. Binturong or Bear Cat *Arctictis binturong* is a nocturnal animal of dense forests, hence difficult to see, but reportedly present in Dampa. The Malayan Sun Bear, which was thought to be extinct in the wild from Indian sub-continent had been recently recorded and photographed through camera trap at Dampa Tiger Reserve. Camera-trapping investigations conducted by the Forest Department documented at least 30 species of mammals in this reserve.

The area is also extremely important for amphibians and reptiles. In the year of 2001, Panwar and Birand reported twenty species of amphibians, mainly frogs, and 43 species of reptiles, including 16 species of lizards. High density of clouded leopards and marbled cats which are categorized as vulnerable and near threatened as per the IUCN Red List have also been reported.

Density of clouded leopard was reported to be 5.14 per 100 square km and 5.03 per 100 square km for marbled cats. This was the highest density for Clouded Leopards recorded in Southeast Asia.

Figure 2-12 Dampa Tiger Reserve area



2.5.2.4 PA with respect to project districts:

Though careful route selection through meticulous planning and ground study the IA could avoid the virgin forest and core wildlife habitat of DTR, but in spite of taking all precautions involvement of some buffer area of DTR couldn't be achieved completely due to geographical constraint and location of substations/load centers. In order to minimize impact on forest and wildlife, the route of the 132 kV West Phaileng – Marpara T/L is proposed along the road from West Phaileng to Phuldungsei and last at the Tower location at AP 129/0. This will enable transportation of construction equipment/tower materials through the road and also facilitate the operation and maintenance of the line in future.

The proposed route is the shortest and the most feasible route from all aspects which has been selected among all the alternatives routes explored during detail survey. However, a portion of the route has to pass through Buffer zone of DTR since both the connecting 132 kV S/S are located on either side of the buffer zone. Since, development projects in Tiger reserve area attract provisions of Wildlife Conservation Act, 1972 and require prior wildlife clearance along with Forest Clearance as per Forest Conservation Act, 1980, therefore, it is mooted to apply for wildlife clearance for the proposed 132 kV West Phaileng - Marpara TL as per the provision of



**FEAR for T&D subprojects in Mamit District
under NERPSIP in Mizoram**



the Act. The technical details of the proposed route & status of forest/wildlife clearances are states as below:

Name of project for which WL clearance is required	Construction of 132 kV S/C (on D/C tower) West Phaileng (DAMPA TIGER RESERVE) to Marpara Transmission line under NERPSIP MIZORAM.
Total Line Length	50.265 Km
Details of wildlife area involved	Buffer Zone of DAMPA Tiger Reserve (i.e. part of DTR)
Total no of towers to be erected in WL area	129 Nos amongst total 172
Total wildlife area involved	104.77 Ha
Present Status of WL proposal	Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20.
Present Status of Forest proposal	Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. The copy is given in Annexure 4.
Likely impact of the project on protected area (PA)	The overall impact of the project on protected area (PA) i.e., buffer zone of DAMPA Tiger Reserve is assessed as minimum which can be addressed through proper mitigation measures as recommended.

The consolidated Map of PAs with respect to FEAR II Project is depicted as **Map 2.18 and Map 2.19**. The 132 kV S/C (on D/C tower) West Phaileng (DAMPA TIGER RESERVE) to Marpara TL with respect to DTR map and its location in Buffer zone of DTR is shown in **Annexure 3 and Map 2.20**.

For sustainable development, it is important to understand social and economic conditions of the community in the region, impacts of development on the community, measures to mitigate negative impacts and enhance the positive impacts. For new development initiatives, socio economic assessment plays an important role to ensure community participation and their acceptance of the development activity. It also helps in planning the activities for local area development.

Figure 2-13 Map of PA (Eco sensitive zones) of Mizoram FEAR Project Lines

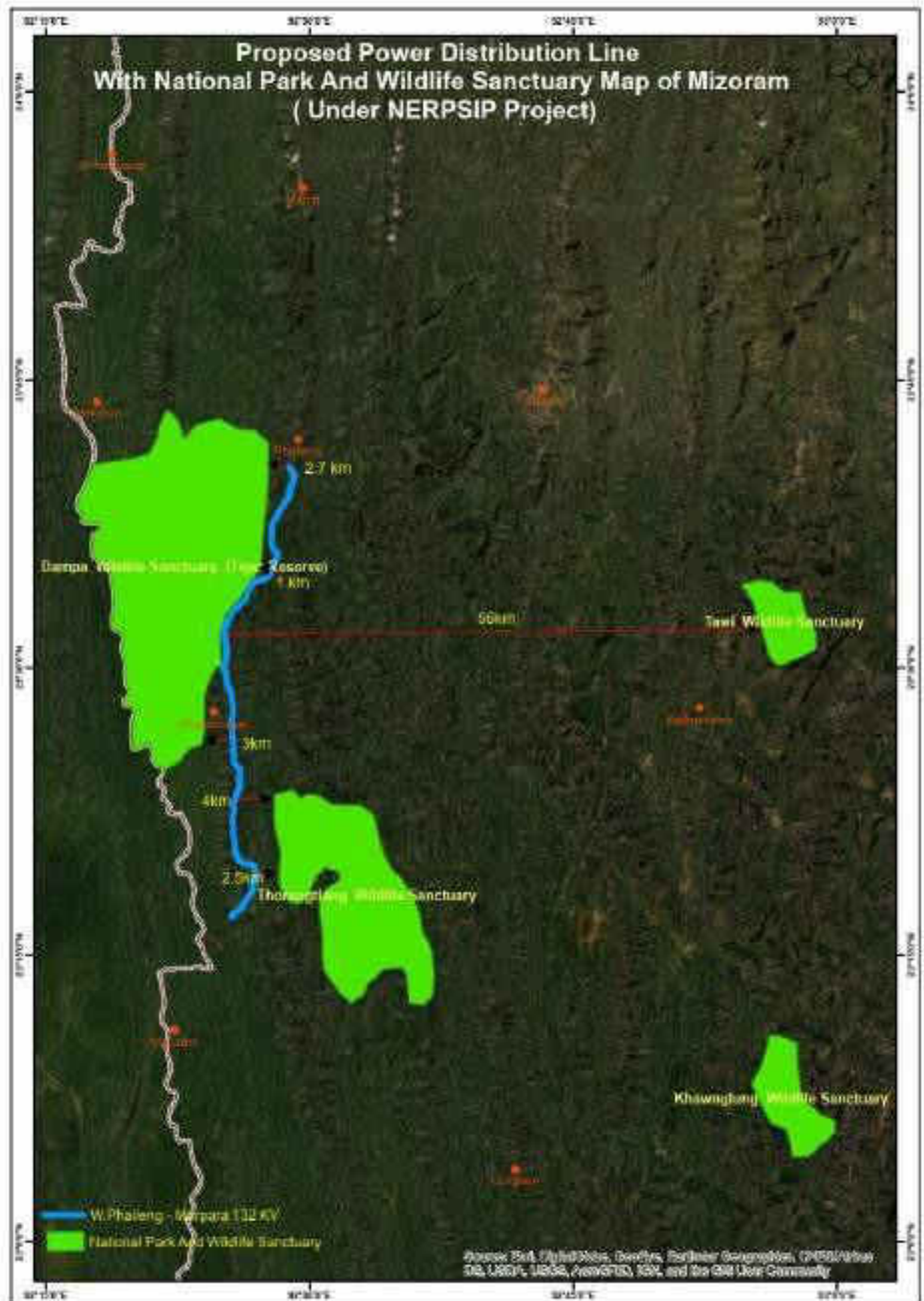
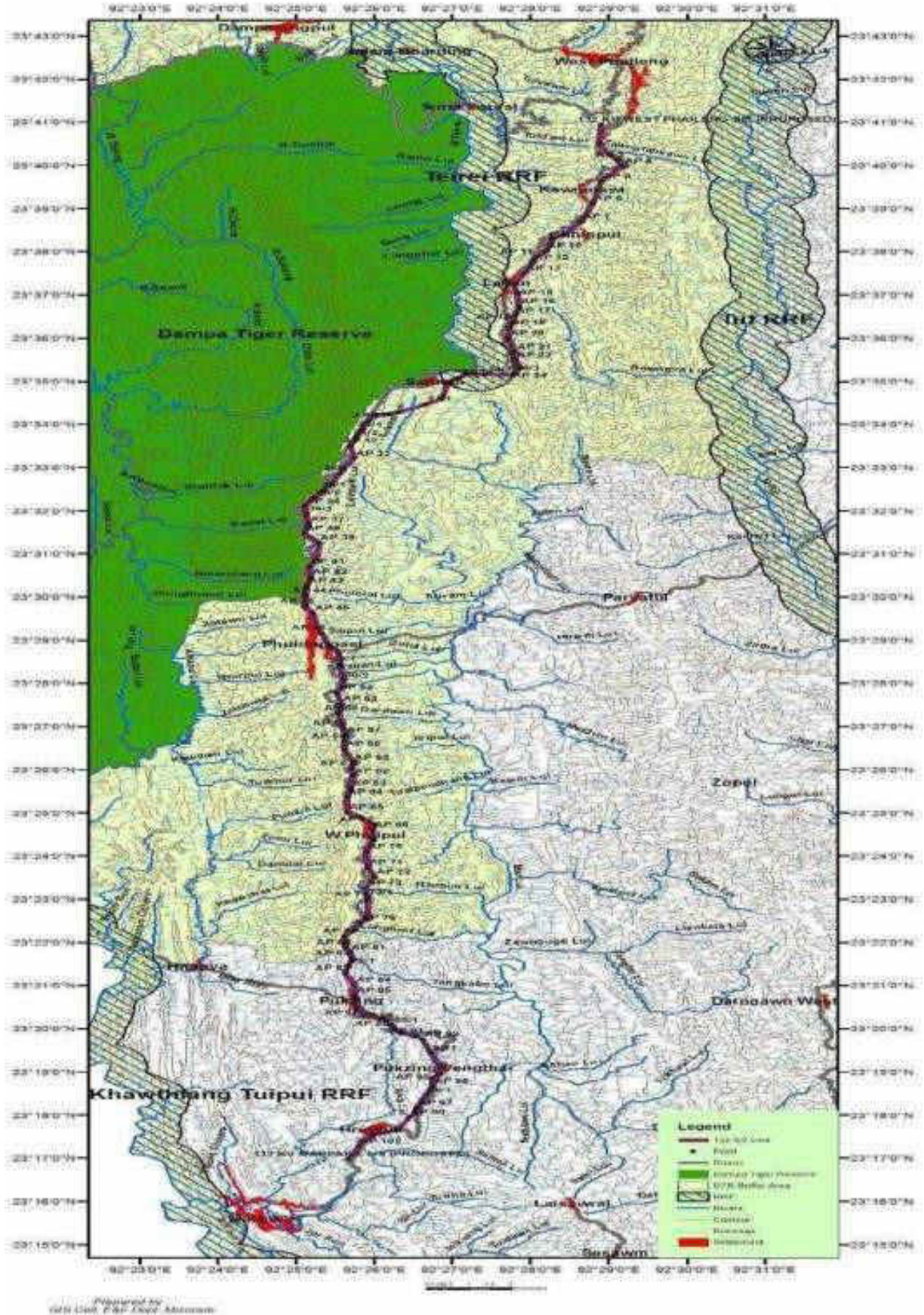


Figure 2-14 FEAR II- Subprojects and PAs



2.6 Socio Economic Environment

2.6.1 Economic Development – Project Districts

The economy of the Mamit district is basically Agro-based. The main occupation of the people of the District dominated by the primary sector is largely agriculture and allied activities. In the largest town, Serchhip, nearly half of the total workforce is engaged in primary activities. The sectoral distribution of output also reflects the economic condition of these towns. Among the primary activities in small towns, the highest productivity is observed in market oriented cropping (market based gardening), succeeded by market-oriented animal husbandry.

Public establishments and private enterprises act as the principal mechanism of production, because the tertiary sector contributes more than two-thirds of the total output in these towns. Public establishments play a very important role in creating livelihood opportunities. Within the urban economy, the government servants and businessmen often practice crops production in neighbouring areas of the town, in free time to supplement incomes or for getting food items from farms for the household. Many government servants and businessmen own agriculture land. Occupations like animal husbandry, subsistence cropping and animal rearing, foraging, carpentry etc are the major second occupations in these towns. Small scale piggery (only one or two pigs) and poultry farming (only 10-20 fowls) are very popular in the small towns. The complexity of the urban economic structure influences the rural economy.

2.6.2 Demography – Project Districts

Population of the Mamit District in Mizoram from where the Project Lines are passing and S/S are planned as per 2011 census are as shown in **Table No.2.8, Table 2.9 & Table 2.10.**

Census of India, 2011

Table 2-8 Demography details of Project District

Sr. No.	District	HH	Population			Literacy Rate %			Sex Ratio	Density / sq. km.	Schedule Caste			%	Schedule Tribes			
			Male	Female	Total	Male	Female	Total			Male	Female	Total		Male	Female	Total	%
1	Mamit	17664	44828	41536	86364	89.13	80.35	84.93	927	29	42	9	51	0.06	42075	40005	82080	95.04

Note : Sex Ratio = (Females / 1000 * males), %=(ST or SC total/ Total District population*100), Literacy rate=(total male / female literate/total population*100)

Table 2-9 Occupational Pattern of Project Districts

Sr. No	District	Total Workers				Main Workers				Marginal Workers				Non-Worker			
		Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%
1	Mamit	24016	15323	39339	45.55	23226	12959	36185	41.90	790	2364	3154	3.65	20812	26213	47025	54.45

Note: Total Worker% = Total Worker/ Total Population x 100, Main Worker% = Main Worker/ Total Worker x 100, Marginal Worker% = Marginal Worker/ Total Worker x 100, Non-Worker% = Non-Worker/ Total Population x 100

Table 2-10 Main Worker Profile of Project Districts

Sr. No.	District	Main Worker	Cultivators				Agricultural Labor				Household Industry Worker				Other Workers			
			Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%
1	Mamit	39339	17067	11602	28669	72.88	1245	1308	2553	6.49	164	98	262	0.67	5540	2315	7855	19.97

Note: Total Cultivator% = Total Cultivator/ Main Worker x 100, Total Agricultural Labour% = Total Agricultural Labour/ Main Worker x 100, Household Industry Worker% = Total Household Industry Worker/ Main Worker x 100, Total Other Workers% = Total Other Workers/ Main Worker x 100

2.7 Baseline Description of the Subproject areas

The baseline data surrounding the sub-project sites is generally consistent with the data of the project district, namely Mamit. The topography encountered around the TL route alignment and S/S, on the other hand, is almost hilly and sloping. Leg extension is used to minimize/avoid benching/revetment and to provide great stability when tower/pole locations are on hill terrain and where positioning of tower on hill top is not possible. All S/S are planned and built using international sustainable technology and earthquake-resistant architecture.

The TL line traverses Highly dissected Structural Hills. The rock is mostly shale stone with a sandstone and pebble bed conglomerate. The TL runs through Forest Plantation (Segun), open forest, Bamboo Forest, Orange Plantation, and grazing land for the most part. The TL route includes DTR Buffer zone notified reserve forest land. Because 104.77 Ha of RF is being diverted for the project, forest clearance under the Forest (Conservation) Act of 1980, as well as NBWL approval, are required. On January 15, 2021, the MoEFCC Shillong obtained Stage I Forest Clearance. The copy is given in **Annexure 4**. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20. Besides other than DTR, all other PAs like NP, WLS, Biosphere Reserve etc.; Natural habitats, IBAs, Sacred groves, Wetlands and designated wildlife/elephant etc. have been completely avoided.

The total length of the proposed TL is 50.265 km, and a total of 172 towers are being erected along TL. There is no change in the length of the TL when compared to the previous length of the TL in IEAR. The Wildlife Mitigation Plan is prepared by IA based on SBWL and NBWL recommendations, and it is submitted with the application to the SBWL and NBWL Committee. In addition, the Assam State Biodiversity Board is conducting a biodiversity study for the DTR project impacted area. The EMP prepared has been approved by the Forest Department and the NBWL. Please see **Annexure-5**.

The implementation of EMP measures and NOC recommendations has resulted in the reduction of potential impacts from construction activity on the environment and social environment as envisaged in IEAR. The specifics are covered in **Chapter 5**. Due impact assessment and mitigation measures are implemented in accordance with the prescribed EMP and the ESPPF prepared by PEDM. The specifics are covered in **Chapter 5**.

Because the proposed DL between existing West Phaileng 33/11 kV S/S and New West Phaileng 132/33 kV S/S connects two S/S in close proximity with a line length of only 100 mt, no alternative has been studied for the subject line because there are no environment or social issues involved, including forest/ecological sensitive areas, that necessitate such studies. All of the other environmental settings, such as soil strata and vegetation, are similar to the TL's nonforest area, and thus have similar explanations. The details of requirement of approach road of S/S depicting status of approach have been placed at **Table 2.11**. However, it is to submit that in both cases of S/S i.e., 132/11kV West Phaileng S/S - 80m and 132/33kV Marpara S/S - 130m, strengthening / upgradation work of existing road is required to be undertaken to facilitate movement of construction materials and machineries to the construction sites of S/S in consultation with local authority and villagers. Accordingly, the NOC for Huas Passing and Road Construction for 132/11 kV West Phaileng S/S from Respective authority i.e., Village Council / court of West Phaileng is obtained. **Please Refer Annexure 4**.

Table 2-11 Baseline Environmental Settings of Substation Locations

Sr. No	Name of SS	Area Acres	Location	Surrounding	Accessibility	Land Status
1	132/33 kV (New) substation at West Phaileng	3.92	The proposed land is within the existing campus of 33/11kV West-Phaileng S/S which is located adjacent to West Phaileng – Marpara PWD road and appx. 3.5 km from the nearest West Phaileng settlement area. Land is inside the buffer zone of Dampa Tiger Reserve including the entire West Phaileng area. Co-ordinates: 23°40'29.50"N, 92°28'50.01" E	The land use surrounding the Proposed S/S site is mostly Jhum cultivated land having medium dense tree cover owned by individual/community. No habitation is found except residential quarters within the S/S campus.	Location is just adjacent to West Phaileng Marpara road. Hence, no approach road required.	Donated land and already in possession with PEDM
2	132/33 kV (New) substation at Marpara	4.34	The proposed land is located adjacent to West Phaileng – Marpara PWD road and appx. 4 km before reaching the Marpara area. Co-ordinates: 23°16'58.19"N, 92°25'39.52"E	The land use surrounding the proposed S/S site is mostly jhum cultivated land having medium dense tree cover owned by individual/community. Sparse habitation is found on the Southern part of the proposed site.	Location is just adjacent to West Phaileng Marpara road. Hence, no approach road required.	Land already in possession with PEDM

Details of land use / land cover and environmental setting of final route alignment describing important features discussed in detail in **Chapter 4**.

During construction, S/S locations are subjected to regular environmental monitoring. It has been observed that during construction activity, dust emission is not anticipated because water sprinkling activity is performed on a regular basis at the construction site, negating the impact of dust emission in the area. Construction work is done in a confined space, and the locations are far from nearby habitations. As a result, noise impacts are not anticipated. Construction contractors, on the other hand, conduct baseline environmental monitoring for water and noise environment at various locations of subproject construction sites as a regular activity as part of EMP during the construction phase. All of the analysis results are found to be within the specified limits.

The during the field surveys it was tried to survey minimum 10% of the route for flora data collection, which in some cases constituted a continuous stretch and, in some cases, could be covered in parts. The stretches were selected considering diversity of flora. At some places along the alignment, forest plantation is recorded which is homogenous. However, during field survey one tree species found of high conservation importance i.e., *Dipterocarpus indicus* (Endangered category) as per IUCN 2020.1. During field survey *Chromolaena odorata*, *Oroxylum indicum*

invasivespecies are recorded in the study area i.e., transects studied along the TL and S/S. One endangered species viz. *Hoolock hoolock*, *Trachypithecus pileatus* and *Macaca arctiodes* were found in the vulnerable category in the study area. The near Threatened Of species is White Cheeked Partridge, Ashy-headed green pigeon and Great hornbill are also recorded as per Conservation Status IUCN (2020.1). The fauna elements were found less during field surveys in the project areas except some bird and common fauna. Hence the data was collected through consultations with local public, Forest department officials and POWERGRID officials working in the project area. Also, the Biodiversity study report was referred for the details. The detailed list of vegetation recorded during field survey is depicted in **Appendix A under Heading B**.

In Mizoram Tree cutting in nonforest area is a regulatory activity and forest NOC is to be taken prior to the tree cutting. Supreme Court has issued Guidelines for the felling of trees from Non- Forest Areas, 2004. The guidelines have procedure to obtain NOC from Divisional Forest Officer (DFO). The guidelines also mention the tree species which do not require NOC under the said notification. **Please refer Annexure- 6 for the guidelines**. Also, MoEFCC, GoM has issued notification Dated 9th August 2019 in connection with the guidelines for Felling of trees from Non- Forest Area for the list of trees exempted from the requirement of feeling permission in Mizoram. During present study the actual tree enumeration in the complete corridor was carried out by IA. Total 138648 trees are counted amongst which 35686 trees may be impacted during construction of said TL in buffer zone of Dampa Tiger Reserve for construction of 78 towers considering an area of each tower base and 6m below conductor for 33km stretch of line. In Nonforest Area total 3450 trees likely to be affected. However, it was tried to retain maximum trees on site. Only grass growth on the S/S plot was cleared during land development prior to construction. At TL locations trees were maximum tried to trim limited to the locations where the hight of trees was hindering the work.

It is mandatory to do the compensatory afforestation (CAMPA) as per the forest clearances obtained for the project. As per specific conditions in Forest Clearance obtained from MoEFCC, the compensatory afforestation is to be / being carried out on double the degraded forest area as suggested and identified by forest department. POWERGRID / IA has paid the requisite cost as per prescribed law for the CAMPA to Forest department. It may also be noted that the user agency/ IA has no role in taking CAMPA activity except deposition of CA cost to forest dept/CAMPA rather it is the forest dept responsibility to undertake the plantation as per CA scheme.

Electricity is one of the basic needs of 21st century. The subproject area is overall backward in terms of economic activities and lacks good communication system, shortage of power and lack of proper irrigation & marketing facilities add to the poverty of the district. The current project will be helpful for the local people of project district to uplift their economic condition. After improvement of the power supply, the socioeconomic status of this area will be improved this will possibly attract industrial & commercial investments in this area. While discussing with local people of project area, it was observed that they are very helpful and cooperating contractors and Power Grid personnel for completion of this project. In conclusion, local people feel that their socioeconomic condition will upgrade because of this project.

3 POLICY, LEGAL & REGULATORY FRAMEWORK

3.1 Introduction

Power transmission project activities by their inherent nature and flexibility have negligible impacts on environmental and social attributes. Indian laws relating to environmental and social issues have strengthened in the last decade both due to local needs and international commitments. PEDM undertakes its activities within the purview of Indian and State specific laws keeping in mind appropriate international obligations and directives and guidelines with respect to environmental and social considerations of Funding Agencies.

3.2 Constitutional Provisions

Subsequent to the first United Nations Conference on Human Environment at Stockholm in June, 1972, which emphasized the need to preserve and protect the natural environment, the Constitution of India was amended through the historical 42nd Amendment Act, 1976 by inserting Article 48-A and 51-A(g) for protection and promotion of the environment under the Directive Principles of State Policy and the Fundamental Duties respectively. The amendment, inter alia provide:

- "The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country". (New Article 48A)
- "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures". (New Article 51 A (g))
- Article 21 of the constitution provides, "no person shall be deprived of his life or personal liberty except according to procedure established by law".

Article 21 is the heart of the fundamental rights and has received expanded meaning from time to time after the decision of the Supreme Court in 1978. The Article 21 guarantee fundamental right to life – a life of dignity to be lived in a proper environment, free of danger of disease and infection. The right to live in a healthy environment is part of Article 21 of the Constitution. Recently, Supreme Court has broadly and liberally interpreted the Article 21, transgressed into the area of protection of environment, and held that the protection of environment and citizen's right to live in eco-friendly atmosphere interpreted as the basic right guaranteed under Article 21.

Thus, the Indian Constitution has now two-fold provision:

- a. On the one hand, it gives directive to the State for the protection and improvement of environment.
- b. On the other hand, the citizens owe a constitutional duty to protect and improve natural environment.

Article 371 G

Provides special provision with respect to state of Mizoram which states "no act of parliament in respect of religious and social practices of the Mizos, Mizo customary laws and procedures, administration of civil and criminal justices involving decisions according to Mizo customary law and ownership and transfer of land shall apply to the state of Mizoram, unless Legislative Assembly of the state, by a resolution, so decides".

Sixth Schedule

Sixth Schedule Special provisions have been extended to the Tribal Areas of the Mizoram state under the Sixth Schedule [Articles 244(2) and 275(1) of the constitution] in addition to basic fundamental rights. The Sixth Schedule is entirely focused at protection of tribal areas and interests by allowing self-governance through constitutional institutions at the district or regional level. These institutions are entrusted with the twin task of protecting tribal cultures and customs and undertaking development tasks.

The Sixth Schedule provides for administration of tribal areas as autonomous entities. The administration of an autonomous district is vested in a District Council and of an autonomous region, in a Regional Council. These Councils are endowed with legislative, judicial, executive and financial powers. These institutions were expected to integrate these areas with the modern system of administration while preserving the traditional autonomy and local self-governing institutes of the tribal people. There are three District Councils cover two administrative districts- Lawngthlai and Saiha.

1. Chakma Autonomous District Council (CADC) – Area 1,500 sq km.
2. Mara Autonomous District Council (MADC) – Area 1,445 sq. km
3. Lai Autonomous District Council (LADC) – Area 1,871 sq.km.

Constitutional provisions in regard to social safeguards are well enshrined in the preamble such as JUSTICE, social, economic and political; LIBERTY of thought, expression, belief, faith and worship; EQUALITY of status and of opportunity; FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation. Fundamental Rights and Directive Principles guarantee the right to life and liberty. Health, safety and livelihood have been interpreted as part of this larger right. Social safeguards provisions are dealt in detail in different Article such as Article-14, 15, 17, 23, 24, 25, 46, 330, 332 etc. POWERGRID have implemented the said constitutional provision in true spirit to fulfill its environmental and social obligations and responsibilities.

3.3 Environmental Provisions

Environmental issues of T&D projects are manageable given the inherently small 'foot print' of towers and flexibility in siting facilities within a relatively large host area and are mostly localized to RoW. However, TL project may have some adverse effects on natural resources. These impacts can be minimized by careful route selection and siting of S/S. The applicable acts, rules, and relevant policies in the context of the project and its status of compliance are presented in **Table 3.1**.

3.4 Social Provisions

The applicable acts, rules, and relevant policies in the context of the project and its status of compliance are presented in **Table 3.2**.

3.5 World Bank Operation Policy

When WB provide governments with financing to invest in projects such as building a road, connecting people to electricity, or treating waste water, WB aim to ensure that the people and the environment are protected from potential adverse impacts. WB do this through policies that identify, avoid, and minimize harm to people and the environment. These policies require the borrowing governments to address certain environmental and social risks in order to receive WB support for investment projects. The mandatory environment and social requirements with respect to WB Operational Policies are presented in **Table 3.3**.

Table 3-1 Environmental Provisions

Sr. No.	Acts, Notification & Policies	Relevance	Applicability to the project	Status of compliance
1.1	GoM order/sanction under Electricity Act, 2003	To consolidate the laws relating to generation, transmission, distribution, trading and use of electricity. Under the provisions of Section 68(1):- Prior approval of the Govt. of Mizoram (GoM) is a mandatory requirement to undertake any new transmission and distribution project of system in the State	Applicable - TL projects are constructed under the ambit of Electricity Act, 2003 following the provisions of Section 67 & 68 of act	Complied with: MoP, GoI approved the NERPSIP Comprehensive scheme for six North Eastern States including Mizoram under vide its Office Memorandum dated 1st December 2014.
1.2	Forest (Conservation) Act, 1980	To protect and conserve Forest Areas and Tree Cover. Any TL/ DL traverses forest land, prior clearance is mandatorily required from Ministry of Environment, Forest & Climate Change (MoEFCC), GoI under the Forest (Conservation) Act, 1980. When transmission projects pass through forest land, prior clearance has to be obtained from Ministry of Environment Forest & Climate Change (MoEFCC), GoI under the Forest (Conservation) Act, 1980 before starting any construction activity in designated forest area	Applicable- Since 104.77 HA of RF of DTR Buffer Zone is involved in 132/33 kV W. Phaileng – Marpara TL forest clearance under FC Act 1980 is applicable in instant case	Complied. Stage I Forest Clearance obtained on 15 th January 2021
	Wild life (Protection) Act, 1972	To protect and conserve the Wildlife and habitation. Any TL/ DL traverses PA, prior clearance is mandatorily required from NBWL GoI under the Wild life (Protection) Act, 1972.	Since The 132/33 kV W. Phaileng – Marpara TL is passing through Dampa TR forest of buffer zone NBWL Clearance under WL Protection act 1972 is applicable in instant case.	Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20
1.3	Environment (Protection) Act, 1986/Environment Impact Assessment Notification, 2006	TL projects are exempted from of Environment (Protection) Act, 1986 EIA Notification, 2006. However, amendment in the Environment (Protection) Act, 1986 on 7th May' 1992 made it necessary to obtain clearance from MoEFCC for power transmission projects in three districts in the Aravalis (viz., Alwar in Rajasthan and Gurgaon & Nuh- Mewat in Haryana).	Applicable Though some limited compliance measures notified under this EPA, 1986 are to be adhered to relevant rules and regulations under the EPA, 1986 applicable to the operations of PEDM	Complied with: Though applicable as it is umbrella legislation, however, as such statutory permission/ license is not required
(i)	Ozone depleting Substances (Regulation and Control) Rules, 2000	Regulate and control manufacturing, import, export and use of Ozone Depleting Substances under Montreal Protocol adopted on 16 th September 1987	Applicable As per the notification, certain control and regulation has been imposed on Manufacturing, import, export, and use of these compounds.	Complied with: Only CFC free equipment are being procured/ specified in tender document



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Sr. No.	Acts, Notification & Policies	Relevance	Applicability to the project	Status of compliance
(ii)	Batteries (Management and Handling) Rules, 2001	Provides certain restriction on disposal of used batteries and its handling and to file half yearly return in prescribed form to the concerned SPCB.	Applicable during operation phase only Used batteries to be disposed to dealers, manufacturer, registered recycler, reconditioners or at the designated collection centers only. A half-yearly return to be filed as per Form-8 to the TSPCB	Batteries will be used during operational phase. Hence, the issue of proper handling and disposal of batteries as per the rules is not an issue during the construction phase.
(iii)	Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2016	Provides for environmentally sound management of hazardous wastes so as to ensure no adverse effects that may result from such waste. Used transformer oil is categorized as hazardous waste which has to be disposed of only through auctioned/sold to registered recyclers only and file annual return on prescribed form to the concerned SPCB.	Applicable Requires proper handling, storage and disposed only to authorized disposal facility (registered recyclers/ reprocessors). In case it is decided to outsource the process of recycle of used oil to registered recycler as per the provisions of notification then PEDM submit the desired return in prescribed form to concerned MPCB at the time of disposal of used oil	Generally Used oil is generated after 10-15 years of operation of transformers and therefore, the handling and disposal of hazardous transformer oil is not an issue at this stage.
(iv)	E-waste (Management and Handling) Rules, 2016	To ensure that e-waste is managed in a manner which shall protect health and the environment against the adverse effects that may result from hazardous substance contained in such wastes. It is the responsibility of the bulk consumer to ensure that e-waste generated is channelized to authorized collection center(s) or registered dismantler(s) or recycler(s) or is returned to the pick-up of take back services provided by the producer	Applicable To dispose e-waste generated in environmentally sound manner by channelizing to authorized collection centers/ registered dismantler/ recyclers/ return to producers. PEDM, being a bulk consumer of electrical and electronics equipment maintain record as per form-2 for scrutiny by MPCB	E-waste disposal is not an issue during construction phase.
1.4	Biological Diversity Act,2002	Provide for conservation of the biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of use of the biological resources, knowledge and for matters connected there with.	Applicable as the project line is passing through Buffer zone of DTR. All restrictions applicable to protected areas like National Park & Sanctuaries are also applicable to these reserves.	Complied. The biodiversity report and wildlife EMP are prepared in consultation with forest officials and submitted to the department following approvals from the MOF&FCC and the



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Sr. No.	Acts, Notification & Policies	Relevance	Applicability to the project	Status of compliance
				NBWL Committee. On-site, all mitigation measures are being implemented.
1.5	Ancient Monuments & Archaeological Sites and Remains Act, 1958	The act has been enacted to prevent the damage to the archaeological sites identified by Archaeological Survey of India.	Not Applicable. All such areas have been completely avoided.	Not Required
1.6	The Guidelines for felling of trees from non-forest areas, 2004 (Issued in compliance of Supreme Court Order Dated 12.5.2001 in Writ Petition (C) No. 202/95) is hereby published for general information.	For felling &: conversion of trees of following species from non-forest area, including plantations of such species, no felling permission from Forest Department under these guidelines are needed: Aam (Mangifera indica), Jarnun (Syzygium eumini), Kothal (Arrocarpus integrifolia), all species of Bamboo, Leteku, Paniol and Madhunam.	Applicable The route is having tree cutting in Forest and Nonforest area.	Complied. NOC is obtained
1.12	The Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	When transmission projects pass through forest land, NOC from DC has to be obtained before Stage-II approval in compliance to FRA as per MoEFCC circular dated 5th February 2013	Applicable as there is forest land involvement of 104.77 Ha of DTR buffer zone.	Complied. NOC from Gram Sabha and FRA Compliance is on Place

Table 3-2 Social Provisions

Sr. No.	Acts, Notification & Policies	Relevance	Applicability to the project	Status of compliance
1.1	Sixth schedule of the constitution	Special provisions also have been extended to the Tribal Areas under the 6th Schedule [Articles 244(2) and 275(1) of the constitution] in addition to basic fundamental rights. The Sixth Schedule provides for administration of tribal areas as autonomous entities. The administration of an autonomous district is vested in a District Council and of an autonomous region, in a Regional Council. These Councils are endowed with legislative, judicial, executive and financial powers.	Provision the RFCTLARRA, 2013 is not presently applicable in the State of Mizoram for purposes of private land acquisition.	Based on current requirement for tranche-1, land acquisition is not an issue as land for all substations covered under this tranche is in possession of PEDM
1.2	The Right to fair compensation and transparency in land acquisition, rehabilitation & resettlement act, 2013	Act ensures appropriate identification of the affected families/ households, fair compensation and rehabilitation of titleholders and nontitle holders. Also, as per Section 112 of the LARR Act, 2013, Mizoram State has already notified LARR Rules, 2015	Not Applicable as all the land parcels required for construction of S/S are already in the possession of PEDM. Thus, securing of fresh land was not necessitated.	Not Required
1.3	Right of Way (RoW) & compensation under Electricity Act, 2003	In case of agricultural or private land, the provision of section- 67 and or section-68 (5 & 6) of electricity act, 2003 and section-10 of the Indian Telegraph act, 1885 are followed for assessment and payment of composition towards such damages.	Applicable. PEDM has been vested with the powers of Telegraph Authority under Section - 164 of the Electricity Act. Moreover, all damages due to its activity are compensated at market rate. In case of agricultural or private land the provisions of section- 67 and or section-68 (5 & 6) of the Electricity Act, 2003 and section-10 of the Indian Telegraph Act, 1885 are followed for assessment and payment of compensation towards such damages.	Complied with: Implementing Agency has already been vested with powers of telegraph authority by GoI vide Gazette Notification dated Dec.24, 2003. However, compensation for all damages are being paid to the individual land owner as per the provision of Section-10 (d) of Indian Telegraph Act, 1885. Ministry of Power, Govt. of India issued guidelines vide its communication dated 15th Oct., 2015 for payment of Compensation for damages in regard to RoW for transmission lines. Once the above guidelines are adopted by Govt. of Mizoram, compensation are being paid as per the norms of said guidelines.



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Sr. No.	Acts, Notification & Policies	Relevance	Applicability to the project	Status of compliance
1.4	The Right to Information Act, 2005	The Act provides 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 there with or incidental there to	Applicable. Designated authorities to be in place.	The required mechanism to comply with the provisions of the act including designated officers at various levels are already in place in PEDM
1.5	Indian Treasure Trove Act, 1878 as amended in 1949	The Act provides for procedures to be followed in case of finding of any treasure, archaeological artifacts etc. during excavation.	Not Applicable. No such instances reported in instant case till date.	Moreover, very less possibilities of such discoveries because of limited and shallow excavations
1.6	The Mizoram (Land Revenue) Act, 2013:	The act provides for procedure to be followed in case of allotment of govt. land, its tax collection etc. It also specifically mention about the land not to be processed for allotment within the areas of 800 metres measuring from the centre on either side of the following rivers, which may alter the transmission alignment in some cases. (a) Tlawng; (b) Tut; (c) Teirei; (d) Langkaih;(e) Chemlui; (f) Serlui;(g) Tuivawl; (h) Tuirini; (i) Tuirial; (j) Kau;(k) De; (l) Phairuang;(m) Tuiruang ; (n) Khawthlangtupui;(o) Mat; (p) Tuichang (Lunglei District); (q) Tuichang ; (r) Tuipui;(s) Tiau.	No such activity reported from such site. Adequate measures taken at survey stage	--





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Table 3-3 World Bank Operational Policy

Sr. No.	Acts, Notification & Policies	Relevance	Applicability to the project	Status of compliance
2.1	OP 4.01: Environmental Assessment	To ensure the environmental and social and sustainability of investment projects. Support integration of environmental and social aspects of projects in the decision-making process.	E & S aspects of the project have already been integrated into the management procedures based on comprehensive environment assessment undertaken by IA during 2015.	Complied with: E & S aspects of the project have already been integrated into management procedures based on comprehensive environment assessment undertaken by IA during 2015
2.2	OP- 4.04: Natural Habitats	To promote sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and their functions	The present project involves natural habitats such as biodiversity area, forest area, protected area etc. Hence Applicable	Required
2.3	OP-4.11: Physical Cultural Resources (PCR)	To preserve PCR and in avoiding their destruction or damage. PCR includes resources of archeological, paleontological, historical, architectural, and religious (including graveyards and burial sites), aesthetic, or other cultural significance.	The present project does not encroach upon any such resources	Not Required
2.4	OP-4.36: Forests	To realize the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests	Applicable- Since 104.77 HA of RF of DTR Buffer Zone is involved in 132/33 kV W. Phaileng – Marpara TL forest clearance under FC Act 1980 is applicable in instant case	Complied. Stage I Forest Clearance obtained on 15th January 2021 Since The 132/33 kV W. Phaileng – Marpara TL is passing through Dampa TR forest of buffer zone NBWL clearance under WL Protection act 1972 is applicable in instant case. Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20

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2.5	WB EHS Guidelines for Electric power T&D	The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry specific examples of Good International Industry Practice. The EHS Guidelines contains the performance levels & measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.	Applicable provisions of EHS guidelines have been followed during the implementation of the project	Complied with: EHS guidelines are being followed during project implementation.	
2.6	OP 4.12 – Involuntary Resettlement	This policy covers direct economic and social impacts both resulting from Bank-assisted investment projects and are caused by the involuntary taking of land. To avoid or minimize involuntary resettlement and, where this is not feasible, assist, displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.	Not applicable as there is no involuntary acquisition invoked for securing land for proposed S/S.	Not Required.	
2.7	OP 4.10– Indigenous Peoples	This policy contributes to the Bank's mission of poverty reduction and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies, and cultures of Indigenous Peoples. The objective is to design and implement projects in a way that fosters full respect for indigenous peoples so that they receive culturally compatible social and economic benefits, and do not suffer adverse effects during the development process. The project shall ascertain broad community support for the project based on social assessment and free prior and informed consultation with the affected Tribal community, if any.	Explicit consent from ADC and the Village Councils is required in the case of acquisition of lands which is not applicable in the project.	Complied with: NoC of from village councils (Head man, Gram Burrah) and land owners being obtained for community forest land/ADC area wherever applicable.	
2.8	Managing the risks of adverse impacts on communities from temporary project induced labor influx	Provides guidance on identifying, assessing and managing the risks of adverse social and environmental impacts that are associated with the temporary influx of labor resulting from Bank supported projects. provide concrete guidance on how to approach temporary labor influx within the environmental and social assessment process.	Applicable.	Complied. Guiding principles and recommendations are considered during labour appointment through construction contractor	

3.6 Necessary Statutory Permission/Licenses/NOC Obtained in the Instant Case

The applicability of acts, notifications and policies have already been described in above paragraphs and table. As per the applicability, necessary permission/ licenses/ NOC so far to obtained by IA or contractor are:

- Under the provisions of Section 68(1) of Electricity Act, 2003, prior approval GoM is a mandatory requirement to undertake any new transmission project in the State. As a part of permission / approval, GoI approved the NERPSIP comprehensive scheme for six North Eastern States including Mizoram under vide its Office Memorandum dated 1st December 2014.
- All the contractors have obtained and operating the construction work with valid labor license as per provision under section – 12(1) of the Contract Labor (Regulation & Abolition) Act, 1970 and also certified under Section- 7(3) of the Building and Other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996 from Ministry of Labor & Employment. The same are discussed and presented in relevant sections of subsequent chapters.
- All the contractors have obtained requisite insurance policy as per provisions of Employee Compensation Act, 1923 for its employed workforce. The same are discussed and presented in relevant sections of subsequent chapters.
- Since the tower locations are coming under various villages of 1 district i.e. Mamit NoC from concerned land owner/ Headman /Village Council are being obtained as per the progress of work. The same are referred and presented in relevant sections of subsequent chapters.
- The TL route involve notified reserve forest land of DTR Buffer zone. 104.77 Ha of RF is being diverted for the project purpose and hence require the forest clearance under Forest (Conservation) Act, 1980 along with NBWL approval. Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. The copy is given in Annexure 4. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20. **Please Refer Annexure 4.**
- It is mandatory to do the compensatory afforestation as per the forest clearances obtained for the project. As per specific conditions in Forest Clearance obtained from MoEFCC, the compensatory afforestation is to be carried out on double the degraded forest area as suggested and identified by forest department. POWERGRID has paid the requisite cost as per prescribed law for the CAMPA to Forest department. PPOWERGRID has limited role upto compensation payments. Further to this Forest Department is being implementing the CAMPA.
- The project has obtained required clearances from Defense Office, Department of Telecommunications, village council and the Ministry of Aviation. **Please Refer Annexure 4.**

4 MAJOR FEATURES OF FINAL ROUTE & ENVIRONMENT IMPACT

4.1 Introduction

Environmental impact of T&D line projects is not far reaching and are mostly localized to RoW. However, T&D project has some effects on natural and socio-culture resources. These impacts can be minimized by careful route selection. To minimize these possible impacts, PEDM & IA at the system planning stage itself try to avoid ecological sensitive areas like forest. Wherever such infringements are substantial, different alternative options are considered to select most viable route alignment. For further optimization of route modern survey techniques/tools like GIS, GPS aerial photography is also applied. Introduction of GIS and GPS in route selection result in access to updated/latest information, through satellite images and further optimization of route having minimal environmental impact. Moreover, availability of various details, constraints like topographical and geotechnical details, forest and environmental details etc. help in planning the effective mitigate measures including engineering variations depending upon the site situation/location.

At the system planning stage itself one of the factors that govern the evolution of system is the possible infringement with the forest. Wherever such infringements are substantial, different alternative options are considered. The route/ site selection criteria followed is detailed below:

While identifying the transmission system, preliminary route selection is done by PEDM based on the Survey of India Topo sheets, Forest Atlas (Govt. of India's Publication) and Google Maps etc. During route alignment all possible efforts are made to avoid the forest area involvement completely or to keep it to the barest minimum, whenever it becomes unavoidable due to the geography of terrain or heavy cost involved in avoiding it. Presence of important/protected natural habitats (IUCN category I - IV) is verified by superimposing the proposed alternative alignment on the Integrated Biodiversity Assessment Tool (IBAT) map. The route/site selection criteria followed is detailed below in the ensuing paragraphs.

4.2 Environmental Criteria for Route Selection

For selection of optimum route, the following points are taken into consideration:

- The route of the proposed TLs does not involve any human rehabilitation
- Any monument of cultural or historical importance is not affected by the route of the TL.
- The proposed route of TL does not create any threat to the survival of any community with special reference to Tribal Community.
- The proposed route of TL does not affect any public utility services like playgrounds, schools, other establishments etc.
- The line route does not pass through any National Parks, Sanctuaries etc.
- The line route does not infringe with area of natural resources.

In order to achieve this, PEDM has undertaken route selection for individual T&D lines in close consultation with representatives of concerned Forest Department and the Department of Revenue. Although under the law, PEDM has right of eminent domain yet alternative alignments are considered keeping in mind the above-mentioned factors during site selection, with minor alterations often added to avoid environmentally sensitive areas and settlements at execution stage.

- As a rule, alignments are generally cited away from major towns, whenever possible, to account for future urban expansion.
- Similarly, forests are avoided to the extent possible, and when it is not possible, a route is selected in consultation with the local Divisional Forest Officer, that causes minimum damage to existing forest resources.
- Alignments are selected to avoid wetlands and unstable areas for both financial and environmental reasons.

In addition, care is also taken to avoid NP, WLS, ESZ, Tiger reserves, Biosphere reserves, Elephant corridors and IBA sites etc. Keeping above in mind the routes of proposed lines under the project have been so aligned that it takes care of above factors. As such different alternatives for TLs were studied with the help of Govt. published data like Forest atlas, SoI and Google Maps etc. to arrive at most optimum route which can be taken up for detailed survey and assessment of environmental & social impacts for their proper management.

Similarly, the TOR for detailed survey using modern tool like GIS/GPS also contained parameters to avoid/reduce environmental impact while deciding the final route alignment. The major objectives for detailed survey that are part of contract are summarized below:

- i. The alignment of TL shall be most economical from the point of view of construction and maintenance.
- ii. Routing of TL through protected and reserved forest area should be avoided. In case it is not possible to avoid the forest or areas having large trees completely then keeping in view of the overall economy, the route should be aligned in such a way that cutting of trees is minimum.
- iii. The route should have minimum crossing of major rivers, railway lines, and national/state highways, overhead EHP power lines and communication lines.
- iv. The number of angle point shall be kept to a minimum
- v. The distance between the terminal points specified shall be kept shortest possible, consistent with the terrain that is encountered
- vi. Marshy and low line areas, river beds and earth slip zones shall be avoided to minimum risk to the foundations
- vii. It would be preferable to utilize level ground for the alignment.
- viii. Crossing of power line shall be minimal. Alignment is kept at a minimum distance of 300 meters from power lines to avoid induction problems on the lower voltage lines.
- ix. Crossings of communication lines shall be minimized and it shall be preferably at right angle, proximity and paralyses with telecom lines shall be eliminated to avoid danger of induction to them.
- x. Area subjected to flooding searches streams shall be avoided.
- xi. Restricted areas such as civil and military airfield shall be avoided. Care shall also be taken to avoid the aircraft landing approaches
- xii. All alignment should be easily accessible both in dry and rainy seasons to enable maintenance throughout the year.
- xiii. Certain areas such as query sites, tea, tobacco and saffron fields and rich plantation, gardens and nurseries that will present the owner problems in of right of way and leave clearance during construction and maintenance should be avoided.
- xiv. Angle point should be selected such that shifting of the point within 100 m radius is possible at the time of construction of the line.
- xv. The line routing should avoid large habitation densely populated areas to the extent possible.

- xvi. The area requires special foundations and those prone to flooding should be avoided.
- xvii. For examination of the alternatives and identification of the most appropriate route, besides making use of information/data/details available/extracted through survey of India topographical maps and computer aided processing of NRSA satellite imagery, the contractor shall also carry out reconnaissance / preliminary survey as may be required for the verification and collection of additional information/data/details.
- xviii. The contractor shall submit his preliminary observation and suggestion along with various information/data/details collected and also processed satellite imagery data, topographical map data marked with alternative routes etc. The final evaluation of the alternative routes shall be conducted by the contractor in consultation with owners' representatives and optimal route alignment shall be proposed by the contractor. Digital terrain modeling using contour data from topographical maps as well as processed satellite data shall be done by the contractor for the selected route. A flythrough perspective using suitable software(s) shall be developed or further refinement of the selected route. If required site visit and field verification shall be conducted by the contractor jointly with the owners' representatives for the proposed route alignment
- xix. Final digitized route alignment drawing with the latest topographical and other details / features including all river railway lines, canals, roads etc. up to 8 Kms on both side of selected route alignment shall be submitted by the contractors for owner's approval along with report containing other information / details as mentioned above

4.2.1 Evaluation of Alternative Route Alignment for Proposed Transmission Lines

In the instant project, criteria for route selection as mentioned above, has been duly adhered to. The proposed 132 kV D/C West Phaileng Marpara TL has been selected from three (3) different alignments as described in IEAR. Earlier, the line was passing through core area of Dampa Tiger Reserve. Three Alignments alternatives were studied with the help Google Maps and walkover survey to arrive at most optimum route for detailed survey. This was then verified on web-based IBAT Database. **The Alternative analysis is depicted in Annexure 3.** The final routes were considered for the further detailed surveys and primary data collection. Subsequently, the proposed TL routes were considered for detail route survey by Contractor Agency (after awarding of contract) and Environmental Consultant. During detailed survey minor alterations as well as geometrical corrections of the route have been carried out which seems inevitable due to actual ground conditions with prime objective of avoiding dense forest/private plantation areas, Common Property Resource (CPR), and also considering the technical feasibility of the route from operation and maintenance point of view in consultation with the local village councils prevalent in the project area. Therefore, minor change in scope of work has been observed with respect to IEAR scope which resulted due to the best effort of PEDM in effectively integrating safeguard and engineering measures in successful minimization of impact on forest and environment. The proposed final alignment of 132 kV D/C West Phaileng Marpara TL after detailed route analysis, and meticulous study is now traversing through Buffer zone of Dumpa Tiger Reserve.

4.2.2 Evaluation of Location for Proposed Distribution Line

Since the proposed DL between existing West Phaileng 33/11 kV S/S and New West Phaileng 132/33 kV S/S connects two S/S in close vicinity having line length of only 100 mt, no alternative have been studied for the subject line as there are no environment or social issues involved including forest/

ecological sensitive area that require such studies. All the other environmental settings like soil strata and vegetation is similar to nonforest area of the TL and hence similar explanation.

4.2.3 Evaluation of Location for Proposed Substations

For S/S, site selection analysis of 2-3 alternatives sites is usually carried out based on environment and social aspects and technical requirement. Such analysis considers various site-specific parameters that include availability of infrastructure facilities such as access roads, water, distance from railheads, type of land (Government / revenue/ private land); social impacts such as number of families getting affected; CPR including feasibility of acquisition. It may be noted that in the instant case all land parcels for proposed S/S are already in possession with PEDM and no fresh land is required to be acquired and therefore, the said exercise is not required/needed for proposed project.

4.2.4 Change in Scope of Work w.r.t. IEAR

For changes in scope of work with respect to IEAR scope i.e., changes in the route alignment based upon alternatives studies and detailed survey for T&D line carried out on field is given in **Table 4.1.**

Table 4-1 Change in Scope of Work w.r.t IEAR

Sr. No.	Details of Power Line / Substation	Change in Length of Power Lines (Km)/ Location of S/S		Reason / Justification for change in scope of work
		As per IEAR	Final Route / Location	
A. Transmission Line Network				
1	West Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV)	50.265	50.265	The proposed final alignment of 132 kV D/C West Phaileng Marpara TL after detailed route analysis, and meticulous study is now traversing through Buffer zone of DTR
B. Substations				
1.	Establishment of 2 x 12.5 MVA, 132/33 kV new S/S at West Phaileng	Unchanged. PEDM Own Land		
2.	Establishment of 132/33 kV new S/S at Marpara	Unchanged. PEDM Own Land		

4.3 Features and Satellite Images of T&D Lines

4.3.1 Transmission Lines (TL)

4.3.1.1 Feature Details of Final Route Alignment of West Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV)

West Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV) covers 50.265 km distance. Total 172 transmission tower (TT) are proposed in this TL. The TL is finalized after detailed analysis considering the environmental features like forest / PA / river etc. The feature survey along the TL is carried out considering 27 mt ROW area i.e., 13.5 mt on either side from center line of the corridor. Geomorphological studies observed that the geology of project area is majorly having rock structure of highly dissected structurally hills. Rock type comprises shale stone with conglomerate of sandstone and pebble bed.

Major part of the TL passes through segun forest plantation (8.38%), grazing land (6%), Open Forest (62%) and Bamboo Forest (12.12%). The selected line does not cross any National Highway, Railway and Power line. The TL route involve notified reserve forest land of DTR Buffer zone. 104.77 Ha of RF is being diverted for the project purpose and hence require the forest clearance under Forest (Conservation) Act, 1980 along with NBWL approval. Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. The copy is given in Annexure 4. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20. **Please Refer Annexure 4.** Besides all other PA like NP, WLS and designated elephant passage have been completely avoided. The landslide study during electric line feature survey and GIS mapping, reveals that the project region is highly vulnerable to landslide. The project TL is passing through the area of very less ornil to flood vulnerability. The type of hazard for the project site is recorded as earthquake, windstorm and high landslide.

As per detailed surveys and GIS imagery data ROW is crossing water bodies such as drain & nala. However, No TT is planned in water body. TT constructed well above the ground level at required elevation will help to keep the people and animals away from EMF contact. It will also prevent the structure getting damaged during flood situation. All the tower locations are easily accessible through existing road to carryout construction and maintenance activity and construction of new approach road is not required.

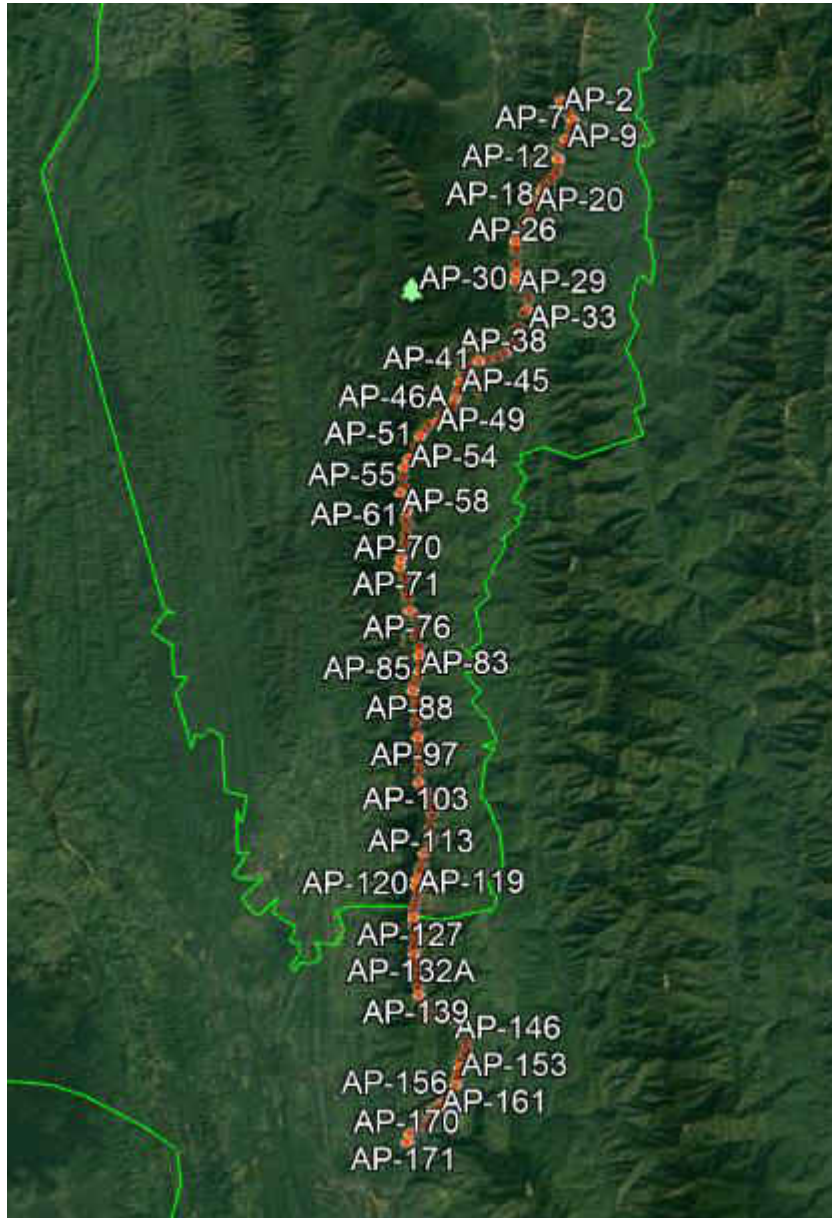
GIS route survey map and TL feature details are provided in **Annexure A1 & B1**. The major feature details are depicted in **Table 4.2**. The Google earth image of TL is provided in the **Map 4.1**.

Table 4-2 Phaileng – Marpara 132 kV S/C line on D/C tower (to be charged at 33 KV)

Electric Line Feature Details - 27m ROW

Feature Class Details	Area in Ha.	% of Area
Bamboo Forest	16.64	12.12%
Cart Track	0.32	0.24%
Electric Substation	1.58	1.15%
Forest Plantation (Segun)	11.50	8.38%
Grazing Land	8.10	5.90%
Nala/Drain	1.05	0.76%
Open Forest	84.47	61.56%
Open Scrub Land	7.54	5.50%
Orange Plantation	4.48	3.26%
Road	1.54	1.12%
Total	137.22	100.00%

Figure 4-1 Google Earth Alignment Map for West Phaileng - Marpara 132 kV S/C TL



5 POTENTIAL ENVIRONMENTAL IMPACTS, THEIR EVALUATION AND MANAGEMENT

5.1 Introduction

Environmental impacts of T & D projects are not far reaching and are mostly localized to RoW. (Refer Table 5.1). However, T & D projects have some effects on natural and socio-culture resources. All possible measures have been taken during the finalization of route alignment as described in the earlier chapter for the proposed T&D system, however, due to the peculiarity of terrain where project is being implemented, some environmental impacts may be there. The explanations in brief with regard to possible environmental impact and measures taken to minimize the same are given in ensuing paragraph.

Table 5-1 RoW Width & Clearance between Conductors and Trees

Transmission Voltage	Max. RoW (In Meters)	Min. Clearance (in Meters) between conductor & Trees *
132 kV	27	4.0
33 kV	15	2.8

As per IS: 5613 and MoEF&CC guidelines finalized in consultation with CEA

5.2 Impact Due to Project Location and Design

5.2.1 Resettlement

During line routing stage itself all measures have been undertaken to avoid settlements such as cities, villages etc. in line with the guiding principle of avoidance as per ESPPF. During detail survey modern techniques/tools like GIS, GPS, and aerial photography were utilized to further optimization the final route alignment avoiding human habitation and other ecological and socially sensitive areas.

In present project construction of total 2 New S/S is under execution. In general requirement of land area for West Phaileng S/S is 3.92 Acres and for 132/33 kV Marpara S/S is 4.34. In the instant scheme, PEDM does not need to acquire lands for new S/S as well as for augmentation of existing S/S as PEDM already possess land for all proposed new S/S. As no fresh land is needed to be acquired for these S/S, issue related to acquisition of land including possible R&R is not envisaged.

In respect of land requirement for erection of T&D lines / towers / poles, no permanent acquisition is envisaged. Land for tower and ROW is not acquired as agricultural activities can continue. A Typical plan of TL tower footing indicating the above position with extent of damage and area of influence are depicted in **Figure 5.1 and 5.2** respectively.

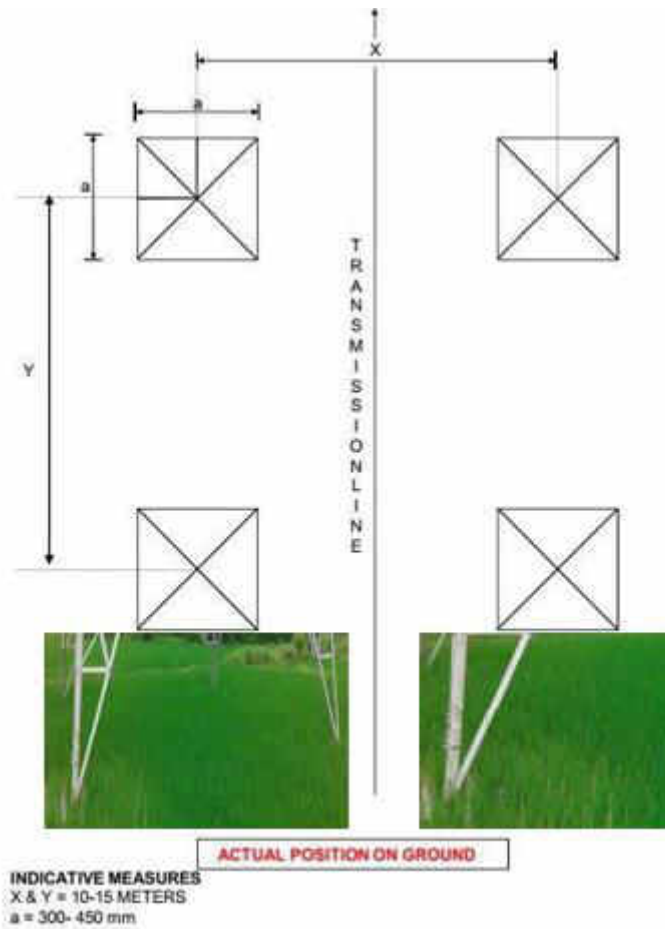


Figure 5-1 Typical Plan of Transmission Line Tower Footings Showing Actual Ground Position and Extent of Impact

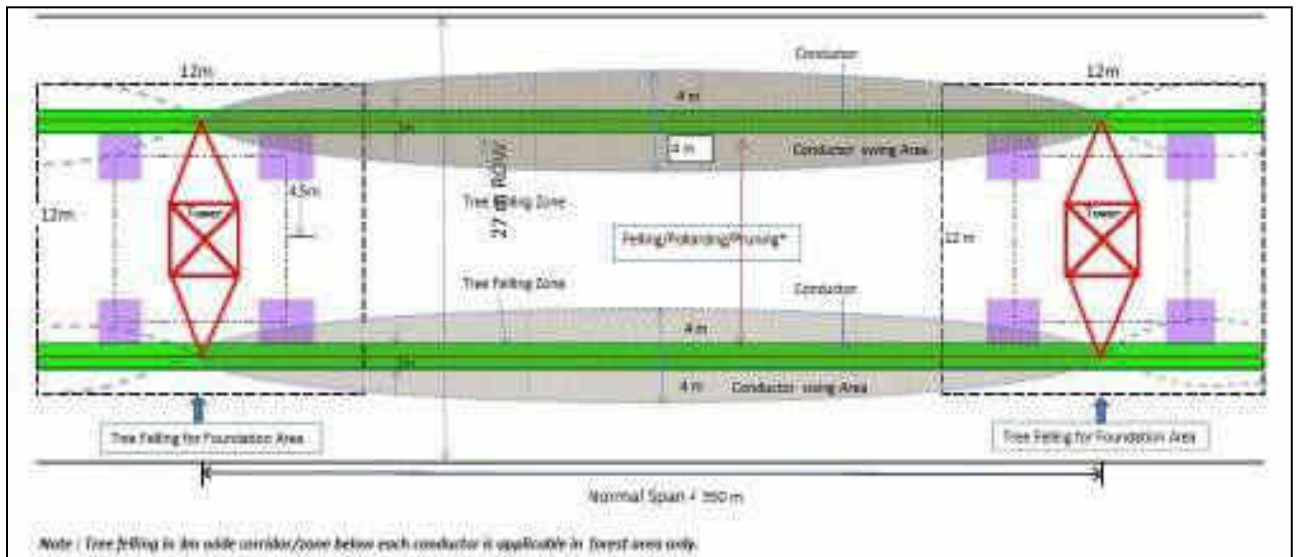


Figure 5-2 Schematic Diagram for Indicating Area of Influence/Impact for 132 KV D/C TL

The land requirement for erection of tower legs is very small i.e. for each leg of tower actual construction is done on a small square area with side length ranging from 0.20 to 0.30 meter depending on the types of tower. Four such square pieces of land will be required to place the legs of tower. The area that becomes unavailable because of the erection of tower legs for an average 132 kVD/C transmission tower ranges from 0.16-0.36 sq. m. of land. Thus, the actual impact is restricted to 4 legs of the tower and

agriculture can continue as clearly depicted in the **Figure-5.1**. In case of 33kV distribution line area that becomes unavailable because of the erection of pole is insignificant as approx. 1 sq. ft. land area is occupied for one pole (refer Figure-5.2 depicting actual base area impact). Due diligence confirms that land is either agricultural or barren, current land use is not altered and resumed after construction. As per present practices, full compensation (100%) towards land value in tower base areas as decided by the district authority is paid towards damages to the affected persons/land owners in addition to tree/crop damages. However, no payment will be paid for land compensation for RoW corridor as Govt. of Mizoram has not approved the adoption of MoP guideline

Actual 132 KV line including tower on ground along with RoW and extent of impact due to erection of tower in undulating and hilly terrain, on agricultural / forest land / in the area of vegetation is placed as **Figure 5.3**. **Figure 5.3** depicts the base of 33 kV DL (Single & H pole).

As described earlier, all measures are undertaken by PEDM at the line routing stage itself to avoid settlements such as cities, villages etc. It may be seen from the above description of proposed route alignments and also keeping in mind that no permanent acquisition of land is involved for tower foundation as per existing law, these subprojects don't require any resettlement of villagers. However, some temporary damages/ disturbances can happen. Some are being compensated by the project under CPTD to minimize the damages and provide compensation plan for temporary damages in consultation with the GoM and PAP and/ or community.

The project is being implemented in the tribal areas governed by GoM per the provisions of Sixth Schedule of the Indian Constitution. It may be noted that all social issues shall be dealt separately in accordance with the provisions of Social Management Framework (SMF, A-C), placed in the ESPPF of PEDM.





Figure 5-3 132 kV TL depicting actual position along with RoW in Undulating terrain and extent of damage

5.2.2 Impact of Transmission & Distribution Lines

As per existing law i.e., MoP Guidelines Dated 5th October 2015 for Payment of Compensation for TL / DL, land is not required to acquire for tower footing and ownership of land remains with the owner and is allowed to continue cultivation after construction. So, for all T&D Lines acquisition of land or any physical displacement is not applicable. However, as per the present provision in the Section 68 Electricity Act, 2003 and Indian Telegraph Act, 1885 only the damages (without acquisition of subject land) accrued to person while placing the tower and line are to be compensated (Section-10 (d) of Indian Telegraph Act).

However, some social impacts due to construction of lines or placing of towers and poles are seen like temporary removal of soil in agriculture land, loss of standing crops / trees during construction phase only. All mitigation measures as per EMP are implemented by contractor and immediately restored on site as per EMP. Care has been taken by the contractors to avoid unnecessary loss of crops.



Figure 5-4 Switchyard of 132/33 kV West Phaileng S/S & Evacuation Road For construction 33/11kv

5.2.3 Landuse within Corridor (Right of Way)

Total land occupied by T&D lines ROW is 137.22 Ha. The major land use occupied by T&D lines is open hill forest (62 Ha), Segun Forest plantation (8.38 Ha), Grazing Land (28 Ha), Bamboo Forest (12.12%) etc.

5.2.4 Impact on soil and surface geology

The project terrain is mostly hilly with steep slopes. The impact on soil & geology is may be high if no EMP is followed. In addition to implementation of EMP provisions, some site-specific measures related to slope protection/stabilization (viz. retaining wall, toe wall, revetment wall, stone pitching, guard wall, bio-engineering measures etc.), drainage (such as cross drainage, culverts), approach road and other protection measures etc. are being undertaken/have been planned as per the site requirement/conditions and subsequent technical approval through committee. Further, rain water harvesting system which is an integral part of S/S design is also being implemented based on the site condition/requirement. Like Cross drainage structure is proposed at both West Phaileng and Marpara 132/33 kV S/S. The construction is in progress.

The details of such measures which are already under implementation/ approved for implementation. The excavated pit material is stacked properly and back filled as well as used for resurfacing the area. On hill slopes where soil is disturbed and prone to erosion is suitably protected by revetment, breast walls, and proper drainage. Besides extensive leg /chimney extension is being used to avoid benching or cutting of slopes to minimize the impact on slope stability.

5.2.5 Impact of tower base on land

As per the assessment carried out in Compensation Plan for Temporary Damages (CPTD) by PEDM, the land required for erection of tower legs is very small i.e., for each leg of tower actual construction a small square area with side length ranging from 0.20 to 0.30 meter required depending on the types of towers. Four such square pieces of land will be required to place the legs of tower. The area that becomes unavailable because of the erection of tower legs for an average 132 kV D/C TT ranges from 0.16-0.36 sq mt of land. Thus, the actual impact is restricted to 4 legs of the tower and agriculture can continue as clearly depicted in the **Figure 5.1**.

In case of 33 kV DL area that becomes unavailable because of the erection of pole is insignificant as approx. 1 sq. ft. land area is occupied for one pole. Duediligence confirms that land is either agricultural or barren, and current land use is not altered and resumed after construction. In the instant case, no pole is being erected as the proposed DLis being erected between existing West Phaileng 33/11 kV S/S and New West Phaileng 132/33 kV S/S connects two S/S in close vicinity having line length of only 100 mt.

As already explained, the impact of TL is restricted to 4 legs of the tower and agriculture can continue after construction activity is over. The average land area required for erection of one 132 kV T/L tower is approx. 0.25 sq m. Based on above, total land loss estimated for construction 50.265 km of 132 kV TL is 43.5 Ha proposed under the present scheme. The compensation toward loss land is provided by following compensation MoP Guidelines Dated 5th October 2015 for Payment of Compensation for TL. The details of Status of Land Compensation (details of line

wise land compensation status updated till June 2021) are given in **Annexure 11**.



Figure 5-5 Erection work at 132/33 kV Marpara S/s and Casting at AP-22/0 W.Phaileng – Marpara T/L

5.2.6 Impact on Crop area / Tree Crops and Groves

Construction of line in crop season is avoided as far as possible. In case when installation of towers / poles impacts on agricultural activity, detailed assessment / survey is conducted looking at existing crops, general crop patterns, seasonal particulars, nature and extent of yield. Wherever necessary, permissions from tea estate owners were taken to erect towers/poles in their agricultural fields. This data is compiled and analyzed to study the extent and nature of impact. For the temporary loss of crops, only agricultural land and private plantation land are considered for estimation. The damages are not done in complete RoW of line (20 m width of corridor for 132 kV D/c) but mostly restricted to tip to tip of the conductor and tower base area where average affected width/corridor would be limited to 20 m (maximum).

One of the reasons is that schedules of construction activities are undertaken in lean season or post- harvest periods. Assets of any sorts are not acquired but during construction, only temporary damages are occurred. Based on the estimation of tower foot area as per the thumb rule, the total land considered for estimation of crop damage / tree damage because of tower foundation 43.5 Ha. As per further detailed analysis and ground survey, the actual total no. of trees affected and status of Tree /Crop Compensation (details of line wise land compensation status updated till June 2021) are given in **Table 5.6**.

Impact on trees is assessed for all TLs within project scope where the actual trees cutting possibility is envisaged. Also, while construction of TLs fruit bearing season was avoided to prevent loss of crops. Tree compensation was calculated on the basis of tree enumeration and detailed surveys.



Figure 5-6 132 kV Tower Base (TL) Showing Impact on Agricultural Land and Crop

5.2.7 Impact on Trees in Forest Area

The total trees likely to be affected details in nonforest area are in West Phaileng – Marpara 132kV S/C are 3450. Total 138648 trees are counted in the TL amongst which 7370 trees may be impacted during construction of 78 towers in DTR buffer zone considering an area of each tower base and 6m below conductor for 33km stretch of line. The compensatory afforestation is being compiled in double the area of forest which is under progress as prescribed in the specific conditions of Forest Clearances obtained for the lines. In this aspect forest department officials are concerned for the status updates.

Table 5-2 Type and Land Use within RoW of West Phaileng – Marpara 132kV S/C TL

Type of Landuse	Area in Ha.	% of Area
Bamboo Forest	16.64	12.12%
Cart Track	0.32	0.24%
Electric Substation	1.58	1.15%
Forest Plantation (Segun)	11.50	8.38%
Grazing Land	8.10	5.90%
Nala/Drain	1.05	0.76%
Open Forest	84.47	61.56%
Open Scrub Land	7.54	5.50%
Orange Plantation	4.48	3.26%
Road	1.54	1.12%
Total	137.2 2	100.00 %

Table 5-3 Estimation of Actual Land Loss Because of Tower Base

Sr. No.	Details of Power Line	Length in km	Total Towers	Land Loss per tower (sq m)	Total land loss area for tower & pole base (sq m)
A.	Transmission Line Network				
1	West Phaileng – Marpara 132kV S/C	50.265	172	0.25	43.5

Table 5-4 Status of Land Compensation in FEAR II - (details of line wise land compensation status updated till June 2021 for West Phaileng – Marpara 132kV S/C

Foundation Completed	Total Affected Persons	Compensation already paid to Affected Persons	Compensation for APs under progress	Total Compensation paid for Tower Base	Stringing Completed	Total Affected Persons in RoW Corridor	Compensation already paid to Affected Persons in RoW Corridor	Compensation for APs for RoW Corridor under progress	Total Compensation paid for RoW Corridor	No. of Pending cases/non eligible cases with details thereof (e.g. Govt land/title disputes/ any other reasons)
No	No	No	No	Rs	km	No	No	No	Rs	
12	0	0	0	0		No compensation for line corridor (only 100% for tower base as per State Govt. notification 01.05.2019)				All tower locations fall under Govt. land

Table 5-5 Loss of Crop Area in TL Sections

Name of Line	Width Considered for Estimation of Loss of Crops	Total Agricultural Land (km)	Total Private Plantation (km)	Total Line Length Considered for Crop Compensation (km)	Total Land Area considered for Crop Compensation (Acre)
West Phaileng – Marpara 132kV S/C	20	11.547	Nil	11.547	57.06

Table 5-6 Status of Tree/Crop Compensation in FEAR II - (details of line wise land compensation status updated till June 2021 for West Phaileng – Marpara 132kV S/C

Total Affected Persons	Compensation already paid to APs	Compensation for APs under progress	Total Compensation paid for Tree & Crop damages	No. of Pending cases/non eligible cases with details thereof (e.g. Govt land/title disputes/ any other reasons)
No	No	No	Rs	
41	26	25	0.89	All tower locations fall under Govt. land

5.3 Details on Affected Persons

It is estimated that total 496 persons likely be impacted temporarily by construction of proposed 132 kV line. The number of APs refers to the most conservative option. State Utilities/ POWERGRID will schedule civil works in such a way to minimize impacts and substantially reduce the damages to crops and therefore the number of affected persons and Agricultural Households (AHH).

5.4 Other Damages

Habituated areas and other sensitive areas were purposely avoided to prevent damages. Also, in the instant case based on the actual line study and, there is no possibility of damage to bunds, water bodies etc. However, if damaged or impacted, local revenue department assess the cost of damage as per norms of Govt. of Mizoram and submit estimate to the competent authority for approval.

5.5 Impact Due to Construction of New S/S and Bay Extension

All the S/S are being constructed on vacant lands owned by PEDM, so there is no displacement of people for this project. Therefore, there is no any social impact on the people residing in this area. Minor improvements to paths were made to reach to the new S/S, which is found useful for the local people of the particular area.

5.5.1 Impact on Indigenous People

Government of India, under Article 342 of the Constitution, considers the following characteristics to define indigenous peoples [Scheduled Tribes (ST)]:

- tribes' primitive traits;
- distinctive culture;
- shyness with the public at large;
- geographical isolation; and
- Social and economic backwardness before notifying them as a Scheduled Tribe.

Essentially, indigenous people have a social and cultural identity distinct from the 'mainstream' society that makes them vulnerable to being overlooked or marginalized in the development processes. STs, who have no modern means of subsistence, with distinctive culture and are characterized by socio- economic backwardness, could be identified as Indigenous people. Indigenous people are also characterized by cultural continuity. Constitution of India identifies schedule areas which are predominately inhabited by such people. As, this project is directly connected with the life of local people of Mizoram, there is nonnegative impact on indigenous people because of this project. Local people are cooperating project related authorities.

5.6 Summary of Impacts

Based on the above analysis of final route of T&D lines and location of sub-stations, the summarized environmental & social impact matrix is presented below in **Table 5.7**.

Table 5-7 Summary of Impacts

Sr. No.	Parameters	Extent of Impact
1.	Total Line Length	Transmission line: 52.265 km
2.	Total No. of Towers	TL Towers: 172
3.	Terrain	Hilly, Almost 100 % of lines are passing through hilly area All S/S are constructed/ augmented are in hilly areas. At all S/S locations, provisions for revetment like retaining wall, boundary wall, breast walls, and proper drainage and sewerage system etc. have been made. Besides extensive leg /chimney extension is being used to avoid benching or cutting of slopes to minimize the impact on slope stability. All safety measures like fire wall, fire extinguishers, etc are provided.
4.	Forest land transverse	104.77 Ha of Reserved Forest of Dampa Tiger Reserve Buffer Zone
5.	Rare/Endangered flora	<i>Dipterocarpus indicus</i> (Endangered category) as per IUCN 2020.1. During field survey <i>Chromolaena odorata</i> , <i>Oroxylum indicum</i> invasive species are recorded in the study area i.e., transects studied along the TL and S/S.
6.	Rare/ endangered fauna	One endangered species viz. <i>Hoolock hoolock</i> . <i>Trachypithecus pileatus</i> and <i>Macaca arctiodes</i> were found in the vulnerable category in the study area. The near Threatened Of species is White Cheeked Partridge, Ashy- headed green pigeon and Great hornbill are also recorded as per Conservation Status IUCN (2020.1).
7.	Total trees to be cut	Approximate 35686 trees may be impacted during construction of said TL in buffer zone of Dampa Tiger Reserve for construction of 78 towers considering an area of each tower base and 6m below conductor for 33km stretch of line. In Nonforest Area total 3450 trees likely to be affected Actual felling will be minimal because clear felling is limited to 3mt below each conductor for unhindered passage, and looping/pruning will be done in the remaining corridor to maintain electrical safety clearance. In the case of distribution lines, there will be little need for tree felling because looping of branches will suffice for unhindered line passage.
8.	Cleaning jungles of rank vegetations, grass, brush, wood, tree and saplings of girth up to 30 cm (measured at a height of 1 m above ground level)	No
9.	Migrating Wildlife/ breeding ground	NA
10.	National Park / sanctuaries	Dampa Tiger Reserve Buffer Zone involved in TL
11.	Notified Wet land traversed	None
12.	Soil erodibility	High
13.	Historical / Cultural monuments	None
14.	Relocation of villagers	None
15.	Affected Structures	NA
16.	Total Affected People	495
17.	Relocation of Villagers	NA
18.	Area of actual land loss under Tower Base	43.5 Sq.Mt. under Tower Base
19.	Affected Structures	Nil
20.	Temporary Damage to Crop	Temporary loss is observed during construction time. It can be recovered later
21.	Loss/ Hindrance to Public Utilities	Negligible, restricted to construction phase only.

5.7 Land value depreciation

The electric power acts as a catalyst for the growth and development of areas having accessibility to it. Based on previous experiences, land prices are generally expected to rise in the areas receiving power. In the present project, TL pass through forest areas, agriculture fields, non-forest plantation / private plantation area, open forest where the land-use is not going to change in foreseeable future. Therefore, the value of land is not adversely affected to a significant degree. Moreover, the proposed DL in the instant case between existing West Phaileng33/11 kV S/S and New West Phaileng 132/33 kV S/S connects two S/S in close vicinity having line length of only 100 m no such provision is intended to provide power supply to populated area.

However, the overall project intends to boost the economic status as well as land price of the area, thus, outweighing possible negative impacts, if any. The S/S land is already in possession of PEDM and hence no land value depreciation is envisaged.

5.8 Historical/cultural monuments/value

As per the policy of route selection, only that route alignment is finalized which avoids all the historical and cultural monuments. As per the preliminary assessment carried out during finalization of route alignment in consultation with State revenue authorities and Archaeological Survey of India (ASI), no such monuments are coming in the proposed route alignments. Moreover, utmost care to be taken during detailed survey to avoid such areas. Also, the chance found procedure is already considered in the procedures.

5.9 Encroachment into precious ecological areas

As explained in **Chapters 2 and Chapter 4 during TL and DL planning** all precautions have been taken right from planning stage to avoid routing of line through forest and PA core area like NPs/WLS. In spite of taking due care during route selection, involvement of some forest area could not be avoided completely.

A major portion of the TL passes through Forest Plantation (Segun), open forest, Bamboo Forest, Orange Plantation and grazing land. The TL route involve notified reserve forest land of DTR Buffer zone. 104.77 Ha of RF is being diverted for the project purpose and hence require the forest clearance under Forest (Conservation) Act, 1980 along with NBWL approval. Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. The copy is given in **Annexure 4**. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20. Besides other than DTR, all other PAs like NP, WLS, Biosphere Reserve etc.; Natural habitats, IBAs, Sacred groves, Wetlands and designated wildlife/elephant etc. have been completely avoided.

The land use along the RoW (27 m for 132 kV) of TLs comprises Forest Plantation (Segun), open forest, Bamboo Forest, Orange Plantation and grazing land, private plantation and government land. The total length of the project TL is 50.265 km and total number of 172 towers are being/to be erected along the proposed TL amongst. It may be noted that about 33 km part of TL is passing through Buffer zone of DTR and about 78 towers are planned and being erected in Buffer zone of DTR.

The Wildlife is submitted along with the application to SBWL and NBWL Committee. Also, Biodiversity Study is carried out by Assam State Biodiversity Board for the DTR project impacted area. Forest Department and NBWL has approved the EMP prepared. **Please refer Annexure 5**. Implementation of the EMP measures and recommendations of NOCs obtained, has resulted into abatement of potential impacts due to construction activity on the environmental and social environment as envisaged in IEAR. Due impact assessment and mitigation measures are implemented as per prescribed EMP and following ESPPF prepared by PEDM.

Since the proposed DL between existing West Phaileng 33/11 kV S/S and New West Phaileng 132/33 kV S/S connects two S/S in close vicinity having line length of only 100 mt there are no environment or social issues involved including forest/ ecological sensitive area that require such studies. All the other environmental settings like soil strata and vegetation are similar to nonforest area of the TL and hence similar explanation.

It has been observed that most of these S/S lands were secured by PEDM since long back. As these S/S locations are on either side of DTR buffer zone and are easily accessible with existing metal roads construction of new approach road is not required. Thus, no encroachment in valuable land resources is envisaged. However, it is to submit that in both cases of S/S i.e., 132/11kV West Phaileng S/S - 80m and 132/33kV Marpara S/S - 130m, strengthening / upgradation work of existing road is required to be undertaken to facilitate movement of construction materials and machineries to the construction sites of S/S in consultation with local authority and villagers. Accordingly, the NOC for Huas Passing and Road Construction for 132/11 kV West Phaileng S/S from Respective authority i.e., Village Council / court of West Phaileng is obtained. **Please Refer Annexure 4.**

The CAMPA for West Phaileng Marpara 132 kv D/C TL is being raised and maintained by state Forest department over the double area i.e., 213 Ha of degraded forest land identified in Compartment No. 1, Saitah Forest Range, West Phaileng Beat below Kawnmawi Village inside the notified RF of Teirei RRF under West Phaileng Beat in Mamit Forest Division within three years from Stage II clearance. Other Clearances and NOCs under FRA 2006 are being complied with. Funds required for CAMPA to Forest Department are arranged by PEDM / IA. All the other stipulated conditions in the clearance copy are followed strictly. The copy of MoEFCC clearance for West Phaileng Marpara 132 kv D/C TL is depicted in **Annexure 4.**

Periodical lopping/pruning of trees to maintain line clearance is done under the direction of forest department. Moreover, to prevent unauthorized tree felling in forest area, measures like providing construction crews with fuel wood or alternative fuels by Contractor has been specified in EMP.

TL can serve as new access routes into previously inaccessible or poorly accessible forests, thereby accelerating forest and wildlife loss. In such cases, PEDM cannot take action itself, but local Forest Department personnel normally assess the dangers and take appropriate action, such as establishing guard stations at the entrance to the forest etc. cost of which is borne by PEDM. Given the already easy access and degraded conditions at the proposed subprojects sites, this problem is not expected to be encountered. Nonetheless, PEDM staff will report to the Forest Department any noticeable encroachment induced by the Projects in such situation.

The tree cutting in non-forest area was avoided during construction activities at S/S locations and at TL to the maximum possible extent. Trees are only removed to maintain electrical safety clearance. During land development prior to construction of substation shrubs/trees on the plot are cleared that create hinderance to work. In TL corridor, only 3 m strip below each conductor is cleared during stringing activities and natural vegetation is allowed in cleared strips barring one which is kept for maintenance activity. In remaining corridor, mostly pruning/looping is done to maintain electrical clearance. In Mizoram Tree cutting in nonforest area is a regulatory activity and forest NOC is to be taken prior to the tree cutting. Supreme court has issued Guidelines for the felling of trees from Non-Forest Areas, 2004. The guidelines have procedure to obtain NOC from Divisional Forest Officer (DFO). The guidelines also mention the tree species

which do not require NOC under the said notification. **Please refer Annexure 6 for the guidelines.** Also, MoEFCC, GoM has issued notification Dated 9th August 2019 in connection with the guidelines for Felling of trees from Non-Forest Area depicting the list of trees exempted from the requirement of feeling permission in Mizoram. During present study the actual tree enumeration in the complete corridor was carried out by IA. Total 138648 trees are counted amongst which approximate 35686 trees may be impacted during construction of said TL in buffer zone of DTR for construction of 78 towers considering an area of each tower base and 6m below conductor for 33km stretch of line. In Nonforest Area total 3450 trees likely to be affected. However, it was tried to retain maximum trees on site. Only grass growth on the S/S plot was cleared during land development prior to construction. At TL locations trees were maximum tried to trim limited to the locations where the height of trees was hindering the work. However, compensation is paid to farmers/owners after assessment of actual damage duly certified by revenue/forest/horticulture/rubber board authority as per provisions of The Electricity Act, 2003 & The Indian Telegraph Act, 1885. During our site visit and verification of documents it has been observed that the IA is complying with all such provisions in spirit. Compensations are being paid following CPTD compensation for all damages to the tree owners.

5.10 Lines into other valuable lands

Total land occupied by T&D lines ROW is 137.22 Ha. The major land use occupied by T&D lines is open hill forest (62 Ha), Segun Forest plantation (8.38 Ha), Grazing Land (28 Ha), Bamboo Forest (12.12%) etc.

MoP, GoI issued guidelines for payment of compensation towards damages in regard to ROW for TL on October 15, 2015, stipulating payment of 85% of land value for tower base area (between four legs) and compensation towards diminution of land value in the width of RoW corridor subject to a maximum of 15% of land value. **Please Refer Annexure 7.** However, these guidelines are not adopted by GoM till date, hence the existing practice of 100% land cost for tower base are being implemented. The letter was issued to PEDM regarding adoption of MoP, GoI Guidelines for payment of compensation towards damages in regards to RoW for TLs vide ref. WB-6/2018-EC(PC)/SPUC/21 dated 07/02/2019. **Please Refer Annexure 8.**

PEDM intimated POWERGRID that GoM has decided for adopting with the prevailing practice of payment of compensation towards damage in regards to RoW for TLs through Letter vide ref. WB-6/2019-EC(PC)/SPUC/36 dated 17/05/2019. **Please Refer Annexure 9.** POWERGRID has drawn the modalities dated 19/03/2019 for payment of compensation for NERSIP Project in Mizoram State with concepts and guidelines to execute the compensations at different levels as per requirements. **Please Refer Annexure 10.**



Figure 5-7 Tree Felling Pattern

Once the tree/crop is removed / damaged, PEDM issues a tree cutting/crop damaged notice to the land owner with a copy to the Revenue Officer to process the compensation payment. Based on the above the compensation payment is generated by means of a computerized program developed by the National Informatics Centre exclusively for this purpose. The detailed Valuation statement thus generated using this program is verified at various levels and approval of payment of compensation is accorded by the concerned District Collectors. On approval of compensation, the revenue officer shall further intimate the amount payable to the different landowners and PEDM arranges the payment by way of Demand Draft/Cheque to the affected parties. The payment is further disbursed at the local village office after due verification of the documents in presence of other witnesses. The details of Landowner as per detailed survey of West Phaileng Marpara 132/33 kV TL is enclosed as **Annexure 11**. The land rates and compensation estimates are also depicted in **Annexure 11**. The sample case of compensation payment including notice for crop/tree compensation and damage assessment is provided in **Annexure 12**. The compensations paid till June 2021.

All measures are undertaken by PEDM at the line routing stage itself to avoid settlements such as cities, villages etc. It may be seen from the above description of proposed route alignments and also keeping in mind that no permanent acquisition of land is involved for tower foundation. As per existing law, these subprojects don't require any resettlement of villagers. However, some temporary damages/ disturbances can happen. Same are being compensated under CPTD which is developed to minimize the damages and provide compensation plan for temporary damages. This is executed in consultation with the GoM and affected persons and community. As per existing laws and CPTD

Compensation for all damages (land / tree / crop) paid to the individual land owner. Budgetary provision of **Rs. 297.165 lakhs** have been made in the cost estimate to meet these expenses. Also please **Refer Annexure 13**.

Agricultural activities are allowed to continue following the construction period. If bunds or other on-farm works are disturbed during construction or maintenance, they are restored to the owner's satisfaction following cessation of construction or maintenance activities.

5.10.1 Likely Impact of the Project on Buffer Zone of Dampa Tiger Reserve

The impact on the forest and wildlife associated with power transmission project with specific reference to the proposed 132 kV Transmission Line from West Phaileng to Marpara on the buffer zone of DAMPA Tiger reserve is summarized as below:

5.11 Habitat Loss and Fragmentation

In case of 132 kV West Phaileng to Marpara Transmission line the RoW is considered as 27 meters, wherein the standing trees are required to be either felled, looped/pruned as necessary for casting of tower foundation, tower erection & electrical conductor stringing. The large scale felling of trees along the line corridor might impact the nesting sites of birds as well as habitat and movement of other arboreal species like monkeys, primates etc. available in that area.

As per the field inspection of Director (DAMPA) at the wildlife passages & wild life area, there are 03 (three) nos. wildlife passages within Dampa Tiger Reserve buffer zone are available and at the same passages there are 09 (Nine) nos. 132KV Power line towers from **AP-51 to AP-59** (nearly

Saithah village) are falling for which minimum ground clearance kept at tower as 13.3 mtrs but as per the advise of the director DAMPA, another 03 mtrs further clearance insisted and kept as 16.3 mtrs for safe passage of wild animals and other mammals in DAMPA WLS & Tiger Reserve. it is intimated that section of the transmission line following mitigation measures are proposed to be adopted by POWERGRID during execution of the project.

As per Indian Electricity rule, the minimum ground clearance for 132 kV Transmission lines 6.1 meter i.e. the lower most electrical conductor wire between two adjacent towers will be stringed in such a way that the minimum height from actual ground level is always more than 6.1 meter which is sufficient for safe passage of animals and others mammals In addition to the above, it is proposed to maintain additional clearance 3 meter over and above minimum clearance above ground from the lowest conductor of transmission line for the areas specified above.

5.11.1 Electrocutation and Accidental Collision of Birds

As per available/listed data risk of electrocution of birds are mostly related to distribution/transmission lines up to 110 kV due to dimensions and spacing between two conductors, electrocution of Bird/Raptor by EHV lines of 132 kV & above is quite rare.

Since DAMPA Wildlife Sanctuary (i.e. the core area of DAMPA Tiger Reserve) is recognized as one of the **Important Bird areas (IBA)** in India, a having a significant population of birds Including the *Arborophile atrogularis*, *Treron phayei* and *Buceros bicornis* were found in the Near threatened category. Therefore, the following mitigation measures are proposed for safeguard of birds:-

The Stringing of conductor for the transmission line shall be carried out maintaining a separation between energized conductors as follows:

Vertical distance between two conductors: **4 m** (appx.)

The above arrangement, will nullify the likelihood of electrocution of large winged birds like hornbill, because the distance between energized conductors will be always more than the maximum wing span of the bird.

To prevent accidental collision of birds with the conductor **bird diverter/colored/contrast marker devices** will be installed on the earth wire to make it visible to birds from long distance as shown in the photographs as below **from AP 37 to AP 72 (In between Lallento Phulbial)** where the birds are flying and taking water from water bodies/small ponds which are available in the above vicinity.

Bird Guard is provided on towers as per requirement to prevent birds from sitting in the insulator strings which may result in puncture of insulator due to defecation by birds.



Figure 5-8 Electrocutation & Accidental Collision for Birds

The excavated pits shall be properly barricaded and fenced so as to prevent accidental falling of mammals in the vicinity of the construction sites. Many different designs of tower exist for 132 kV lines with standardization becoming more focused in recent years. Anti-Climbing Devices (ACD's) are being used at tower four corners gates with two opening and two non-opening fenced by using barbed wire and accessories.

5.12 Induced Impact on Wildlife from Construction Workers

Construction manpower is required for execution of the project and makeshift construction camps at the tower foundation/erection sites as per site requirement. However, for the instant project, for tower foundation works, local manpower/workers are engaged. Specialized works like tower erection and stringing, migrant labourers are engaged. The induced impact on the wildlife of DTR from such construction workers i.e., the likelihood of involvement in hunting/trafficking of wild animals and other unlawful activity during the execution of the project are thus not envisaged. Monitoring is strictly carried out daily at site by EPC contractor. Also the timings of construction as per Biodiversity Board Report and recommendations along with specific conditions in NBWL NOC are strictly followed. Local labours are engaged and hence no labour is staying on site after construction hours.

5.12.1 Interference with other utilities and traffic

As per regulations enacted by GoI, it is mandatory for PEDM to seek clearance prior to construction from department of Railways, Telecommunications and wherever necessary from aviation authorities that are likely to be affected by the construction of TL. The TL affect nearby telecommunication circuits by causing electrical interference. A standing committee -- Power Telecom Co-ordination Committee (P.T.C.C.) has been constituted by GoI to plan and implement the mitigating measures for the induced voltage which may occur to nearby telecom circuit and suggested necessary protection measures has to be adopted. The committee suggests measures

like rerouting of the telecom circuits, conversion of overhead telecom circuits into cables etc. to minimize the interference. Accordingly, NOC from Ministry of Aviation, Defense, P.T.C.C NOCs are obtained. **Please refer Annexure 4.**

The cost of such measures is determined by the Committee on the basis of prevailing norms and guidelines. Though the exact cost to mitigate the impacts of induction in neighbouring telecom circuits would vary from case to case, the cost on an average works out to be Rs. 50000/- per km. Provision to meet these expenses has been made in the cost estimate for the same for transmission line proposed under the instant scheme.

The main approach road for accessing the construction sites is through existing West Phaileng –Marpara state road which is the only road connectivity between the two areas. The proposed line is running along the road and S/S sites are situated just adjacent to it. Therefore, construction of additional approach for the proposed Substation sites may not be required. It has been observed that traffic volume on the aforesaid road is quite negligible as it comprises of mostly small vehicles. Therefore, we don't foresee any steep rise in volume of traffic due to mobilization for said projects.

Wherever TL crosses the railways, clearance is taken from that department. In general, the system is planned and executed in such a way that adequate clearance is maintained between TLs on the one hand, and railways, civil aviation and defense installations on the other. Wherever the TLs pass by the airports the towers beyond specified height are painted in alternate orange and white stripes for easy visibility and warning lights are placed atop these towers. In the instant case all such precautions are taken and being implemented.

5.12.2 Interference with drainage pattern

Because transmission lines are built aerially and ground surface obstruction is limited to the area of tower footings, which is very small, there is little chance of affecting drainage patterns. This scheme's transmission and distribution lines do not include any towers or poles that would be placed in the river bed and could interfere with existing drainage patterns. In case of S/S, all drainage channels along (Cross drainage structure) or inside S/S constructed / trained and connected to main or existing drainage to avoid any erosion due to uncontrolled flow of water. Another precaution already recommended in the EMP and implemented is to avoid dumping fill materials in sensitive drainage areas. All drainage channels along or inside substations are being trained and connected to main or existing drainage.

5.12.3 Towers/ Poles and drainage pattern

Moreover, the TLs proposed under the subject don't not involve any tower to be placed in river beds for river crossing. However, management measures as specified in EMP like appropriate siting of towers are undertaken during detailed alignment survey and design to avoid any incidence of flooding hazards of loss of agricultural production due to interference with drainage patterns or irrigation channels. In the infrequent instances where the natural flow/drainage is affected, flow is trained and guided to safe zones. The erection of pole is proposed above ground level at desired elevation to avoid flood situation and flood impacts. The **Annexure A** for GIS maps reveal that the project is planned with suitable elevation above ground level.

Provision of drains around the tower pad in plain area is made as the monsoon is very intense and unpredictable in this area. To avoid any interference, DC towers are being used instead DB tower as single span limit is crossed in the stretches where TL/ DL is crossing river;cross-arm

strengthening has been suggested. Also, as mentioned in previous chapter, use of leg extension is being implemented for towers to minimize/avoid benching/revetment, to minimize/ avoid chances of soil erosion, to minimize/ avoid sedimentation of river, to provide great stability.

5.12.4 Substations and drainage pattern

Since all proposed S/S are located mostly in plane terrain no effect on drainage of the area is envisaged. All the S/S are having systematic and adequate arrangement of drainage system right from design stage and are implemented on site. All drainage channels along or inside S/S are being trained and connected to main or existing drainage to avoid any erosion due to uncontrolled flow of water. Retention wall are proposed and being constructed at S/S locations. The GA Layouts of 132/33 kV West Phaileng and 132/33 kV Marpara S/S are given in the **Annexure 14**.



Figure 5-9 S/S & Site background

5.13 Environmental Problems Due to Design

5.13.1 Escape of polluting materials

The equipment installed on lines and S/S are static in nature and do not generate any fumes or waste materials. However, detailed specification with respect to equipment design and S/S drainage and sewage design has been included in tender document to avoid any incidence of

land and water contamination. Transformers have been designed with oil pit and spill containment systems having sump of capacity of 200% of oil volume of largest transformer, and purpose-built oil, lubricant and fuel storage system, complete with spill clean up equipment. Hazardous Waste Management compliances are followed at each S/S. S/S is also equipped with drainage and sewage disposal systems to avoid offsite land and water pollution. Apart from this, solid waste like packing materials, cables, aluminum conductor, sand, aggregate material, cements and steel generated during construction is carefully handled and removed from the sites periodically to avoid any contamination. Also, the system helps in avoiding accidents through contamination, spills and fire.

5.13.2 Explosion/fire hazards

It may be noted that sub-stations are being constructed on the land provided by PEDM after considering all the risks and after following ESPPF. During the survey and site selection for TLs, and S/S, it has been ensured that these are kept away from oil/gas pipelines and other sites with potential for creating explosions or fires. Fires due to flashover from lines can be a more serious problem in forest. However, adequate safety measures are taken to avoid such incidence and has been included in EMP. Besides this forest authorities also incorporate measures like making fire lines to prevent spreading of fire in the affected forest area. Apart from this, state of art safety instruments like automatic tripping system is installed in the S/S on both the ends so that line gets tripped within milliseconds in case of any fault. Firefighting instruments including fire extinguishers are kept in appropriate place for immediate action in case of any fire hazard. Firefighting system is well adopted along with general requirements and fire safety requirements. All the measures are implemented at all the S/S locations. Typical firefighting system / Fire control house is finalized for NERSIP by POWERGRID. The details of firefighting system are given in **Annexure 15**.

5.13.3 Erosion hazards due to inadequate provision for resurfacing of exposed area

Excavated materials is expected to be generated for construction of 172 numbers of TL tower, 2 no of 132/33 KV S/S proposed under present scheme. All the soil excavated for pole footings & substations construction are optimally (about 80-90%) utilized for backfilling and the remaining soil being spread evenly and compacted. Top soil disturbed during the development of sites are used to restore the surface of the platform. Infertile and rocky material are used as fill for substation/ tower/pole foundations. Hence, possibility of erosion of exposed area due to construction activity is negligible.

5.13.4 Soil erosion and contamination

It has been observed that soil excavated for tower footings and S/S construction are optimally utilized for backfilling and the remaining soil being spread evenly and compacted. Top soil disturbed during the development of sites are used to restore the surface of the platform. Infertile and rocky material are carefully used as fill for S/S and TT foundations. Additional soil is utilized to maintain plain area. Moreover, the project is being implemented in plain area only and hence, possibility of erosion hazard is not anticipated from any of the project site.



Figure 5-10 RCC Retaining wall construction at 132/33kV Marpara S/S

5.14 Environmental aesthetics

Since spacing between each TT in case of 132 kV D/C TL is approx. 300 mt and between each EP in case of 33/11 kV DL is approximately 100 mt. This will not affect the visual aesthetics of the localities particularly when it is ensured to route the lines as far as away from the localities. PEDM takes up plantation of trees to buffer the visual effect around its S/S and to provide better living conditions. Wherever PEDM feels it appropriate, discussions are held regularly with local Forest Department officials to determine feasibility of planting trees along roads running parallel to TL to buffer visual effect in these areas. In addition, towers may be painted grey or green to merge with the background.

5.15 Noise/vibration Nuisances

The equipment installed at S/S are mostly static and are so designed that the noise level always remains within permissible limits i.e., 85 dB as per Indian standards. The noise levels reported during normal operating conditions are about 60 to 70 dB at 2 m. distance from the equipment. To contain the noise level within the permissible limits whenever noise level increases beyond permissible limits, measures like providing sound and vibration dampers and rectification of equipment are undertaken. In addition, plantations of sound absorbing species like Casuarinas, Tamarind, and Neem are raised at the S/S that reduce the sound level appreciably. DG set with proper enclosures is part of equipment specification/ design criteria. Some noise is unavoidable during construction phase like noise produced by concrete mixing equipment and excavators which are temporary and only in day time. However, regular monitoring by IA/Contractors and due maintenance of equipment are ensured to keep the noise level well within the prescribed limit.

5.16 Blockage of Wildlife passage

In the instant scheme, portion of 132 KV D/C West Phaileng - Marpara line is passing through the buffer zone of DTR which is not a core tiger habitat and no direct sighting of tigers in the buffer zone is reported so far. As per the pre biodiversity assessment study carried out by Assam State Biodiversity Board, the subject area is also not part of any corridor of flagship species such as elephants and hence, possibility of any disturbance to wildlife is not anticipated. Another phenomenon reported in some places viz. Bird hit/electrocution by electric lines during landing

and takeoff near the water bodies, fly path of birds is also not envisaged in the instant case due to absence of such sensitive areas nearby the proposed line and also no earlier reported incidence in the project area. Necessary Forest and NBWL clearance are obtained with stipulated specific conditions. The conditions are being implemented on site to avoid impact on wildlife environment. Also, the compliances are regularly submitted to permission Authority with site specific periodic monitoring report. The necessary provisions of bird guard and anti-perch device presented in **Annexure-16**.

5.17 Environmental Problems during Construction Phase

5.17.1 Uncontrolled silt runoff

During construction, maximum 108 m³ from each tower foundation and 7500m³ of excavated materials for each S/S foundation expected to be generated. However, adequate measures are taken to store excavated materials properly for refilling after construction is over. In hill slopes site specific engineering practices including bio-engineering techniques, wherever, feasible are being undertaken to prevent soil erosion. Moreover, excavation in the hilly areas is avoided in rainy days. Hence, uncontrolled silt run off is not anticipated.

As discussed in the earlier section, the terrain of the project area is 100% hilly wherever the tower has been positioned on hilltops leg extension is being utilized so as to minimize/ avoid benching/ revetment and to provide great stability.

Retaining walls are also being constructed to eliminate the chances of silt runoff/ soil erosion. The excavated material has been backfilled and any remaining earth has been spread around the base and compacted. In case of DLs all the excavated soil is backfilled and compacted after erection of tubular poles.

Since these S/S are in hilly area and cutting and filling quantity will be equal so that heavy machineries involved the anticipated impacts will be negligible. IA officials have confirmed that all necessary measures like sprinkling of water, minimum disturbance to local community shall be undertaken during construction work. Further, we have been informed that a separate screening / assessment report for all proposed approach roads under NERPSIP being complied by IA and same will be submitted to World Bank shortly.

As already explained, during construction limited quantity of excavated material is generated from tower/pole foundations and sub-station foundation. However, adequate measures have been taken to store excavated materials properly for refilling after construction is over. Further, excavation in the hilly areas is avoided in rainy days. Hence, uncontrolled silt run off is not anticipated. However, during construction, precautions are being taken by contractors, boundary / retaining / breast walls are being constructed to avoid any such runoff of excavated material from the construction sites. Moreover, S/S are being constructed above the highest flood level (HFL) by raising the foundation pad, therefore, are not prone to flooding/ erosive losses of soil.

So far there are no instances with potential of erosion during construction of above said lines. Similarly, there are no instances of erosion/losses of soils into adjoining area as all the overburden are being backfilled within the S/S boundary walls and properly managed. The S/S are not located in the vicinity of water bodies or ecologically sensitive areas.

5.17.2 Nuisance to nearby properties

While selection of site, due care is taken to keep the TL and S/S away from settlements. Further, all the construction activities undertaken through the use of small mechanical devices e.g., tractors and manual labor, therefore nuisance to the nearby properties if any, is not expected. Since all construction related activities for new S/S are confined to existing S/S which are already inaccessible for general public due to its separation/demarcation by the boundary wall. Moreover, such areas are declared as prohibited for general public as per the provisions of Electricity Act 2003. Hence, any adverse impact arising during the construction of these S/S are temporary and limited to the boundaries of existing S/S only and do not intend to impact on nearby habitat/property and health & safety of neighboring community.

5.17.3 Dust emission due to construction activities & vehicular movements

Exposed soils are compacted easily for prevention of dust emission due to construction activities. Sprinkling of water spray vulnerable area and covering transporting vehicles to avoid spillage of materials along with controlled speed measures have been observed in project site. Use of personal protective equipment by workers is observed. Proper scheduling of transportation of materials are being undertaken to minimize and mitigate any adverse impact on construction materials. Regular water sprinkling is being carried out at construction sites and hence dust emission impacts are not observed.

5.17.4 Interference with utilities and traffic and blockage of access way

Since all the locations of subprojects are not well connected through rail link, transportation of construction materials is mostly through road network. In case access road/path is not available than existing field/bund is utilized after paying due compensation for any damage to crop or field. However, the requirement of new access road through forest area including tree felling the same is included in forest proposal in consultation with forest department as per provisions of Forest (Conservation) Act, 1980. However, in case tree felling is not required in access road in forest area, the permission for the same will be obtained from concerned DFO in accordance with MoEF & CC circular dated 7th October, 2014.

As and when a TL crosses any road/ railways line, adequate care/caution is taken so as not to cause any hindrance to the movement of traffic. Stringing at the construction stage is carried out during lean traffic period in consultation with the concerned authorities and angle towers are planted to facilitate execution of work in different stages. Apart from this, safety precaution like barricading of work area and placement of visible signage is undertaken to avoid any unforeseen incident.

5.17.5 Noise generation from construction activities

Generally, machineries and vehicular movements generate noise during construction activities. It has been found that construction works at S/S are potential to generate noise levels higher than the background noise as compared to construction activity of lines. Since construction sites are quite far from settlement/other sensitive receptors like school, hospitals, possibility of any direct impact to surrounding community is not anticipated. Moreover, all these activities are being undertaken during day time only. To prevent any adverse impact, staffs/workers engaged in construction activity are equipped with personal protective equipment like earmuffs/

earplugs Besides; construction techniques like use of low noise producing equipment /machinery selection and their proper maintenance of equipment/machinery are practiced by construction contractors which is also evident from the fact that noise levels reported/measured during site visit are well within the prescribed limits. Regular noise level monitoring is being carried out by Construction Contractor.

5.17.6 Inadequate resurfacing for erosion control

Since, the towers for the proposed T&D lines are to be constructed in hilly area due care is taken to control erosion. In such cases where towers are placed on slopes and erosion prone soils, internationally accepted engineering practices including bio-engineering techniques wherever feasible are being undertaken to prevent soil erosion. This include cutting and filling slopes wherever necessary. The back cut slopes and downhill slopes are being treated with revetments. As explained above adequate steps are taken to resurface the area after construction. Wherever sites are affected by active erosion or landslides, both biological and engineering treatment are carried out, e.g., provision of breast walls and retaining walls, toe wall, revetment wall, stone pitching, guard wall, sowing soil binding grasses around the site. Additionally, one recharge pit is proposed at each S/S location so that the ground water table can be enhanced.

Further, construction is generally undertaken in dry/non-monsoon period. The details of erosion control measures / slope protection work are provided in **Table 5.2 and Figure 5.8**. The progress of boundary / retaining wall as on date is explained in **Table 1.5. Also Refer Annexure 14 for Drawing**.

Table 5-8 Erosion Control / Slope Protection Work

Description	Location
Retaining Wall	132/33 kV West Phaileng, 132/33 kV Marpara
Stone Pitching / Stabilizing / Bioengineering	132/33 kV Marpara
Boundary Wall	All 132/33kV S/s
Unequal Leg Extension	132 kV West Phaileng - Marpara

Figure 5-11 Erosion Control Measures





Figure 5-12 Erosion Control Construction

5.17.7 Inadequate disposition of borrow area

The TT/TP foundations involve excavations on small scale basis and the excavated soil is utilized for back filling. The S/S selected on the sites in such a manner that the volume of cutting is equal to volume of filling avoiding borrowing of the area. Surplus earth/soil not generated up till now from any of the EHV or DMS S/S. If generated, soil is being utilized within S/S premises either for approach road construction or may be used for backfilling excavated pits.

5.17.8 Protection of Worker's health/safety

All health and safety issues and its management aspects are integral part of project/contract specific safety plan which is also part of contract condition. Please refer a Agreement pertaining to the same in **Annexure – 17 issued to M/s Sterling and Wilson Pvt Ltd.** Various aspects such as work and safety regulations, workmen's compensation, insurance are adequately covered under the General Conditions of Contract (GCC), a part of bidding documents. Project is executed as per the approved plan and is regularly monitored by dedicated Safety personnel. Moreover, for strict compliance of safety standard/plan a special provision as a deterrent has been added in the contract which provides for a heavy penalty of Rs.15 lakhs for each accidental death and Rs.5.0 lakh/person for serious injury and 25% or more permanent disability to the Employer for further disbursement to the deceased family/ injured persons. and is deducted from the contractor's payment and paid to the deceased/affected family, The permanent disability has the same meaning as indicated in Workmen's Compensation Act 1923, The above stipulations is in addition to all other compensation payable to sufferer as per workmen compensation Act / Rules (**Annexure- 18**).

The project authority ensures that all contractors are operating with valid labour license as per provision under section – 12(1) of the Contract Labours (Regulation & Abolition) Act, 1970 and also certified under Section- 7(3) of the Building and Other Construction Workers (Regulation of Employment and Condition of Service) Act, 1996 from Ministry of Labour & Employment. Besides, the contractors have obtained requisite insurance policy as per provisions of Employee Compensation Act, 1923 for its employed workforce. Sample copy of labour license and insurance policy for workers is attached as **Annexure-18**.

PEDM maintains safety as a top priority and has framed guidelines/checklist for workers' safety as its personnel are exposed to live EHV apparatus and TLs. These guidelines / checklists include work permits and safety precautions for work on the TLs both during construction and operation

and is regularly monitored by site in-charge. Sample copy of filled in checklist is enclosed as **Annexure-19**. Site inspection is regularly executed on sites by HSE team to ensure the measures implemented and workers health is taken care of. If found noncompliance, letter is issued to Contractor. **Please refer letter issued to M/s Starling and Wilson Pvt Ltd for noncompliance of HSE in Annexure 20.**

In addition, training is imparted to the workers in firefighting and safety measures. Standard safety tools like helmet, safety belt, gloves etc. are provided to them in accordance to the provisions of Safety Rules. First aid facilities are to be made available with the labor gangs, and doctors called in from nearby towns when necessary. Efforts are being made to hire labourers locally to the extent possible, else same have been outsourced. The workers have been provided with PPEs such as boots and helmets. Mock drills such as fire safety, first aid etc. are conducted periodically to enhance the preparedness level of the workforce.

The number of outside (skilled) laborers are quite small, of the order of 25-30 people per group and remaining workforce of unskilled laborers are comprised of mostly local people. Workers are also covered by the statutory Workmen (Compensation) Act. Regular health checkups are conducted for construction workers. The construction sites and construction workers' houses are disinfected regularly. In order to minimize/checking of spread of socially transmitted diseases e.g., HIV/AIDS etc. PEDM regularly conduct awareness building programs on such issues for the construction workers.

Work sites and quarters were fumigated to avoid Covid 19 risk to the workers. Awareness program on Covid 19 at S/S was carried out by the construction contractor to prevent Covid 19 infections. Distribution of essential food materials at S/S was done during lockdown period. Photos of health and safety measures taken at the work sites are as follows:

Figure 5-13 Precautions Taken by the Contractor for Health and Safety of Workers



Covid-19 vaccination for labourers of Marpara S/S



Tool Box talk at 33/11kV Marpara S/S,



Safety induction training at 132kV W.Phaileng-Marpara TL



Tool box talk at 132/33 kV West Phaileng S/S



Tool box talk at 33/11kV W.Phaileng-Marpara TL



Labour's Camp at Marpara SS



Covid-19 awareness for labourers



Labour's Camp of TL foundation labours

5.18 Environmental Problems Resulting from Operation

5.18.1 O&M Staff/Skills less than acceptable resulting in variety of adverse effects

The O& M program is normally implemented by S/S personnel for both the lines as well as S/S. Monitoring measures employed include patrolling and thermo- vision scanning.

The supervisors and managers entrusted with O&M responsibilities are intensively trained for necessary skills and expertise for handling these aspects. A monthly preventive maintenance program is regularly carried out to disclose problems related to cooling oil, gaskets, circuit breakers, vibration measurements, contact resistance, con- denser, air handling units, electrical panels and compressors. Any sign of soil erosion is also reported and rectified. Monitoring results are published monthly, including a report of corrective action taken and a schedule for future action.

PEDM follows the best international practices while designing its system to maintain acceptable prescribed EMF level. The approved international standards and design, which The ICNIRP guideline for the general public (up to 24 hours a day) is a maximum exposure level of 1,000 mG or 100T. Further, because of issues relating to need to ensure health and safety relating to the line such as fire safety, safe voltages on metallic parts of buildings, and safety clearances to avoid flashover, the TL do not pass directly over any residential properties and assuch the potential for EMF effects to occur will be further diminished. All the S/S are being constructed following the Sustainable Building norms and construction manual.

Poly Chlorinated Biphenyls (PCBs) due to their high heat capacity, low flammability and low electrical conductivity were extensively used as insulating material in capacitors and transformers. But after the finding that these PCBs are non-biodegradable and have carcinogenic tendency, its use in electrical equipment as insulating medium has been banned all over the world long back. However, it has been reported in some studies that chances of contamination of oil with PCB is possible. Keeping that in mind, PEDM has discontinued procurement electrical equipment containing PCB more than 2 mg/kg and specification (as per IEC 61619 or ASTM D4059) is being stated in the tender document. Moreover, the subject scheme doesn't involve replacement of any PCB containing equipment; hence no disposal of such equipment is anticipated.

5.19 Critical Environmental Review Criteria

5.19.1 Loss of irreplaceable resources

The T&S projects do not involve any large-scale excavation. In TL land is affected to the extent 43.5 sq. m below the tower base for which compensation is paid to land owner. In the instant scheme, major portion 132 kV West Phaileng- Marpara (33 km out of 50.265 km line length) is passing through buffer zone of DTR which includes both forest and revenue land. However, as per regulations, afforestation on doubles the diverted area in respect of forest will be undertaken to compensate any loss of natural resources. In regard to buffer area of DTR, mitigation measures as per guidelines including 2-5% of project cost in sanctuary area shall be implemented for habitat improvement and wildlife conservation.

5.19.2 Accelerated use of resources for short-term gains

PEDM do not intend to use any natural resources occurring in the area during construction as well as maintenance of ready sub projects. The construction material such as tower members, cement etc., are procured from factories while the excavated soil is being utilized for backfilling to restore the surface / filling of tower foundations. During construction of TL very small quantity of water is required which is met from nearby existing authorized source and through tanker. However, for S/S mostly ground water is used by installing a bore well during construction as well as for Operational stage. Moreover, provision of rain water harvesting in all proposed S/S by installing recharge pits and cross drainage / outer drainage structure under the present scheme has been made to conserve precious water resource and enhance the ground water level. Hence it may be seen that the activities associated with implementation of subject project do not intend to cause any accelerated use of resources for short term gains.

5.19.3 Endangering of species

As per Biodiversity assessment study, *Dipterocarpus indicus* (Endangered category) as per IUCN 2020.1. During field survey *Chromolaena odorata*, *Oroxylum indicum* invasive species are recorded in the study area i.e., transects studied along the TL and S/S.

One endangered species viz. *Hoolock hoolock*, *Trachypithecus pileatus* and *Macaca arctiodes* were found in the vulnerable category in the study area. The near Threatened Of species is White Cheeked Partridge, Ashy-headed green pigeon and Great hornbill are also recorded as per Conservation Status IUCN (2020.1).

35686 trees may be impacted during construction of said TL in buffer zone of Dampa Tiger Reserve for construction of 78 towers considering an area of each tower base and 6m below conductor for 33km stretch of line. In Nonforest Area total 3450 trees likely to be affected.

However, during implementation of projects if any possibility of damage to habitat of above species is envisaged, all precautions including permission from local forest/wildlife authorities will be undertaken for controlled felling of trees in such identified stretches. No other endangered species of flora and fauna exist in the subprojects area hence possibility of endangering/ causing extinction of any species is not envisaged due to proposed intervention.

5.19.4 Promoting undesirable rural-to urban migration

The subprojects do not cause any submergence or loss of land holdings that normally trigger migration. It also does not involve acquisition of any private land holdings. Hence, there is no possibility of any migration.

5.20 Public Consultation

Public consultation/information is an integral part of the project implementation. Public is informed about the project at every stage of execution. During survey also PEDM site officials meet people and inform them about the routing of TLs. During the construction, every individual, on whose land tower is erected and people affected by RoW, are consulted. Apart from organizing many informal group meetings in different villages public meeting were also organized in the routes of TLs along with the photographs. To get the maximum participation during the public consultation Program a notice was served well in advance to the villagers. The details of line and its importance were explained to the villagers.

Apart from this, public consultation using different technique like Public Meeting, Small Group Meeting, Informal Meeting are also carried out during different activities of project cycle. During such consultation the public are informed about the project in general and in particular about the following:

- Complete project plan (i.e., its route and terminating point and S/S, if any, in between);
- Design standards in relation to approved international standards;
- Health impacts in relation to EMF;
- Measures taken to avoid public utilities such as school, hospitals, etc.;
- Other impacts associated with TLs and PEDM approach to minimizing and solving them;
- Compensation process for trees and crop damages.

In the instant project many group meetings were organized (informally and formally) in different villages where the interventions are likely to happen. Village women folk have actively participated in these meetings. Of the total participants, women constitute around 20%. Such consultation culminated in public meeting organized at the till date for proposed transmission & distribution subprojects under NERPSIP scheme in Mamit district of the State. Since there are very scarce settlements/small villages in the proposed line corridor, therefore public from the villages like Kawnmawi, Chhippui, Lallen, Saithah, Phulbial, Phuldungsei, West Philpui, Pukzing Vengthar, Hruiduk has been invited at West Phaileng venue. Many informal consultations with the local population were also carried out during the Biodiversity Assessment Study by the consultants viz. M/s Assam State Biodiversity Board (ASBB) and M/s Green Initiatives Certification & Inspection Agency (GICIA). Apart from this, recently (18th May 2017) another public consultation meeting was organized at Phuldungsei village community hall to obtain fresh feedback as well as suggestion on the proposed TL. The details of line and its importance were explained to the villagers by the officials of PEDM and POWERGRID. The programme was arranged in interactive way and queries like tree/crop compensation, routing of lines avoiding populated area/houses, engagement of local people in construction activity etc. were also replied. The programme was appreciated by the villagers and they assured to extend their cooperation for construction of the said subprojects. The process of such consultation shall continue during project implementation and even during O&M stage. Details of public consultation mentioned in **Appendix B**.

Findings of public consultation:

1. People are well aware about the project, its various components and confirmed that IA & PEDM informed about the project at every stage of execution.
2. People confirmed that IA & PEDM are taking every step possible to avoid/ minimize the environmental and social impacts along the route of TLs and at site of sub stations.
3. People confirmed that community reserves, sacred groves and community conserved areas are completely avoided while finalizing the route of lines.
4. People also confirmed that their common property resources such as cemetery, school, community hall, habitation areas etc. have been completely avoided while finalizing the route of lines.
5. People informed that staff of IA/ contractor are easily approachable and are very open to address their grievances. As a result, no written grievance has been received till date.
6. People are very much happy with the rate of compensation being given to them and they are being involved in the process of deciding the rate of compensation.
7. People confirmed that there is no disturbance of any sort to their life/ livelihood due to the construction or various other activities being carried out under the project.
8. Execution of project work provides opportunities to local contractors to get involved in construction, fabrication, transportation etc. activities.
9. Most of the sub-contracts are awarded/ being awarded to local peoples.
10. Contractor prefer and engage local peoples for skilled and unskilled works
11. Local villagers rented out their buildings to contractor and IA for temporary offices and staff quarters in local that helps in income generation.
12. Wherever possible contractor and IA purchase daily need requirements for local vendors and shopkeepers that helps in economic upliftment of the area.
13. The contractor labor informed that they have been provided with PPEs such as boots and helmets.
14. Mock drills such as fire safety, first aid etc. are conducted periodically to enhance the preparedness level. Safety induction & awareness program including HIV/AIDS are also conducted. Safety film for transmission project in local language is shown for better awareness.
15. First aid boxes and provisions for treatment in case of emergencies are arranged locally/ nearby towns.
16. It was revealed that contractor and IA work with close coordination with village heads and community to avoid any misunderstanding during work.



Figure 5-14 Public consultation W. Phaileng-Marpra TL

5.21 Compliance of EMP

The IA has a continuous monitoring mechanism of the project w.r.t. compliance of the mandatory requirements as stipulated in the IEAR. As many provisions of EMP related to construction contractor, EMP has been made integral part of contract document for its proper implementation by contractor/sub-contractor. Thus, the adherence to the clauses by the contractor is regularly monitored especially in respect of various implementation E & S measures including health and safety aspects. As part of the present study, mitigation measures as stipulated in the IEAR have been critically assessed/evaluated for compliance through physical inspection, verification of record/documents/drawing, interaction with project officials/contractor/villagers/construction workers and PRA etc. Based on above, a detailed compliance status w.r.t. each identified impacts enlisted in EMP have been prepared and is presented in the **Table 5.9**.

Table 5-9 Compliance of EMP

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
Pre-construction								
1	Location of overhead line towers/ poles/ underground DLs and alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Tower location and overhead/ underground alignment selection with respect to nearest dwellings	Setback distances to nearest houses – once	Implementing Agency (IA)	Part of overhead lines tower/ poles/ laying of underground cable site survey and detailed alignment survey and design	Careful route alignment had ensured that no house / dwelling unit is coming in the RoW.
2	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	PCBs not used in S/S transformers or other project facilities or equipment.	Transformer design	Exclusion of PCBs in transformers stated in tender specification – once	IA	Part of tender specifications for the equipment	Compiled and included in tender document with technical specification.
			Processes, equipment and systems not to use chlorofluorocarbons (CFCs), including halon, and their use, if any, in existing processes and systems should be phased out and to be disposed of in a manner consistent with the requirements of the Government	Process, equipment and system design	Exclusion of CFCs stated in tender specification – once Phase out schedule to be prepared in case still in use – once	IA	Part of tender specifications for the equipment Part of equipment and process design	Compiled and included in tender document with technical specification. Included in process design and its part of equipment specification.

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
3	Transmission/ Distribution line design	Exposure to electromagnetic interference	Line design to comply with the limits of electromagnetic interference from overhead power lines	Electromagnetic field strength for proposed line design	Line design compliance with relevant standards once	IA	Part of design parameters	Designs are in compliance with international standards as certified by PTI, USA, CPRI Bangalore
4	Substation location and design	Exposure to noise	Design of plant enclosures to comply with noise regulations..	Expected noise emissions based on S/S design	Compliance with regulations - once	IA	Part of detailed siting survey and design	Designs are in Compliance with minimal noise and acoustics with international standards as certified by PTI, USA, CPRI Bangalore
		Social inequities	Careful selection of site to avoid encroachment of socially, culturally and archaeological sensitive areas (i.e. sacred graves, graveyard, religious worship place, monuments etc.)	Selection of S/S location (distance to sensitive area).	Consultation with local authorities/ autonomous councils - once	IA	Part of detailed siting survey and design	Complied
5	Location of overhead line towers/poles/ laying of underground distribution line &	Impact on water bodies	Avoidance of such water bodies to the extent possible. Avoidance of placement of tower inside water bodies to the extent of possible	Tower/pole location and overhead/ underground line alignment selection (distance to water bodies)	Consultation with local authorities- once	IA	Part of tower/pole site survey and detailed underground /overhead line alignment survey and design	Careful route selection and provision of adequate extensions has avoided the habituated area to the extent possible.

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
	alignment and design	Social inequities	Careful route selection to avoid existing settlements and sensitive locations Minimize impact on agricultural land Careful selection of site and route alignment to avoid encroachment of socially, culturally and archaeological sensitive areas (i. graveyard, religious worship place, monuments etc.)	Tower/pole location and overhead/ underground line alignment selection (distance to nearest dwellings or social institutions) Tower location and overhead underground line alignment selection (distance to agricultural land) Tower/pole location and overhead/ underground line alignment selection (distance to sensitive area)	Consultation with local authorities/ autonomous councils and land owners - once Consultation with local authorities/ autonomous councils and land owners - Once Consultation with local authorities/ autonomous councils - once	IA	Part of detailed tower/pole site and overhead/ underground alignment survey and design	TL (132kV) is routed either age of agriculture land or side of the road ensuring that it does not obstruct and create any public nuisance
6	Involuntary acquisition or permanent land acquisition for S/S.	Loss of land/ income change in social status etc.	Compensation and R&R measures are extended as per provision of RFCT LARR Act, 2013 (Right to Fair Compensation and Transparency in Land Acquisition, Resettlement and Rehabilitation Act, 2013)	Compensation and monetary R&R amounts/ facilities extended before possession of land.	As per provisions laid out in the act	State Govt.	Prior to award /start of S/S construction.	No Land Acquisition in the project. Hence no cases of R&R. Other compensation as per existing rules.

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
7	Line through protected area/ precious ecological area	Loss of precious ecological values / damage to precious species	Avoid siting of lines through such areas by careful site and alignment selection (NP, WLS, Biosphere Reserves/ Biodiversity Hotspots)	Tower/pole location and overhead/ underground line alignment selection (distance to nearest designated ecological protected / sensitive areas)	Consultation with local forest authorities - once	IA	Part of detailed site selection and alignment survey /design	The proposed final TL 132 kV D/C West Phaileng Marpara TL traversing through Buffer zone of Dampa Tiger Reserve. The TL route involve notified reserve forest land of DTR Buffer zone. 104.77 Ha of RF is being diverted for the project purpose and hence require the forest clearance under Forest (Conservation) Act, 1980 along with NBWL approval. Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20.
			Minimize the need by using RoW wherever possible	Tower / pole location and overhead / underground line alignment selection	Consultation with local authorities and design engineers - once	IA	Part of detailed site selection and alignment survey /design	Complied

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
8	Line through identified Elephant corridor / Migratory bird	Damage to the Wildlife/ Birds and also to line	Study of earmarked elephant corridors to avoid such corridors, Adequate ground clearance, Fault clearing by Circuit Breaker, Barbed wire wrapping on towers, reduced spans etc., if applicable	Tower/pole location and overhead/ underground line alignment selection. Minimum/maximum ground clearance	Consultation with local forest authorities - once. Monitoring - quarterly basis	IA	Part of detailed site selection and alignment survey /design and Operation	There is no elephant corridor in the selected route.
			Avoidance of established/ identified migration path (Birds & Bats). Provision of flight diverter/ reflectors, bird guard, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc7., if applicable .	Tower/pole location and overhead/ underground line alignment selection	Consultation with local forest authorities - once	IA	Part of detailed site selection and alignment survey /design and Operation	Complied, Bird guards are being provided in towers.
9	Line through forestland	Deforestation and loss of biodiversity edge effect	Avoid locating lines in forest land by careful site and alignment selection	Tower/pole location and overhead/ underground line alignment selection (distance to nearest protected or reserved forest)	Consultation with local authorities - once	IA	Part of detailed site selection and alignment survey/design	Minimum tree cutting is done. Total 3450 trees are cut in nonforest area. The guidelines for tree cutting in Nonforest Area of Supreme court, 2004 in Mizoram are being followed. The shrubby vegetation is retained as it is. Wherever tree cutting
			Minimize the need by using existing towers, tall towers and RoW, wherever Possible					

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
								is necessary, it was done under supervision of forest department.
					Consultation with local authorities and design engineers - once			Complied. Time to time public consultation is being carried out. Necessary approvals are obtained in case of approach road to S/S construction.
			Measures to avoid invasion of alien species	Intrusion of invasive species	Consultation with local forest authorities - once			Complied
			Obtain statutory clearances from the Government	Statutory approvals from Government	Compliance with regulations - once for each subproject			The proposed final TL 132 kV D/C West Phaileng Marpara TL traversing through Buffer zone of Dampa Tiger Reserve. The TL route involve notified reserve forest land of DTR Buffer zone. 104.77 Ha of RF is being diverted for the project purpose and hence require the forest clearance under Forest (Conservation) Act, 1980 along with NBWL approval. Stage I Forest Clearance is

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			Consultation with autonomous councils wherever required	Permission/ NOC from autonomous councils	Consultation with autonomous councils–once during tower placement			obtained from MoEFCC Shillong on 15th January 2021. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20. Not applicable.
10	Lines through farmland	Loss of agricultural production/ change in cropping pattern	Use existing tower or Footings wherever possible.	Tower/pole location and overhead/ underground line alignment selection.	Consultation with local authorities and design engineers – once	IA	Part of detailed alignment survey and design	Foundations cast during lean period to avoid damage to the crops during harvesting.
			Avoid sitting new towers on farmland wherever feasible	Tower/pole location and overhead/ underground line alignment selection	Consultation with local authorities and design engineers – once		Part of detailed sitting and alignment survey /design	Due care taken to avoid the damage to the extent possible.
11	Noise related	Nuisance to neighboring properties	Substations sited and designed to ensure noise is to not be a nuisance	Noise levels	Noise levels to be specified in tender documents – once	IA	Part of detailed equipment design	Complied, Appropriately located. No noise anticipated
12	Interference with drainage patterns/	Flooding hazards/ loss of agricultural	Appropriate sitting of towers to avoid channel interference	Tower/pole location and overhead/	Consultation with local authorities and	IA	Part of detailed alignment survey and design	No S/S or towers are located in the natural drainage or irrigation

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
	irrigation channels	production		underground line alignment selection (distance to nearest flood zone)	design engineers - once			channels. All the towers and Poles and S/S are designed and constructed at desired elevation above flood level.
13	Escape of polluting materials	Environmental pollution	Transformers designed with oil spill containment systems, and purpose-built oil, lubricant and fuel storage system, complete	Equipment specifications with respect to potential pollutants	Tender document to mention specifications - once	IA	Part of detailed equipment design /Drawings	Spill control plan is ready and no spilled material will go out of substation due to provision secondary containment. All transformers are well built with oil pits. Hazardous management, storage and handling rules 2016 are adhered to.
			Substations to include drainage and sewage disposal systems to avoid offsite land and water pollution.	Substation sewage design	Tender document to mention detailed specifications - once	IA	Part of detailed substation layout and design/drawings	Spill control plan is ready and no spilled material will go out of substation due to provision secondary containment. Internal drainage and sewerage system is well planned and implemented at all S/S.
14	Equipment's submerged under flood	Contamination of receptors	Substations constructed above the high flood level (HFL) by raising the foundation pad	Substation design to account for HFL (elevation with respect to HFL elevation)	Base height as per flood design- once	IA	Part of detailed substation layout and design/drawings	S/S constructed above the high flood level (HFL) by raising the foundation pad and the surface run off is

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
								directed along with the boundary of the substation. Internal drainage system is well planned and implemented at all S/S.
15	Explosions /Fire	Hazards to life	Design of substations to include modern firefighting equipment	Substation design compliance with fire prevention and control codes	Tender document to mention detailed specifications – once	IA	Part of detailed substation layout and design /drawings	Complied, adequate numbers of fire extinguishers are provided being planned in leanperiod or avoided during harvest
			Provision of firefighting equipment to be located close to transformers					Complied, the fire extinguishers are placed at strategic locations.
Construction								
16	Equipment layout and installation	Noise and vibrations	Construction techniques and machinery selection seeking to minimize ground disturbance.	Construction techniques and machinery	Construction techniques and machinery creating minimal ground disturbance- once at the start of each construction phase	IA (Contractor through contract provisions)	Construction period	Complied, Anti-vibration pad are used.
17	Physical construction	Disturbed farming activity	Construction activities on cropping land timed	Timing of start of construction	Crop disturbance – Post harvest as	IA (Contractor through contract provisions)	Construction period	Foundation being planned in lean period or avoided

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			to avoid disturbance of field crops (within one month of Harvest wherever possible).		soon as possible but before next crop – once per site			during harvest.
18	Mechanized construction	Noise, vibration and operator safety, efficient Operation	Construction equipment to be well maintained.	Construction equipment – estimated noise emissions	Complaints received by local authorities – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Complied, Anti-vibration pad are used and most of the construction activities are done during day time.
		Noise, vibration, equipment wear and tear	Turning off plant not in use.	Construction equipment-estimated noise emissions and operating schedules	Complaints received by local authorities – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Complied, Anti-vibration pad are used.
19	Construction of roads for accessibility	Increase in airborne dust particles	Existing roads and tracks used for construction and maintenance access to the line wherever possible.	Access roads, routes (length and width of new access roads to be constructed)	Use of established roads wherever possible – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Existing Road used to access the line route; water sprinkling is done during additional construction activity.
		Increased land requirement for temporary accessibility	New access ways restricted to a single carriageway width within the RoW.	Access width (meters)	Access restricted to single carriage –way width within RoW – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Most of the construction activity are done during day time and water sprinkling is done during additional construction activity
20	Construction activities	Safety of local villagers	Coordination with local communities for construction schedules, Barricading the construction area and spreading	Periodic and regular reporting /supervision of safety arrangement	No. of incidents- once every week	IA (Contractor through contract provisions)	Construction period	Construction safety procedures are followed with proper barricading with night vision

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			awareness among locals					
		Local traffic obstruction	Coordination with local authority/requisite permission for smooth flow of traffic	Traffic flow (Interruption of traffic)	Frequency (time span)- on daily basis	IA (Contractor through contract provisions)	Construction period	There is be any heavy traffic flow anticipated due to the construction activities. The construction is planned only in day time
21	Temporary blockage of utilities	Overflows, reduced discharge	Measure in place to avoid dumping of fill materials in sensitive drainage area	Temporary fill placement (m3)	Absence of fill in sensitive drainage areas – every 4 weeks	IA (Contractor through contract provisions)	Construction period	The subprojects are planned in such a way there are no blockages of any utilities.
22	Site clearance	Vegetation	Marking of vegetation to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	Vegetation marking and clearance control (area in m2)	Clearance strictly limited to target vegetation – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Included in contract provisions and being monitored regularly. An area of 400 m2 is being cleared tower foundation at each location depending on the type of tower. In rest of ROW trees that are coming in the electrical clearance zone are cleared.
23	Trimming /Cutting of trees within RoW	Fire hazards	Trees allowed growing up to a height within the RoW by maintaining adequate clearance between the top of tree and the conductor as per the regulations.	Species-specific tree retention as approved by statutory authorities (average and max. tree height at maturity, in meters)	Presence of target species in RoW following vegetation clearance – once per site	IA (Contractor through contract provisions)	Construction period	Tree height and its canopy are monitored during constructions activities and there after felling coupled with other safety measures applied restrict any such incident.
		Loss of vegetation and	Trees that can survive pruning to comply	Species-specific tree retention as	Presence of target species in	IA (Contractor through contract	Construction period	Route selection and alignment is done with

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
		deforestation	should be pruned instead of cleared.	approved by statutory authorities	RoW following vegetation clearance - once per site	provisions)		respect to no or minimal cuts of trees.
			Felled trees and other cleared or pruned vegetation to be disposed of as authorized by the statutory bodies.	Disposal of cleared vegetation as approved by the statutory authorities (area cleared in m2)	Use or intended use of vegetation as approved by the statutory authorities – once per site	IA (Contractor through contract provisions)	Construction period	The felled trees are disposed out to local authorities.
24	Wood/vegetation harvesting	Loss of vegetation And deforestation	Construction workers prohibited from harvesting wood in the project area during their employment, (apart from locally employed staff continuing current legal activities)	Illegal wood /vegetation harvesting (area in m2, number of incidents reported)	Complaints by local people or other evidence of illegal harvesting – every 2 weeks	IA (Contractor through contract provisions)	Construction period	The proposed final alignment of 132 kV D/C West Phaileng Marpara TL after detailed route analysis, and meticulous study is now traversing through Buffer zone of Dumpa Tiger Reserve. No construction camp is being allowed in the area. Only locals are hired as labours by EPC Contractor.
25	Surplus earthwork/soil	Runoff to cause water pollution, solid waste disposal	Soil excavated from tower footings/substation foundation disposed of by placement along roadsides, or at nearby house blocks if	Soil disposal locations and volume (m3)	Acceptable soil disposal sites – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Excavated earth is used for refilling. The top/ fertile soil is kept separately for resurfacing and other earth is used for refilling.

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			requested by landowners					
26	Substation construction	Loss of soil	Loss of soil is not a major issue as excavated soil is to be mostly reused for filling. However, in case of requirement of excess soil the same is to be met from existing quarry or through deep excavation of existing pond or other nearby barren land with agreement of local communities	Borrow area sitting (area of site in m2 and estimated volume in m3)	Acceptable soil borrow areas that provide a benefit - every 2 weeks	IA (Contractor through contract provisions)	Construction period	All necessary measured undertaken during construction.
		Water pollution	Construction activities involving significant ground disturbance (i.e. substation land forming) not undertaken during the monsoon season	Seasonal start and finish of major earthworks (pH, BOD /COD, Suspended solids, others)	Timing of major disturbance activities – prior to start of construction activities	IA (Contractor through contract provisions)	Construction period	No such water pollution activities are carried out. Proper sewerage system and drainage system is designed and implemented at all S/S locations.
27	Site clearance	Vegetation	Tree clearances for easement establishment to only involve cutting trees off at ground level or pruning as appropriate, with tree stumps and roots left in place and ground	Ground disturbance during vegetation clearance (area, m2)	Amount of ground disturbance – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Total 3450 trees are cut in nonforest area. The guidelines for tree cutting in Nonforest Area of Supreme court, 2004 in Mizoram are being followed.
				Statutory approvals	Statutory approvals for tree	IA (Contractor through	Construction period	

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			cover left undisturbed		clearances – once for each site	contract provisions)		
28	Substation foundation/ tower erection disposal of surplus earthwork/fill	Waste disposal	Excess fill from substation/tower foundation excavation disposed of next to roads or around houses, in agreement with the local Community or landowner.	Location and amount (m3) of fill disposal	Appropriate fill disposal locations – every 2 weeks	IA (Contractor through contract provisions)	Construction period	These provisions are strictly complied and recorded during construction.
29	Storage of chemicals and materials	Contamination of receptors (land, water, air)	Fuel and other hazardous materials securely stored above high flood level.	Location of hazardous material storage; spill reports (type of material spilled, amount (kg or m3) and action taken to control and clean up spill)	Fuel storage in appropriate locations and receptacles – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Complied and condition is taken care during storage. Hazardous materials are managed by following Hazardous waste management rules 2016. Also transformers are erected with oil pits for proper management and collection of oil.
30	Construction schedules	Noise nuisance to neighboring properties	Construction activities only undertaken during the day and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(A)])	Daytime construction only – every 2 weeks	IA (Contractor through contract provisions)	Construction period	It is ensured by site In-charge that construction activities takes place during day time and villagers are informed in advance and affected villagers are even served notice in advance and Anti-vibration pad are used.
31	Provision of facilities for	Contamination of receptors	Construction workforce facilities	Amenities for Workforce	Presence of proper	IA (Contractor	Construction period	Construction workers are provided all the

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
	construction workers	(land, water, air)	to include proper sanitation, water supply and waste disposal facilities.	facilities	sanitation, water supply and waste disposal facilities once each new facility	through contract provisions)		necessary basic facilities as well as safety equipment.
32	Influx of migratory workers	Conflict with local population to share local resources	Using local workers for appropriate asks	Avoidance/reduction of conflict through enhancement/augmentation of resource requirements	Observation & supervision – on weekly basis	IA (Contractor through contract provisions)	Construction period	Local workers were employed for the construction work, so that no any conflict arose at the construction locations.
33	Lines through farmland	Loss of agricultural productivity	Use existing access roads wherever possible	Usage of existing utilities	Complaints received by local people /authorities - every 4 weeks	IA (Contractor through contract provisions)	Construction period	Crop compensation is paid as per CPTD
			Ensure existing irrigation facilities are maintained in working condition	Status of existing facilities				
			Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in m3)				
			Repair /reinstate damaged bunds etc. after construction	Status of facilities (earthwork in m3)				
		Loss of Income	Land owners/ farmers compensated for any temporary loss of productive land as per existing regulation	Process of Crop/tree compensation in Consultation with forest dept. (for timber yielding tree)				
								All measures to resurface the excavated area by top soil is adopted as described above.
								Damaged bunds were repaired to normal stage
								Compensation as per CPTD are paid.

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
				and Horticulture dept. (for fruit bearing tree)				
34	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	<p>Need for access tracks minimized, use of existing roads.</p> <p>Regeneration of vegetation to stabilize works areas on completion (where applicable)</p> <p>Avoidance of excavation in wet season</p> <p>Water courses protected from siltation through use of bunds and sediment ponds</p>	Design basis and construction procedures (suspended solids in receiving waters; area re-vegetated in m2; amount of bunds constructed [length in meter, area in m2, or volume in m3])	Incorporating good design and construction management practices – once for each site	IA (Contractor through contract provisions)	Construction period	<p>All necessary measured undertaken during construction.</p> <p>Regeneration/ cultivation is allowed in the complete RoW and even in the area below tower after completion of construction activities.</p> <p>It is ensured by the site In-charge that no excavation is carried out during monsoon /rainy season.</p> <p>The selected route does not come in the natural drainage.</p>
35	Nuisance to nearby properties	Losses to neighboring land uses/values	Contract clauses specifying careful construction As much as possible existing access ways is to be Productive land is to be reinstated following completion of construction	Contract clauses Design basis and layout Reinstatement of land status (area affected, m2)	Incorporating good construction Incorporating good design engineering Consultation with affected parties – twice – immediately	IA (Contractor through contract provisions)	Construction period	Complied
		Social inequities	Compensation is to be	Implementation of	Consultation	IA	Prior to construction	Complied

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			Paid for loss of production, if any.	Tree/Crop Compensation (amount paid)	with affected parties – once in a quarter			Tree Compensation is paid as per CPTD.
36	Flooding hazards due to construction impediments of natural drainage	Flooding and loss of soils, contamination of receptors (land, water)	Avoid natural drainage pattern/facilities being disturbed/blocked/diverted by on-going construction activities	Contract clauses (e.g. suspended solids and BOD/COD in receiving water)	Incorporating good construction management practices-once for each site	IA (Contractor through contract provisions)	Construction period	The S/S and tower area at constructed at suitable elevation above HFL of the area. Hence no impact on drainage pattern due to flood
37	Equipment submerged under flood	Contamination of receptors (land, water)	Equipment stored at secure place above the high flood level(HFL)	Store room level to be above HFL (elevation difference in meters)	Store room level as per flood design-once	IA	Construction period	The S/S and tower area at constructed at suitable elevation above HFL of the area. Hence no impact on drainage pattern due to flood
38	Inadequate siting of borrow areas (quarry areas)	Loss of land values	Existing borrow sites to be used to source aggregates, therefore, no need to develop new sources of aggregates	Contract clauses	Incorporating good construction management practices – once for each site	IA (Contractor through contract provisions)	Construction period	Complied, no such sites are selected for substation and tower location in low lying area.
39	Health and safety	Injury and sickness of workers and members of the public	Safety equipment's (PPEs) for construction workers	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness)	Contract clauses compliance – once every quarter	IA (Contractor through contract provisions)	Construction period	Complied, by providing displays, PPEs and training of the contractors and contract workers.
			Contract provisions specifying minimum requirements					Complied. No incident of accident/injury reported
			Construction camps Contractor to prepare and implement of health and safety plan.					All health and safety plan are in place and monitored regularly
			Contractor to arrange					Regular briefing /

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			for health and safety training sessions					training for contract workers is organized by contractor/POWERGRID
40	Regular construction stage Environmental monitoring	Likely to maximize damages	Training of environmental monitoring personnel	Training schedules	No. of programs attended by each person – once a year	IA	Routinely throughout construction period	Periodic Environment monitoring and Training program are organized for such persons.
			Implementation of effective environmental monitoring and reporting system using checklist of all contractual environmental requirements	Respective contract checklists and remedial actions taken thereof.	Submission of duly completed checklists of all contracts for each site – once			Complied. Regular monitoring by site and Corporate is organized.
			Appropriate contact clauses to ensure satisfactory implementation of contractual environmental mitigation measures.	Compliance report related to environmental aspects for the contract	Submission of duly completed compliance report for each contract – once			All provisions are compiled and monitored regularly by Site
Operation & Maintenance								
41	Location of line towers/poles and overhead/ underground line alignment & design	Exposure to safety related risks	Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites.	Compliance with setback distances (“as-built” diagrams)	Setback distances to nearest houses – once in quarter	PEDM	During operations	Will be complied at Operation Stage
42	Line through	Injury/	Avoidance of	Regular monitoring	No. of incidents-	PEDM	Part of detailed site	

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
	identified bird flyways, migratory path	mortality to birds, bats etc due to collision and electrocution	established/ identified migration path (Birds & Bats). Provision of flight diverter/ reflectors, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc., if applicable	for any incident of injury/mortality	once every month		selection and alignment survey and /design and Operation	
43	Equipment Submerged under flood	Contamination of receptors (Land, water)	Equipment installed above the high flood level (HFL) by raising the foundation pads.	Substation design to account for HFL	Base height as per flood design - once	PEDM	During operations	
44	Oil spillage	Contamination Of land/ nearby water bodies	Substation transformers located within secure and impervious sump areas with a storage capacity of at least 100% of the capacity of oil in transformers and associated reserve tanks.	Substation bunding (Oil sump) ("as-built" diagrams)	Bunding (Oil sump) capacity and permeability - once	PEDM	During operations	
45	SF6 (Sulfur hexafluoride) management	Emission of most potent GHG causing climate change	Reduction of SF6 emission through awareness, replacement of old seals, proper handling & storage by controlled inventory and use, enhance recovery and applying	Leakage and gas density/level	Continuous monitoring	PEDM	During Operations	

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			new technologies to reduce leakage					
46	Inadequate provision of staff/workers health and safety during operations	Injury and sickness of staff /workers	Careful design using appropriate technologies to minimize hazards	Usage of appropriate technologies (lost work days due to illness and injuries)	Preparedness level for using these technologies in crisis – once each year	PEDM	Design and operation	
			Safety awareness rising for staff.	Training/awareness programs and mock drills	Number of programs and percent of staff / workers covered – once each year			
			Preparation of fire emergency action plan and training given to staff on implementing emergency action plan	Provision of facilities	Complaints received from staff /workers every 2 weeks			
47	Electric Shock Hazards	Injury/ mortality to staff and public	Careful design using appropriate technologies to minimize hazards	Usage of appropriate technologies (no. of injury incidents, lost work days)	Preparedness level for using this technology in crisis- once a month	PEDM	Design and Operation	
			Security fences around substations	Maintenance of fences	Report on maintenance – every 2 weeks			
			Barriers to prevent climbing on/ dismantling of towers	Maintenance of barriers				
			Appropriate warning signs on facilities	Maintenance of warning signs				
			Electricity safety awareness raising in	Training /awareness programs and mock	Number of programs and			

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			project areas	drills for all concerned parties	percent of total persons covered – once each year			
48	Operations and maintenance staff skills less than acceptable	Unnecessary environmental losses of various types	Adequate training in O&M to all relevant staff of substations & T&D line maintenance crews. Preparation and training in the use of O&M manuals and standard operating practices	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	PEDM	Operation	
49	Inadequate periodic Environmental monitoring.	Diminished ecological & social values.	Staff to receive training in environmental monitoring of Project operations & maintenance activities.	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	PEDM	Operation	
50	Equipment specifications and design parameters	Release of chemicals and gases in receptors (air, water, land)	Processes, equipment and systems using chlorofluorocarbons (CFCs), including halon, should be phased out and to be disposed of in a manner consistent with the requirements of the Govt.	Process, equipment and system design	Phase out schedule to be prepared in case still in use – once in a quarter	PEDM	Operations	
51	Transmission/distribution line maintenance	Exposure to electromagnetic interference	T&D line design to comply with the limits of electromagnetic interference from overhead power lines	Required ground clearance (meters)	Ground clearance - once	PEDM	Operations	

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Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
52	Uncontrolled growth of vegetation	Fire hazard due to growth of tree / shrub / Bamboo along RoW	Periodic pruning of vegetation to maintain requisite electrical clearance. No use of herbicides/ pesticides	Requisite clearance (meters)	Assessment in consultation with forest authorities - once a year (pre /post- monsoon	PEDM	Operations	
53	Noise related	Nuisance to neighboring properties	Substations sited and designed to ensure noise is to not be a nuisance.	Noise levels {dB(A)}	Noise levels at boundary nearest to properties and consultation with affected parties if any - once	PEDM	Operations	

In addition to various mitigation measures as listed in EMP above, Followed the calendar month of permitted/restricted activities as suggested in Biodiversity Assessment Report shall be applied to restrict the negative impacts of construction within the designated zone and to minimize disturbance to wildlife and natural cycle of regeneration.

Activity	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Site Mobilization	Green	Green	Green	Green	Green	Green	Yellow	Yellow	Yellow	Green	Green	Green
Tower Foundation	Green	Green	Green	Yellow	Yellow	Red	Red	Red	Red	Yellow	Yellow	Green
Tower Erection	Green	Green	Green	Yellow	Yellow	Red	Red	Red	Red	Yellow	Yellow	Green
Stringing of Conductor	Green	Green	Green	Yellow	Yellow	Red	Red	Red	Red	Yellow	Yellow	Green
O & M	Green	Green	Green	Green	Green	Purple	Purple	Purple	Purple	Green	Green	Green

Legend	Colour	Action
No go	Red	No activity is permitted
Restricted/Controlled	Yellow	Activity permitted if it doesn't involve any tree felling
Permitted	Green	Activity permitted
	Purple	No go. However, in case of emergency, activity may be undertaken after due permission and required protection measures.

Figure 5-15 Activities Calendar Month

5.22 Conclusions

It is clear from the above discussion that the area is rich in natural forest resources. But careful route selection following the principle of avoidance, ecologically sensitive areas like NP / WLS could not be avoided completely. A major portion of the TL passes through Forest Plantation (Segun), open forest, Bamboo Forest, Orange Plantation and grazing land. The TL route involve notified reserve forest land of DTR Buffer zone. 104.77 Ha of RF is being diverted for the project purpose and hence require the forest clearance under Forest (Conservation) Act, 1980 along with NBWL approval. Stage I Forest Clearance is obtained from MoEFCC Shillong on 15th January 2021. Also, WLS Clearance Proposal recommended by Standing Committee of NBWL in the meeting held on 03.07.20. Besides other than DTR, all other PAs like NP, WLS, Biosphere Reserve etc.; Natural habitats, IBAs, Sacred groves, Wetlands and designated wildlife/elephant etc. have been completely avoided. The land use along the RoW (27 m for 132 kV) of TLs comprises Forest Plantation (Segun), open forest, Bamboo Forest, Orange Plantation and grazing land, private plantation and government land. The total length of the project TL is 50.265 km and total number of 172 towers are being/to be erected along the proposed TL. There is no change in length of the TL as compared with the earlier length of TL in IEAR. The Wildlife Mitigation Plan is prepared by IA on recommendations by SBWL and NBWL and Forest Department and is submitted along with the application to SBWL and NBWL Committee. **Please see Annexure-5.** Also, Biodiversity Study is carried out by Assam State Biodiversity Board for the DTR project impacted area. Forest Department and NBWL has approved the EMP prepared. Implementation of the EMP measures and recommendations of NOCs obtained, has resulted into

abatement of potential impacts due to construction activity on the environmental and social environment as envisaged in IEAR.

Alternative- I has the highest involvement of the Dampa Tiger Reserve Buffer Zone compared to Alternatives II and III; however, the line route of Alt-I is only found feasible from a construction standpoint. Furthermore, the route length is shorter, and for the most part, the route runs parallel to the existing corridor of the West Phaileng-Marpara road, causing minimal ecological disturbance to the buffer area and requiring less tree felling because it passes mostly through Jhum cultivated areas with low density tree cover. Furthermore, because of its proximity to the existing West Phaileng-Marpara road, Alt- I is easily accessible. Although alternative routes have been thoroughly investigated and a walkover survey conducted to assess feasibility, Alt-II and Alt-III have been determined to be practically unfeasible from a construction standpoint.

T&D line routes and S/S location have been selected judiciously by considering the technical, environmental, socio-economic aspects. Though some changes in line length & route alignment have been observed in T&D lines as compared to IEAR scope but as a result careful route selection IA could able to minimize ecologically & socially sensitive areas including forest, protected areas, PCR etc. completely in all the lines and S/S being implemented under this project.

The present T&D schemes not only improve overall power supply situation but also improve reliability, quality, security and enhancement of power supply in the Mizoram state. From the above discussion, it would seem that the area is rich in physical resources. But careful route selection has minimized involvement of forest area to the extent possible but could not be completely avoided due to terrain and other physiographical reasons. Thus, routes selected for detailed survey are the most optimum alignment and involved minimum forest.

The provisions of IEAR & EMP are being implemented at ground level and strict compliance by construction contractors is ensured through regular monitoring by IA. So far, no major impacts apart from earlier identified impacts are anticipated due to such changes in scope. Besides, all other applicable laws/rules/regulations of the country & funding agencies are being complied with and till date no violation/ penalty with respect to contravention of any regulations has been reported. During assessment, it has also been observed that so far, the project has achieved zero fatality with no major noncompliance of EMP/Contract provisions as stipulated in IEAR, which is an indicative of the strict vigil of the IA.

It has also emerged from the survey & PRA exercise that the PAPs were appreciative of the project and hoped that the power scenario would improve after commissioning of the project. Local people also benefited through project related employment that was being generated. Following observations are drawn from the observations through site visits.

- During the construction phase, the implementing agency needs to ensure strict compliance of the contract provisions/EMP by Contractor especially in respect of workers health and safety.
- Regular environmental monitoring is needs to be carried out
- Strict surveillance during construction of TL in buffer zone is needed. The report should be submitted to IA regularly i.e., quarterly progress report
- EMP plan along with construction timing should followed strictly by EPC
- Along with labours, supervisors, engineers and Staff of Implementing Agency (IA) should also need to follow the health and safety precautions.
- Need of regular induction and training program for labours and engineers at all sites.
- Training for PMU staff regarding monitoring and implantation of EMP as proposed in IEAR. It is suggested to deploy more environmental professionals for effective environmental monitoring and reporting system.
- Good coordination between IA officers and contractors regarding implementation of Health and Safety Plan.
- Health checkup of labours and other working staff are regularly executed. However, the Records of labour registration should be well maintained and strictly monitored.
- Training and awareness regarding cleanliness and solid waste disposal to maintain the hygiene in the labour camps and construction sites.
- The basic needs at workers camp should be provided on site. Transit camps should be well equipped.
- Demarcation and protection for sites where work has been on hold due to various reasons to avoid accidents and runoff of excavated soil from construction sites
- Project staff of the implementing agency should be well versed with the contents of the IEAR so as to ensure proper compliance by the contractors.
- Overall, the commissioning of the project tend to augment the power distribution and availability in the region which will further catalyze economic activity and development of the area/region.

6 PROJECT IMPLEMENTATION ARRANGEMENT & MONITORING

For smooth implementation of this project, following administrative and functional set up have been institutionalized for project implementation, review and monitoring.

6.1 Administrative Arrangement for Project Implementation

MoP, GoI has appointed POWERGRID as Design cum Implementation Supervision Consultant (i.e., Project Management Consultant-PMC) and now redesignated as Implementing Agency (IA). However, the ownership of the assets with respective State government or State Utilities, which upon progressive commissioning is to be handed over to them for taking care of Operation and Maintenance of assets. The arrangement for monitoring and reviewing of project from the perspective of environment and social management are form part of overall arrangements for project management and implementation environment. Following implementation arrangement has been proposed at different levels for smooth implementation of this project;

Central Project Implementation Unit (CPIU) - A body responsible for coordinating the preparation and implementation of the project and is housed within the IA's offices at Guwahati. The "Project-In-Charge" of IA & Head of each of the SPCU is a member of CPIU.

State Project Coordination Unit (SPCU) – A body formed by the Utility and responsible for coordinating with IA in preparing and implementing the project at the State level. It consists of experts across different areas from the Utility and is headed by an officer of the rank not below Chief Engineer, from the Utility.

Project Implementation Unit (PIU) – A body formed by the IA, including members of Utility on deputation, and responsible for implementing the Project across the State, with its personnel being distributed over work site & working in close association with the SPCU/ CPIU. PIU report to State level "Project Manager" nominated by the Project-in- Charge of IA. The IA is Core team stationed at the CPIU on permanent basis and other IA officers (with required skills) visits as and when required by this core team. This team is represented IA and to be responsible for all coordination with SPCU, PIU, within IA and MoP, GoI. CPIU is also assist MoP, GoI in monitoring project progress and in its coordination with The Bank.

6.2 Review of Project Implementation Progress

To enable timely implementation of the project/subprojects, following committee has been setup to review the progress;

Joint Co-ordination Committee (JCC): IA and SPCU nominate their representatives in a body called JCC to review the project. IA was specified quarterly milestones or targets, which is to be reviewed by JCC through a formal monthly review meeting. This meeting forum is called as Joint Co-ordination Committee Meeting (JCCM). The IA is convene & keep a record of every meeting. MoP, GoI and The Bank may join as and when needed. Minutes of the meeting to be shared with all concerned and if required, with GoI and The Bank.

High Power Committee (HPC): The Utility in consultation with its State Government has arranged to constitute a High-Power Committee (HPC) consisting of high-level officials from the Utility, State/ District Administration, Law enforcement agencies, Forest Department etc. so that various permission/ approvals/ consents/ clearances etc. are processed expeditiously so

as to reach the benefits of the Project to the end consumers. HPC is meet on bimonthly basis or earlier, as per requirement. This forum to be called as High-Power Committee Meeting (HPCM) and the SPCU keeps a record of every meeting. Minutes of the meeting is to be shared with all concerned and if required, with GoI and The Bank.

Contractor's Review Meeting (CRM): Periodic Review Meeting is held by officials of PIU with Contractors at field offices, State Head Quarters (PIU location) and if required with core team of IA at Guwahati. These is to be called "Contractor's Review Meeting" (CRM). PIU keeps a record of all CRMs, which is shared with all concerned and if required, with GoI and The Bank.

A review is being regularly held among MoP, GoI, The Bank, State Government., Utility and IA, at four (4) months interval or earlier if needed, primarily to maintain oversight at the top level and also to debottleneck issues that require intervention at GoI/ State Government level. Minutes of the meeting are being prepared by IA and shared with all concerned.

6.3 Environmental and Social Monitoring

Monitoring is a continuous process for PEDM projects at all the stages, be it the site selection, construction or maintenance. As Implementing Agency (IA) POWERGRID endeavors to implement the project in close coordination with the respective state power utilities and departments. POWERGRID has been implementing the project based on the Implementation/Participation agreements that were signed separately between POWERGRID and the Power utilities.

The success of PEDM lies in its strong monitoring systems. Apart from the Field In- Charge reviewing the progress on daily basis regular project review meetings are held at least on monthly basis at corporate level wherein apart from construction issues the environmental aspects of the projects are discussed and remedial measures taken wherever required. The exceptions of these meetings are submitted to the Directors and Chairman and Managing Director of the Corporation. The progress of various on- going projects is also informed to the Board of Directors.

PEDM has formed a separate cell at the Circle office level namely Environment and Social Management Cell (ESMC) headed by AGM (Transmission) for proper implementation and monitoring of environmental & social management measures. PEDM organization support structure is depicted in **Figure 6.1**. Key responsibilities of the ESMC are follows:

- Coordinating environmental and social commitments and initiatives with various multilateral agencies, GoM and MoEF&CC.
- Coordination of all environmental activities related to a project from conceptualization to operation and maintenance stage.
- Advising and coordinating /Site office to carry out environmental and social surveys and route alignment for new projects.
- Advising site offices to follow-up with the state forest offices and other state departments for expediting forest clearances and other E & S issues of various projects.
- Providing a focal point for interaction with the MoEF&CC for expediting forest clearances
- Training of Circle and Site officials on E & S issues arising out of T&D projects and their management plan.
- Training of other departments to familiarize them with the ESPP document.

Additionally, Field In-Charge reviews the progress on daily basis and periodic review by higher management including review by Heads of SPCU and CPIU undertaken wherein apart from construction issues the environmental aspects of the projects are discussed and remedial measures taken wherever required. Besides, Periodic Contractor's Review Meeting (CRM) are being held by officials of PIU with Contractors at field offices, State Head Quarters (PIU location) and with CPIU at Guwahati for better coordination and resolution any pending issues. The World Bank mission team also visits various sites every six months to review the progress status including ground level implementation of safeguard measures. Any observation/agreed action plan suggested by the Bank in the Aide Memoire is religiously complied in time bound manner. Additionally, review meeting among MOP, GoI, The Bank, State Governments, Utility and IA being held periodically to maintain oversight at the top level and also to debottleneck issues that require intervention at GoI/ State Government level.

The Capacity building and Institutional Strengthening program of the IA is held intermittently to enhance the skills of the project officials. Besides, separate E & S training are also organized for Official of State Utility under Capacity Building & Institutional Strengthening (CBIS) program. Further, State utility meetings between IA and POWERGRID are held on a monthly/ bi-monthly basis to assess the work progress and difficulties encountered in respect of land acquisition, RoW and compensation if any. The IA has a continuous monitoring mechanism of the project w.r.t. compliance of the mitigation measures as stipulated in the IEAR. Thus, the adherence to the clauses by the contractors are regularly monitored especially in respect of various implementation E & S measures including health and safety aspects. Due to such strong institutional support structure coupled with monitoring mechanism in place, no major non-compliance was observed/reported during the implementation of projects till date. The project has so far had zero fatality which is indicative of the strict vigil of the IA.

During the present study, our team also observed mitigation measures as suggested in IEAR are mostly complied with even though some gaps were found with respect proper to documentation. It has been observed during field visit and interactions with local people, contractors and contract workers that POWERGRID has adequately taken all precautions and importance to environmental & social aspects. The stakeholders are satisfied with the various measures taken by PEDM its proven fact from the interactions that no complaints are received from the project area. Design realignment, consultation i.e., PAP, Environment & safety awareness training and regular interactions with all the stakeholders has led to sustainability of the project.

As regards monitoring of impacts on ecological resources particularly in Forest, Sanctuary or National Park, it is generally done by the concerned Divisional Forest Officer, Chief Wildlife Warden and their staff as a part of their normal duties. A detailed Environment Management Plan including monitoring plan for all possible environmental and social impact and its proper management has been drawn (**Table- 5.9**) and is being implemented during various stage of project execution. Since many provisions of EMP are to be implemented by contractor hence for proper monitoring EMP has included in the contract document. A budget estimate towards tree/crop/tower base compensation and EMP implementation is prepared and is placed at **Annexure-13**. A summary of the same is presented below **Table No.6.1**:

Table 6-1 Summary Budget Estimate

Sr. No.	Budgetary Head	Amount (Rs. Lakhs)
1	Forest diversion compensation	4758
2	Tree & Crop damage Compensation	251.325
3	Land Compensation for Tower Footing	27.15
4	Implementation Monitoring & Audit	20.0
	Total	5056.475

The routes of TL and DL are finalized only after detailed/ check survey on ground. Since the detailed/ check survey is part of main package requirement of such measures, its extent and estimated cost is incorporated in the revised cost estimate proposal which is normally prepared for all projects as there is a considerable time gap between planning and actual implementation. However, as per the preliminary assessment such additional measures may not be required in the instant scheme as no such impact are envisaged due to routing of lines far away from such sensitive areas.

Periodic review by higher management including review by Heads of SPCU and CPIU for all environmental and social issues will be undertaken to ensure that EMP and other measures are implemented at site for compliance of agreed policy and management plan.

6.4 Grievance Redressal Mechanism:

Grievance Redressal Mechanism (GRM) is an integral and important mechanism for addressing/resolving the concern and grievances in a transparent and swift manner. In accordance with the provision in ESPPF, Grievance Redress Committees (GRC) has been constituted at the project/scheme level and at Corporate/HQ. This GRC is aimed to provide a trusted way to voice and resolve environment & social concerns of the project, and to address the concerns of the affected person/community in a time bound manner without impacting project implementation.

The Corporate/HQ level GRC has been constituted and notified which is headed by Director (PMU). Similarly, project level GRCs have been constituted for each transmission and S/S covered under this project. Notifications of Corporate & Project level GRC are shown as below;

Apart from above, grievance redresses in built in crop/tree compensation process where affected persons are given a chance to place their grievances after issuance of notice by revenue officials on the basis of assessment of actual damages. Grievances received towards compensation are generally addressed in open forum and in the presence of many witnesses. Process of spot verification and random checking by the district collector/ its authorized representative also provides forum for raising the grievance towards any irregularity/complain. Moreover, PEDM & POWERGRID officials also address to the complaints of affected farmers and the same are forwarded to revenue official for doing the needful, if required.

Site level Grievance Redressal Committee (GRC) has already been constituted. The nominated officials from PEDM and POWERGRID for GRC and **details are annexed in Annexure 21**. Nominees from local administration, panchayat/ADC & affected persons are also mandatory for GRC. Letter has already been issued twice to AGM (Transmission), 79 Tilla, PEDM for his early action in this regard (**copy of letters enclosed in Annexure 21**).

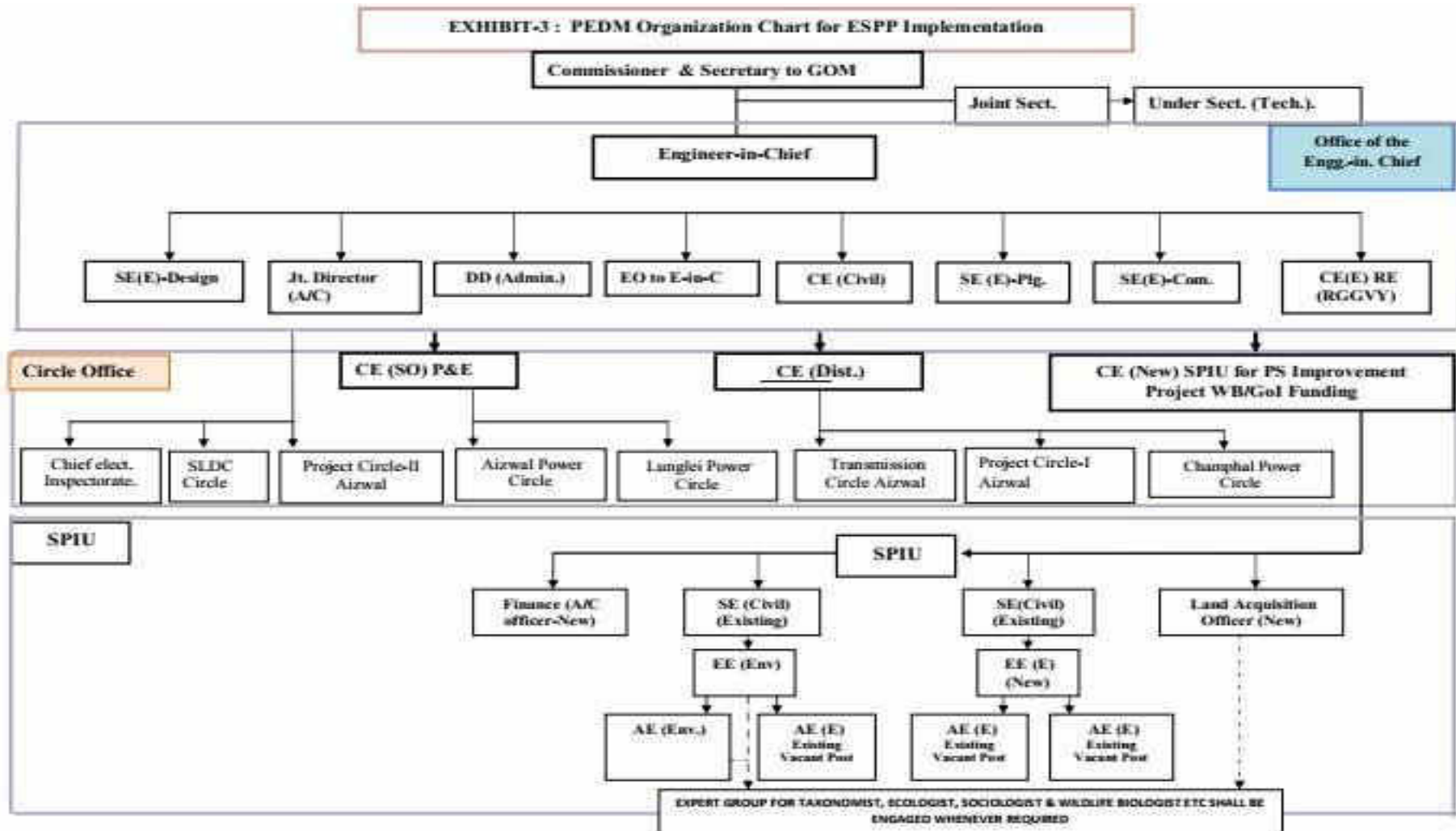


Figure 6-1 Implementation Arrangement for E&S Management by PEDM

It has been observed that concerns of public are addressed regularly through public consultation process which started from project planning to construction and will be continued in operation and maintenance also. As per record available, no written complaint or court case is registered till study period against any of the sub projects in instant case. However, we have been informed that only some minor complaints of verbal nature were received by site officials which were also resolved instantly and amicably by site Officials after discussion & deliberation with affected person in consultation of revenue/district officials.

6.5 Good practices of project:

- **All the precautions were taken for health and safety of workers:** At all the places the contractor has taken all the necessary precautions for prevention of diseases at the project sites. Workers were provided with all the safety equipment, special measures taken for prevention of Covid-19.
- **All the stakeholders were considered for consultation during the project cycle:** All the stakeholders were consulted by POWERGRID and their queries were resolved during formal/informal meetings. Therefore, no any major issue observed during project construction. Because of strong PAP consultation, no any written complaint/court case has been received so far.
- **Eco sensitive zones:** Eco sensitive zones are tried to avoid in TL and DL. However, 33 km of TL is passing through Buffer zone of DTR. River / water ecosystem was not harmed because of no pile foundation near water body. Due care is taken to avoid pollution of ground water resources because of pile foundation work.
- **Avoidance of habituated areas:** Habituated areas were avoided as far as possible to lay towers of 132 kV line. The residential houses are far from the RoW of 132 kV towers, therefore, there is no chance of damage to the human being because of 132 kV line.
- **Interference with utilities:** Wherever utilities were crossed, necessary permissions/NoC was taken from the concern authorities to lay electric wires from their premises. During construction, the concern officials were taking care of avoiding damage to the utility instruments & premises

7 REFERENCES

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3. Guidelines for clearance from NBWL, as per Wild Life conservation act 1972
4. Guidelines for payment of compensation towards damages in regard to Right of Way for TLs, No.3/7/2015-Trans Government of India Ministry of Power
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6. A guide for the investigation, development, and design of power TLs, by Holland H. Farr, 1980
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8. TL Reference Book – 345 kV and above, Second Edition, Revised; Electric Power Research Institute, 1987.
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16. Anonymous. 2000. State of Forest Report 2019. Forest Survey of India, Dehradun.
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Annexure



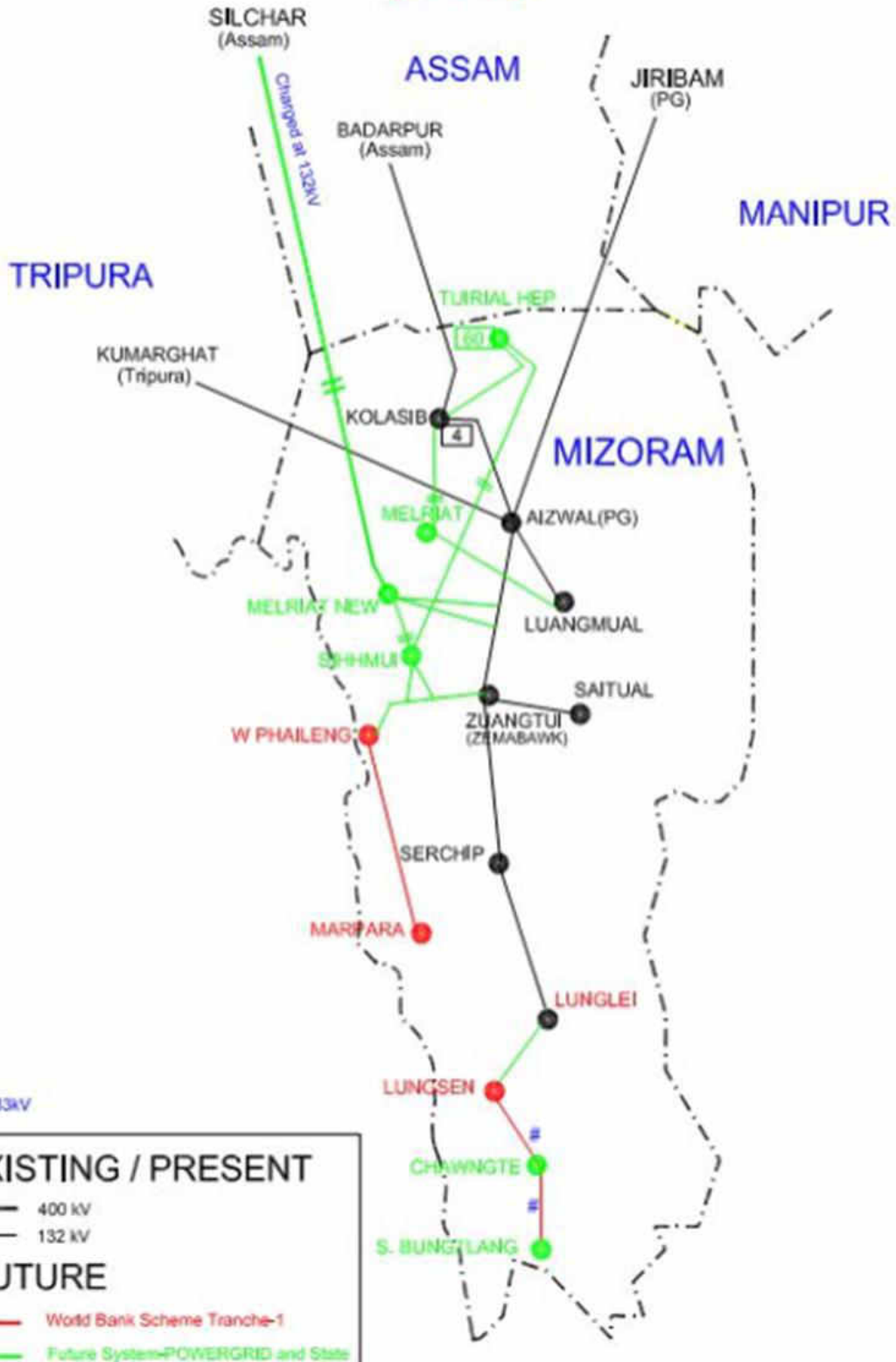
FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 1

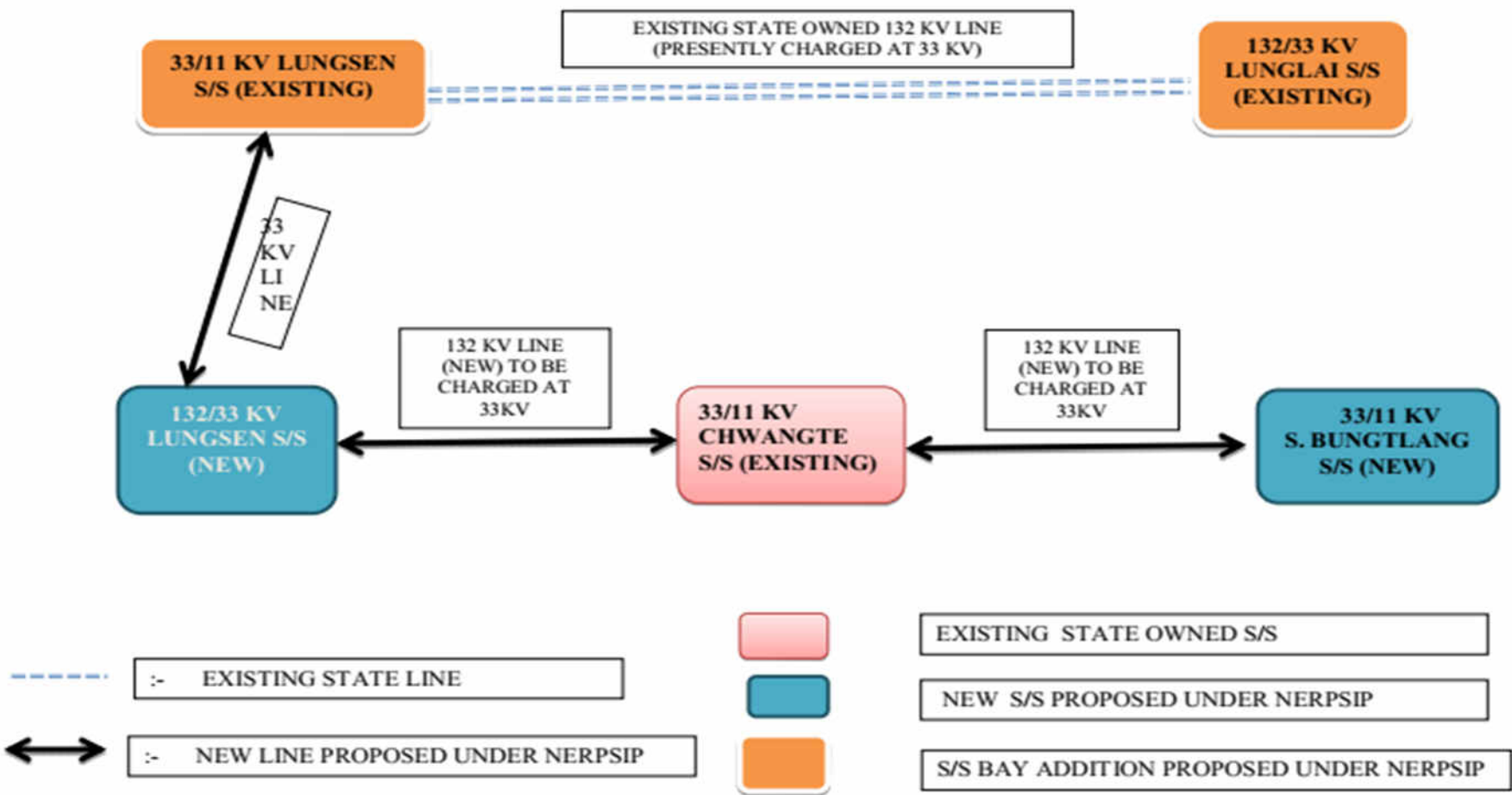
Power Map of Mizoram State

World Bank Funded Scheme : Mizoram (Future)



Annexure 2
Schematic Map of Projects Covered in FEAR II

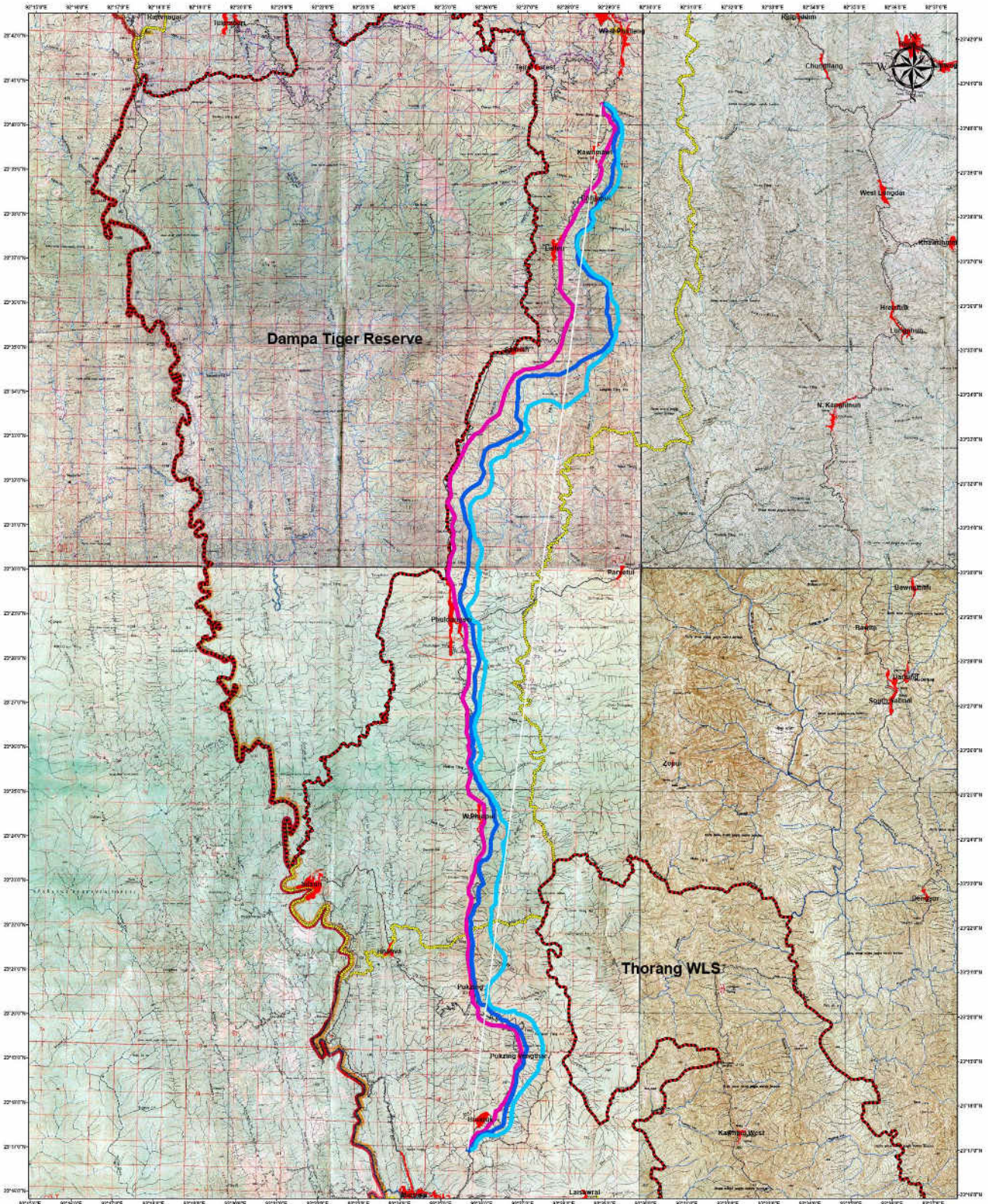
**Exhibit- 2 showing Transmission and Distribution Network
in Lunglai & Lawngtlai districts
proposed under NER Power System Improvement Project in Mizoram**



Annexure 3

Alternative Analysis for 132 kV S/C (on D/C tower) West Phaileng (DAMPA TIGER RESERVE) to Marpara Transmission line

MAP SHOWING THREE ALTERNATIVE ROUTE ALIGNMENTS

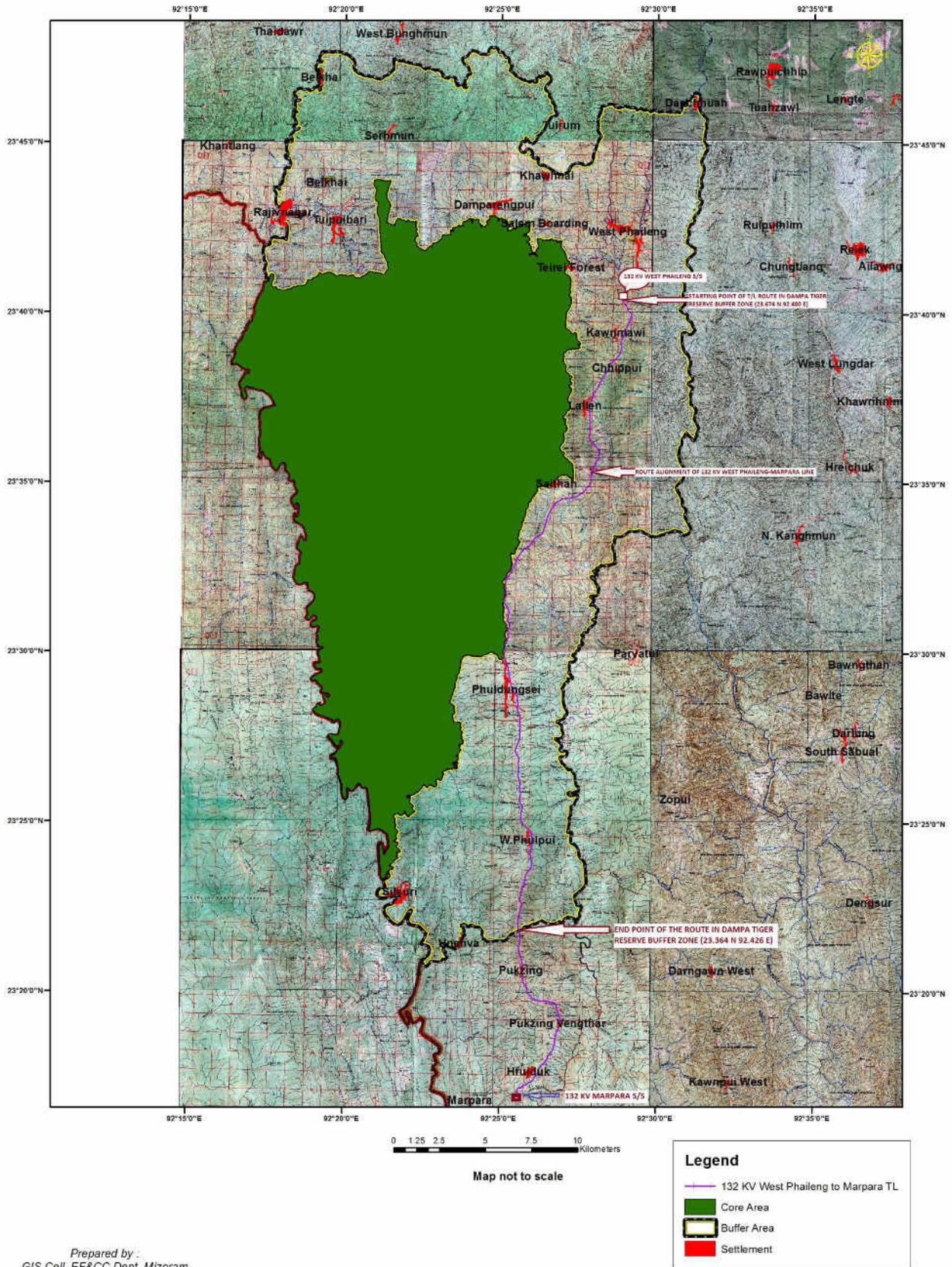


Prepared by :
GIS Cell, EF&CC Dept. Mizoram

From the above comparative analysis, it has been observed that although Alternative- I is having highest involvement of Dampa Tiger Reserve Buffer Zone compared to Alt-II and Alt-III, the line route of Alt-I is only found feasible from construction point of view. Moreover, the route length is shorter and for most part the route is aligned parallel to existing corridor of West Phaileng-Marpara road thus having minimum ecological disturbance to buffer area and also involve less tree felling as it passes mostly through Jhum cultivated areas with low density tree cover area. Furthermore, Alt.- I is easily accessible due to its proximity to existing West Phaileng-Marpara road. Although alternative routes have been rigorously explored and walkover survey carried out to access the feasibility, but Alt-II and Alt-III are found practically not feasible from construction point of view due to geographical terrain. Hence, based on overall analysis of various components, Alternative - I is considered as the most optimized route and recommended for detailed survey

**132 kV S/C (on D/C tower)
West Phaileng (DAMPA TIGER RESERVE) to
Marpara Transmission line WRT DTR Buffer**

GEOREFERENCED MAP SHOWING DAMPA TIGER RESERVE (BUFFER ZONE) AREA INVOLVED IN 132 WEST PHAILENG-MARPARA T/L.



Prepared by :
GIS Cell, EF&CC Dept. Mizoram



FEAR for T&D subprojects in Mamit District
under NERPSIP in Mizoram



Annexure 4

Different NOCs Obtained

A. Forest Clearance



Government of India
Ministry of Environment, Forest & Climate Change
North Eastern Regional Office
Law-U-Sib, Lumbatngen
Near MTC Workshop, Shillong-793021
Tel(0364)-253-7609,7340/7395/7278.
Fax No(0364)2536041/2536983.
Email:- ro.nez.shil@gmail.com & moefro.shillong@gov.in

भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
पूर्वोत्तर क्षेत्रीय कार्यालय, शिलांग
लॉउ सीब लुम्बतंगेन
एम टी सी के पास, शिलांग - ७९३०२१
टेली(0364) 253-7609,7340/7395/7278
फैक्स (0364)-2536041/2536983
ईमेल: ro.nez.shil@gmail.com/moefro.shillong@gov.in

No. 3-MZ A 044/2020-SHI 3226-27

15th January, 2021

सेवा में,

प्रधान सचिव/ Principal Secretary,
पर्यावरण वन और जलवायु परिवर्तन विभाग /Environment, Forest & Climate Change Department,
मिजोरम सरकार/ Govt of Mizoram,
आइजोल / Aizawl- 796001

Sub: Proposal for diversion of 104.77 ha of forest land in DAMPA Tiger Reserve (Buffer Zone) for construction of 132 KV S/C (on D/C Tower) West Phaileng to Marpara Transmission Line under NERSIP Scheme Mizoram.

Sir,

I am directed to refer to the Government of Mizoram No.G.20015/3/2019-FST dated 19th June, 2020 and No. For.50/2016/580 dated 08.12.2020 on the above subject seeking prior approval for the Central Government under Section 2 of the FCA, 1980 and to say that the proposal has been examined by the Regional Empowered Committee constituted by Central Government under Section 3 of aforesaid Act.

2. After careful examination of the proposal of the State Govt and on the basis of the recommendations of Regional Empowered Committee "In Principle Approval/Stage- I" clearance of the Central Government is hereby granted for diversion of 104.77 ha of forest land in DAMPA Tiger Reserve (Buffer Zone) for construction of 132 KV S/C (on D/C Tower) West Phaileng to Marpara Transmission Line under NERSIP Scheme, Mizoram subject to the following conditions:

A. Conditions which need to be complied prior to handing over of forest land by the State Forest Department.

1. Legal status of the forest land shall remain unchanged.
2. Forest land will be handed over only after required non-forest land for the project is handed over by the user agency.
3. The user agency shall transfer, the Net Present Value (NPV) of the forest land being diverted under this proposal, as per the orders of the Hon'ble Supreme Court of India dated 28/03/2008, 24/04/2008 and 09/05/2008 in Writ petition (Civil) No. 202/1995 and as per the guidelines issued by the Ministry vide letters No 5-3/2007-FC dated 05.02.2009. The requisite funds shall be transferred through online portal into CAMPA account of the State concerned.
4. The land identified for the purpose of CA shall be clearly depicted on Survey of India toposheet of 1: 50000 scale;

5. The user agency shall transfer the cost of raising and maintaining the compensatory afforestation at the current wage rate in consultation with State Forest Department in the account of CAMPA of the concerned State through online portal. The scheme may include appropriate for anticipated cost increase for works scheduled for subsequent years;
6. All the funds received from the user agency under the project shall be transferred/ deposited to CAMPA account only through *e-portal* (<https://parivesh.nic.in/>). Amount deposited through other mode will not be accepted as compliance of the Stage-I clearance.
7. The compliance report shall be uploaded on *e-portal* (<https://parivesh.nic.in/>).
8. The complete compliance of the FRA, 2006 shall be ensured by way of prescribed certificate from the District Collector;
9. The boundary of the diverted forest land, mining lease and safety zone, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from the pillar to pillar and GPS co-ordinates;
10. Violation of any of these conditions will amount to violation of Forest(Conservation) Act, 1980 and action would be taken as prescribed in para 1.21 of Chapter 1 of the Handbook of comprehensive guidelines of Forest(Conservation) Act, 1980 as issued by this Ministry's letter No. 5-2/2017-Fc dated 28.03.2019.
11. The cost of felling of trees shall be deposited by the User Agency with the State Forest Department.
12. State Govt to submit the current detail status of Bairabi and West Phaileng transmission line to Integrated Regional Office, Shillong within a month time.
13. The following recommendation of 58nd Meeting of Standing committee of National Board for Wildlife shall be complied with:-
 - A. Conditions imposed by the NTCA**
 - (1) Since Dampa is an elephant landscape, height above the ground at the lowest point of the lowest conductor or grounding wire (i.e. at maximum sag point) of power lines (for avoiding reach of elephants even with raised trunk) should be:
 - (a) A minimum of 10 m above on level terrain (slope < 20 degrees)
 - (b) A minimum of 15 m above ground on steeper terrain (slope >20 degrees)
 - (2) All power lines within 3 KM of forest and important wildlife areas across its entire length in between West Phaileng and Marpaara should be marked with appropriate bird diverters spaced at 10 m intervals. The bird diverters should shall be regularly checked and maintained by power company.
 - (3) No construction / maintenance work shall be permitted within forest and wild life areas in between 6.0 PM to 7.00 AM. Labour camps should be at least 1.0 KM away from the boundaries of Dampa Tiger reserve. No construction materials (including soil stones, etc..) should be collected from the forest.
 - (4) The user agency shall deposit a portion of the total cost to Mizoram Forest Department which shall be decided by the Department. The Forest Department should utilize this money for eco-restoration, prey augmentation, reducing public dependence on forest and promoting traditional local livelihoods in Dampa Tiger Reserve.
 - (5) The Chief Wildlife Warden, Mizoram State should constitute a monitoring committee comprising of members from local forest officials, NTCA regional office and user

agency to oversee the implementation of the project in compliance to the mitigation measures suggested above.

- (B) The annual compliance certificate on the stipulated conditions should be submitted by the project proponent to the State Chief Wild life Warden and an annual compliance certificate shall be submitted by the State Chief Wild Life Warden to Govt of India.

B: Conditions which need to be strictly complied on field after handing over of forest land to the user agency by the State Forest Department but the compliance in form of undertaking shall be submitted prior to Stage-II approval:

1. Legal status of the diverted forest land shall remain unchanged;
2. Compensatory Afforestation shall be raised over double the degraded forest area of 213 ha identified in Compartment No.1, Saithah Forest Range, West Phaileng Beat below Kawnmawi village inside the notified RF of Teirei RRF under West Phaileng Beat in Mamit Forest Division within three years from the date of Stage –II Clearance and maintained thereafter by the State Forest Department at the cost of the User Agency. As far as possible, a mixture of local indigenous species shall be planted and monoculture of any species may be avoided.
3. The cost of compensatory afforestation at the prevailing wage rates as per compensatory afforestation scheme and the cost of survey, demarcation and erection of permanent pillars if required on the CA land shall be deposited in advance with the Forest Department by the project authority. The CA will be maintained for 10 years. The scheme may include appropriate provision for anticipated cost increase for works scheduled for subsequent years.
4. At the time of payment of the Net Present Value (NPV) at the then prevailing rate, the User Agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;
5. **The user agency at its cost shall provide bird deflectors, which are to be fixed on upper conductor of transmission line at suitable intervals to avoid bird hits.**
6. **The User Agency shall comply with the guidelines for laying transmission lines through forest areas issued by Ministry vide letter no. 7-25/2012-FC dated 05/05/2014 & 19/11/2014.**
7. Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended and the Rules framed there-under;
8. The User Agency shall obtain the Environment Clearance as per the provisions of Environment (Protection) Act, 1986, if required;
9. No labour camp shall be established on the forest land and the User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;
10. No additional or new path will be constructed inside the forest area for transportation of construction materials for execution of the project work.
11. The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;
12. No damage to the flora and fauna of the adjoining area shall be caused;
13. The layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government;

14. The concerned Divisional Forest Officer, will monitor and take necessary mitigative measures to ensure that there is no adverse impact on the forests in the surrounding area.
15. The user agency shall explore the possibility of successful translocation of maximum number of trees identified to be felled and shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department;
16. The User Agency shall submit the annual self -compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year; and
17. The user agency shall comply all the provisions of the all Acts, Rules, Regulations, Guidelines, Hon'ble Court Order (s) and NGT Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project.
18. As per Ministry's letter No 11-30/96-FC(Pt) dt 14.9.2001, if the compliance of stipulated conditions is awaited from the State Govt for more than 5(five) years, the in-principle approval would be summarily revoked considering that the user agency is no longer interested in the project.
19. All other clearance/NOCs under different applicable rules/regulations /local laws and under Forest Dwellers (Recognition of Forest Rights)Act, 2006 as required vide MoEF, New Delhi guideline No.11-9/1998-FC(pt) dated 03.08.2009 shall be complied with.
20. As per Ministry's letter No 11-30/96-FC(Pt) dt 14.9.2001, if the compliance of stipulated conditions is awaited from the State Govt for more than 5(five) years, the in-principle approval would be summarily be revoked considering that the user agency is no longer interested in the project.

भवदीय,

(W.I. Yajbon)

वन उप महानिरीक्षक (केंद्रीय)

/Deputy Inspector General of Forests(C)

Copy to:

The Principal Chief Conservator of Forests & HoFF , पर्यावरण वन और जलवायु परिवर्तन विभाग
/Environment, Forest & Climate Change Department, मिजोरम सरकार/ Govt of Mizoram, आइजोल
/ Aizawl- 796001.

वन उप महानिरीक्षक (केंद्रीय)

/Deputy Inspector General of Forests(C)

१८

B.FRA Settlement

GOVERNMENT OF MIZORAM
OFFICE OF THE DEPUTY COMMISSIONER
MAMIT DISTRICT : MAMIT

No.L.20011/3/2016-DC(M)/Estt/

: Dated, Mamit the 29th June, 2020.


TO WHOMSOEVER IT MAY CONCERN

In compliance of the Ministry of Environment and Forests (MoEF), Government of India's letter No.11-9/98-FC (pt) dated 3rd August, 2009 wherein the MoEF issued guidelines on submission of evidences for having initiated and completed the process of settlement of rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest right) Act, 2006 ('FRA' for short) on the forest land proposed to be diverted for non-forest purposes read with the MoEF's letter dated 5th February, 2013 wherein MoEF issued certain relaxation in respect of linear projects, it is certified that 104.77 hectare (Dampa Tiger reserve forest (buffer zone)) of forest land proposed to be diverted in favor of Power Grid Cooperation of India Limited (A Government of India Enterprise) for construction of 132 kV s/C (on D/C tower) W.Phaileng to Marpara Trasmission line in Mamit District falls within jurisdiction of West Phaileng to Marpara village (s) in Mamit tehsils.

It is further certified that:

- The completed process for identification and settlement of rights under the FRA has been carried out for the entire 104.77 hectares of forest area proposed for diversion. A copy of records of all consultations and meetings of the Gram Sabha(s) Committee are enclosed as Annexure I to Annexure VI.
- The diversion of forest land for facilities managed by the Government as required under section 3(2) of the FRA have been completed and the Gram Sabha(s) have given their consent to it;
- The proposal does not involve recognized right of Primitive Tribal Groups and Pre-agricultural communities.

Encl:- As above



(Dr. LALROZAMA) IAS
Deputy Commissioner
Mamit District : Mamit

C. Gram Sabha Resolution

No.L.20011/3/2016-DC(M)/Estab
OFFICE OF THE DEPUTY COMMISSIONER
MAMIT DISTRICT : MAMIT

Mamit, the 23rd July, 2019.

ORDER

The following team is hereby constituted for identification and settlement of Rights as per Forest Rights Act, 2006 in connection with construction of 132 KV West Phaileng- Marpara Transmission line and to further assist the conduct of the Gram Sabha in the 8 (eight) affected villages-

1. Dr. Andrew Lalremruata, BDO, W. Phaileng- Leader
2. Pu B. Lalpuia, Head Faculty, SIRD (Economist)
3. Dr. Joseph C. Lalremruata, Asst. Professor (Political Science),
Govt. Mamit College
4. Pi Lalnithari Joute, Asst. Professor (Education),
Govt. Mamit College
5. Pu Lalzuiliana, Range Officer, EF& CC, W. Phaileng
6. Representative of Power Grid
7. Concerned VCP

Sd/- Dr. LALROZAMA, IAS
Deputy Commissioner
Mamit District : Mamit

Memo No.L.20011/3/2016-DC(M)/Estab : Mamit, the 23rd July, 2019.
Copy to:

1. Persons concerned for information and necessary action.
2. Guard file.

Deputy Commissioner
Mamit District : Mamit

NO.L.20011/3/2016 - DC(M)/Estab
OFFICE OF THE DEPUTY COMMISSIONER
MAMIT DISTRICT : MAMIT

Mamit, the 16th August, 2019

ORDER

In supersession of this office order No. L.20011/3/2016-DC(M)/Estab Dt. 8th August, 2019 the following team is hereby reconstituted for identification and settlement of Rights as per Forest Rights Act, 2006 in connection with construction of 132 KV W. Phaileng - Marpara Transmission line and to further assist the conduct of the Gram Sabha in the 8(eight) affected villages.

1. Pu H. D. Lalpekmawia, SDO(Sadar), DC Office Mamit - Team Leader
2. Pu B. Lalpuia, Head Faculty, SIRD(Economist)
3. Pi F. Lalremruati, Lecturer (Education), DIET Mamit
4. Pu Malsawmzuala, Lecturer (Political Science), Govt. Mamit Higher Secondary School
5. Pu Laizulliana, Range Officer, EF&CC, W. Phaileng
6. Representative of Power Grid
7. Concerned V.C.P.


Sd/-Dr. LALROZAMA, IAS
Deputy Commissioner
Mamit District, Mamit

Mamit, the 16th August, 2019

Memo No.L.20011/3/2016-DC(M)/Estab

Copy to:-

1. Persons concerned for information and necessary action.
2. Principal, DIET Mamit for information.
3. Principal, Govt. Mamit Higher Secondary School for Information.
4. Guard File.


Deputy Commissioner
Mamit District, Mamit

SCHEDULE FOR CONDUCTG OF GRAM SABHA IN CONNECTION WITH LAND
REQUIRED BY POWER GRID

Sl. No	Date	Gram Sabha
1	20.08.2019	Phulbial, Phuldungsei, W.Phulpui & Saithah
2	21.08.2019	W. Phaileng, Chhippui, Kawnmawi & Lallen

D. SBWL Approval

STATE BOARD FOR WILDLIFE MIZORAM MINUTES OF THE 7TH MEETING .

Venue : Chief Minister's Conference Hall
Date : 4th June 2019 (Tuesday) 2.00PM

List of members present: Attendance sheet attached.

The Hon'ble Chief Minister Mizoram Shri Zoramthanga and Chairman, State Board for Wildlife (SBWL) presided over the first meeting of newly constituted State Board for Wildlife which had been notified recently by the government vide letter No.B.12011/4/2016-FST Dated 16.4.2019. At the outset of the meeting, Chairman thanked and welcomed all members who attended the meeting. He then requested Shri Liandawla IFS, Chief Wildlife Warden and Member Secretary, SBWL to appraise the meeting about the constitutions and functions of SBWL and to elaborate meeting agendas since the meeting was the first of its kind for current board members.

As requested by the Chairman, Shri Liandawla, Member Secretary briefly elaborated on duties and functions of State Board for Wildlife stating that the Board is constituted u/s 6 of Wildlife Protection Act (WPA) 1972, which comprises members from various organizations viz. Government of India (MoEFCC) and other statutory bodies under MoEFCC, State Forest Department, Honorary Wildlife Wardens, academic institutions, NGOs etc as recommended by the Act. Further, he explained how and why the agendas are proposed for discussion in this 7th meeting, particularly stressing upon handing back over of the two Protected Areas of Phawngpui National Park (NP) and Ngengpui Wildlife Sanctuary (WLS) to Lai Autonomous District Council(LADC) Authority. He also briefly run back through the recommendations made by the Board in its last meeting held on 16.05.2018 and the status of actions taken by the government for such recommendations. After this, each agenda were deliberated extensively under the guidance of Board Chairman,

1


Chief Wildlife Warden

Forest & Climate Change(MoEFCC), Govt. of India by submitting detailed history, antecedence/precedence and all other supporting papers. As soon as the feedback is received from MoEFCC, the Board may once sit again to make a more appropriate and feasible decision in line with such clarification obtained from Govt. of India.

2) Project proposal for 132KV Transmission line from West Phaileng to Marpara (which passes through buffer area of Dampa Tiger Reserve):

Prior to detailed discussion on the agenda, Chairman requested representative from Power Grid Corporation of India (NERSIP)-the project proponent and User Agency to give PPP on the project. The geo-reference locations, area to be affected and project cost etc. were explained briefly by the User Agency to the members with the help of digitized maps etc. It was mentioned that the route of power line had been re-aligned to minimize the impact on forest and hence the CA area has also been reduced to 104.00 Ha. Shri Liandawla PCCF & Nodal Officer (Forest Conservation) and Member Secretary, SBWL also supplemented by explaining how and why Forest Clearance are to be obtained from Govt. of India for developmental projects under Forest Conservation Act- 1980 and that Transmission line project is also among the regulated project items under the said Act. Therefore SBWL has to recommend or give approval for such regulated project prior to screening/scrutiny at Govt. of India level.

Since the proposed power line is passing through buffer (or ESZ) area of Dampa Tiger Reserve, some members from NGOs (BIOCONE etc) are of the opinion that the proposed transmission line may disturb arboreal animals of Dampa tiger Reserve and other diverse wildlife. Dampa Tiger Reserve being a well known and valued Protected Area not only in the country but all over South East Asian region for the rich faunal diversity and abundant population of various Cat species, it was suggested that an alternate route for power line

may be sought so that buffer area may not be disturbed or if that is not possible, project activities may be executed to cause the least possible disturbance to Dampa Tiger Reserve and its wildlife.

After deliberation, the Board decided that although wildlife conservation has become very crucial in Dampa, national security is also a priority issue and of national importance, which cannot be compromised with regional wildlife conservation. Indo-Bangladesh border fencing project and its related activities are also very important project of Govt. of India. As such, SBWL agreed to give in-principle approval to the project proposal for running the 132 KV transmission line from W. Phaileng to Marapara with the condition that User agency shall execute such works in a manner that would cause least disturbance to this PA. It was also recommended that State Forest officials and NGOs may monitor the progress/execution of such project works under Dampa Tiger Reserve as and when deemed appropriate.

3) A.O.B

With the permission of the Chairman, the AOB(s) submitted by President, ASEP were discussed and the following decisions were made:

(a) Rectification of scientific name of State Animal (Serow): The scientific name of Mizoram State animal - Serow is written as *Capricornis sumatraensis* in official records and publications. However, the kind of Serow which is available in the State of Mizoram which has been declared as the State Animal is seemingly *Capricornis rubidus* (Red Serow), which according to some authors and taxonomists is considered to be the sub-species of *Capricornis sumatraensis*. *Capricornis rubidus* (Red Serow) might have been identified and documented as the sub-species of *C. sumatraensis* by taxonomists years after the State Animal was notified by the State government. Fortunately, some local zoologists had also

E. Defense NOC

Tele/FAX: 0364-2560168
E-mail: easternats@iaf.nic.in

By Regd Post

CATCO Section
HQ EAC, IAF
Nonglyer PO,
Upper Shillong
Meghalaya
PIN-793009

EAC/63942/ATC (39/2020)

23 Jul 20

Power Grid Corporation Of India,
NERPSIP, Aizawl, Tuivamit,
B.P.O.- Tanhril, Ramrikawn,
Mizoram, Pin:- 796009
Mob:- 9490611056

**NOC FOR CONSTRUCTION OF CONSTRUCTION OF OF 132 KV WEST
PHAILENG – MARPARA TRANSMISSION LINE UNDER NER
SYSTEM STRENGTHENING SCHEME II (PART-B)**

Sir,

1. Please refer your application on the subject.
2. The application has been examined under Gazette of India GSR 751 (E), Works of Defence Act 1903 and other relevant orders on the subject. Air Headquarters has no objection for **construction 132 KV West Phaileng – Marpara transmission line under NER system strengthening scheme II (Part-B)**. subject to following conditions:-
 - (a) NOC is being issued as per provisions mentioned under Section 5 (2) of Gazette of India GSR 751(E) read in conjunction with Sub Section (1) and Clause (O) & Clause (R) of Sub Section 2 of Section 5 read with Section 9A of Aircraft Act 1934, Works of Defence Act 1903 and other relevant orders on the subject. NOC cannot be used as document for any other purpose / claim whatsoever, including ownership of land where proposed structure(s) is/are planned to be constructed.
 - (b) The applicant is responsible to obtain NOC/all statutory clearances from the concerned authorities including approval of structure plans. Clearance shall also be obtained separately from any other defence establishment in the vicinity of proposed transmission line/towers.
 - (c) The site elevation and site co-ordinates provided by the applicant are taken for calculation of the permissible top elevation of the proposed structures. If, however, at any stage it is established that the actual site elevation and site coordinates are different from those provided by the applicant, the NOC will be invalid.

2

(d) The issue of the NOC is further subject to the provisions of Section 9A of the Indian Aircraft Act 1934 and those of any notifications issued there-under from time to time including the Aircraft (Demolition of obstruction caused by buildings and trees etc) Rules, 1994.

(e) The height (top of structure) of the tower of proposed **132 KV West Phaileng – Marpara transmission line** shall not exceed the proposed height of **32.09 M AGL/1006.51 M AMSL** whichever is lower.

(f) The applicant company shall make provision for placing cable markers on all cables. Medium intensity Type 'B' obstruction lights in combination with Low intensity Type 'B' light shall be installed on all towers. The obstruction lights shall be kept 'ON' at all times during day & night as per specifications given IS 5613 (Part-3/Section-1, and subsequent amendments) and ICAO Annex-14. Applicant shall maintain all the markers and obstacle lights in fully serviceable and visible conditions.


(g) The commencement and completion of construction including provisioning of day and night marks shall be notified to **Stn Cdr, AF Station Kumbhirgram** and **CATCO, HQ Eastern Air Command**. Failure to render these certificates within the stipulated time shall lead to cancellation of NOC.

(h) The NOC is valid for **seven years** from the date of its issue. If the towers/ supporting structure/ pylons are not constructed and completed within this period, the applicant shall be required to obtain a fresh NOC from Indian Air Force. Request for revalidation of NOC will not be entertained after the expiry of validity period.

(j) The applicant shall obtain necessary security clearances from MHA/ IB prior to employing any foreign national at the site.

(k) The NOC will be null and void if the construction is found to be in deviation from the submitted proposal and in event of non-adherence to the above mentioned conditions.

Yours sincerely,



(KS Reddy)
Group Captain
Command ATC Officer

Copy to: - Air Force Station Kumbhirgram (SATCO)

Internal: - C Nav O

F. Huan Pass

VILLAGE COUNCIL / COURT : PUKZING
MAMIT DISTRICT : MIZORAM

LALZANMAURA
Chairman

H. ZATHANGA
President

No _____

Date 15.9.2010

HUAN RAM PASS

He mi Lalzamlava S/o Chawukanga Huan rizawna
atana Huan siam chu V/C-ah PASS - na a rawn dil a He a dilna hi ngen tak a ngathuah a nih
houah Huan Pass-na hi pek ngei tlak a nih avangin The Lushai Hills District Notification No
TAD/61/52 Dated 4th May 1953, Section 3 Sub-Section (II) Act, in a phal ang in Huan Pass hi
pek a :

LOCATION TAWH RAWOK RAM

BOUNDARY AREA

- 1 NORTH Linninna hrate zel ah
- 2 SOUTH Thlannewal Thar chin ah
- 3 EAST Ramsche chin
- 4 WEST Kawngpui chin zel

AP - 152, AP - 153

Phone - 9862008449

(Signature)
President
Village Council

**VILLAGE COUNCIL / COURT : PUKZING
MAMIT DISTRICT : MIZORAM**

LALPIONAWA

Secretary

H. ZATHANCA

President

No. _____

Date 12.3.2010

HUAN RAM PASS

He mi *Lalpionawa* Sio *Muaw* hian eizawna
awana a nwan siam chu VIC-ah PASS - na a rawn dil a. He a dilna hi ngun tak a ngathuah a nih
huah Huan Pass-na hi pek nger tlak a nih avangun The Lushai Hills District Notification No
TAD/R 61/52 Dated 4th May 1953, Section 3 Sub-Section (II) Act, in a phal ang; in Huan Pass hi
pek a n

LOCATION *Tanathong ram*

BOUNDARY AREA -

1 NORTH *Kawote chin zel*

2 SOUTH *Mualpawng hawara ber chin*

3 EAST *Forest Plantation ram sikhin*

4 WEST *Hangdung chin*

AP - NO. 159

Phone - no. 6909406558

12/3/10
(H. ZATHANCA)

President
Village Council/Court
Pukzing, Mamit District

G. Village Council NOC for Approach Road construction at W. Phaileng S/S

Village Council / Court
W.Phaileng

Lalchhuanmawia .
President
Ph - 9366856414

Date 31.8.19

To, The Chief Manager,
Power Grid Corporation of India
Subject: Sub-station, PSE approach
road lai this tung region.

My Zahawon talk,

() PGCIL in Sub-station panna
kawng a laik thoi hi a tho lo kan
ti hile a, melamah hian Farmer tam
talk he kawng ring/zaith, tu hi an
awm avangin kawng hi thlep khate
kualin zal dauhwin a kat thein a
lang a, chutiang tu ehvan he kawng
hi piam tho leh turin kan ngen
u che.

(Lalchhuanmawia)

President
Village Council / Court
W. Phaileng

H. Aviation NOC



भारतीय विमानपत्तन प्राधिकरण AIRPORTS AUTHORITY OF INDIA

LENG/NORTH_EAST/P/021821/529367

मालिक का नाम एवं पता

Er. Ngursailova Sailo, Sr. Executive
Engineer, Power & Electricity
Department, Govt. of Mizoram

दिनांक/DATE: 01-03-2021

OWNERS Name &
Address

Kawlphetha Building, New Secretariat
Complex, Khatla, Aizawl, Mizoram-
796001 Khatla Aizawl Mizoram 796001

वैधता/ Valid Up to: 28-02-2029

ऊँचाई की अनुमति हेतु अनापत्ति प्रमाण पत्र (एनओसी) **No Objection Certificate for Height Clearance**

1) यह अनापत्ति प्रमाण पत्र भारतीय विमानपत्तन प्राधिकरण (भाविप्रा) द्वारा प्रदत्त दायित्वों के अनुक्रम तथा सुरक्षित एवं नियमित विमान प्रचालन हेतु भारत सरकार (नागर विमानन मंत्रालय) की अधिसूचना जी. एस. आर. 751 (ई) दिनांक 30 सितम्बर, 2015, जी. एस. आर. 770 (ई) दिनांक 17 दिसंबर 2020 द्वारा संशोधित, के प्रावधानों के अंतर्गत दिया जाता है।

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep.2015 amended by GSR770(E) dated 17th Dec 2020 for safe and Regular Aircraft Operations.

2). इस कार्यालय को निम्नलिखित विवरण के अनुसार प्रस्तावित संरचना के निर्माण पर कोई आपत्ति नहीं है।

2. This office has no objection to the construction of the proposed structure as per the following details:

अनापत्ति प्रमाणपत्र आईडी / NOC ID		LENG/NORTH_EAST/P/021821/529367					
आवेदक का नाम / Applicant Name*		Er. Ngursailova Sailo, Sr. Executive Engineer, Pow					
क्रमांक/S No.	खंबे (पोल) की पहचान संख्या/Pole ID	अक्षांश/Latitude	देशांतर/Longitude	स्थल की ऊँचाई मीटर (औसतन समुद्र तल से ऊपर) में, (जैसा आवेदक द्वारा उपलब्ध कराया गया) / Site Elevation in mtrs AMSL as submitted by Applicant *	आवश्यक शीर्ष ऊँचाई (RTE) मीटर में) औसतन समुद्र तल से ऊपर / Req. Top Elevation(RTE) in mtrs AMSL	अनुमन्य अधिकतम ऊँचाई एएमएसएल मीटर में (औसतन समुद्र तल से ऊपर) / Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	टिप्पणियां/Remarks
1	WPGantry	23 40 29.29N	92 28 50.08E	773	788	788	CLEARED
2	01_0	23 40 25.69N	92 28 51.3E	773.5	811.59	811.59	CLEARED
3	02_0	23 40 23.88N	92 28 52.4E	763.54	798.45	798.45	CLEARED
4	03_0	23 40 14.26N	92 28 58.92E	803.09	835.57	835.57	CLEARED
5	04_0	23 40 12.1N	92 29 1.43E	808.94	844.03	844.03	CLEARED
6	05_0	23 40 7.79N	92 29 2.24E	870.09	908.18	908.18	CLEARED
7	06_0	23 40 4.5N	92 29 5.59E	842.19	874.1	874.1	CLEARED
8	07_0	23 39 59.82N	92 29 9.78E	800.39	832.48	832.48	CLEARED
9	08_0	23 39 50.45N	92 29 7.9E	730.61	760.09	760.09	CLEARED
10	09_0	23 39 34.54N	92 28 59.91E	798.09	830.57	830.57	CLEARED
11	10_0	23 39 27.29N	92 28 56.52E	706.88	736.36	736.36	CLEARED
12	11_0	23 39 9.56N	92 28 49.51E	719.26	748.74	748.74	CLEARED
13	12_0	23 39 7.29N	92 28 48.3E	753.42	785.51	785.51	CLEARED
14	13_0	23 39 3.06N	92 28 50.72E	747.97	786.06	786.06	CLEARED
15	14_0	23 38 52.05N	92 28 48.59E	721.27	753.75	753.75	CLEARED
16	15_0	23 38 47.37N	92 28 46.23E	723.35	755.26	755.26	CLEARED
17	16_0	23 38 39.51N	92 28 39.22E	781.49	813.4	813.4	CLEARED
18	17_0	23 38 32N	92 28 28.74E	684.5	722.59	722.59	CLEARED
19	18_0	23 38 22.98N	92 28 25.93E	678.83	708.31	708.31	CLEARED
20	20_0	23 38 8.14N	92 28 15.18E	649.15	681.63	681.63	CLEARED

* जैसा आवेदक द्वारा उपलब्ध कराया गया / As provided by applicant*

3) यह अनापत्ति प्रमाण पत्र निम्नलिखित नियम व शर्तों के अधीन है: -

3. This NOC is subject to the terms and conditions as given below:

क) आवेदक द्वारा उपलब्ध कराए गए स्थल की ऊँचाई तथा निर्देशांक को, प्रस्तावित संरचना हेतु अनुमन्य अधिकतम ऊँचाई जारी करने के लिए प्रयोग किया गया है। भारतीय विमान पत्तन प्राधिकरण, आवेदक द्वारा उपलब्ध कराये गए स्थल की ऊँचाई तथा निर्देशांक की यथार्थता का ना तो उत्तरदायित्व वहन करता है, और ना ही इनको प्रमाणीकृत करता

है | यदि किसी भी स्तर पर यह पता चलता है कि वास्तविक विवरण, आवेदक द्वारा उपलब्ध कराए गए विवरण से भिन्न है, तो यह अनापत्ति प्रमाण पत्र अमान्य माना जाएगा तथा कानूनी कार्यवाही की जाएगी | सम्बंधित विमान क्षेत्र के प्रभारी अधिकारी द्वारा एयरक्राफ्ट नियम 1994 (भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन कार्यवाही की जायगी |

a. Permissible Top elevation has been issued on the basis of Site coordinates and Site Elevation submitted by Applicant. AAI neither owns the responsibility nor authenticates the correctness of the site coordinates & site elevation provided by the applicant. If at any stage it is established that the actual data is different, this NOC will stand null and void and action will be taken as per law. The officer in-charge of the concerned aerodrome may initiate action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

ख) संरचना की ऊँचाई (सुपर स्ट्रक्चर सहित) की गणना अनुमन्य अधिकतम ऊँचाई (ए एम एस एल) से स्थल की ऊँचाई को घटाकर की जायेगी | अर्थात्, संरचना की अधिकतम ऊँचाई = अनुमन्य अधिकतम ऊँचाई (-) स्थल की ऊँचाई |

b. The Structure height (including any superstructure) shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e. Maximum Structure Height = Permissible Top Elevation minus (-) Site Elevation.

ग) अनापत्ति प्रमाण पत्र जारी करना, भारतीय एयरक्राफ्ट एक्ट 1934, के सैक्शन 9-A तथा इसके अंतर्गत समय-समय पर जारी अधिसूचनाएं तथा एयरक्राफ्ट नियम (1994 भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन है |

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including, “The Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

घ) कोई भी रेडियो/ टीवी एन्टीना, लाइटनिंग अरेस्टर, सीढिया, मुमटी, पानी की टंकी तथा किसी भी प्रकार के उपस्कर पैरा 2 में उल्लेखित अनुमन्य अधिकतम ऊँचाई से ऊपर नहीं जानी चाहिए |

d) No radio/TV Antenna, lightening arresters, staircase and attachments of fixtures of any kind shall project above the respective Permissible Top Elevations as indicated in para 2.

च) यह प्रमाणपत्र इसके जारी होने की तारीख से 8 साल की अवधि के लिए वैध है। एक बार रिवेलीडेशन की अनुमति दी जा सकती है, बशर्ते कि इस तरह का अनुरोध एनओसी की समाप्ति की तारीख से छह महीने के भीतर किया जाए और प्रारंभिक प्रमाणपत्र 8 साल की वैधता अवधि के भीतर प्राप्त किया जाए |

e. The certificate is valid for a period of 8 years from the date of its issue. One-time revalidation shall be allowed, provided that such request shall be made within six months from the date of expiry of the NOC and commencement certificate is obtained within initial validity period of 8 years.

छ) भवन के निर्माण के दौरान या उसके बाद किसी भी समय स्थल पर ऐसी कोई भी लाइट या लाइटो का संयोजन नहीं लगाया जाएगा जिसकी तीव्रता, आकृति या रंग के कारण वैमानिक ग्राउन्ड लाइटों के साथ भ्रम उत्पन्न हो | विमान के सुरक्षित प्रचालन को प्रभावित करने वाली कोई भी गतिविधि मान्य नहीं होगी |

f. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the Airport shall be installed at the site at any time, during or after the construction of the building. No activity shall be allowed which may affect the safe operations of flights.

ज) डे मार्किंग तथा सहायक विद्युत आपूर्ति सहित नाइट लाइटिंग (डीजीसीए भारत की वेबसाइट www.dgca.nic.in पर उपलब्ध) नागर विमानन आवश्यकताएं श्रंखला 'बी' पार्ट | सैक्शन-4 के चैप्टर 6 तथा अनुलग्नक 6 में विनिर्दिष्ट



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दिशानिर्देशों के अनुसार उपलब्ध कराई जाएंगी।

g. Day markings & night lighting with secondary power supply shall be provided as per the guidelines specified in chapter 6 and appendix 6 of Civil Aviation Requirement Series 'B' Part I Section 4, available on DGCA India website: www.dgca.nic.in

झ) भवन के नक्शे के अनुमोदन सहित अन्य सभी वैधानिक अनापत्ति, संबंधित प्राधिकरणों से लेना आवेदक की जिम्मेदारी होगी, क्योंकि इस ऊँचाई हेतु अनापत्ति प्रमाणपत्र लेने का उद्देश्य सुरक्षित एवं नियमित विमान प्रचालन सुनिश्चित करना है तथा इसे भूमि के स्वामित्व आदि सहित किसी अन्य उद्देश्य/ दावे के लिए दस्तावेज के रूप में प्रयोग नहीं किया जा सकता।

h. The applicant is responsible to obtain all other statutory clearances from the concerned authorities including the approval of building plans. This NOC for height clearances is only to ensure safe and regular aircraft operations and shall not be used as document for any other purpose/claim whatsoever, including ownership of land etc.

ट) इस अनापत्ति प्रमाणपत्र आईडी का मूल्यांकन Aizawl, Lengpui विमानक्षेत्रों के संबंध में किया गया है। यह अनापत्ति प्रमाणपत्र भारतीय विमान पत्तन प्राधिकरण के विमानक्षेत्रों और अन्य लाइसेंस प्राप्त सिविल विमानक्षेत्रों, जो जी. एस. आर. 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची - III, अनुसूची - IV (भाग- I), अनुसूची- IV (भाग -2; केवल RCS हवाई अड्डे) और अनुसूची- VII में सूचीबद्ध हैं, के लिए जारी किया गया है।

i. This NOC ID has been assessed with respect to the Aizawl, Lengpui Airports. NOC has been issued w.r.t. the AAI Aerodromes and other licensed Civil Aerodromes as listed in Schedule – III, Schedule – IV(Part-I), Schedule- IV (Part-2; RCS Airports Only) and Schedule-VII of GSR 751(E) amended by GSR770(E)

ठ) यदि स्थल रक्षा विभाग के विमान क्षेत्र के अधिकार क्षेत्र में आता है, जैसा कि जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित की अनुसूची-V में सूचीबद्ध है, तो आवेदक को रक्षा विभाग से अलग से अनापत्ति प्रमाणपत्र लेना होता है। जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के नियम 13 के अनुसार, आवेदकों को उन स्थलों के लिये, जो जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची- IV (भाग -2; आरसीएस हवाई अड्डों के अलावा) के रूप में सूचीबद्ध बिना लाइसेंस वाले विमान क्षेत्र के अधिकार क्षेत्र में आता है, तो संबंधित राज्य सरकार से भी अनापत्ति प्रमाणपत्र लेने की आवश्यकता है।

j. Applicant needs to seek separate NOC from Defence, if the site lies within the jurisdiction of Defence Aerodromes as listed in Schedule-V of GSR751(E) amended by GSR770(E). As per Rule 13 of GSR751(E) amended by GSR770(E), applicants also need to seek NOC from the concerned State Govt. for sites which lies in the jurisdiction of unlicensed aerodromes as listed in Schedule-IV (Part-2: other than RCS airports) of GSR751(E) amended by GSR770(E).

ड) अनापत्ति प्रमाण पत्र (एनओसी) की किसी भी त्रुटि/व्याख्या की स्थिति में अंगरेजी अनुवाद ही मान्य होगा।

k. In case of any discrepancy/interpretation of NOC letter, English version shall be valid.

ढ) स्थल की ऊँचाई और/या संरचना की ऊँचाई के किसी भी विवाद में अनुमन्य अधिकतम ऊँचाई एएमएसएल में ही मान्य होगी।

l. In case of any dispute with respect to site elevation and/or AGL height, Permissible Top Elevation in AMSL shall prevail.

क्षेत्र का नाम / Region Name: उत्तर-पूर्व/North_East

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223



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पदनामित अधिकारी/Designated Officer	आर. गि. लामा / R. G. Lama महाप्रबंधक (ए.टी.एम), General Manager (ATM) भा.वि.प्रा., उ.पु.क्षेत्र, लो.गो.ब. अं.हावाइअड्डा, गुवाहाटी AAI, LGBI, Airport, Guwahati
नाम/ पदनाम/दिनांक सहित हस्ताक्षर Name/Designation/Sign with date	
द्वारा तैयार Prepared by	AVANISH KUMAR MAURYA, M(ATC) Amayya, 01/03/2021
द्वारा जांचा गया Verified by	RAJIB SARMA JTGM(ATM) 01/03/2021

ईमेल आईडी / EMAIL ID : nocner@aai.aero
फोन/ Ph: 0361-2842637

ANNEXURE/अनुलग्नक

Distance From Nearest Airport And Bearing/निकटतम विमानक्षेत्र से दूरी और बीयरिंग

Airport Name/ विमानक्षेत्र का नाम	Distance (Meters) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से दूरी (मीटर मे)	Bearing(Degree) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से बीयरिंग (डिग्री)
Aizawl	33493.14	254.94
Lengpui	23287.46	218.96
NOCID	LENG/NORTH_EAST/P/021821/529367	



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मालिक का नाम एवं पता

Er. Ngursailova Sailo, Sr. Executive
Engineer, Power & Electricity
Department, Govt. of Mizoram

दिनांक/DATE: 01-03-2021

**OWNERS Name &
Address**

Kawlphetha Building, New Secretariat
Complex, Khatla, Aizawl, Mizoram-
796001 Khatla Aizawl Mizoram 796001

वैधता/ Valid Up to: 28-02-2029

ऊँचाई की अनुमति हेतु अनापत्ति प्रमाण पत्र(एनओसी) No Objection Certificate for Height Clearance

1) यह अनापत्ति प्रमाण पत्र भारतीय विमानपत्तन प्राधिकरण (भाविप्रा) द्वारा प्रदत्त दायित्वों के अनुक्रम तथा सुरक्षित एवं नियमित विमान प्रचालन हेतु भारत सरकार (नागर विमानन मंत्रालय) की अधिसूचना जी. एस. आर. 751 (ई) दिनांक 30 सितम्बर, 2015, जी. एस. आर. 770 (ई) दिनांक 17 दिसंबर 2020 द्वारा संशोधित, के प्रावधानों के अंतर्गत दिया जाता है।

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep.2015 amended by GSR770(E) dated 17th Dec 2020 for safe and Regular Aircraft Operations.

2). इस कार्यालय को निम्नलिखित विवरण के अनुसार प्रस्तावित संरचना के निर्माण पर कोई आपत्ति नहीं है।

2. This office has no objection to the construction of the proposed structure as per the following details:

अनापत्ति प्रमाणपत्र आईडी / NOC ID		LENG/NORTH_EAST/P/021821/529369					
आवेदक का नाम / Applicant Name*		Er. Ngursailova Sailo, Sr. Executive Engineer, Pow					
क्रमांक/S No.	खंभे (पोल) की पहचान संख्या/Pole ID	अक्षांश/Latitude	देशांतर/Longitude	स्थल की ऊँचाई मीटर (औसतन समुद्र तल से ऊपर) में, (जैसा आवेदक द्वारा उपलब्ध कराया गया) / Site Elevation in mtrs AMSL as submitted by Applicant *	आवश्यक शीर्ष ऊँचाई (RTE) मीटर में) औसतन समुद्र तल से ऊपर / Req. Top Elevation(RTE) in mtrs AMSL	अनुमन्य अधिकतम ऊँचाई एएमएसएल मीटर में (औसतन समुद्र तल से ऊपर) / Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	टिप्पणियां/Remarks
1	21_0	23 38 1.18N	92 28 11.85E	705.78	734.69	734.69	CLEARED
2	22_0	23 37 48.91N	92 28 5.19E	758.05	787.53	787.53	CLEARED
3	23_0	23 37 45.23N	92 28 1.87E	744.41	773.32	773.32	CLEARED
4	24_0	23 37 38.95N	92 27 58.15E	736.38	768.86	768.86	CLEARED
5	25_0	23 37 21.14N	92 27 50.17E	694.81	727.29	727.29	CLEARED
6	26_0	23 37 15N	92 27 48.75E	698.53	731.01	731.01	CLEARED
7	27_0	23 37 2.7N	92 27 49.99E	694.02	726.5	726.5	CLEARED
8	28_0	23 36 43.88N	92 27 50.55E	665.41	694.89	694.89	CLEARED
9	29_0	23 36 31.17N	92 27 50.79E	693.19	725.1	725.1	CLEARED
10	30_0	23 36 21.56N	92 27 48.78E	722.49	757.58	757.58	CLEARED
11	31_0	23 36 10.88N	92 27 56.94E	624.13	656.61	656.61	CLEARED
12	32_0	23 35 58.5N	92 28 8.84E	504.37	536.46	536.46	CLEARED
13	33_0	23 35 43.14N	92 28 7E	523.15	558.24	558.24	CLEARED
14	34_0	23 35 37.18N	92 28 1.56E	590.76	625.85	625.85	CLEARED
15	35_0	23 35 20.04N	92 27 55.11E	692.23	727.71	727.71	CLEARED
16	36_0	23 35 10.69N	92 27 53.3E	663.2	698.11	698.11	CLEARED
17	37_0	23 34 59.06N	92 27 51.46E	707.58	745.67	745.67	CLEARED
18	38_0	23 34 44.75N	92 27 37.88E	696.49	728.97	728.97	CLEARED
19	38A_0	23 34 42.3N	92 27 34.04E	675.14	704.05	704.05	CLEARED
20	39_0	23 34 37.13N	92 27 25.16E	593.3	625.78	625.78	CLEARED

* जैसा आवेदक द्वारा उपलब्ध कराया गया / As provided by applicant*

3) यह अनापत्ति प्रमाण पत्र निम्नलिखित नियम व शर्तों के अधीन है: -

3. This NOC is subject to the terms and conditions as given below:

क) आवेदक द्वारा उपलब्ध कराए गए स्थल की ऊँचाई तथा निर्देशांक को, प्रस्तावित संरचना हेतु अनुमन्य अधिकतम ऊँचाई जारी करने के लिए प्रयोग किया गया है। भारतीय विमान पत्तन प्राधिकरण, आवेदक द्वारा उपलब्ध कराये गए स्थल की ऊँचाई तथा निर्देशांक की यथार्थता का ना तो उत्तरदायित्व वहन करता है, और ना ही इनको प्रमाणीकृत करता



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है | यदि किसी भी स्तर पर यह पता चलता है कि वास्तविक विवरण, आवेदक द्वारा उपलब्ध कराए गए विवरण से भिन्न है, तो यह अनापत्ति प्रमाण पत्र अमान्य माना जाएगा तथा कानूनी कार्यवाही की जाएगी | सम्बंधित विमान क्षेत्र के प्रभारी अधिकारी द्वारा एयरक्राफ्ट नियम 1994 (भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन कार्यवाही की जायगी |

a. Permissible Top elevation has been issued on the basis of Site coordinates and Site Elevation submitted by Applicant. AAI neither owns the responsibility nor authenticates the correctness of the site coordinates & site elevation provided by the applicant. If at any stage it is established that the actual data is different, this NOC will stand null and void and action will be taken as per law. The officer in-charge of the concerned aerodrome may initiate action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”

ख) संरचना की ऊँचाई (सुपर स्ट्रक्चर सहित) की गणना अनुमन्य अधिकतम ऊँचाई (ए एम एस एल) से स्थल की ऊँचाई को घटाकर की जायेगी | अर्थात्, संरचना की अधिकतम ऊँचाई = अनुमन्य अधिकतम ऊँचाई (-) स्थल की ऊँचाई |

b. The Structure height (including any superstructure) shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e. Maximum Structure Height = Permissible Top Elevation minus (-) Site Elevation.

ग) अनापत्ति प्रमाण पत्र जारी करना, भारतीय एयरक्राफ्ट एक्ट 1934, के सैक्शन 9-A तथा इसके अंतर्गत समय-समय पर जारी अधिसूचनाएं तथा एयरक्राफ्ट नियम (1994 भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन है |

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including, “The Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

घ) कोई भी रेडियो/ टीवी एन्टीना, लाइटनिंग अरेस्टर, सीढ़िया, मुमटी, पानी की टंकी तथा किसी भी प्रकार के उपस्कर पैरा 2 में उल्लेखित अनुमन्य अधिकतम ऊँचाई से ऊपर नहीं जानी चाहिए |

d) No radio/TV Antenna, lightening arresters, staircase and attachments of fixtures of any kind shall project above the respective Permissible Top Elevations as indicated in para 2.

च) यह प्रमाणपत्र इसके जारी होने की तारीख से 8 साल की अवधि के लिए वैध है। एक बार रिवेलीडेशन की अनुमति दी जा सकती है, बशर्ते कि इस तरह का अनुरोध एनओसी की समाप्ति की तारीख से छह महीने के भीतर किया जाए और प्रारंभिक प्रमाणपत्र 8 साल की वैधता अवधि के भीतर प्राप्त किया जाए |

e. The certificate is valid for a period of 8 years from the date of its issue. One-time revalidation shall be allowed, provided that such request shall be made within six months from the date of expiry of the NOC and commencement certificate is obtained within initial validity period of 8 years.

छ) भवन के निर्माण के दौरान या उसके बाद किसी भी समय स्थल पर ऐसी कोई भी लाइट या लाइटो का संयोजन नहीं लगाया जाएगा जिसकी तीव्रता, आकृति या रंग के कारण वैमानिक ग्राउन्ड लाइटों के साथ भ्रम उत्पन्न हो | विमान के सुरक्षित प्रचालन को प्रभावित करने वाली कोई भी गतिविधि मान्य नहीं होगी |

f. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the Airport shall be installed at the site at any time, during or after the construction of the building. No activity shall be allowed which may affect the safe operations of flights.

ज) डे मार्किंग तथा सहायक विद्युत आपूर्ति सहित नाइट लाइटिंग (डीजीसीए भारत की वेबसाइट www.dgca.nic.in पर उपलब्ध) नागर विमानन आवश्यकताएं श्रंखला 'बी' पार्ट | सैक्शन-4 के चैप्टर 6 तथा अनुलग्नक 6 में विनिर्दिष्ट



भारतीय विमानपत्तन प्राधिकरण AIRPORTS AUTHORITY OF INDIA

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दिशानिर्देशों के अनुसार उपलब्ध कराई जाएंगी।

g. Day markings & night lighting with secondary power supply shall be provided as per the guidelines specified in chapter 6 and appendix 6 of Civil Aviation Requirement Series 'B' Part I Section 4, available on DGCA India website: www.dgca.nic.in

झ) भवन के नक्शे के अनुमोदन सहित अन्य सभी वैधानिक अनापत्ति, संबंधित प्राधिकरणों से लेना आवेदक की जिम्मेदारी होगी, क्योंकि इस ऊँचाई हेतु अनापत्ति प्रमाणपत्र लेने का उद्देश्य सुरक्षित एवं नियमित विमान प्रचालन सुनिश्चित करना है तथा इसे भूमि के स्वामित्व आदि सहित किसी अन्य उद्देश्य/ दावे के लिए दस्तावेज के रूप में प्रयोग नहीं किया जा सकता।

h. The applicant is responsible to obtain all other statutory clearances from the concerned authorities including the approval of building plans. This NOC for height clearances is only to ensure safe and regular aircraft operations and shall not be used as document for any other purpose/claim whatsoever, including ownership of land etc.

ट) इस अनापत्ति प्रमाणपत्र आईडी का मूल्यांकन Aizawl, Lengpui विमानक्षेत्रों के संबंध में किया गया है। यह अनापत्ति प्रमाणपत्र भारतीय विमान पत्तन प्राधिकरण के विमानक्षेत्रों और अन्य लाइसेंस प्राप्त सिविल विमानक्षेत्रों, जो जी. एस. आर. 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची - III, अनुसूची - IV (भाग- I), अनुसूची- IV (भाग -2; केवल RCS हवाई अड्डे) और अनुसूची- VII में सूचीबद्ध हैं, के लिए जारी किया गया है।

i. This NOC ID has been assessed with respect to the Aizawl, Lengpui Airports. NOC has been issued w.r.t. the AAI Aerodromes and other licensed Civil Aerodromes as listed in Schedule – III, Schedule – IV(Part-I), Schedule- IV (Part-2; RCS Airports Only) and Schedule-VII of GSR 751(E) amended by GSR770(E)

ठ) यदि स्थल रक्षा विभाग के विमान क्षेत्र के अधिकार क्षेत्र में आता है, जैसा कि जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित की अनुसूची-V में सूचीबद्ध है, तो आवेदक को रक्षा विभाग से अलग से अनापत्ति प्रमाणपत्र लेना होता है। जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के नियम 13 के अनुसार, आवेदकों को उन स्थलों के लिये, जो जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची- IV (भाग -2; आरसीएस हवाई अड्डों के अलावा) के रूप में सूचीबद्ध बिना लाइसेंस वाले विमान क्षेत्र के अधिकार क्षेत्र में आता है, तो संबंधित राज्य सरकार से भी अनापत्ति प्रमाणपत्र लेने की आवश्यकता है।

j. Applicant needs to seek separate NOC from Defence, if the site lies within the jurisdiction of Defence Aerodromes as listed in Schedule-V of GSR751(E) amended by GSR770(E). As per Rule 13 of GSR751(E) amended by GSR770(E), applicants also need to seek NOC from the concerned State Govt. for sites which lies in the jurisdiction of unlicensed aerodromes as listed in Schedule-IV (Part-2: other than RCS airports) of GSR751(E) amended by GSR770(E).

ड) अनापत्ति प्रमाण पत्र (एनओसी) की किसी भी त्रुटि/व्याख्या की स्थिति में अंगरेजी अनुवाद ही मान्य होगा।

k. In case of any discrepancy/interpretation of NOC letter, English version shall be valid.

ढ) स्थल की ऊँचाई और/या संरचना की ऊँचाई के किसी भी विवाद में अनुमन्य अधिकतम ऊँचाई एएमएसएल में ही मान्य होगी।

l. In case of any dispute with respect to site elevation and/or AGL height, Permissible Top Elevation in AMSL shall prevail.

क्षेत्र का नाम / Region Name: उत्तर-पूर्व/North_East

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223



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AIRPORTS AUTHORITY OF INDIA



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LENG/NORTH_EAST/P/021821/529369

पदनामित अधिकारी/Designated Officer

नाम/ पदनाम/दिनांक सहित हस्ताक्षर
Name/Designation/Sign with date

01/03/21
आर.जि.लामा / R. G. Lama

महाप्रबंधक (ए.टी.एम),
General Manager (ATM)

भा.वि.प्रा., उ.पु.क्षेत्र, लो.गो.ब. अं.हावाइअड्डा, गुवाहाटी
AAI, LGBI, Airport, Guwahati

द्वारा तैयार Prepared by

AVANISH KUMAR MAURYA, MGR(ATC)

01/03/2021

द्वारा जांचा गया Verified by

RAJIB SARMA
Jr GM(ATM)

01/03/2021

ईमेल आईडी / EMAIL ID : nocner@aaai.aero

फोन/ Ph: 0361-2842637

ANNEXURE/अनुलग्नक

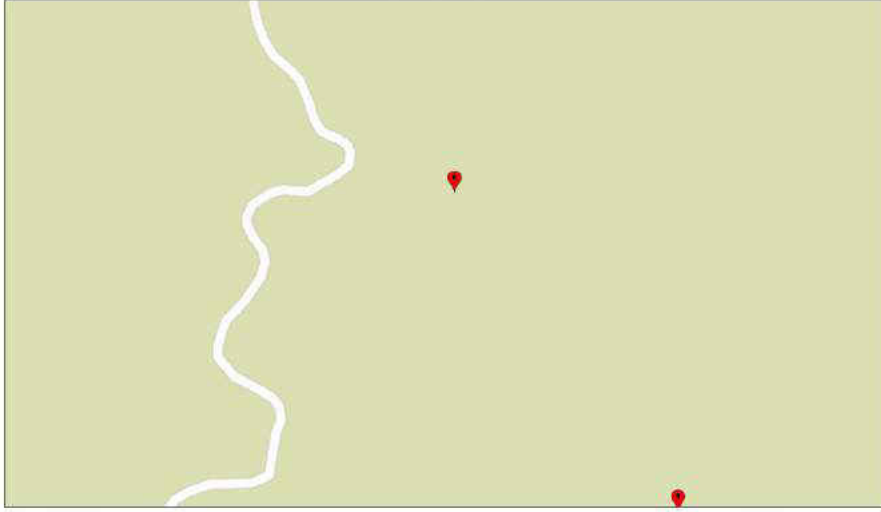
Distance From Nearest Airport And Bearing/निकटतम विमानक्षेत्र से दूरी और बीयरिंग

Airport Name/ विमानक्षेत्र का नाम	Distance (Meters) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से दूरी (मीटर में)	Bearing(Degree) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से बीयरिंग (डिग्री)
Aizawl	36169.11	250.05
Lengpui	27590.74	214.79
NOCID	LENG/NORTH_EAST/P/021821/529369	

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223

Street view



February 18, 2021

1:3,600
0 0.03 0.06 0.11 mi
0 0.04 0.08 0.17 km
Map data © OpenStreetMap contributors, Imagery © Google Earth
Scale: 1:3,600
Data © OpenStreetMap contributors, Imagery © Google Earth

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Satellite View



February 18, 2021

1:3,600
0 0.03 0.06 0.11 mi
0 0.04 0.08 0.17 km
Map data © OpenStreetMap contributors, Imagery © Google Earth
Scale: 1:3,600
Data © OpenStreetMap contributors, Imagery © Google Earth

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LENG/NORTH_EAST/P/021821/529370

मालिक का नाम एवं पता

Er. Ngursailova Sailo, Sr. Executive
Engineer, Power & Electricity
Department, Govt. of Mizoram

दिनांक/DATE: 01-03-2021

OWNERS Name &
Address

Kawlphetha Building, New Secretariat
Complex, Khatla, Aizawl, Mizoram-
796001 Khatla Aizawl Mizoram 796001

वैधता/ Valid Up to: 28-02-2029

ऊँचाई की अनुमति हेतु अनापत्ति प्रमाण पत्र(एनओसी) **No Objection Certificate for Height Clearance**

1) यह अनापत्ति प्रमाण पत्र भारतीय विमानपत्तन प्राधिकरण (भाविप्रा) द्वारा प्रदत्त दायित्वों के अनुक्रम तथा सुरक्षित एवं नियमित विमान प्रचालन हेतु भारत सरकार (नागर विमानन मंत्रालय) की अधिसूचना जी. एस. आर. 751 (ई) दिनांक 30 सितम्बर, 2015, जी. एस. आर. 770 (ई) दिनांक 17 दिसंबर 2020 द्वारा संशोधित, के प्रावधानों के अंतर्गत दिया जाता है।

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep.2015 amended by GSR770(E) dated 17th Dec 2020 for safe and Regular Aircraft Operations.

2). इस कार्यालय को निम्नलिखित विवरण के अनुसार प्रस्तावित संरचना के निर्माण पर कोई आपत्ति नहीं है।

2. This office has no objection to the construction of the proposed structure as per the following details:

अनापत्ति प्रमाणपत्र आईडी / NOC ID		LENG/NORTH_EAST/P/021821/529370					
आवेदक का नाम / Applicant Name*		Er. Ngursailova Sailo, Sr. Executive Engineer, Pow					
क्रमांक/S No.	खंबे (पोल) की पहचान संख्या/Pole ID	अक्षांश/Latitude	देशांतर/Longitude	स्थल की ऊँचाई मीटर (औसतन समुद्र तल से ऊपर) में, (जैसा आवेदक द्वारा उपलब्ध कराया गया) / Site Elevation in mtrs AMSL as submitted by Applicant *	आवश्यक शीर्ष ऊँचाई (RTE) मीटर में) औसतन समुद्र तल से ऊपर / Req. Top Elevation(RTE) in mtrs AMSL	अनुमन्य अधिकतम ऊँचाई एएमएसएल मीटर में (औसतन समुद्र तल से ऊपर) / Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	टिप्पणियां/Remarks
1	40_0	23 34 34.04N	92 27 11.08E	612.77	644.68	644.68	CLEARED
2	41_0	23 34 32.16N	92 26 57.37E	658	696.48	696.48	CLEARED
3	42_0	23 34 24.65N	92 26 44.09E	691.59	727.07	727.07	CLEARED
4	43_0	23 34 17.13N	92 26 39E	704.88	733.79	733.79	CLEARED
5	44_0	23 34 13.09N	92 26 35.74E	717.85	749.76	749.76	CLEARED
6	45_0	23 34 1.8N	92 26 30.16E	722.81	754.72	754.72	CLEARED
7	45A_0	23 33 53.27N	92 26 27.53E	720.1	749.01	749.01	CLEARED
8	46_0	23 33 45.46N	92 26 25.34E	743.24	775.15	775.15	CLEARED
9	46A_0	23 33 39.92N	92 26 23.39E	717.68	752.59	752.59	CLEARED
10	47_0	23 33 31.66N	92 26 20.73E	731.16	766.25	766.25	CLEARED
11	48_0	23 33 21.68N	92 26 4.55E	707.4	742.49	742.49	CLEARED
12	49_0	23 33 8.78N	92 25 55.14E	887.01	925.1	925.1	CLEARED
13	50_0	23 33 3.85N	92 25 45.16E	911.25	943.73	943.73	CLEARED
14	50A_0	23 32 56.7N	92 25 38.39E	886.95	915.86	915.86	CLEARED
15	51_0	23 32 49.83N	92 25 33.46E	904.78	933.69	933.69	CLEARED
16	52_0	23 32 37.11N	92 25 27.24E	867.41	896.89	896.89	CLEARED
17	53_0	23 32 20.23N	92 25 18.37E	919.85	951.94	951.94	CLEARED
18	54_0	23 32 18.66N	92 25 17E	933.65	962.56	962.56	CLEARED
19	55_0	23 32 7.81N	92 25 10.02E	918.01	947.49	947.49	CLEARED
20	56_0	23 31 55.19N	92 25 8.3E	885.89	915.37	915.37	CLEARED

* जैसा आवेदक द्वारा उपलब्ध कराया गया / As provided by applicant*

3) यह अनापत्ति प्रमाण पत्र निम्नलिखित नियम व शर्तों के अधीन है: -

3. This NOC is subject to the terms and conditions as given below:

क) आवेदक द्वारा उपलब्ध कराए गए स्थल की ऊँचाई तथा निर्देशांक को, प्रस्तावित संरचना हेतु अनुमन्य अधिकतम ऊँचाई जारी करने के लिए प्रयोग किया गया है। भारतीय विमान पत्तन प्राधिकरण, आवेदक द्वारा उपलब्ध कराये गए स्थल की ऊँचाई तथा निर्देशांक की यथार्थता का ना तो उत्तरदायित्व वहन करता है, और ना ही इनको प्रमाणीकृत करता



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है | यदि किसी भी स्तर पर यह पता चलता है कि वास्तविक विवरण, आवेदक द्वारा उपलब्ध कराए गए विवरण से भिन्न है, तो यह अनापत्ति प्रमाण पत्र अमान्य माना जाएगा तथा कानूनी कार्यवाही की जाएगी | सम्बंधित विमान क्षेत्र के प्रभारी अधिकारी द्वारा एयरक्राफ्ट नियम 1994 (भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन कार्यवाही की जायगी |

a. Permissible Top elevation has been issued on the basis of Site coordinates and Site Elevation submitted by Applicant. AAI neither owns the responsibility nor authenticates the correctness of the site coordinates & site elevation provided by the applicant. If at any stage it is established that the actual data is different, this NOC will stand null and void and action will be taken as per law. The officer in-charge of the concerned aerodrome may initiate action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”

ख) संरचना की ऊँचाई (सुपर स्ट्रक्चर सहित) की गणना अनुमन्य अधिकतम ऊँचाई (ए एम एस एल) से स्थल की ऊँचाई को घटाकर की जायेगी | अर्थात्, संरचना की अधिकतम ऊँचाई = अनुमन्य अधिकतम ऊँचाई (-) स्थल की ऊँचाई |

b. The Structure height (including any superstructure) shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e. Maximum Structure Height = Permissible Top Elevation minus (-) Site Elevation.

ग) अनापत्ति प्रमाण पत्र जारी करना, भारतीय एयरक्राफ्ट एक्ट 1934, के सैक्शन 9-A तथा इसके अंतर्गत समय-समय पर जारी अधिसूचनाएं तथा एयरक्राफ्ट नियम (1994 भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन है |

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including, “The Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

घ) कोई भी रेडियो/ टीवी एन्टीना, लाइटनिंग अरेस्टर, सीढिया, मुमटी, पानी की टंकी तथा किसी भी प्रकार के उपस्कर पैरा 2 में उल्लेखित अनुमन्य अधिकतम ऊँचाई से ऊपर नहीं जानी चाहिए |

d) No radio/TV Antenna, lightening arresters, staircase and attachments of fixtures of any kind shall project above the respective Permissible Top Elevations as indicated in para 2.

च) यह प्रमाणपत्र इसके जारी होने की तारीख से 8 साल की अवधि के लिए वैध है। एक बार रिवेलीडेशन की अनुमति दी जा सकती है, बशर्ते कि इस तरह का अनुरोध एनओसी की समाप्ति की तारीख से छह महीने के भीतर किया जाए और प्रारंभिक प्रमाणपत्र 8 साल की वैधता अवधि के भीतर प्राप्त किया जाए |

e. The certificate is valid for a period of 8 years from the date of its issue. One-time revalidation shall be allowed, provided that such request shall be made within six months from the date of expiry of the NOC and commencement certificate is obtained within initial validity period of 8 years.

छ) भवन के निर्माण के दौरान या उसके बाद किसी भी समय स्थल पर ऐसी कोई भी लाइट या लाइटो का संयोजन नहीं लगाया जाएगा जिसकी तीव्रता, आकृति या रंग के कारण वैमानिक ग्राउन्ड लाइटों के साथ भ्रम उत्पन्न हो | विमान के सुरक्षित प्रचालन को प्रभावित करने वाली कोई भी गतिविधि मान्य नहीं होगी |

f. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the Airport shall be installed at the site at any time, during or after the construction of the building. No activity shall be allowed which may affect the safe operations of flights.

ज) डे मार्किंग तथा सहायक विद्युत आपूर्ति सहित नाइट लाइटिंग (डीजीसीए भारत की वेबसाइट www.dgca.nic.in पर उपलब्ध) नागर विमानन आवश्यकताएं श्रंखला 'बी' पार्ट | सैक्शन-4 के चैप्टर 6 तथा अनुलग्नक 6 में विनिर्दिष्ट



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दिशानिर्देशों के अनुसार उपलब्ध कराई जाएंगी।

g. Day markings & night lighting with secondary power supply shall be provided as per the guidelines specified in chapter 6 and appendix 6 of Civil Aviation Requirement Series 'B' Part I Section 4, available on DGCA India website: www.dgca.nic.in

झ) भवन के नक्शे के अनुमोदन सहित अन्य सभी वैधानिक अनापत्ति, संबंधित प्राधिकरणों से लेना आवेदक की जिम्मेदारी होगी, क्योंकि इस ऊँचाई हेतु अनापत्ति प्रमाणपत्र लेने का उद्देश्य सुरक्षित एवं नियमित विमान प्रचालन सुनिश्चित करना है तथा इसे भूमि के स्वामित्व आदि सहित किसी अन्य उद्देश्य/ दावे के लिए दस्तावेज के रूप में प्रयोग नहीं किया जा सकता।

h. The applicant is responsible to obtain all other statutory clearances from the concerned authorities including the approval of building plans. This NOC for height clearances is only to ensure safe and regular aircraft operations and shall not be used as document for any other purpose/claim whatsoever, including ownership of land etc.

ट) इस अनापत्ति प्रमाणपत्र आईडी का मूल्यांकन Aizawl, Lengpui विमानक्षेत्रों के संबंध में किया गया है। यह अनापत्ति प्रमाणपत्र भारतीय विमान पत्तन प्राधिकरण के विमानक्षेत्रों और अन्य लाइसेंस प्राप्त सिविल विमानक्षेत्रों, जो जी. एस. आर. 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची - III, अनुसूची - IV (भाग- I), अनुसूची- IV (भाग -2; केवल RCS हवाई अड्डे) और अनुसूची- VII में सूचीबद्ध हैं, के लिए जारी किया गया है।

i. This NOC ID has been assessed with respect to the Aizawl, Lengpui Airports. NOC has been issued w.r.t. the AAI Aerodromes and other licensed Civil Aerodromes as listed in Schedule – III, Schedule – IV(Part-I), Schedule- IV (Part-2; RCS Airports Only) and Schedule-VII of GSR 751(E) amended by GSR770(E)

ठ) यदि स्थल रक्षा विभाग के विमान क्षेत्र के अधिकार क्षेत्र में आता है, जैसा कि जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित की अनुसूची-V में सूचीबद्ध है, तो आवेदक को रक्षा विभाग से अलग से अनापत्ति प्रमाणपत्र लेना होता है। जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के नियम 13 के अनुसार, आवेदकों को उन स्थलों के लिये, जो जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची- IV (भाग -2; आरसीएस हवाई अड्डों के अलावा) के रूप में सूचीबद्ध बिना लाइसेंस वाले विमान क्षेत्र के अधिकार क्षेत्र में आता है, तो संबंधित राज्य सरकार से भी अनापत्ति प्रमाणपत्र लेने की आवश्यकता है।

j. Applicant needs to seek separate NOC from Defence, if the site lies within the jurisdiction of Defence Aerodromes as listed in Schedule-V of GSR751(E) amended by GSR770(E). As per Rule 13 of GSR751(E) amended by GSR770(E), applicants also need to seek NOC from the concerned State Govt. for sites which lies in the jurisdiction of unlicensed aerodromes as listed in Schedule-IV (Part-2: other than RCS airports) of GSR751(E) amended by GSR770(E).

ड) अनापत्ति प्रमाण पत्र (एनओसी) की किसी भी त्रुटि/व्याख्या की स्थिति में अंगरेजी अनुवाद ही मान्य होगा।

k. In case of any discrepancy/interpretation of NOC letter, English version shall be valid.

ढ) स्थल की ऊँचाई और/या संरचना की ऊँचाई के किसी भी विवाद में अनुमन्य अधिकतम ऊँचाई एएमएसएल में ही मान्य होगी।

l. In case of any dispute with respect to site elevation and/or AGL height, Permissible Top Elevation in AMSL shall prevail.

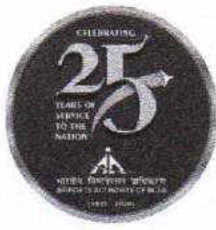
क्षेत्र का नाम / Region Name: उत्तर-पूर्व/North_East

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223



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01/03/2021
आर.जि.लामा / R. G. Lama
महाप्रबन्धक (जी.टी.एम.),
General Manager (ATM)

भा.वि.प्रा., उ.पु.क्षेत्र, लो.गा.व. अं.हावाइअड्डा, गुवाहाटी
AAI, LGBI, Airport, Guwahati

पदनामित अधिकारी/Designated Officer

नाम/ पदनाम/दिनांक सहित हस्ताक्षर
Name/Designation/Sign with date

द्वारा तैयार Prepared by

AVANISH KUMAR MAURYA, M(ATC)

01/03/2021

द्वारा जांचा गया Verified by

RAJIB SARMA
JTEM(ATM)

01/09/2021

ईमेल आईडी / EMAIL ID : nocner@aai.aero
फोन/ Ph: 0361-2842637

ANNEXURE/अनुलग्नक

Distance From Nearest Airport And Bearing/निकटतम विमानक्षेत्र से दूरी और बीयरिंग

Airport Name/ विमानक्षेत्र का नाम	Distance (Meters) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से दूरी (मीटर मे)	Bearing(Degree) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से बीयरिंग (डिग्री)
Aizawl	40343.29	242.37
Lengpui	33884.59	211.07
NOCID	LENG/NORTH_EAST/P/021821/529370	



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मालिक का नाम एवं पता

Er. Ngursailova Sailo, Sr. Executive
Engineer, Power & Electricity
Department, Govt. of Mizoram

दिनांक/DATE: 01-03-2021

OWNERS Name &
Address

Kawlphetha Building, New Secretariat
Complex, Khatla, Aizawl, Mizoram-
796001 Khatla Aizawl Mizoram 796001

वैधता/ Valid Up to: 28-02-2029

ऊँचाई की अनुमति हेतु अनापत्ति प्रमाण पत्र(एनओसी) **No Objection Certificate for Height Clearance**

1) यह अनापत्ति प्रमाण पत्र भारतीय विमानपत्तन प्राधिकरण (भाविप्रा) द्वारा प्रदत्त दायित्वों के अनुक्रम तथा सुरक्षित एवं नियमित विमान प्रचालन हेतु भारत सरकार (नागर विमानन मंत्रालय) की अधिसूचना जी. एस. आर. 751 (ई) दिनांक 30 सितम्बर, 2015, जी. एस. आर. 770 (ई) दिनांक 17 दिसंबर 2020 द्वारा संशोधित, के प्रावधानों के अंतर्गत दिया जाता है।

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep.2015 amended by GSR770(E) dated 17th Dec 2020 for safe and Regular Aircraft Operations.

2). इस कार्यालय को निम्नलिखित विवरण के अनुसार प्रस्तावित संरचना के निर्माण पर कोई आपत्ति नहीं है।

2. This office has no objection to the construction of the proposed structure as per the following details:

अनापत्ति प्रमाणपत्र आईडी / NOC ID		LENG/NORTH_EAST/P/021821/529371					
आवेदक का नाम / Applicant Name*		Er. Ngursailova Sailo, Sr. Executive Engineer, Pow					
क्रमांक/S No.	खंबे (पोल) की पहचान संख्या/Pole ID	अक्षांश/Latitude	देशांतर/Longitude	स्थल की ऊँचाई मीटर (औसतन समुद्र तल से ऊपर) में, (जैसा आवेदक द्वारा उपलब्ध कराया गया) / Site Elevation in mtrs AMSL as submitted by Applicant *	आवश्यक शीर्ष ऊँचाई (RTE) मीटर में) औसतन समुद्र तल से ऊपर / Req. Top Elevation(RTE) in mtrs AMSL	अनुमन्य अधिकतम ऊँचाई एएमएसएल मीटर में (औसतन समुद्र तल से ऊपर) / Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	टिप्पणियां/Remarks
1	57_0	23 31 39.78N	92 25 9.56E	856.91	886.39	886.39	CLEARED
2	58_0	23 31 29.53N	92 25 6.02E	828.45	863.54	863.54	CLEARED
3	59_0	23 31 17.04N	92 25 14.75E	812.61	844.52	844.52	CLEARED
4	60_0	23 31 12.42N	92 25 17.03E	809.62	844.71	844.71	CLEARED
5	61_0	23 31 7.14N	92 25 15.07E	799.43	831.34	831.34	CLEARED
6	62_0	23 30 57.1N	92 25 14.04E	821.52	856.61	856.61	CLEARED
7	63_0	23 30 50.88N	92 25 19.18E	843.71	881.8	881.8	CLEARED
8	65_0	23 30 38.3N	92 25 14.4E	859.15	888.63	888.63	CLEARED
9	66_0	23 30 28.9N	92 25 15.7E	836.88	869.36	869.36	CLEARED
10	67_0	23 30 23.5N	92 25 13.5E	856.74	885.65	885.65	CLEARED
11	68_0	23 30 14.65N	92 25 10.07E	827.3	859.78	859.78	CLEARED
12	69_0	23 30 8.41N	92 25 9.68E	830.48	862.39	862.39	CLEARED
13	70_0	23 30 3.32N	92 25 8.51E	838.57	867.48	867.48	CLEARED
14	71_0	23 29 53.01N	92 25 7.2E	841.71	873.8	873.8	CLEARED
15	73_0	23 29 38.18N	92 25 14.16E	829.53	862.01	862.01	CLEARED
16	74_0	23 29 21.07N	92 25 17.05E	769.09	798.57	798.57	CLEARED
17	75_0	23 29 11.19N	92 25 19.69E	780.26	818.74	818.74	CLEARED
18	76_0	23 28 54.61N	92 25 23.24E	717.99	753.08	753.08	CLEARED
19	77_0	23 28 49.08N	92 25 30.45E	737.51	769.42	769.42	CLEARED
20	78_0	23 28 46.44N	92 25 32.65E	727.57	765.66	765.66	CLEARED

* जैसा आवेदक द्वारा उपलब्ध कराया गया / As provided by applicant*

3) यह अनापत्ति प्रमाण पत्र निम्नलिखित नियम व शर्तों के अधीन है: -

3. This NOC is subject to the terms and conditions as given below:

क) आवेदक द्वारा उपलब्ध कराए गए स्थल की ऊँचाई तथा निर्देशांक को, प्रस्तावित संरचना हेतु अनुमन्य अधिकतम ऊँचाई जारी करने के लिए प्रयोग किया गया है। भारतीय विमान पत्तन प्राधिकरण, आवेदक द्वारा उपलब्ध कराये गए स्थल की ऊँचाई तथा निर्देशांक की यथार्थता का ना तो उत्तरदायित्व वहन करता है, और ना ही इनको प्रमाणीकृत करता



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है | यदि किसी भी स्तर पर यह पता चलता है कि वास्तविक विवरण, आवेदक द्वारा उपलब्ध कराए गए विवरण से भिन्न है, तो यह अनापत्ति प्रमाण पत्र अमान्य माना जाएगा तथा कानूनी कार्यवाही की जाएगी | सम्बंधित विमान क्षेत्र के प्रभारी अधिकारी द्वारा एयरक्राफ्ट नियम 1994 (भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन कार्यवाही की जायगी |

a. Permissible Top elevation has been issued on the basis of Site coordinates and Site Elevation submitted by Applicant. AAI neither owns the responsibility nor authenticates the correctness of the site coordinates & site elevation provided by the applicant. If at any stage it is established that the actual data is different, this NOC will stand null and void and action will be taken as per law. The officer in-charge of the concerned aerodrome may initiate action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”

ख) संरचना की ऊँचाई (सुपर स्ट्रक्चर सहित) की गणना अनुमन्य अधिकतम ऊँचाई (ए एम एस एल) से स्थल की ऊँचाई को घटाकर की जायेगी | अर्थात्, संरचना की अधिकतम ऊँचाई = अनुमन्य अधिकतम ऊँचाई (-) स्थल की ऊँचाई |

b. The Structure height (including any superstructure) shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e. Maximum Structure Height = Permissible Top Elevation minus (-) Site Elevation.

ग) अनापत्ति प्रमाण पत्र जारी करना, भारतीय एयरक्राफ्ट एक्ट 1934, के सैक्शन 9-A तथा इसके अंतर्गत समय-समय पर जारी अधिसूचनाएं तथा एयरक्राफ्ट नियम (1994 भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन है |

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including, “The Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

घ) कोई भी रेडियो/ टीवी एन्टीना, लाइटनिंग अरेस्टर, सीढिया, मुमटी, पानी की टंकी तथा किसी भी प्रकार के उपस्कर पैरा 2 में उल्लेखित अनुमन्य अधिकतम ऊँचाई से ऊपर नहीं जानी चाहिए |

d) No radio/TV Antenna, lightening arresters, staircase and attachments of fixtures of any kind shall project above the respective Permissible Top Elevations as indicated in para 2.

च) यह प्रमाणपत्र इसके जारी होने की तारीख से 8 साल की अवधि के लिए वैध है। एक बार रिवेलीडेशन की अनुमति दी जा सकती है, बशर्ते कि इस तरह का अनुरोध एनओसी की समाप्ति की तारीख से छह महीने के भीतर किया जाए और प्रारंभिक प्रमाणपत्र 8 साल की वैधता अवधि के भीतर प्राप्त किया जाए |

e. The certificate is valid for a period of 8 years from the date of its issue. One-time revalidation shall be allowed, provided that such request shall be made within six months from the date of expiry of the NOC and commencement certificate is obtained within initial validity period of 8 years.

छ) भवन के निर्माण के दौरान या उसके बाद किसी भी समय स्थल पर ऐसी कोई भी लाइट या लाइटो का संयोजन नहीं लगाया जाएगा जिसकी तीव्रता, आकृति या रंग के कारण वैमानिक ग्राउन्ड लाइटों के साथ भ्रम उत्पन्न हो | विमान के सुरक्षित प्रचालन को प्रभावित करने वाली कोई भी गतिविधि मान्य नहीं होगी |

f. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the Airport shall be installed at the site at any time, during or after the construction of the building. No activity shall be allowed which may affect the safe operations of flights.

ज) डे मार्किंग तथा सहायक विद्युत आपूर्ति सहित नाइट लाइटिंग (डीजीसीए भारत की वेबसाइट www.dgca.nic.in पर उपलब्ध) नागर विमानन आवश्यकताएं श्रंखला 'बी' पार्ट | सैक्शन-4 के चैप्टर 6 तथा अनुलग्नक 6 में विनिर्दिष्ट



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दिशानिर्देशों के अनुसार उपलब्ध कराई जाएंगी।

g. Day markings & night lighting with secondary power supply shall be provided as per the guidelines specified in chapter 6 and appendix 6 of Civil Aviation Requirement Series 'B' Part I Section 4, available on DGCA India website: www.dgca.nic.in

झ) भवन के नक्शे के अनुमोदन सहित अन्य सभी वैधानिक अनापत्ति, संबंधित प्राधिकरणों से लेना आवेदक की जिम्मेदारी होगी, क्योंकि इस ऊँचाई हेतु अनापत्ति प्रमाणपत्र लेने का उद्देश्य सुरक्षित एवं नियमित विमान प्रचालन सुनिश्चित करना है तथा इसे भूमि के स्वामित्व आदि सहित किसी अन्य उद्देश्य/ दावे के लिए दस्तावेज के रूप में प्रयोग नहीं किया जा सकता।

h. The applicant is responsible to obtain all other statutory clearances from the concerned authorities including the approval of building plans. This NOC for height clearances is only to ensure safe and regular aircraft operations and shall not be used as document for any other purpose/claim whatsoever, including ownership of land etc.

ट) इस अनापत्ति प्रमाणपत्र आईडी का मूल्यांकन Aizawl, Lengpui विमानक्षेत्रों के संबंध में किया गया है। यह अनापत्ति प्रमाणपत्र भारतीय विमान पत्तन प्राधिकरण के विमानक्षेत्रों और अन्य लाइसेंस प्राप्त सिविल विमानक्षेत्रों, जो जी. एस. आर. 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची - III, अनुसूची - IV (भाग- I), अनुसूची- IV (भाग -2; केवल RCS हवाई अड्डे) और अनुसूची- VII में सूचीबद्ध हैं, के लिए जारी किया गया है।

i. This NOC ID has been assessed with respect to the Aizawl, Lengpui Airports. NOC has been issued w.r.t. the AAI Aerodromes and other licensed Civil Aerodromes as listed in Schedule – III, Schedule – IV(Part-I), Schedule- IV (Part-2; RCS Airports Only) and Schedule-VII of GSR 751(E) amended by GSR770(E)

ठ) यदि स्थल रक्षा विभाग के विमान क्षेत्र के अधिकार क्षेत्र में आता है, जैसा कि जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित की अनुसूची-V में सूचीबद्ध है, तो आवेदक को रक्षा विभाग से अलग से अनापत्ति प्रमाणपत्र लेना होता है। जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के नियम 13 के अनुसार, आवेदकों को उन स्थलों के लिये, जो जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची- IV (भाग -2; आरसीएस हवाई अड्डों के अलावा) के रूप में सूचीबद्ध बिना लाइसेंस वाले विमान क्षेत्र के अधिकार क्षेत्र में आता है, तो संबंधित राज्य सरकार से भी अनापत्ति प्रमाणपत्र लेने की आवश्यकता है।

j. Applicant needs to seek separate NOC from Defence, if the site lies within the jurisdiction of Defence Aerodromes as listed in Schedule-V of GSR751(E) amended by GSR770(E). As per Rule 13 of GSR751(E) amended by GSR770(E), applicants also need to seek NOC from the concerned State Govt. for sites which lies in the jurisdiction of unlicensed aerodromes as listed in Schedule-IV (Part-2: other than RCS airports) of GSR751(E) amended by GSR770(E).

ड) अनापत्ति प्रमाण पत्र (एनओसी) की किसी भी त्रुटि/व्याख्या की स्थिति में अंगरेजी अनुवाद ही मान्य होगा।

k. In case of any discrepancy/interpretation of NOC letter, English version shall be valid.

ढ) स्थल की ऊँचाई और/या संरचना की ऊँचाई के किसी भी विवाद में अनुमन्य अधिकतम ऊँचाई एएमएसएल में ही मान्य होगी।

l. In case of any dispute with respect to site elevation and/or AGL height, Permissible Top Elevation in AMSL shall prevail.

क्षेत्र का नाम / Region Name: उत्तर-पूर्व/North_East

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223



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पदनामित अधिकारी/Designated Officer	आर.जि.लामा / R. G. Lama महाप्रबंधक (ए.टी.एम), General Manager (ATM) भा.वि.प्रा., उ.पु.क्षेत्र, लो.गो.ब. अं.हावाइअड्डा, गुवाहाटी AAI, LGBI, Airport, Guwahati
नाम/ पदनाम/दिनांक सहित हस्ताक्षर Name/Designation/Sign with date	
द्वारा तैयार Prepared by	AVANISH KUMAR MAURYA, M(ATC) 01/03/2021
द्वारा जांचा गया Verified by	RAJIB SARMA JT GM(ATM) 01/03/2021

ईमेल आईडी / EMAIL ID : nocner@aai.aero
फोन/ Ph: 0361-2842637

ANNEXURE/अनुलग्नक

Distance From Nearest Airport And Bearing/निकटतम विमानक्षेत्र से दूरी और बीयरिंग

Airport Name/ विमानक्षेत्र का नाम	Distance (Meters) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से दूरी (मीटर मे)	Bearing(Degree) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से बीयरिंग (डिग्री)
Aizawl	45999.61	238.47
Lengpui	40252.65	211.37
NOCID	LENG/NORTH EAST/P/021821/529371	

Street view



February 18, 2021

1:3,600
0 0.03 0.06 0.11 mi
0 0.04 0.08 0.17 km
Satellite, Street View, and other data provided by Google Earth™ Pro
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Satellite View



February 18, 2021

1:3,600
0 0.03 0.06 0.11 mi
0 0.04 0.08 0.17 km
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मालिक का नाम एवं पता

Er. Ngursailova Sailo, Sr. Executive
Engineer, Power & Electricity
Department, Govt. of Mizoram

दिनांक/DATE: 01-03-2021

**OWNERS Name &
Address**

Kawlphetha Building, New Secretariat
Complex, Khatla, Aizawl, Mizoram-
796001 Khatla Aizawl Mizoram 796001

वैधता/ Valid Up to: 28-02-2029

ऊँचाई की अनुमति हेतु अनापत्ति प्रमाण पत्र(एनओसी) **No Objection Certificate for Height Clearance**

1) यह अनापत्ति प्रमाण पत्र भारतीय विमानपत्तन प्राधिकरण (भाविप्रा) द्वारा प्रदत्त दायित्वों के अनुक्रम तथा सुरक्षित एवं नियमित विमान प्रचालन हेतु भारत सरकार (नागर विमानन मंत्रालय) की अधिसूचना जी. एस. आर. 751 (ई) दिनांक 30 सितम्बर, 2015, जी. एस. आर. 770 (ई) दिनांक 17 दिसंबर 2020 द्वारा संशोधित, के प्रावधानों के अंतर्गत दिया जाता है।

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep.2015 amended by GSR770(E) dated 17th Dec 2020 for safe and Regular Aircraft Operations.

2). इस कार्यालय को निम्नलिखित विवरण के अनुसार प्रस्तावित संरचना के निर्माण पर कोई आपत्ति नहीं है।

2. This office has no objection to the construction of the proposed structure as per the following details:

अनापत्ति प्रमाणपत्र आईडी / NOC ID		LENG/NORTH_EAST/P/021821/529372					
आवेदक का नाम / Applicant Name*		Er. Ngursailova Sailo, Sr. Executive Engineer, Pow					
क्रमांक/S No.	खंभे (पोल) की पहचान संख्या/Pole ID	अक्षांश/Latitude	देशांतर/Longitude	स्थल की ऊँचाई मीटर (औसतन समुद्र तल से ऊपर) में, (जैसा आवेदक द्वारा उपलब्ध कराया गया) / Site Elevation in mtrs AMSL as submitted by Applicant *	आवश्यक शीर्ष ऊँचाई (RTE) मीटर में) औसतन समुद्र तल से ऊपर / Req. Top Elevation(RTE) in mtrs AMSL	अनुमन्य अधिकतम ऊँचाई एएमएसएल मीटर में (औसतन समुद्र तल से ऊपर) / Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	टिप्पणियां/Remarks
1	80_0	23 28 26.71N	92 25 33.62E	707.2	742.68	742.68	CLEARED
2	81_0	23 28 20.04N	92 25 32.78E	689.6	724.69	724.69	CLEARED
3	82_0	23 28 6.47N	92 25 38.43E	695.43	724.91	724.91	CLEARED
4	83_0	23 27 55.05N	92 25 37.87E	666.9	701.81	701.81	CLEARED
5	84_0	23 27 49.01N	92 25 38.93E	590.7	620.18	620.18	CLEARED
6	85_0	23 27 33.01N	92 25 38.23E	621.54	650.45	650.45	CLEARED
7	86_0	23 27 25.84N	92 25 38.65E	619	657.09	657.09	CLEARED
8	87_0	23 27 13.56N	92 25 31.41E	586.57	622.05	622.05	CLEARED
9	88_0	23 27 6.24N	92 25 29.42E	594	626.09	626.09	CLEARED
10	89_0	23 26 56.24N	92 25 35.75E	640.55	676.03	676.03	CLEARED
11	90_0	23 26 50.67N	92 25 36.51E	671.24	703.72	703.72	CLEARED
12	91_0	23 26 45.73N	92 25 35.46E	681.79	713.7	713.7	CLEARED
13	92_0	23 26 39.61N	92 25 36.07E	672.45	701.36	701.36	CLEARED
14	93_0	23 26 28.56N	92 25 35.91E	667.72	696.63	696.63	CLEARED
15	94_0	23 26 22.35N	92 25 34.83E	683.52	718.61	718.61	CLEARED
16	96_0	23 26 8.53N	92 25 40.29E	747.45	782.54	782.54	CLEARED
17	97_0	23 26 3.33N	92 25 37.94E	713.4	745.49	745.49	CLEARED
18	98_0	23 25 52.89N	92 25 40.34E	724.95	757.43	757.43	CLEARED
19	99_0	23 25 40.13N	92 25 37.51E	727.57	762.66	762.66	CLEARED
20	100_0	23 25 33.72N	92 25 40.22E	722.17	760.08	760.08	CLEARED

* जैसा आवेदक द्वारा उपलब्ध कराया गया / As provided by applicant*

3) यह अनापत्ति प्रमाण पत्र निम्नलिखित नियम व शर्तों के अधीन है: -

3. This NOC is subject to the terms and conditions as given below:

क) आवेदक द्वारा उपलब्ध कराए गए स्थल की ऊँचाई तथा निर्देशांक को, प्रस्तावित संरचना हेतु अनुमन्य अधिकतम ऊँचाई जारी करने के लिए प्रयोग किया गया है। भारतीय विमान पत्तन प्राधिकरण, आवेदक द्वारा उपलब्ध कराये गए स्थल की ऊँचाई तथा निर्देशांक की यथार्थता का ना तो उत्तरदायित्व वहन करता है, और ना ही इनको प्रमाणीकृत करता



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है | यदि किसी भी स्तर पर यह पता चलता है कि वास्तविक विवरण, आवेदक द्वारा उपलब्ध कराए गए विवरण से भिन्न है, तो यह अनापत्ति प्रमाण पत्र अमान्य माना जाएगा तथा कानूनी कार्यवाही की जाएगी | सम्बंधित विमान क्षेत्र के प्रभारी अधिकारी द्वारा एयरक्राफ्ट नियम 1994 (भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन कार्यवाही की जायगी |

a. Permissible Top elevation has been issued on the basis of Site coordinates and Site Elevation submitted by Applicant. AAI neither owns the responsibility nor authenticates the correctness of the site coordinates & site elevation provided by the applicant. If at any stage it is established that the actual data is different, this NOC will stand null and void and action will be taken as per law. The officer in-charge of the concerned aerodrome may initiate action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”

ख) संरचना की ऊँचाई (सुपर स्ट्रक्चर सहित) की गणना अनुमन्य अधिकतम ऊँचाई (ए एम एस एल) से स्थल की ऊँचाई को घटाकर की जायेगी | अर्थात्, संरचना की अधिकतम ऊँचाई = अनुमन्य अधिकतम ऊँचाई (-) स्थल की ऊँचाई |

b. The Structure height (including any superstructure) shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e. Maximum Structure Height = Permissible Top Elevation minus (-) Site Elevation.

ग) अनापत्ति प्रमाण पत्र जारी करना, भारतीय एयरक्राफ्ट एक्ट 1934, के सैक्शन 9-A तथा इसके अंतर्गत समय-समय पर जारी अधिसूचनाएं तथा एयरक्राफ्ट नियम (1994 भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन है |

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including, “The Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

घ) कोई भी रेडियो/ टीवी एन्टीना, लाइटनिंग अरेस्टर, सीढिया, मुमटी, पानी की टंकी तथा किसी भी प्रकार के उपस्कर पैरा 2 में उल्लेखित अनुमन्य अधिकतम ऊँचाई से ऊपर नहीं जानी चाहिए |

d) No radio/TV Antenna, lightening arresters, staircase and attachments of fixtures of any kind shall project above the respective Permissible Top Elevations as indicated in para 2.

च) यह प्रमाणपत्र इसके जारी होने की तारीख से 8 साल की अवधि के लिए वैध है। एक बार रिवेलीडेशन की अनुमति दी जा सकती है, बशर्ते कि इस तरह का अनुरोध एनओसी की समाप्ति की तारीख से छह महीने के भीतर किया जाए और प्रारंभिक प्रमाणपत्र 8 साल की वैधता अवधि के भीतर प्राप्त किया जाए |

e. The certificate is valid for a period of 8 years from the date of its issue. One-time revalidation shall be allowed, provided that such request shall be made within six months from the date of expiry of the NOC and commencement certificate is obtained within initial validity period of 8 years.

छ) भवन के निर्माण के दौरान या उसके बाद किसी भी समय स्थल पर ऐसी कोई भी लाइट या लाइटो का संयोजन नहीं लगाया जाएगा जिसकी तीव्रता, आकृति या रंग के कारण वैमानिक ग्राउन्ड लाइटों के साथ भ्रम उत्पन्न हो | विमान के सुरक्षित प्रचालन को प्रभावित करने वाली कोई भी गतिविधि मान्य नहीं होगी |

f. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the Airport shall be installed at the site at any time, during or after the construction of the building. No activity shall be allowed which may affect the safe operations of flights.

ज) डे मार्किंग तथा सहायक विद्युत आपूर्ति सहित नाइट लाइटिंग (डीजीसीए भारत की वेबसाइट www.dgca.nic.in पर उपलब्ध) नागर विमानन आवश्यकताएं श्रंखला 'बी' पार्ट | सैक्शन-4 के चैप्टर 6 तथा अनुलग्नक 6 में विनिर्दिष्ट



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दिशानिर्देशों के अनुसार उपलब्ध कराई जाएंगी।

g. Day markings & night lighting with secondary power supply shall be provided as per the guidelines specified in chapter 6 and appendix 6 of Civil Aviation Requirement Series 'B' Part I Section 4, available on DGCA India website: www.dgca.nic.in

झ) भवन के नक्शे के अनुमोदन सहित अन्य सभी वैधानिक अनापत्ति, संबंधित प्राधिकरणों से लेना आवेदक की जिम्मेदारी होगी, क्योंकि इस ऊँचाई हेतु अनापत्ति प्रमाणपत्र लेने का उद्देश्य सुरक्षित एवं नियमित विमान प्रचालन सुनिश्चित करना है तथा इसे भूमि के स्वामित्व आदि सहित किसी अन्य उद्देश्य/ दावे के लिए दस्तावेज के रूप में प्रयोग नहीं किया जा सकता।

h. The applicant is responsible to obtain all other statutory clearances from the concerned authorities including the approval of building plans. This NOC for height clearances is only to ensure safe and regular aircraft operations and shall not be used as document for any other purpose/claim whatsoever, including ownership of land etc.

ट) इस अनापत्ति प्रमाणपत्र आईडी का मूल्यांकन Aizawl, Lengpui विमानक्षेत्रों के संबंध में किया गया है। यह अनापत्ति प्रमाणपत्र भारतीय विमान पत्तन प्राधिकरण के विमानक्षेत्रों और अन्य लाइसेंस प्राप्त सिविल विमानक्षेत्रों, जो जी. एस. आर. 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची - III, अनुसूची - IV (भाग- I), अनुसूची- IV (भाग -2; केवल RCS हवाई अड्डे) और अनुसूची- VII में सूचीबद्ध हैं, के लिए जारी किया गया है।

i. This NOC ID has been assessed with respect to the Aizawl, Lengpui Airports. NOC has been issued w.r.t. the AAI Aerodromes and other licensed Civil Aerodromes as listed in Schedule – III, Schedule – IV(Part-I), Schedule- IV (Part-2; RCS Airports Only) and Schedule-VII of GSR 751(E) amended by GSR770(E)

ठ) यदि स्थल रक्षा विभाग के विमान क्षेत्र के अधिकार क्षेत्र में आता है, जैसा कि जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित की अनुसूची-V में सूचीबद्ध है, तो आवेदक को रक्षा विभाग से अलग से अनापत्ति प्रमाणपत्र लेना होता है। जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के नियम 13 के अनुसार, आवेदकों को उन स्थलों के लिये, जो जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची- IV (भाग -2; आरसीएस हवाई अड्डों के अलावा) के रूप में सूचीबद्ध बिना लाइसेंस वाले विमान क्षेत्र के अधिकार क्षेत्र में आता है, तो संबंधित राज्य सरकार से भी अनापत्ति प्रमाणपत्र लेने की आवश्यकता है।

j. Applicant needs to seek separate NOC from Defence, if the site lies within the jurisdiction of Defence Aerodromes as listed in Schedule-V of GSR751(E) amended by GSR770(E). As per Rule 13 of GSR751(E) amended by GSR770(E), applicants also need to seek NOC from the concerned State Govt. for sites which lies in the jurisdiction of unlicensed aerodromes as listed in Schedule-IV (Part-2: other than RCS airports) of GSR751(E) amended by GSR770(E).

ड) अनापत्ति प्रमाण पत्र (एनओसी) की किसी भी त्रुटि/व्याख्या की स्थिति में अंगरेजी अनुवाद ही मान्य होगा।

k. In case of any discrepancy/interpretation of NOC letter, English version shall be valid.

ढ) स्थल की ऊँचाई और/या संरचना की ऊँचाई के किसी भी विवाद में अनुमन्य अधिकतम ऊँचाई एएमएसएल में ही मान्य होगी।

l. In case of any dispute with respect to site elevation and/or AGL height, Permissible Top Elevation in AMSL shall prevail.

क्षेत्र का नाम / Region Name: उत्तर-पूर्व/North_East

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223



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पदनामित अधिकारी/Designated Officer	आर.जि.लामा / R. G. Lama महाप्रबंधक (ए.टी.एम), General Manager (ATM) भा.वि.प्रा., उ.पु.क्षेत्र, लो.गो.ब. अं.हावाइअड्डा, गुवाहाटी AAI, LGBI, Airport, Guwahati
नाम/ पदनाम/दिनांक सहित हस्ताक्षर Name/Designation/Sign with date	
द्वारा तैयार Prepared by	AVANISH KUMAR MAURYA, MGR(ATC) <i>Amay</i> 01/03/2021
द्वारा जांचा गया Verified by	RAJIB SARMA JGM(ATM) <i>Rajib</i> 01/03/2021

ईमेल आईडी / EMAIL ID : nocner@aai.aero
फोन/ Ph: 0361-2842637

ANNEXURE/अनुलग्नक

Distance From Nearest Airport And Bearing/निकटतम विमानक्षेत्र से दूरी और बीयरिंग

Airport Name/ विमानक्षेत्र का नाम	Distance (Meters) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से दूरी (मीटर मे)	Bearing(Degree) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से बीयरिंग (डिग्री)
Aizawl	48844.61	232.12
Lengpui	45129.9	206.73
NOCID	LENG/NORTH_EAST/P/021821/529372	



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मालिक का नाम एवं पता

Er. Ngursailova Sailo, Sr. Executive
Engineer, Power & Electricity
Department, Govt. of Mizoram

दिनांक/DATE: 01-03-2021

OWNERS Name &
Address

Kawlphetha Building, New Secretariat
Complex, Khatla, Aizawl, Mizoram-
796001 Khatla Aizawl Mizoram 796001

वैधता/ Valid Up to: 28-02-2029

ऊँचाई की अनुमति हेतु अनापत्ति प्रमाण पत्र(एनओसी) **No Objection Certificate for Height Clearance**

1) यह अनापत्ति प्रमाण पत्र भारतीय विमानपत्तन प्राधिकरण (भाविप्रा) द्वारा प्रदत्त दायित्वों के अनुक्रम तथा सुरक्षित एवं नियमित विमान प्रचालन हेतु भारत सरकार (नागर विमानन मंत्रालय) की अधिसूचना जी. एस. आर. 751 (ई) दिनांक 30 सितम्बर, 2015, जी. एस. आर. 770 (ई) दिनांक 17 दिसंबर 2020 द्वारा संशोधित, के प्रावधानों के अंतर्गत दिया जाता है।

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep.2015 amended by GSR770(E) dated 17th Dec 2020 for safe and Regular Aircraft Operations.

2). इस कार्यालय को निम्नलिखित विवरण के अनुसार प्रस्तावित संरचना के निर्माण पर कोई आपत्ति नहीं है।

2. This office has no objection to the construction of the proposed structure as per the following details:

अनापत्ति प्रमाणपत्र आईडी / NOC ID		LENG/NORTH_EAST/P/021821/529373					
आवेदक का नाम / Applicant Name*		Er. Ngursailova Sailo, Sr. Executive Engineer, Pow					
क्रमांक/S No.	खंभे (पोल) की पहचान संख्या/Pole ID	अक्षांश/Latitude	देशांतर/Longitude	स्थल की ऊँचाई मीटर (औसतन समुद्र तल से ऊपर) में, (जैसा आवेदक द्वारा उपलब्ध कराया गया) / Site Elevation in mtrs AMSL as submitted by Applicant *	आवश्यक शीर्ष ऊँचाई (RTE) मीटर में) औसतन समुद्र तल से ऊपर / Req. Top Elevation(RTE) in mtrs AMSL	अनुमन्य अधिकतम ऊँचाई एएमएसएल मीटर में (औसतन समुद्र तल से ऊपर) / Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	टिप्पणियां/Remarks
1	101_0	23 25 29.61N	92 25 43.2E	694.54	732.63	732.63	CLEARED
2	102_0	23 25 19.7N	92 25 41.2E	694.27	729.18	729.18	CLEARED
3	103_0	23 25 3.58N	92 25 40.4E	677.36	712.45	712.45	CLEARED
4	104_0	23 24 58.99N	92 25 42.64E	691.67	726.76	726.76	CLEARED
5	104A_0	23 24 54.5N	92 25 49.4E	704.96	739.87	739.87	CLEARED
6	105_0	23 24 51.02N	92 25 52.73E	697.65	732.56	732.56	CLEARED
7	106_0	23 24 44.32N	92 26 0.96E	713.13	748.22	748.22	CLEARED
8	107_0	23 24 28.82N	92 26 2.4E	648.43	677.91	677.91	CLEARED
9	107A_0	23 24 22.88N	92 26 1.58E	687.74	719.65	719.65	CLEARED
10	108_0	23 24 20.17N	92 26 1.73E	684.65	714.13	714.13	CLEARED
11	110_0	23 24 4.67N	92 25 58.54E	659.75	697.84	697.84	CLEARED
12	111_0	23 23 49.53N	92 26 2.25E	649.43	678.91	678.91	CLEARED
13	112_0	23 23 41.12N	92 26 0.98E	617.85	649.94	649.94	CLEARED
14	113_0	23 23 28.42N	92 25 50.24E	808.82	846.91	846.91	CLEARED
15	114_0	23 23 13.43N	92 25 48.01E	808.83	844.31	844.31	CLEARED
16	115_0	23 23 9.11N	92 25 45.56E	896.81	932.29	932.29	CLEARED
17	116_0	23 23 6.72N	92 25 45.14E	927.16	959.07	959.07	CLEARED
18	117_0	23 23 3.78N	92 25 44.04E	957.39	989.3	989.3	CLEARED
19	119_0	23 22 52.99N	92 25 40.03E	944.67	980.15	980.15	CLEARED
20	120_0	23 22 44.07N	92 25 39.4E	959.94	995.03	995.03	CLEARED

* जैसा आवेदक द्वारा उपलब्ध कराया गया / As provided by applicant*

3) यह अनापत्ति प्रमाण पत्र निम्नलिखित नियम व शर्तों के अधीन है: -

3. This NOC is subject to the terms and conditions as given below:

क) आवेदक द्वारा उपलब्ध कराए गए स्थल की ऊँचाई तथा निर्देशांक को, प्रस्तावित संरचना हेतु अनुमन्य अधिकतम ऊँचाई जारी करने के लिए प्रयोग किया गया है। भारतीय विमान पत्तन प्राधिकरण, आवेदक द्वारा उपलब्ध कराये गए स्थल की ऊँचाई तथा निर्देशांक की यथार्थता का ना तो उत्तरदायित्व वहन करता है, और ना ही इनको प्रमाणीकृत करता



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है | यदि किसी भी स्तर पर यह पता चलता है कि वास्तविक विवरण, आवेदक द्वारा उपलब्ध कराए गए विवरण से भिन्न है, तो यह अनापत्ति प्रमाण पत्र अमान्य माना जाएगा तथा कानूनी कार्यवाही की जाएगी | सम्बंधित विमान क्षेत्र के प्रभारी अधिकारी द्वारा एयरक्राफ्ट नियम 1994 (भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन कार्यवाही की जायगी |

a. Permissible Top elevation has been issued on the basis of Site coordinates and Site Elevation submitted by Applicant. AAI neither owns the responsibility nor authenticates the correctness of the site coordinates & site elevation provided by the applicant. If at any stage it is established that the actual data is different, this NOC will stand null and void and action will be taken as per law. The officer in-charge of the concerned aerodrome may initiate action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”

ख) संरचना की ऊँचाई (सुपर स्ट्रक्चर सहित) की गणना अनुमन्य अधिकतम ऊँचाई (ए एम एस एल) से स्थल की ऊँचाई को घटाकर की जायेगी | अर्थात्, संरचना की अधिकतम ऊँचाई = अनुमन्य अधिकतम ऊँचाई (-) स्थल की ऊँचाई |

b. The Structure height (including any superstructure) shall be calculated by subtracting the Site elevation in AMSL from the Permissible Top Elevation in AMSL i.e. Maximum Structure Height = Permissible Top Elevation minus (-) Site Elevation.

ग) अनापत्ति प्रमाण पत्र जारी करना, भारतीय एयरक्राफ्ट एक्ट 1934, के सैक्शन 9-A तथा इसके अंतर्गत समय-समय पर जारी अधिसूचनाएं तथा एयरक्राफ्ट नियम (1994 भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन है |

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including, “The Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

घ) कोई भी रेडियो/ टीवी एन्टीना, लाइटनिंग अरेस्टर, सीढिया, मुमटी, पानी की टंकी तथा किसी भी प्रकार के उपस्कर पैरा 2 में उल्लेखित अनुमन्य अधिकतम ऊँचाई से ऊपर नहीं जानी चाहिए |

d) No radio/TV Antenna, lightening arresters, staircase and attachments of fixtures of any kind shall project above the respective Permissible Top Elevations as indicated in para 2.

च) यह प्रमाणपत्र इसके जारी होने की तारीख से 8 साल की अवधि के लिए वैध है। एक बार रिवेलीडेशन की अनुमति दी जा सकती है, बशर्ते कि इस तरह का अनुरोध एनओसी की समाप्ति की तारीख से छह महीने के भीतर किया जाए और प्रारंभिक प्रमाणपत्र 8 साल की वैधता अवधि के भीतर प्राप्त किया जाए |

e. The certificate is valid for a period of 8 years from the date of its issue. One-time revalidation shall be allowed, provided that such request shall be made within six months from the date of expiry of the NOC and commencement certificate is obtained within initial validity period of 8 years.

छ) भवन के निर्माण के दौरान या उसके बाद किसी भी समय स्थल पर ऐसी कोई भी लाइट या लाइटो का संयोजन नहीं लगाया जाएगा जिसकी तीव्रता, आकृति या रंग के कारण वैमानिक ग्राउन्ड लाइटों के साथ भ्रम उत्पन्न हो | विमान के सुरक्षित प्रचालन को प्रभावित करने वाली कोई भी गतिविधि मान्य नहीं होगी |

f. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the Airport shall be installed at the site at any time, during or after the construction of the building. No activity shall be allowed which may affect the safe operations of flights.

ज) डे मार्किंग तथा सहायक विद्युत आपूर्ति सहित नाइट लाइटिंग (डीजीसीए भारत की वेबसाइट www.dgca.nic.in पर उपलब्ध) नागर विमानन आवश्यकताएं श्रंखला 'बी' पार्ट | सैक्शन-4 के चैप्टर 6 तथा अनुलग्नक 6 में विनिर्दिष्ट



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दिशानिर्देशों के अनुसार उपलब्ध कराई जाएंगी।

g. Day markings & night lighting with secondary power supply shall be provided as per the guidelines specified in chapter 6 and appendix 6 of Civil Aviation Requirement Series 'B' Part I Section 4, available on DGCA India website: www.dgca.nic.in

झ) भवन के नक्शे के अनुमोदन सहित अन्य सभी वैधानिक अनापत्ति, संबंधित प्राधिकरणों से लेना आवेदक की जिम्मेदारी होगी, क्योंकि इस ऊँचाई हेतु अनापत्ति प्रमाणपत्र लेने का उद्देश्य सुरक्षित एवं नियमित विमान प्रचालन सुनिश्चित करना है तथा इसे भूमि के स्वामित्व आदि सहित किसी अन्य उद्देश्य/ दावे के लिए दस्तावेज के रूप में प्रयोग नहीं किया जा सकता।

h. The applicant is responsible to obtain all other statutory clearances from the concerned authorities including the approval of building plans. This NOC for height clearances is only to ensure safe and regular aircraft operations and shall not be used as document for any other purpose/claim whatsoever, including ownership of land etc.

ट) इस अनापत्ति प्रमाणपत्र आईडी का मूल्यांकन Aizawl, Lengpui विमानक्षेत्रों के संबंध में किया गया है। यह अनापत्ति प्रमाणपत्र भारतीय विमान पत्तन प्राधिकरण के विमानक्षेत्रों और अन्य लाइसेंस प्राप्त सिविल विमानक्षेत्रों, जो जी. एस. आर. 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची - III, अनुसूची - IV (भाग- I), अनुसूची- IV (भाग -2; केवल RCS हवाई अड्डे) और अनुसूची- VII में सूचीबद्ध हैं, के लिए जारी किया गया है।

i. This NOC ID has been assessed with respect to the Aizawl, Lengpui Airports. NOC has been issued w.r.t. the AAI Aerodromes and other licensed Civil Aerodromes as listed in Schedule – III, Schedule – IV(Part-I), Schedule- IV (Part-2; RCS Airports Only) and Schedule-VII of GSR 751(E) amended by GSR770(E)

ठ) यदि स्थल रक्षा विभाग के विमान क्षेत्र के अधिकार क्षेत्र में आता है, जैसा कि जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित की अनुसूची-V में सूचीबद्ध है, तो आवेदक को रक्षा विभाग से अलग से अनापत्ति प्रमाणपत्र लेना होता है। जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के नियम 13 के अनुसार, आवेदकों को उन स्थलों के लिये, जो जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची- IV (भाग -2; आरसीएस हवाई अड्डों के अलावा) के रूप में सूचीबद्ध बिना लाइसेंस वाले विमान क्षेत्र के अधिकार क्षेत्र में आता है, तो संबंधित राज्य सरकार से भी अनापत्ति प्रमाणपत्र लेने की आवश्यकता है।

j. Applicant needs to seek separate NOC from Defence, if the site lies within the jurisdiction of Defence Aerodromes as listed in Schedule-V of GSR751(E) amended by GSR770(E). As per Rule 13 of GSR751(E) amended by GSR770(E), applicants also need to seek NOC from the concerned State Govt. for sites which lies in the jurisdiction of unlicensed aerodromes as listed in Schedule-IV (Part-2: other than RCS airports) of GSR751(E) amended by GSR770(E).

ड) अनापत्ति प्रमाण पत्र (एनओसी) की किसी भी त्रुटि/व्याख्या की स्थिति में अंगरेजी अनुवाद ही मान्य होगा।

k. In case of any discrepancy/interpretation of NOC letter, English version shall be valid.

ढ) स्थल की ऊँचाई और/या संरचना की ऊँचाई के किसी भी विवाद में अनुमन्य अधिकतम ऊँचाई एएमएसएल में ही मान्य होगी।

l. In case of any dispute with respect to site elevation and/or AGL height, Permissible Top Elevation in AMSL shall prevail.

क्षेत्र का नाम / Region Name: उत्तर-पूर्व/North_East

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223



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01/03/2021
आर.जी.लामा / R. G. Lama
महाप्रबंधक (ए.टी.एम),
General Manager (ATM)
भा.वि.प्रा., उ.पु.क्षेत्र, लो.गो.ब. अं.हावाइअड्डा, गुवाहाटी
AAI, LGBI, Airport, Guwahati

पदनामित अधिकारी/Designated Officer

नाम/ पदनाम/दिनांक सहित हस्ताक्षर
Name/Designation/Sign with date

द्वारा तैयार Prepared by

AVANISH KUMAR MAURIA, M(ATC)

Amays, 01/03/2021

द्वारा जांचा गया Verified by

RAJIB SARMA
JT GM (ATM)

Rajib, 01/03/2021

ईमेल आईडी / EMAIL ID : nocner@aai.aero
फोन/ Ph: 0361-2842637

ANNEXURE/अनुलग्नक

Distance From Nearest Airport And Bearing/निकटतम विमानक्षेत्र से दूरी और बीयरिंग

Airport Name/ विमानक्षेत्र का नाम	Distance (Meters) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से दूरी (मीटर मे)	Bearing(Degree) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से बीयरिंग (डिग्री)
Aizawl	52182.46	227.22
Lengpui	49954.41	203.66
NOCID	LENG/NORTH_EAST/P/021821/529373	



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मालिक का नाम एवं पता

Er. Ngursailova Sailo, Sr. Executive
Engineer, Power & Electricity
Department, Govt. of Mizoram

दिनांक/DATE: 25-02-2021

**OWNERS Name &
Address**

Kawlphetha Building, New Secretariat
Complex, Khatla, Aizawl, Mizoram-
796001 Khatla Aizawl Mizoram 796001

वैधता/ Valid Up to: 23-02-2029

ऊँचाई की अनुमति हेतु अनापत्ति प्रमाण पत्र(एनओसी) **No Objection Certificate for Height Clearance**

1) यह अनापत्ति प्रमाण पत्र भारतीय विमानपत्तन प्राधिकरण (भाविप्रा) द्वारा प्रदत्त दायित्वों के अनुक्रम तथा सुरक्षित एवं नियमित विमान प्रचालन हेतु भारत सरकार (नागर विमानन मंत्रालय) की अधिसूचना जी. एस. आर. 751 (ई) दिनांक 30 सितम्बर, 2015, जी. एस. आर. 770 (ई) दिनांक 17 दिसंबर 2020 द्वारा संशोधित, के प्रावधानों के अंतर्गत दिया जाता है।

1. This NOC is issued by Airports Authority of India (AAI) in pursuance of responsibility conferred by and as per the provisions of Govt. of India (Ministry of Civil Aviation) order GSR751 (E) dated 30th Sep.2015 amended by GSR770(E) dated 17th Dec 2020 for safe and Regular Aircraft Operations.

2). इस कार्यालय को निम्नलिखित विवरण के अनुसार प्रस्तावित संरचना के निर्माण पर कोई आपत्ति नहीं है।

2. This office has no objection to the construction of the proposed structure as per the following details:

अनापत्ति प्रमाणपत्र आईडी / NOC ID		LENG/NORTH_EAST/P/021821/529375					
आवेदक का नाम / Applicant Name*		Er. Ngursailova Sailo, Sr. Executive Engineer, Pow					
क्रमांक/S No.	खंभे (पोल) की पहचान संख्या/Pole ID	अक्षांश/Latitude	देशांतर/Longitude	स्थल की ऊँचाई मीटर (औसतन समुद्र तल से ऊपर) में, (जैसा आवेदक द्वारा उपलब्ध कराया गया) / Site Elevation in mtrs AMSL as submitted by Applicant *	आवश्यक शीर्ष ऊँचाई (RTE) मीटर में) औसतन समुद्र तल से ऊपर / Req. Top Elevation(RTE) in mtrs AMSL	अनुमन्य अधिकतम ऊँचाई एएमएसएल मीटर में (औसतन समुद्र तल से ऊपर) / Permissible Top Elevation in mtrs Above Mean Sea Level(AMSL)	टिप्पणियां/Remarks
1	122_0	23 22 36.67N	92 25 43.6E	974.42	1006.51	1006.51	CLEARED
2	123_0	23 22 28.95N	92 25 41.3E	923.76	958.67	958.67	CLEARED
3	124_0	23 22 21.63N	92 25 39.38E	930.12	965.03	965.03	CLEARED
4	125_0	23 22 15.92N	92 25 37.57E	890.71	922.62	922.62	CLEARED
5	126_0	23 22 7.47N	92 25 36.63E	867.69	896.6	896.6	CLEARED
6	127_0	23 22 0.83N	92 25 36.5E	891.07	925.98	925.98	CLEARED

*** जैसा आवेदक द्वारा उपलब्ध कराया गया / As provided by applicant***

3) यह अनापत्ति प्रमाण पत्र निम्नलिखित नियम व शर्तों के अधीन है: -

3. **This NOC is subject to the terms and conditions as given below:**

क) आवेदक द्वारा उपलब्ध कराए गए स्थल की ऊँचाई तथा निर्देशांक को, प्रस्तावित संरचना हेतु अनुमन्य अधिकतम ऊँचाई जारी करने के लिए प्रयोग किया गया है। भारतीय विमान पत्तन प्राधिकरण, आवेदक द्वारा उपलब्ध कराये गए स्थल की ऊँचाई तथा निर्देशांक की यथार्थता का ना तो उत्तरदायित्व वहन करता है, और ना ही इनको प्रमाणीकृत करता है। यदि किसी भी स्तर पर यह पता चलता है कि वास्तविक विवरण, आवेदक द्वारा उपलब्ध कराए गए विवरण से भिन्न है, तो यह अनापत्ति प्रमाण पत्र अमान्य माना जाएगा तथा कानूनी कार्यवाही की जाएगी। सम्बंधित विमान क्षेत्र के प्रभारी अधिकारी द्वारा एयरक्राफ्ट नियम 1994 (भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन कार्यवाही की जायेगी।

a. Permissible Top elevation has been issued on the basis of Site coordinates and Site Elevation submitted by Applicant. AAI neither owns the responsibility nor authenticates the correctness of the site coordinates & site elevation provided by the applicant. If at any stage it is established that the actual data is different, this NOC will stand null and void and action will be taken as per law. The officer in-charge of the concerned aerodrome may initiate action under the Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994”.

ख) संरचना की ऊँचाई (सुपर स्ट्रक्चर सहित) की गणना अनुमन्य अधिकतम ऊँचाई (ए एम एस एल) से स्थल की ऊँचाई को घटाकर की जायेगी। अर्थात्, संरचना की अधिकतम ऊँचाई = अनुमन्य अधिकतम ऊँचाई (-) स्थल की ऊँचाई।

b. The Structure height (including any superstructure) shall be calculated by subtracting the Site elevation in



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AMSL from the Permissible Top Elevation in AMSL i.e. Maximum Structure Height = Permissible Top Elevation minus (-) Site Elevation.

ग) अनापत्ति प्रमाण पत्र जारी करना, भारतीय एयरक्राफ्ट एक्ट 1934, के सैक्शन 9-A तथा इसके अंतर्गत समय-समय पर जारी अधिसूचनाएं तथा एयरक्राफ्ट नियम (1994 भवन, वृक्षों आदि के कारण अवरोध का विध्वंस) के अधीन है।

c. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and any notifications issued there under from time to time including, "The Aircraft (Demolition of Obstruction caused by Buildings and Trees etc.) Rules, 1994".

घ) कोई भी रेडियो/ टीवी एन्टीना, लाइटनिंग अरेस्टर, सीढ़िया, मुमटी, पानी की टंकी तथा किसी भी प्रकार के उपस्कर पैरा 2 में उल्लेखित अनुमन्य अधिकतम ऊँचाई से ऊपर नहीं जानी चाहिए।

d) No radio/TV Antenna, lightening arresters, staircase and attachments of fixtures of any kind shall project above the respective Permissible Top Elevations as indicated in para 2.

च) यह प्रमाणपत्र इसके जारी होने की तारीख से 8 साल की अवधि के लिए वैध है। एक बार रिवेलीडेशन की अनुमति दी जा सकती है, बशर्ते कि इस तरह का अनुरोध एनओसी की समाप्ति की तारीख से छह महीने के भीतर किया जाए और प्रारंभिक प्रमाणपत्र 8 साल की वैधता अवधि के भीतर प्राप्त किया जाए।

e. The certificate is valid for a period of 8 years from the date of its issue. One-time revalidation shall be allowed, provided that such request shall be made within six months from the date of expiry of the NOC and commencement certificate is obtained within initial validity period of 8 years.

छ) भवन के निर्माण के दौरान या उसके बाद किसी भी समय स्थल पर ऐसी कोई भी लाइट या लाइटो का संयोजन नहीं लगाया जाएगा जिसकी तीव्रता, आकृति या रंग के कारण वैमानिक ग्राउन्ड लाइटों के साथ भ्रम उत्पन्न हो। विमान के सुरक्षित प्रचालन को प्रभावित करने वाली कोई भी गतिविधि मान्य नहीं होगी।

f. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the Airport shall be installed at the site at any time, during or after the construction of the building. No activity shall be allowed which may affect the safe operations of flights.

ज) डे मार्किंग तथा सहायक विद्युत आपूर्ति सहित नाइट लाइटिंग (डीजीसीए भारत की वेबसाइट www.dgca.nic.in पर उपलब्ध) नागर विमानन आवश्यकताएं श्रंखला 'बी' पार्ट I सैक्शन-4 के चैप्टर 6 तथा अनुलग्नक 6 में विनिर्दिष्ट दिशानिर्देशों के अनुसार उपलब्ध कराई जाएंगी।

g. Day markings & night lighting with secondary power supply shall be provided as per the guidelines specified in chapter 6 and appendix 6 of Civil Aviation Requirement Series 'B' Part I Section 4, available on DGCA India website: www.dgca.nic.in

झ) भवन के नक्शे के अनुमोदन सहित अन्य सभी वैधानिक अनापत्ति, संबंधित प्राधिकरणों से लेना आवेदक की जिम्मेदारी होगी, क्योंकि इस ऊँचाई हेतु अनापत्ति प्रमाणपत्र लेने का उद्देश्य सुरक्षित एवं नियमित विमान प्रचालन सुनिश्चित करना है तथा इसे भूमि के स्वामित्व आदि सहित किसी अन्य उद्देश्य/ दावे के लिए दस्तावेज के रूप में प्रयोग नहीं किया जा सकता।

h. The applicant is responsible to obtain all other statutory clearances from the concerned authorities including the approval of building plans. This NOC for height clearances is only to ensure safe and regular aircraft operations and shall not be used as document for any other purpose/claim whatsoever, including ownership of land etc.



भारतीय विमानपत्तन प्राधिकरण AIRPORTS AUTHORITY OF INDIA

LENG/NORTH_EAST/P/021821/529375

ट) इस अनापत्ति प्रमाणपत्र आईडी का मूल्यांकन Aizawl, Lengpui विमानक्षेत्रों के संबंध में किया गया है। यह अनापत्ति प्रमाणपत्र भारतीय विमान पत्तन प्राधिकरण के विमानक्षेत्रों और अन्य लाइसेंस प्राप्त सिविल विमानक्षेत्रों, जो जी. एस. आर. 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची - III, अनुसूची - IV (भाग- I), अनुसूची- IV (भाग -2; केवल RCS हवाई अड्डे) और अनुसूची- VII में सूचीबद्ध हैं, के लिए जारी किया गया है।

i. This NOC ID has been assessed with respect to the Aizawl, Lengpui Airports. NOC has been issued w.r.t. the AAI Aerodromes and other licensed Civil Aerodromes as listed in Schedule - III, Schedule - IV (Part-I), Schedule- IV (Part-2; RCS Airports Only) and Schedule-VII of GSR 751(E) amended by GSR770(E)

ठ) यदि स्थल रक्षा विभाग के विमान क्षेत्र के अधिकार क्षेत्र में आता है, जैसा कि जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित की अनुसूची-V में सूचीबद्ध है, तो आवेदक को रक्षा विभाग से अलग से अनापत्ति प्रमाणपत्र लेना होता है। जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के नियम 13 के अनुसार, आवेदकों को उन स्थलों के लिये, जो जीएसआर 751 (ई) जी. एस. आर. 770 (ई) द्वारा संशोधित के अनुसूची- IV (भाग -2; आरसीएस हवाई अड्डों के अलावा) के रूप में सूचीबद्ध बिना लाइसेंस वाले विमान क्षेत्र के अधिकार क्षेत्र में आता हैं, तो संबंधित राज्य सरकार से भी अनापत्ति प्रमाणपत्र लेने की आवश्यकता है।

j. Applicant needs to seek separate NOC from Defence, if the site lies within the jurisdiction of Defence Aerodromes as listed in Schedule-V of GSR751(E) amended by GSR770(E). As per Rule 13 of GSR751(E) amended by GSR770(E), applicants also need to seek NOC from the concerned State Govt. for sites which lies in the jurisdiction of unlicensed aerodromes as listed in Schedule-IV (Part-2: other than RCS airports) of GSR751(E) amended by GSR770(E).




ड) अनापत्ति प्रमाण पत्र (एनओसी) की किसी भी त्रुटि/व्याख्या की स्थिति में अंगरेजी अनुवाद ही मान्य होगा।

k. In case of any discrepancy/interpretation of NOC letter, English version shall be valid.

ढ) स्थल की ऊँचाई और/या संरचना की ऊँचाई के किसी भी विवाद में अनुमन्य अधिकतम ऊँचाई एएमएसएल में ही मान्य होगी।

l. In case of any dispute with respect to site elevation and/or AGL height, Permissible Top Elevation in AMSL shall prevail.

क्षेत्र का नाम / Region Name: उत्तर-पूर्व/North_East

पदनामित अधिकारी/Designated Officer	 25/02/21 आर.जि.लामा / R. G Lama महाप्रबंधक (ए.टी.एम), General Manager (ATM) भा.वि.प्रा., उ.पु.क्षेत्र, लो.गो.ब. अं.हावाइअड्डा, गुवाहाटी AAI, LGBI, Airport, Guwahati
नाम/ पदनाम/दिनांक सहित हस्ताक्षर Name/Designation/Sign with date	
द्वारा तैयार Prepared by	AVANISH KUMAR MAURYA, M(ATC)  , 25/02/2021
द्वारा जांचा गया Verified by	RAJIB SARMA, JTEM(ATM)  25/02/2021

क्षेत्रीय मुख्यालय उत्तर-पूर्वी क्षेत्र लोकप्रिय गोपीनाथ बरदलै अंतर्राष्ट्रीय हवाई अड्डा, गुवाहाटी - 781 015 दूरभाष संख्या : 91-361-284022

Regional headquarter North-East, Region LGB International Airport, Guwahati-781 015 Telephone:91-361-2840223

ईमेल आईडी / EMAIL ID : nocner@aai.aero
फोन/ Ph: 0361-2842637

ANNEXURE/अनुलग्नक

Distance From Nearest Airport And Bearing/निकटतम विमानक्षेत्र से दूरी और बीयरिंग

Airport Name/ विमानक्षेत्र का नाम	Distance (Meters) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से दूरी (मीटर मे)	Bearing(Degree) from Nearest ARP/निकटतम विमानक्षेत्र संदर्भ बिंदु से बीयरिंग (डिग्री)
Aizawl	55937.52	223.23
Lengpui	54870.88	201.44
NOCID	LENG/NORTH_EAST/P/021821/529375	

Street view



February 18, 2021

0 0.08 0.16 0.24 0.32 0.40 0.48 0.56 0.64 0.72 0.80 0.88 0.96 1.04 1.12 1.20 1.28 1.36 1.44 1.52 1.60 1.68 1.76 1.84 1.92 2.00
0 0.04 0.08 0.12 0.16 0.20 0.24 0.28 0.32 0.36 0.40 0.44 0.48 0.52 0.56 0.60 0.64 0.68 0.72 0.76 0.80 0.84 0.88 0.92 0.96 1.00
0 0.04 0.08 0.12 0.16 0.20 0.24 0.28 0.32 0.36 0.40 0.44 0.48 0.52 0.56 0.60 0.64 0.68 0.72 0.76 0.80 0.84 0.88 0.92 0.96 1.00

44

Satellite View



February 18, 2021

1:3,600
0 0.02 0.06 0.11 mi
0 0.04 0.09 0.17 km
Source: GeoEye, DigitalGlobe, GeoEye, IGN, GeoEye, Inc., USA,
USGS, AeroGRID, IGN, and the GIS User Community

44



FEAR for T&D subprojects in Mamit District
under NERPSIP in Mizoram



Annexure 5

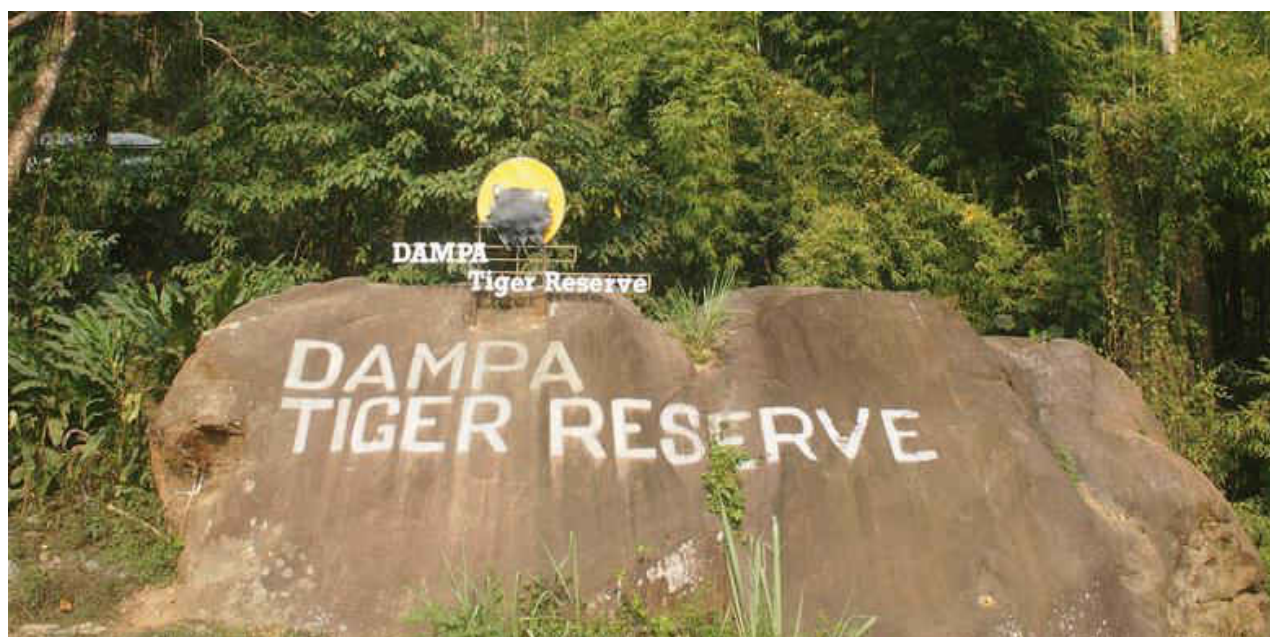
WILDLIFE MITIGATION PLAN

“WILDLIFE MITIGATION PLAN”

FOR

132 KV WEST PHAILENG-MARPARA TRANSMISSION LINE PASSING
THROUGH BUFFER ZONE OF DAMPA TIGER RESERVE

(UNDER NORTH EASTERN REGION POWER SYSSYTEM IMPROVEMENT PROJECT IN THE STATE OF MIZORAM)



PKG	:- MIZ-SS-02
OWNER	:- POWER AND ELECTRICITY DEPARTMENT MIZORAM
IMPLEMENTING AGENCY	:- Power Grid Corporation of India Limited

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	1.1 Justification & benefit of the project	
	1.2 Details of the proposed transmission sub-project	
	1.3 Requirement of Wildlife clearance	
Chapter-II :- Description of the protected area & likely impact of project		
	2.0 DAMPA Tiger Reserve & buffer zone	
	2.1 Major Habitat, Flora & fauna	
	2.2 Major activities involved in the T/L project	
	2.3 Likely impact of the project on buffer zone	
Chapter-III :- Proposed wildlife mitigation measures		
	3.0 Safeguard of wildlife passage at some places	
	3.1 Safeguard against bird electrocution/collision	
	3.2 Safeguard of accidental fallings of animals in excavated pits for tower foundation	
	3.3 132 kV Tower anti-climbing devices	
	3.4 General mitigation measures	
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SECTION –I: INTRODUCTION

1.0 PROJECT BACKGROUND:-

The North Eastern Region (NER) in India is endowed with rich energy resources but faces significant bottlenecks in electricity access and availability levels. The per capita power consumption in NER is one-third of the national average. No significant generation capacity has been added between 2004 and 2011 as a result of which inadequate power supply remains a critical constraint to sustainable growth and speeding up of private investment and economic competitiveness in the NER.

The road-map for development of power sector specifying the need for strengthening of overall Transmission, Sub-transmission and Distribution system of NER and Sikkim was brought out in the Pasighat Proclamation on Power released during the first Sectoral Summit of North Eastern Council at Pasighat in Arunachal Pradesh in January 2017.

Pursuant to recommendations of Pasighat summit, a Sub-Group was constituted under the Chairmanship of Member (Power System), Central Electricity Authority (CEA) on Transmission, Sub-transmission and Distribution related issues in North Eastern Region. Accordingly, a comprehensive scheme for strengthening of transmission, sub-transmission and distribution system was evolved by CEA in consultation with POWERGRID and States of North Eastern Region and Sikkim.

Under the subject project, implementation of the scheme in 6 states of NER viz. Assam, Meghalaya, Tripura, Mizoram, Manipur and Nagaland was envisaged through funding from World Bank / Govt. of India in three tranches. Accordingly, priority transmission, sub-transmission and distribution schemes to be taken up under tranche-1 of the World Bank fund has been finalized by CEA in consultation with the state and POWERGRID.

1.1 JUSTIFICATION & BENEFIT OF THE PROJECT:-

In order to visualize the infrastructure requirements of the state, it would be appropriate to know about the geo-climatic peculiarity of the state of Mizoram. Being thinnest in its population density of 13 persons per square KM, the area is covered with dense forest and hilly terrain. About 89 % of area of Mizoram is mountainous being criss-crossed by rivers & river systems making the logistic of the state so difficult that providing infrastructure of this state is the single most challenge to the state. The villages, towns and human concentration of the area are scattered over 84000 square KM making the distance between the villages and the towns longest in the country. The yardstick followed elsewhere in the country, therefore, does not fit into the state of Mizoram, because of these peculiarities.

After conceiving the idea of strengthening the Transmission and Sub-Transmission systems in the region, new developments have taken place Under RGGVY scheme, extensive and intensive electrification has been carried out electrifying virgin villages extending the distribution systems to every nook and corner of the state. Moreover, some sub-transmissions projects also were taken up by the state in the last 5-6 years. Therefore, implementation of this project will create a reliable state power grid and improve its connectivity to the upcoming load centers, and thus extend the benefits of the grid connected power to all the consumers. The project would also provide the required grid connectivity to such villages and towns of the States, where development of distribution system at the downstream level has been taking place under Govt. of India sponsored RGGVY/APDRP/R-APDRP schemes. This project is a major step towards meeting the national objective of affordable 24 X 7 "Power to All" through enhancement in access of consumers to grid connected power supply through improving its availability and reliability, thereby facilitating inclusive growth. This shall also increase the per capita power consumption of these States, which is lagging behind the average national consumption and shall contribute to the economic development of the North-Eastern Region.

The project will give impetus to the inclusive growth by enhancing the consumers' access to reliable and affordable grid and also this ***project further supplies power to the Indo- Bangladesh border fencing project and other security related works which are involved in building up national security and it has national importance.*** The project will also facilitate in development of small scale/cottage industries/tourism in the region and boost economic growth by enabling supply of quality power.

Further, this project will give impetus to integration of upcoming Hydro Power Generating Plants in Mizoram with the National Grid and will facilitate lying of optical fiber on existing lines to help extending communication facility to the existing substations, small towns/villages and also improves the power system performance.

1.2 DETAILS OF THE PROPOSED TRANSMISSION SUB-PROJECT:-

The **proposed 132kV S/C (on D/C tower) West Phaileng to Marpara Transmission line** is a sub-project conceived under the banner of “NERPSIP for Strengthening of Transmission & Distribution System in Mizoram ” located in Mamit district of the State. A route map showing the proposed transmission Line in SOI Topo sheet is enclosed as **Annexure-I**

The proposed transmission line will connect two (2) Sub-stations namely 132/33 kV West Phaileng and 132/33 kV Marpara. Power supply is going to be utilized for ***Indo-Bangladesh border fencing and other security utilities in around Marpara which are important for the national security and shall not be compromised.*** Therefore upon construction of the proposed line, major power flow will be from 132 kV West Phaileng S/s to Marpara S/s as the West Phaileng is connected with hydroelectric power stations through some other lines and therefore the proposed transmission sub-project will cater the power demand in Marpara and West Phaileng area in near future.

1.3 REQUIREMENT OF WILDLIFE CLEARANCE:-

In order to minimize impact on forest and wildlife, the route of the 132 kV West Phaileng – Marpara T/L is proposed along the road from West Phaileng to Phuldungsei and last at the Tower location at AP 129/0. This will enable transportation of construction equipment/tower materials through the road and also facilitate the operation and maintenance of the line in future. The proposed route is the shortest and the most feasible route from all aspects which has been selected among all the alternatives routes explored during detail survey.

However, a portion of the route has to pass through **Buffer zone of DAMPA Tiger Reserve**(i.e. part of DTR) since both the connecting 132 kV Sub-stations are located on either side of the buffer zone. The avoidance of the buffer zone is entirely not possible due to the physical & complex terrain of the area.

Since, development projects in Tiger reserve area attract provisions of Wildlife Conservation Act, 1972 and require prior wildlife clearance, therefore, it is mooted to apply for wildlife clearance for the proposed 132 kV West Phaileng - Marpara transmission Line as per the provision of the Act. The technical details of the proposed route & status of forest/wildlife clearances are states as below:

Name of project for which WL clearance is required	Construction of 132 kV S/C (on D/C tower) West Phaileng (DAMPA TIGER RESERVE) to Marpara Transmission line under NERPSIP, MIZORAM.
Total Line Length	50.292 Km
Details of wildlife area involved	Buffer Zone of DAMPA Tiger Reserve (i.e. part of DTR)
Total no of towers to be erected in WL area	129 Nos

Total wildlife area involved	104.77 Ha
Present Status of WL proposal	Presently the proposal is under examination with Director (DAMPA)
Present Status of Forest proposal	Submitted online on 03.04.2019. Presently under process at Nodal Office.
Likely impact of the project on protected area (PA)	The overall impact of the project on protected area (PA) i.e. buffer zone of DAMPA Tiger Reserve is assessed as minimum which can be addressed through proper mitigation measures as recommended.

SECTION-II: DETAILS OF PROTECTED AREA

2.0 DAMPA TIGER RESERVE AND BUFFER ZONE

DAMPA Tiger Reserve is located in the western part of Mizoram, in Mamit District. It is surrounded by Chittorgarh hill tracts of Bangladesh to the west, Tripura State, Mamit and Kawrthah forest divisions to the north, and Mamit Forest division to the south and east. The area lies in the Lushai hills, a series of parallel mountain ranges allied to Arahhan yoma arec. Dampa Tiger Reserve lies between 92°16'08" E to 92°27'41" E and 23°18'27" N to 23°43'50" N. The Tropic of cancer passes through Dampa Tiger Reserve near the range office at Phuldungsei.

The riverine area towards the east and west of DAMPA, along the Khawthland Tuipui (also known as Szalui or the Tui-Iianpui river towards west and the Teirei river towards east) was detected as Reserved Forest in 1952. Beginning in the early 1960s, small hamlets began to be established in DAMPA for intensive cultivation in the lower reaches, which had a detrimental effect on the biodiversity of the area. DAMPA was declared a Wildlife Sanctuary in 1974 and re-notified in 1985 with a view to conserve the fast deteriorating natural wealth. DAMPA was declared as a Tiger Reserve vide Government of Mizoram Gazette notification No. B-11011/14/90-FST, on 7th December 1994, after its approval from the Government of India. The total area of Dampa Tiger Reserve is 988 km² out of which **500 km² area is core zone** or critical tiger habitat **and 488 km² area is buffer zone** is shown in figure which is attached.

Major fauna that are found in the reserve include Tiger, Leopard, Clouded Leopard, Wild Dog, Sambar, Barking Dear, Gaur, Sloth Bear, Hoolock Gibbon, Bunturon, Procupine, Slow Loris, Jungle Cat, Pangolin, Black Bear, Giant Squirrel, Common Langur, Rhesus Macaque, Wild pig and Otter. There are no records of direct sighting of tigers in the Dampa Tiger Reserve. However, there are collateral evidences such as pugmarks and scats that indicate presence of Tiger in the area. Furthermore, there is a prey-base available for the Tiger in the reserve that supports possibilities of surviving tiger population.

The main flora consists of vegetation such as *Dipterocarpus turbinatus*, *D.macrocarpus*, *Artrocarpus chalpasa*, *Adina cordinofolia*, *Duabanga sonneratiodes*, *Chukrasia tabularis*, *Amoora wallichii*, *syzygium cumini* and *Toona ciliate*. Bamboo *Bombax ceiba* and cane is also found.

Based on Champion and Seth Classification, the vegetation of Dampa Tiger Reserve can be categorized into the following forest types:

1. Tropical Evergreen and Semi Evergreen Forests
2. Tropical Moist Deciduous forests
3. Sub- Montane Type

The details of DAMPA Tiger Reserve is as below:

Date of notification as DAMPA TIGER RESERVE : 7th December 1994
Date of notification of buffer zone : 16th March 2011.

Area of the tiger reserve

Core/critical tiger habitat : 500 Sq. Km
Buffer/Peripheral area : 488 Sq. Km.
Total : **988 Sq. Km**

Location

Latitudes : 23⁰ 18' 27'' N to 23⁰ 43' 50'' N
Longitudes : 92⁰ 16' 08'' E to 92⁰ 27' 41'' E

A map showing the area of DAMPA Tiger Reserve is placed below. Map showing the proposed 132 kV West Phaileng – Marpara Transmission line passing through the buffer zone of DAMPA Tiger Reserve is also enclosed as **Annexure-II**.

2.1 MAJOR HABITAT, FLORA AND FAUNA:-

Flora:

The main vegetation type of the entire tract is Assam Valley tropical semi-evergreen forest. At places, evergreen and semi-evergreen vegetation types merge. The forests are multi-storied and rich in epiphytic flora and woody lianas. The vegetation is dense, with a high diversity and density of woody lianas and climbers. The forest has a typical layered structure and the major emergent species are *Tetrameles nudiflora*, *Ailanthus grandis* and *Altingia excelsa*. The forest types include tropical semi-evergreen forests along the lower plains and foothills dominated by *Polyalthiasimiarum*, *Pterospermum acerifolium*, *Sterculia alata*, *Stereospermum chelonoides*, *Ailanthus grandis* and *Duabangagrandiflor*. The tropical semi-evergreen forests are scattered along the lower plains and foothills, dominated by *Altingia excelsa*, *Mesuaferrea*, *Dysoxylum binctariferum*, *Beilschmiedia* sp. and other middle story trees belonging to the Lauraceae and Myrtaceae. Sub-tropical broadleaved forests of the Fagaceae and Lauraceae dominate the hilltops and higher reaches. Hill slopes here are dominated by *Mesuaferrea* and *Castanopsis* spp. Moist areas near streams have a profuse growth of bamboo, cane and palms. About eight species of bamboo occur in the area. Seven commercially important cane species grow in moist areas, along with *Livistona jenkinsiana*. Along the larger perennial streams, there are shingle beds with patches of tall grassland, which give way to lowland moist forests with *Dilleniaindica* and *Talaumahodgsonii*. Along the larger rivers, isolated trees of *Bombax ceiba* and two species of *Albizia* are common.

Fauna

The faunal diversity is immense and around 59 mammal species have been recorded so far out of which 16 threatened species (6 endangered and 10 vulnerable). Tiger is the charismatic mammals, besides a large array of co-predators like Leopard, Clouded leopard, Wild dog, and many more small carnivores, ungulates like Gaur, Sambar, barking deer, wild boar and other species. 296 birds species have been documented, 31 species of amphibians and 30 species of fishes have been recorded. Three large cats - the Bengal tiger, Indian leopard and clouded leopard share space with two canids – the wild dog and Asiatic jackal. Among the herbivore species, barking deer, gaur, and sambar are most commonly encountered. The commonest monkeys are the Rhesus macaque, Assamese macaque and the capped langur. In addition, DTR is home to as many as sixteen species of viverrids, weasels and mongooses. Commonly seen in pairs is the yellow-throated marten.

Notable mammals in the Dampa Tiger Reserve are: tiger, leopard, clouded leopard, jungle cat, wild dog, jackal, Himalayan black bear, binturong, gaur, sambar, hog deer, barking deer, wild boar, yellow-throated marten, Malayan giant squirrel, flying squirrel, squirrel, capped langur, rhesus macaque, Assamese macaque, gaur. The presence of stump tailed macaques has been reported by one researcher.

DAMPA Wildlife Sanctuary (i.e. the core area of DAMPA Tiger reserve) is also recognized as one of the **Important Bird areas (IBA)** in India. At least 296 bird species have been recorded from DAMPA Tiger Reserve including the globally **endangered white-winged wood duck**, the unique Ibisbill, and the rare Oriental bay owl. DTR is a good place to see **hornbills**. Roost sites of wreathed hornbills and great hornbill can be observed on the river banks. Birds seen in DAMPA Tiger Reserve include: great hornbill, wreathed hornbill, oriental pied hornbill, scarlet-backed flowerpecker, Kalij pheasant, grey peacock-pheasant, speckled piculet and white-browed piculet, bay woodpecker, greater yellowthroat, greater flameback, great barbet, blue-throated barbet, red-headed trogon, Indian cuckoo, Asian barred owl, green imperial pigeon, mountain imperial pigeon, emerald dove, crested serpent eagle, Malayan night heron, long-tailed broadbill, Asian fairy bluebird, blue-winged leafbird, golden-fronted leafbird, orange-bellied leafbird, scarlet minivet, maroon oriole, greater racket-tailed drongo, Indian paradise-flycatcher, pale-chinned blue flycatcher, blue-throated flycatcher, black-naped monarch, grey-headed canary flycatcher, white-rumped shama, slaty-backed forktail, spotted forktail, chestnut-bellied nuthatch, velvet-fronted nuthatch, black bulbul, black-crested bulbul, ashy bulbul, white-throated bulbul, slaty-bellied tesia and striated yuhina. Of the over 1500 butterfly species found in India, it is estimated that DAMPA Tiger Reserve could be home to at least 500 species.

A total of 36 reptile species and 30 amphibian species have been reported in DAMPA Tiger Reserve. The Assam roofed turtle, a highly endangered species, is commonly sighted. The king cobra is sometimes seen on the fringes of villages and is not uncommon within the park. The pied warty frog, resembling bird droppings, is also found here.

Tiger Status

As per the status of tigers in India 2016 report there is no Tiger were found in **DAMPA tiger reserve** .

Core area

In the core area, wildlife protection and management are given priority. The Forest Department provides livelihood alternatives and eco-development activities in the buffer in order to wean people away from depending on resources in the core.

Buffer area

The buffer area has been classified into two (2) zones:

1. **Eco Development Zone** which consists of human settlement areas, agriculture land, horticulture, fisheries and jhum land. The eco-development activities are implemented through participatory village level micro plans for reducing resource dependency of people living around the park. The local community ensures reciprocal commitment through respective eco-development committee. Rural development activities shall be integrated with wildlife conservation concerns.
2. **The Forested zone** consists of the 04(Four) Zones (Western Boundary, Northern Boundary, Eastern Boundary & Southern Boundary). This zone is protected with the participation of local people. Collection of timber and Non-timber forest products (NTFPs) are regulated. Human-wildlife conflict is mitigated by ensuring timely payment of ex-gratia for loss of life, livestock and crop depredation.

Corridor

The boundary starts from the point where Sailui meets Sazalui. It thence follows Sazalui upstream till it meets Belkhailui in the Western part of DAMPA Tiger Reserve. The Northern Boundary starts from the point where Belkhailui meets Sazalui till it meets Tut river in Daplui downstream. The Eastern Boundary starts from the point where Daplui meets Tut river and follows thence marlui downstream till it meets Lunghrelui. The Southern Boundary starts from the point where Lunghrelui meets Marlui till it meets Sazalui/Tuilianpui.

2.2 MAJOR ACTIVITIES INVOLVED IN THE TRANSMISSION PROJECT:-

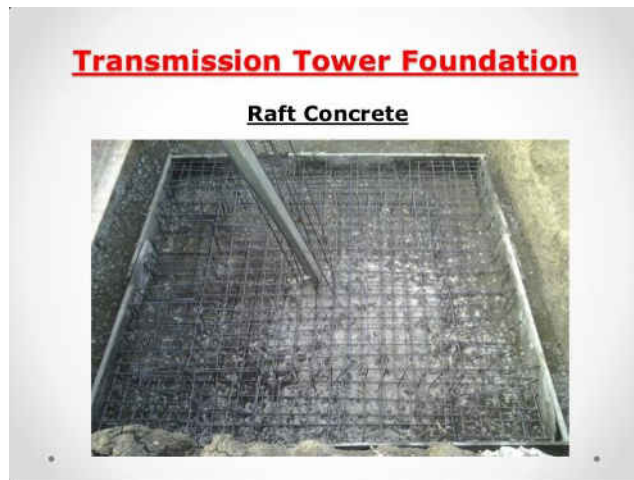
The major construction activity envisages in the proposed transmission project are as follows:-

- ❖ Construction of Tower Foundation (An average of 7 M x 7 M tower base and activities involves excavation of soil and concreting)
- ❖ Erection of transmission towers (involves joining of tower members/lattice structure)
- ❖ Stringing of electrical conductor wires between adjacent towers.

The above activities will be carried out by engaging suitable Contractor. For tower foundation works, local gangs/manpower are usually engaged as petty Contractor and temporary makeshift camps are set nearby the construction site till completion of work. For hill areas construction of new approach road generally not encouraged & the existing village tract or jungle tract are used for head loading of tower materials. Tower erection and stringing of conductor is generally carried out by specialized gangs and temporary construction camps are also required to be set up for this purpose.

TOWER FOUNDATION:

Foundation of a transmission tower is the basic structure to support the tower in its position. It plays an important role in safety and satisfactory performance of the structure as it transmits mechanical loads of the electrical transmission system to earth. The foundations in various types of soils have to be designed to suit the soil conditions of particular type. In addition to foundations of normal towers, there are situations where considering techno-economical aspect for special towers required or river crossing which may be located either on the bank of the river or in the mid stream or both, pile foundation may be provided. The various activities involved in the foundation work are illustrated below:-



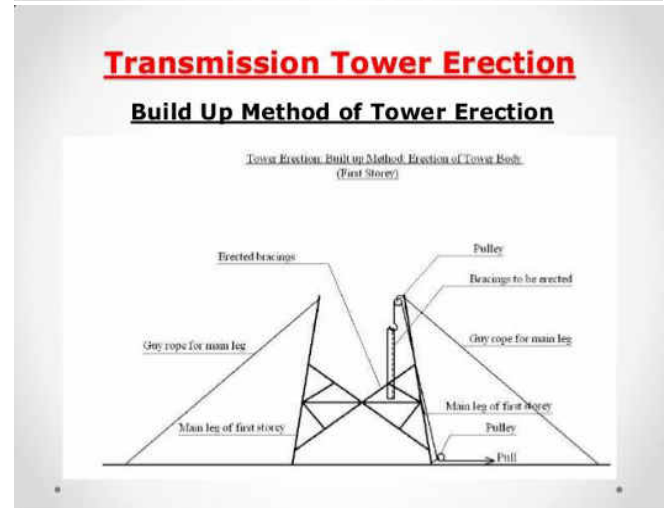
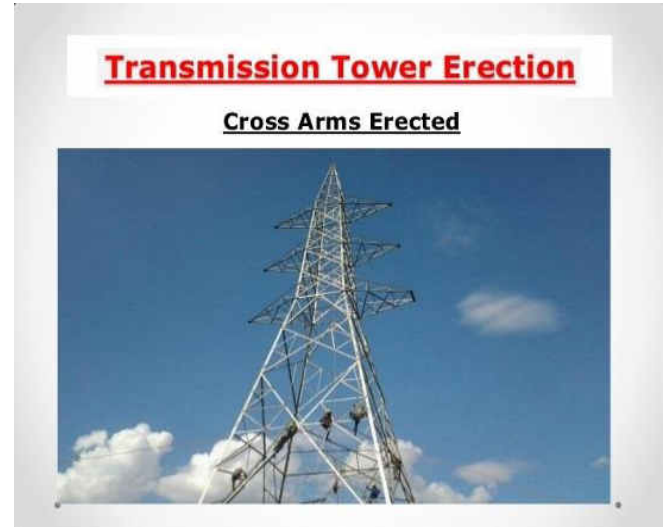
TOWER ERECTION:

There are four main methods of erection of steel transmission towers which are as below:

- ❖ Build-up method or Piecemeal method
- ❖ Section method
- ❖ Ground assembly method.
- ❖ Helicopter method.

Build Up Method of Tower Erection

- ❖ This method is most commonly used in India for the erection of 66kV, 220 kV and 400 kV transmission line towers. This method consists of erecting the towers, member by member. The tower members are kept ground serially according to erection sequence to avoid search or time loss. The erection progresses from the bottom upwards. The four main corner leg members of the first section of the tower are first erected and bolted with the stub.



TOWER STRINGING:

- ❖ Stringing of Transmission line a process of joining and fixing of the electrical conductor wires from tower to tower and various other assemblies for transmission of electricity.
- ❖ Stringing overhead conductors in transmission is a very specialized type of construction requiring years of experience as well as equipment and tools that have been designed, tried and proven to do the work.

Steps of stringing

- Proper guying

- Insulator Hoisting
- Paying out of pilot wire & conductor
- Rough sagging of conductor
- Clipping & spacing
- Finishing activities
- Jumpering
- Final checking



2.3 LIKELY IMPACT OF THE PROJECT ON BUFFER ZONE OF DAMPA TIGER RESERVE:-

The impact on the forest and wildlife associated with power transmission project with specific reference to the proposed 132 kV Transmission Line from West Phaileng to Marpara on the buffer zone of DAMPA Tiger reserve is summarized as below:

- **HABITAT LOSS AND FRAGMENTATION:-**

Powerlines or specially powerline corridors, are known to affect many different animal groups, predominantly birds. These impacts are largely associated with fragmentation & degradation of wildlife habitats along the powerline corridor i.e. Right of Way. In case of 132 kV West Phaileng to Marpara Transmission line the RoW is considered as 27 meter,

wherein the standing trees are required to be either felled, looped/pruned as necessary for casting of tower foundation, tower erection & electrical conductor stringing. The large scale felling of trees along the line corridor might impact the nesting sites of birds as well as habitat and movement of other arboreal species like monkeys, primates etc. available in that areas.



- **ELECTROCUTION & ACCIDENTAL COLLISION OF BIRDS.**

As per available/listed data risk of electrocution of birds are mostly related to distribution/transmission lines up to 110 kV due to dimensions and spacing between two conductors, electrocution of Bird/Raptor by EHV lines of 132 kV & above is quite rare. Moreover, collision of birds are mostly reported during landing and takeoff in area close to water bodies, designated bird areas/ sanctuary having large congregation of birds or line intersecting identified bird fly or migratory paths hence bird diverter even if placed on EHV line can only be effective if it is installed in the fly path of birds. POWEGRID following its cardinal principle of avoidance take utmost care to avoid such areas while selecting the optimum line route of new transmission line.

- **INDUCED IMPACT ON WILDLIFE FROM CONSTRUCTION WORKERS.**

Construction manpower will be required for execution of the project and makeshift construction camps and will be set up at the tower foundation/erection sites as per site requirement. Generally for tower foundation works, local manpower/workers will be engaged. However, for specialized works like tower erection and stringing, migrant labourers are usually engaged. The induced impact on the wildlife of DAMPA Tiger Reserve from such construction workers is the likelihood of involvement in hunting/trafficking of wild animals and other unlawful activity during the execution of the project.

SECTION-III: PROPOSED MITIGATION MEASURES

3.0 SAFEGUARD OF WILDLIFE PASSAGE AT SOME PLACES BETWEEN AP 51 to AP 59 (Near to Saithah village):-

As per the field inspection of Director (DAMPA) at the wildlife passages & wild life area , there are 03 (three) nos. wildlife passages within Dampa Tiger Reserve buffer zone are available and at the same passages there are 09 (Nine) nos.132KV Power line towers from **AP-51 to AP-59** (near to Saithah village) are falling for which minimum ground clearance kept at tower as 13.3 mtrs but as per the advise of the director DAMPA, another 03 mtrs further clearance insisted and kept as 16.3 mtrs for safe passage of wild animals and other mammals in DAMPA WLS & Tiger Reserve. it is intimated that section of the transmission line following mitigation measures are proposed to be adopted by POWERGRID during execution of the project.

- ❖ As per Indian Electricity rule, the minimum ground clearance for 132 kV Transmission line is **6.1** meter i.e. the lower most electrical conductor wire between two adjacent towers will be stringed in such a way that the minimum height from actual ground level is always more than 6.1 meter which is sufficient for safe passage of animals and others mammals **In addition to the above, it is proposed to maintain additional clearance 3 meter over and above minimum clearance above ground from the lowest conductor of transmission line for the areas specified above .**

3.1 SAFEGUARD OF BIRDS FROM ELECTROCUTION AND ACCIDENTAL COLLISION:-

Since DAMPA Wildlife Sanctuary (i.e. the core area of DAMPA Tiger Reserve) is recognized as one of the **Important Bird areas (IBA)** in India, a having a significant population of birds including the *Arborophile atrogularis*, *Treron phayei* and *Buceros bicornis* were found in the near threatened category. Therefore, the following mitigation measures are proposed for safeguard of birds:-

- ❖ The Stringing of conductor for the transmission line shall be carried out maintaining a separation between energized conductors as follows:

Vertical distance between two conductors : **4 m** (appx.)

The above arrangement, will nullify the likelihood of electrocution of large winged birds like hornbill, because the distance between energized conductors will be always more than the maximum wing span of the bird. *A figure showing the above arrangement is shown in Annexure-II*

- ❖ To prevent accidental collision of birds with the conductor **bird diverter/colored/contrast marker devices** will be installed on the earth wire to make it visible to birds from long distance as shown in the photographs as below **from AP 37 to AP 72 (In between Lallen to Phulbial)** where the birds are flying and taking water from water bodies/small ponds which are available in the above vicinity.

- ❖ **Bird Guard** will be provided on towers as per requirement to prevent birds from sitting in the insulator strings which may result in puncture of insulator due to defecation by birds.



3.2 SAFEGUARD OF ACCIDENTAL FALLINGS OF ANIMALS IN EXCAVATED PITS FOR TOWER FOUNDATION:-

The excavated pits shall be properly barricaded and fenced so as to prevent accidental falling of mammals in the vicinity of the construction sites

3.3 132 kV TOWER ANTI-CLIMBING DEVICES:-

❖ Many different designs of tower exist for 132 kV lines with standardisation becoming more focused in recent years. Anti- Climbing Devices (ACD's) are being used at tower four corners gates with two opening and two non-opening fenced by using barbed wire and accessories.



132kV TOWER ANTI-CLIMBING DEVICES



132kV TOWER ACD'S



BARBED WIRE AND ACCESSORIES

- Line markers should be as large as possible. The spacing between them should not be more than 5 to 10 m. Marker devices should be chosen to contrast as much as possible with the background colours (Figure 12.8); and, importantly, should be visible at night: most bird collisions are said to occur at night.

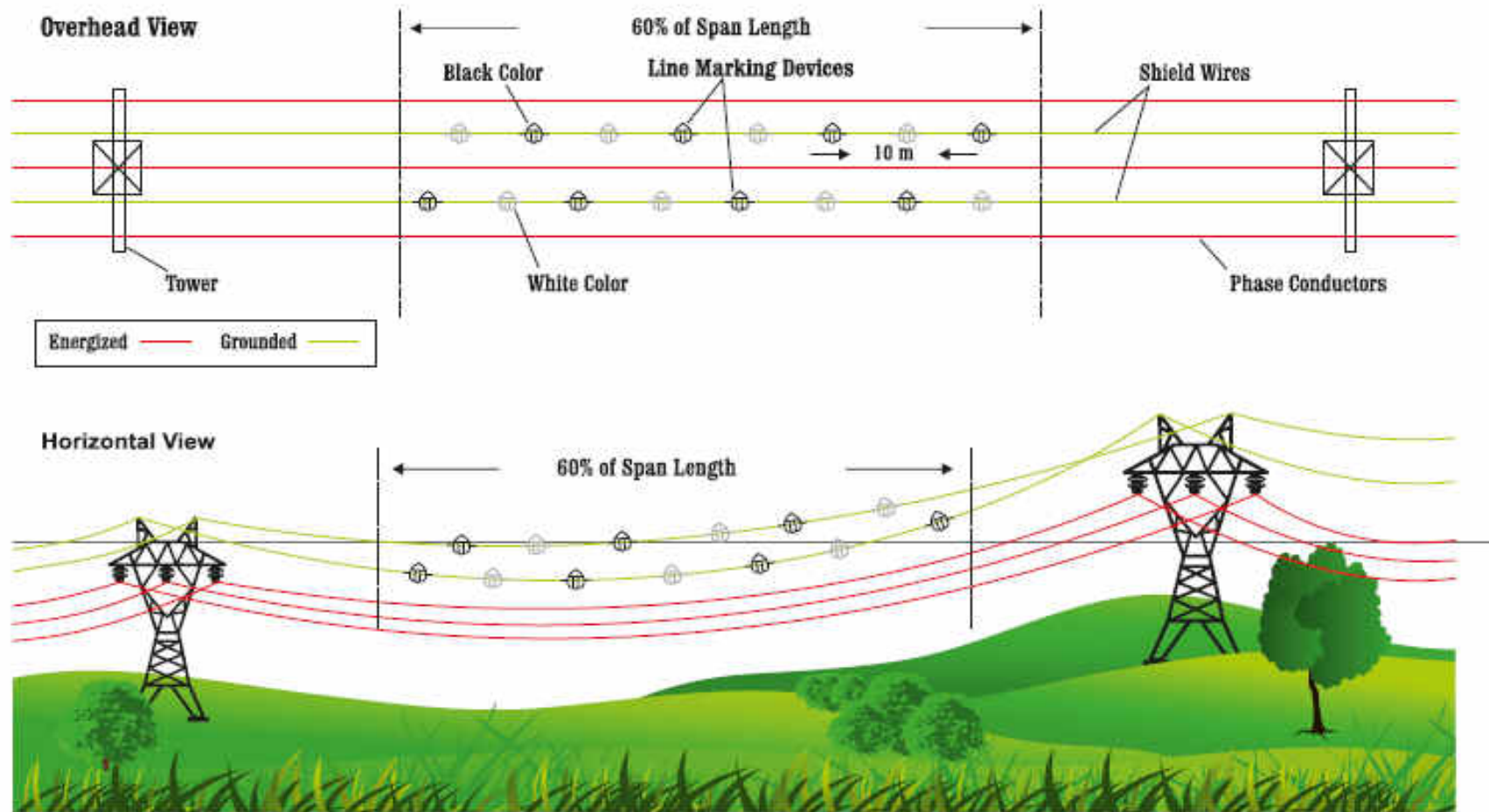


Figure 12.8: Design and configuration of markers to reduce bird collisions (after Eskom Transmission [South Africa] 2009).
Source: APLIC 2012.

3.4 GENERAL MITIGATION MEASURES FOR PROTECTION OF FOREST AND WILDLIFE :-

In addition to the above specific measures for animals and birds, the following mitigation measures will be adopted by POWERGRID during execution of the project for protection of forest and wildlife of DAMPA tiger reserve.

- ❖ Before start of work in the DAMPA Tiger reserve (Buffer zone) awareness campaign will be taken up by POWERGRID in association with Forest Dept. to create maximum awareness among the construction workers regarding safeguard of forest and wildlife.
- ❖ No work shall be allowed at nights (i.e. between sunset & sunrise) in the forest area.
- ❖ No permanent labour camps will be set up inside the forest area.
- ❖ Tree felling will be minimized along the line corridor and only those trees which are unavoidable for tower foundation & erection will be felled under the supervision of Forest department. The guideline of MoEF dtd. 5th May, 2014 (*copy enclosed*) with regard to “*construction of transmission line in forest area*” will be strictly adhered to during execution of project.
- ❖ The trees on the remaining part of the transmission line corridor will be mostly loped and pruned which are required for stringing of conductor. In case of towers falling in hill top locations where enough ground clearance is available, tree will not be felled. This will minimize the impact on nesting sites of birds as well as habitat of arboreal species. *The tree felling pattern that will be adopted in forest area is shown in Figure -3*
- ❖ **The specific and important tree species as identified by the Forest department will be marked separately and protected during the construction of the transmission line.**
- ❖ To minimize the disturbance to wildlife, no new approach road will be constructed in the forest area. The existing village tracts/paths will be utilized for carrying of tower materials and also manual excavation of tower foundation will be done.
- ❖ Ecofriendly engineering practices in the construction works and due care be taken properly so as to avoid injury to wildlife.
- ❖ All pollution related aspects and waste management will be duly taken care during the implementation of the project.
- ❖ In addition to above, any other measures as envisaged by the State Board of Wildlife/national Board of Wildlife and as as per provisions of wildlife (Protection) Act, 1972 will be strictly adhered to during execution of the project by POWERGRID.

SECTION –IV: CONCLUSION

The **proposed 132 kV S/C (on D/C tower) West Phaileng to Marpara Transmission line** is a very important sub-project which is conceived by Govt. of India under the ambitious “**NORTH EASTERN REGION POWER SYSYTEM IMPROVEMENT PROJECT IN THE STATE OF MIZORAM**” located in Mamit district of the State. This project is a major step towards meeting power supply to **Indo Bangladesh Boarder fencing** and other security related establishments also the national objective of affordable 24x7 “**Power to All**” through enhancement in access of consumers to grid connected power supply through improving its availability and reliability, thereby facilitating inclusive growth of power sector of the State.

The construction of the above transmission line requires wildlife clearance since, a section of the proposed transmission line has to pass through the **Buffer zone of DAMPA Tiger Reserve** since the avoidance of the buffer zone is entirely not possible due to location of the Sub-stations and due to physical & complex terrain of the area. The EIA and environmental clearance is not required for this project since power transmission lines are kept outside the purview of EIA 2006 as per MoEF notification and considered as green project due to its pollution free nature.

Considering the importance of conservation of biodiversity and the rich wildlife habitat, flora and fauna of DAMPA Tiger reserve, it is found that there will be some temporary and permanent impact from the aforesaid transmission project on the buffer zone area. However, the User Agency and POWERGRID has made a holistic approach towards protection of the buffer zone through the principle of avoidance, minimization and mitigation in their project activity and committed for implementation of various mitigation measures for tigers, birds, monkeys etc. including general measures for overall protection of the forest and wildlife in the buffer zone of DAMPA Tiger Reserve.

Therefore, it is summarized that the overall impact on biodiversity on DAMPA Tiger Reserve (buffer zone) due to the proposed transmission project is assessed as low which can be minimized through proper mitigation measures as per guidelines.

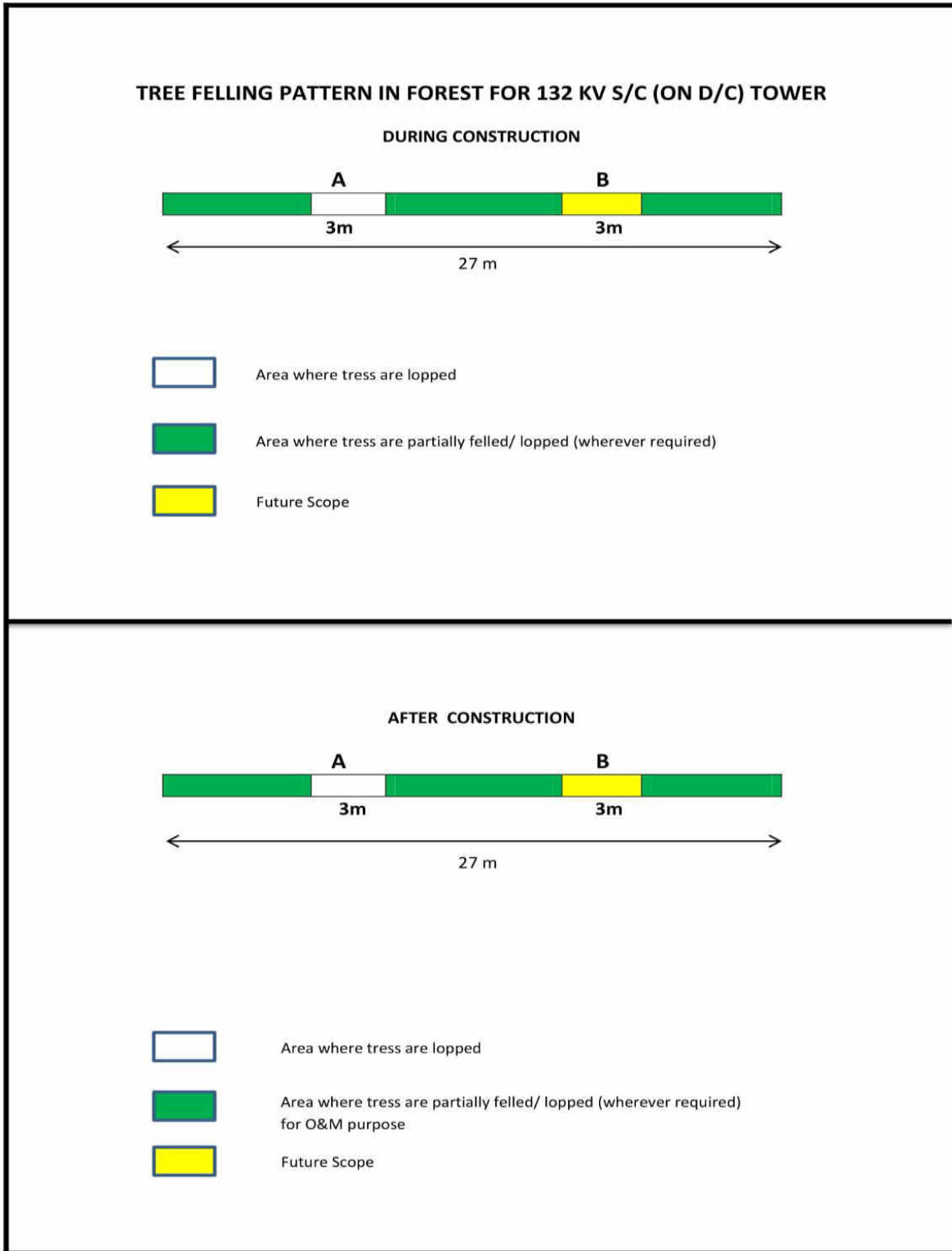
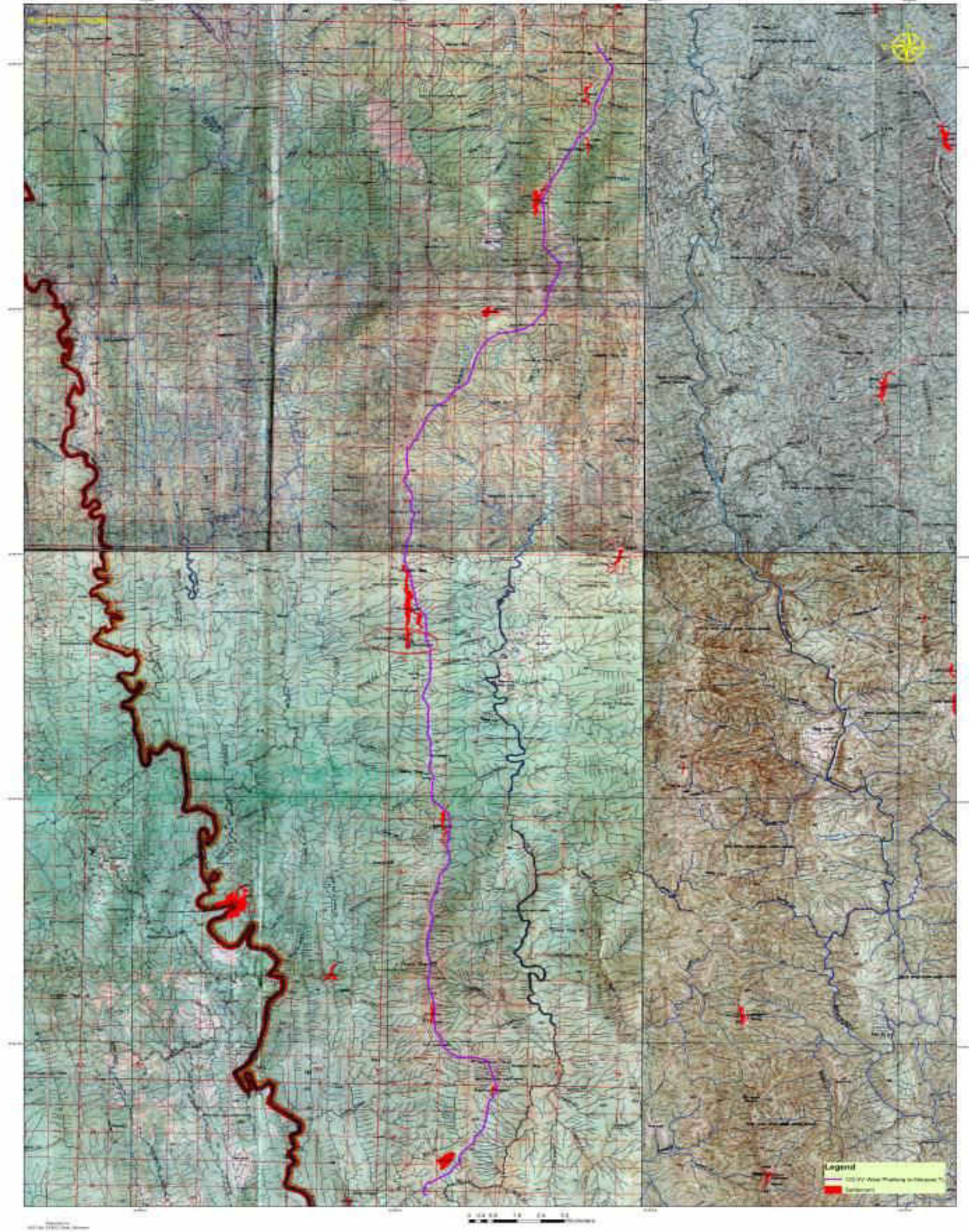


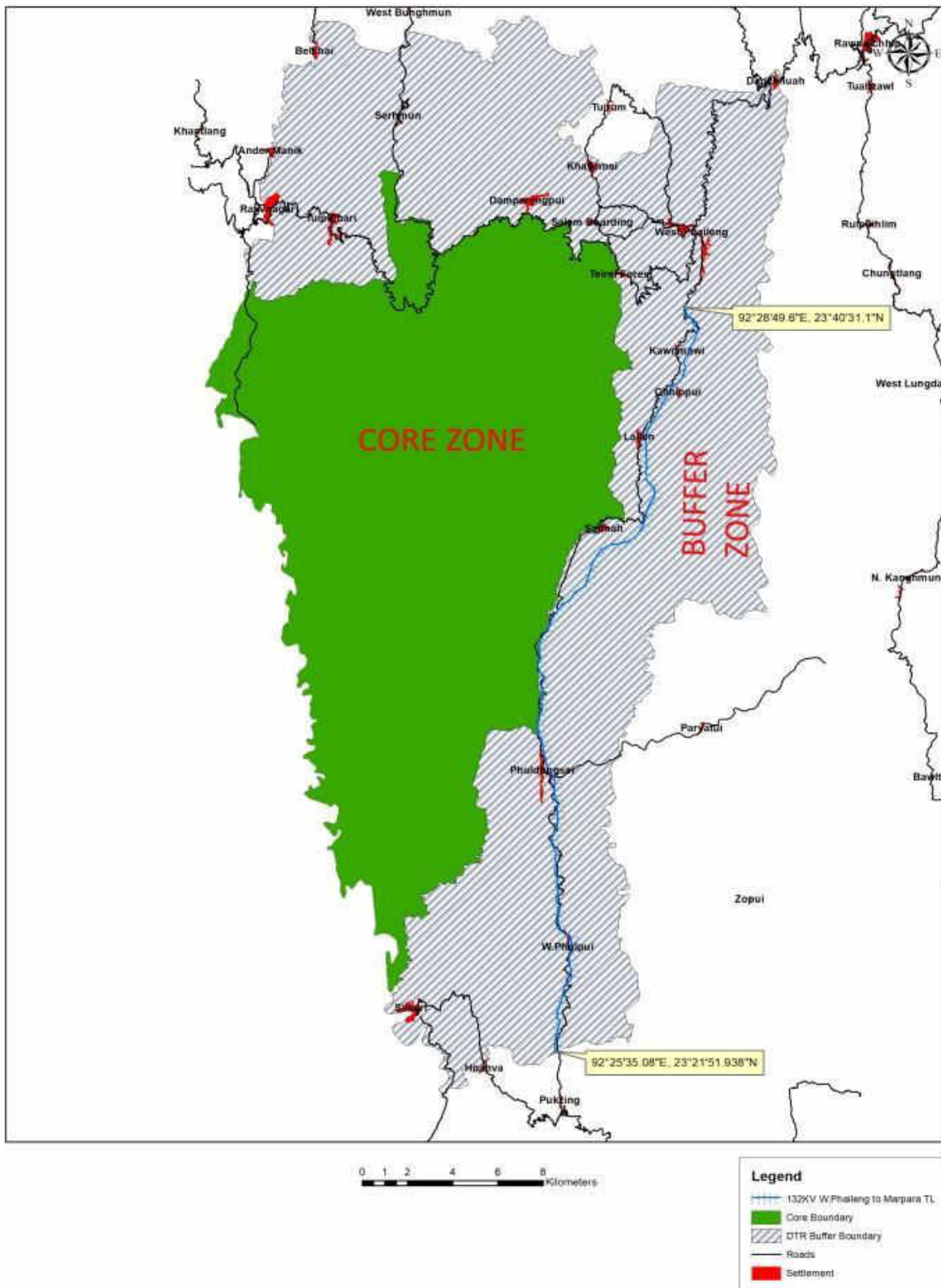
FIGURE-3 : TREE FELLING ARRANGEMENT IN THE PROJECT AS PER GUIDELINE OF MOEF

SECTION -V: ANNEXURES

Annexure-I

MAP SHOWING 132 KV WEST PHALENG TO MARPARA TL







FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 6

Guidelines for Tree Felling in Nonforest Area of Mizoram

**GUIDELINES FOR FELLING OF TREES FROM
NON FOREST AREAS ISSUED IN COMPLIANCE
OF SUPREME COURT'S ORDER DATED 12.5.2001
IN WRIT PETITION (C) NO. 202/95**

NOTIFICATION

No.C.18012/3/91-FST, the 30th July, 2004. The following Amended guidelines for felling of trees from non-forest areas including in respect of plantations on non-forest areas in compliance with Supreme Court's order dt.12.5.2001 in Writ Petition C.No.202/93 duly approved by the Government of India, Ministry of Environment & Forests vide No.B.180/NEC/2001-Pt.III of 5.4.2004 is hereby published for general information.

This Notification supercedes previous notification issued under this office letter No.C.18014/21/96-FST/Pt.III dated 8th February 2002.

Sd/-S.N. Kalita

Secretary to the Government of Mizoram,
Environment & Forests Department.

Whereas, by order dated 12.5.2001 passed in Writ Petition (C) No. 202 of 1995, the Hon'ble Supreme Court had directed, *inter alia*, that guidelines/rules be framed regarding felling of trees from non-forest areas including in respect of plantations on non-forests areas:

Therefore, in pursuance of the directions of the Hon'ble Supreme Court referred to the above said order dated 12.5.2001 and in exercise of all the enabling powers vested in the State, the Govt. of Mizoram hereby issue the following amended guidelines:

- 1.1 These guidelines shall be called the “GUIDELINES FOR FELLING OF TREES FROM NON-FOREST AREAS”.
- 1.2 These shall extend to the whole of the State including the District Council areas in respect of felling of trees from non-forest areas including tree plantations on said areas.
- 1.3 They shall come into effect from the date of their notification in the official gazette.

DEFINITIONS:

2. In these guidelines, unless there is anything repugnant to the subject or context,
 - (a) “Government” means Govt. of Mizoram.
 - (b) “Forests” means (i) Reserve Forest or Protected Forests or any other areas legally constituted as “Forest” and (ii) Any area recorded as “Forest” in Government records maintained by Forest Department or other Government Departments and (iii) deemed Forest area identified as per Supreme Court order dated 12.12.96 in Writ petition (C) No. 202/95.
 - (c) “Non-Forest Land” for the purpose of these guidelines means area which is not Forest as per 2 (b) above. Provided that a non- forest area where trees and tree plantations have been raised artificially shall continue to be treated as non-forest land.

REGISTRATION OF TREE PLANTATIONS:

- 3.1 Trees including tree plantations raised in non-forest areas by an individual or community or institution or non- government organization or any other agency shall be registered with the Divisional Forest Officer concerned in the manner as may be prescribed in this behalf by the Principal Chief Conservator of Forests.
- 3.2 While registering the trees and tree plantation it shall, *interalia*, be ensured that the applicant is the legal title holder of the land and the area is non-forest land as per 2 (c) above.
- 3.3 The Divisional Forest Officer shall prepare and make available a certificate of such registration, which shall, *interalia* include a location map/sketch of the plantations, to the registered holder with copies to the Village Level body, Deputy Commissioner/Collector, Conservator of Forests and Principal Chief Conservator of Forests.
- 3.4 The Registration Certificate shall normally be issued within 90 days of the receipt of complete application by the Divisional Forest Officer.
- 3.5 The trees privately raised including tree plantation raised in non-forest area in the past must be registered by the respective owners with the concerned Divisional Forest Officer within a period of 3 years.

TREE SPECIES NOT REQUIRING FELLING PERMISSION

- 4.1 For felling and conversion of trees of following species from non-forest area, including plantations of such species, no felling permission from Forest Department under these guidelines are needed: Kothal (*Artocarpus integrifolia*), Tung (*Aleartites fordii*), all species of Bamboo, and other Horticultural tree species as specially approved by State Government in consultation with Principal Chief Conservator of Forests.
- 4.2 The State Government shall be the competent authority to add or delete any species in 4.1 above with prior concurrence of the Central Government.

PERMISSION FOR FELLING OF TREES

- 5.1 (a) Application for permission for felling of trees for commercial purpose including in respect of registered plantations shall be made to the Divisional Forest Officer in the form prescribed by Principal Chief Conservator of Forests. The Divisional Forest Officer on receipt of the application shall satisfy himself as regards ownership of trees, tree plantation area and admissibility of felling and on his satisfaction shall endorse the application to a forest officer of rank not below the rank of Forest Ranger to mark the trees as per prescribed procedure. The marking officer shall confirm silvicultural maturity of the trees, verify the records and carry out marking of the silviculturally available trees as per prescribed procedure and return the application to the Divisional Forest Officer along with his report and working lists. The Divisional Forest

Officer shall forward the application along with marking details and his recommendation to the Conservator of Forests concerned. The Conservator of Forests after satisfying himself about the ownership of trees and admissibility of felling may accord approval for felling of marked trees under intimation to the Principal Chief Conservator of Forests.

- 5.2 (b) In case of application for felling of trees including tree plantations in non-forest areas for non-commercial purpose and for meeting requirement of timber for domestic consumption, the Divisional Forest Officer on receipt of the marking list prepared as indicated in para 5.1 (a) will issue the formal approval for felling of trees and direct the Range Forest Officer concerned to issue formal permit for felling of the marked trees. The entire process for issuance of the permit for felling trees for such purpose shall be completed within 30 (thirty) days of the receipt of application completed in all respects.
- 5.2 After felling, the trees will be converted into logs and which shall be measured and necessary records prepared as per procedure prescribed by the Principal Chief Conservator of Forests.
- 5.3 Royalty and Monopoly fee and/or departmental charge as fixed by the State Government shall then be realized before removal of the logs.

TRANSIT OF TIMBER

- 6.1 After felling of trees, the transportation of timber shall be done under valid transit passes in accordance with the existing

Transit Rules of the Forest Department.

- 6.2 The transit of timber out of the State shall be governed by the guidelines issued/to be issued by the Special Investigating Team and the High Power Committee appointed by the Supreme Court and the Regional Chief Conservator of Forests North Eastern Region of the Ministry of Environment and Forests.

CONFISCATION OF TREES FELLED IN VIOLATION OF RULES/GUIDELINES

- 7.1 Timber obtained from the trees felled in violation of these guidelines shall be deemed to have been confiscated to the State Government. However in genuine cases the Divisional Forest Officer shall be at liberty to release the timber obtained from such trees to the legal title holder(s) after recovery of an amount equal to 50% of royalty and monopoly fee payable for the trees/timber over and above the usual charges as leviable under clause 5.3 above. However such released timber shall not be eligible for purchase or use by any wood based units, traders or registered timber transporters.
- 7.2 The confiscation of timber as per 7.1 above is without prejudice to any action or penalty leviable under the relevant Acts or Rules.

No. B. 11020/42/2015-FST
GOVERNMENT OF MIZORAM
ENVIRONMENT, FOREST & CLIMATE CHANGE DEPARTMENT

NOTIFICATION

Dated Aizawl, the 9th Aug' 2017

Whereas the central Government is insisting the States/UTs to liberalize felling regime of trees grown on non-forest lands and to include more tree species (depending on their own local conditions) in the list of trees exempted from the requirement of felling permission vide letter F.No.8-14/2004-FP(Vol.2) dt 18.11.2014 and even No. dt 8.11.2016 with the objective of meeting the growing demand of various wood and non-wood products and at the same time encouraging private tree plantation in non-forest/private lands.

Now, therefore, in exercise of the power conferred by para 4.2 of the "Guidelines for felling of trees from non-forest areas" issued vide Notification No.C.18012/3/91-FST dt 30.7.2004, the Governor of Mizoram is pleased to include the following tree species grown on non-forest/private lands in the list of trees exempted from the requirement of felling permission in Mizoram:-

Sl no	Botanical Name	Local name/Common name
1	Albizia stipulata	Vang
2	Alstonia scholaris	Devil tree/Thuamriat
3	Anogeissus acuminata	Yon/Zairum
4	Baccaurea ramiflora	Bhooby tree/Pangkai
5	Bauhinia pupurea	Butterfly tree/Vaufavang
6	Bauhinia variegata	Mountain Ebony/Vaube
7	Callicarpa arborea	Hnahkiah
8	Drimycarpus racemosus	Telsur/Vawmbal
9	Erythrina subumbrans	Dadap/Fartuah-hling-neilo
10	Erythrina variegata	Coral tree/Fartuah
11	Eucalyptus species	Nawalthing
12	Grevillea robusta	Silver oak
13	Helicia excels	Sialhma
14	Hevea brasiliensis	Para-rubber/Thelet
15	Hibiscus macrophyllus	Vaiza
16	Lanea coromandelica	Jhingan/Tawitawsuak
17	Mangifera indica	Aam/Theihai
18	Melia azadirachta	Neem/Nim-suak
19	Parkia roxburghii	Zawngtah
20	Sterculia urens	Khaukhim
21	Trema orientalis	Charcoal tree/Belphuar

General Br. of PCCF'S Office
Receipt No. 1574
Date 14/8/2017

Sd/- LALRAM THANGA
Principal Secretary to the Govt. of Mizoram
Environment, Forest & Climate Change Department

-2-

Memo No. B. 11020/42/2015-FST

Dated Aizawl, the 9th Aug' 2017

Copy to:

- 1 Secretary to Governor, Mizoram.
- 2 Principal Secretary to Chief Minister, Mizoram.
- 3 P.S to Speaker/Ministers/Minister of State/Deputy Speaker, Mizoram
- 4 P.S to all Parliamentary Secretaries, Mizoram.
- 5 Sr. P.P.S. to Chief Secretary, Government of Mizoram
- 6 All Administrative Departments, Government of Mizoram.
- 7 Principal Chief Conservator of Forests, Mizoram.
- 8 Principal Chief Conservator of Forests (WL) & Chief Wildlife Warden, Mizoram.
- 9 All Heads of Department, Government of Mizoram.
- 10 All Chief Conservators of Forests, Environment, Forests & Climate Change Department.
- 11 All Conservators of Forests, Environment, Forests & Climate Change Department.
- 12 Controller, Printing & Stationeries, Mizoram with 7 spare copies with a request to publish in the Mizoram Gazette.
- 13 All Divisional Forest Officers/Deputy Conservators of Forest (WL), Environment, Forests & Climate Change Department.
- 14 Guard file.

9/8/17
(LALREMRUATI)

Under Secretary to the Govt. of Mizoram
Environment, Forests & Climate Change Department
Ph : (0389) 2300337 (O)



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Government of Mizoram

PART - I

Appointments, Postings, Transfers, Powers, Leave and Other
Personal Notices and Orders

(ORDERS BY THE GOVERNOR)

NOTIFICATIONS

No.A.35021/1/92-MPSC, the 8th August, 2017. In pursuance of Government Notification No.A.35018/7/2014-P&AR(CSW) dt.1.8.2017 and in the interest of public service, the Chairman, Mizoram Public Service Commission is pleased to extend the deputation period of Pu Latzimezwa Chhangte, Super-time Grade 'A' of Mizoram Civil Service as Secretary, Mizoram Public Service Commission for another period of 1 year with effect from 01.08.2017 to 31.07.2018 under the same terms and conditions of his initial deputation vide No.A.35018/7/2014-P&AR(CSW) dt.01.07.2016.

K. Lalrlnkima
Joint Secretary,
Mizoram Public Service Commission,
Aizawl.

No.G.12011/1/2007-PWD(E)(Vol-I), the 14th August, 2017. On the recommendation of Mizoram Public Service Commission vide their letter No.5/A/2011-MPSC dt.11.08.2017 and in the interest of public service, the Governor of Mizoram is pleased to promote Pt R. Hmingthanzami, Senior Grade of MES (Architecture Wing)(Non-Graduate) under PWD Cadre to Junior Administrative Grade of MES(NF) in the scale of PB-3 Rs. 15,600 - 39,100 + GP Rs. 7600/- plus all other allowances as admissible under the rule from time to time with effect from the date of taking over charge. She will remain in the present place of posting as Senior Grade Architect(NF) at Architecture Wing, Office of Engineer-in-Chief, PWD.

Fixation of pay shall be done under the provision of F.R. 22 (1)(a)(2).

Lalram Thanga,
Principal Secretary to the Govt. of Mizoram,
Public Works Department.

No. F. 22015/1/2012-HM, the 11th August, 2017. In continuation of the existing guidelines for the enforcement of the ILP in Mizoram issued vide No. F. 22016/5/2011-HMP dt.13.8.2014 and in the interest of the public, the Governor of Mizoram, in exercise of the powers conferred by Para 2 of the Bengal Eastern Frontier Regulation, 1873 (V of 1873), is pleased to issue addendum to the existing guidelines for regulating sponsorship by Non Tribal Trade Licence holders. The addendum shall come into force from the date of publication in the Mizoram official gazette.

Notification No. F. 22015/1/2012-HM dt. 25th November, 2016 allowing self sponsorship of non-Tribal Trade Licence holder shall remain unchanged while Para 18(1) (e) shall be added to the existing guidelines issued vide No. F. 22016/5/2011 -HMP dt.13.8.2014 which shall read as below:-

(e) Non Tribal Trade Licence holders shall be eligible to sponsor non indigenous persons not exceeding 5 persons for their managers/helpers.

All formalities laid down by ILP Guidelines and its amendments shall be strictly complied with by the Sponsors.

Lalrinliana Fanai,
Commissioner & Secretary to the Govt. of Mizoram,
Home Department.

No. B. 11020/42/2015-FST, the 9th August, 2017. Whereas the central Government is insisting the States/UTs to liberalize felling regime of trees grown on non-forest lands and to include more tree species (depending on their own local conditions) in the list of trees exempted from the requirement of felling permission vide letter F.No.8-14/2004-FP(Vol.2) dt 18.11.2014 and even No. dt 8.11.2016 with the objective of meeting the growing demand of various wood and non-wood products and at the same time encouraging private tree plantation in non-forest/private lands.

Now, therefore, in exercise of the power conferred by para 4.2 of the "Guidelines for felling of trees from non-forest areas" issued vide Notification No.C. 18012/3/91-FST dt 30.7.2004, the Governor of Mizoram is pleased to include the following tree species grown on non-forest/private lands in the list of trees exempted from the requirement of felling permission in Mizoram:-

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5	Bauhinia pupurea	Butterfly tree/Vaufavang
6	Bauhinia variagata	Mountain Ebony/Vaube
7	Callicarpa arborea	Hnahkiah
8	Callicarpus racemosus	Telsur/Vawmbal
9	Erythrina subumbrans	Dadap/Fartuah-hling-neilo
10	Erythrina variegata	Coral tree/Fartuah
11	Eucalyptus species	Nawalhthing
12	Grevillea robusta	Silver oak
13	Helicia excels	Sialhma
14	Hevea brasiliensis	Para-rubber/Thetret
15	Hibiscus macrophyllus	Vaiza

R-33/2017

16	Lannea coromandellica
17	Mangifera indica
18	Melia azadirachta
19	Parkia roxburghii
20	Sterculia urens
21	Trema orientalis

Imogon
Aard
Neem
Zawngata
Khaukhim
Charcoal tree

Lalram Thanga,
Principal Secretary to the Govt. of Mizoram,
Environment, Forest & Climate Change Department.

No. A.11015/1/09-HMF, the 16th August, 2017. In the interest of public service, the Governor of Mizoram is pleased to order that 1 (one) number of vacancy of the post of Station Officer under Fire & Emergency Services Department occurred during the vacancy year 2013- 2014 which is to be filled up on seniority by promotion is hereby carried over to the vacancy year 2017-2018.

Zaithanmawii Ralte,
Under Secretary to the Govt. of Mizoram,
Home Department.

No.A.11018/22/2017-HFW, the 14th August, 2017. Due to non eligible candidate, the Governor of Mizoram is pleased to brought forward the vacancy year of 2 (two) nos. vacant posts of District Extension & Media Officer (DEMO) under Health & Family Welfare Department which falls during 2013-14 to the year 2017-2018

Lalrinllana Fanai,
Commissioner & Secretary to the Govt. of Mizoram,
Health & Family Welfare Department.

PART IX

Advertisements, Notices (Tender Notices), Advertisements for the post and vacancies etc. Registration and Liquidation and Merger Notification of Co-operative Societies by the State Government.

NOTIFICATIONS

No.B. 14015/602/2017-ARCOOP(L)/93, the 27th July, 2017. Under Section 10(2) of the Mizoram Cooperative Societies Act, 2006, a Cooperative Society under the name of the Integrated Fishery and Farm Old Khojoysury Cooperative Society Ltd. in the District of Lunglei, Mizoram, have been registered in my Office and numbered as L.633/2017-2018 Dated this the Twenty Seventh day of July of the year Two Thousand Seventeen Anno Domini.



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 7

MoP Guidelines Dated 5th OCT.'15 for Payment of Compensation for Transmission Line

No.3/7/2015-Trans
Government of India
Ministry of Power
Shram Shakti Bhawan
Rafi Marg, New Delhi – 110001

Dated, 15th October, 2015

To

1. Chief Secretaries/Administrators of all the States/UTs
(As per list attached)
2. Chairperson, CEA, New Delhi with the request to disseminate the above guidelines to all the stakeholders.
3. CMD, PGCIL, Gurgaon.
4. CEO, POSOCO, New Delhi.
5. Secretary, CERC, New Delhi.
6. CMD of State Power Utilities/SEBs.

Subject: Guidelines for payment of compensation towards damages in regard to Right of Way for transmission lines.

During the Power Ministers Conference held on April 9-10, 2015 at Guwahati with States/UTs, it has, *inter alia*, been decided to constitute a Committee under the chairmanship of Special Secretary, Ministry of Power to analyse the issues related to Right of Way for laying of transmission lines in the country and to suggest a uniform methodology for payment of compensation on this count. Subsequently, this Ministry had constituted a Committee with representatives from various State Governments and others. The Committee held several meetings to obtain the views of State Governments on the issue and submitted its Report along with the recommendations (copy of the Report is at Annex-1).

2. The Recommendations made by the Committee are hereby formulated in the form of following guidelines for determining the compensation towards "damages" as stipulated in section 67 and 68 of the Electricity Act, 2003 read with Section 10 and 16 of Indian Telegraph Act, 1885 which will be in addition to the compensation towards normal crop and tree damages. This amount will be payable only for transmission lines supported by a tower base of 66 KV and above, and not for sub-transmission and distribution lines below 66 KV:-

- (i) Compensation @ 85% of land value as determined by District Magistrate or any other authority based on Circle rate/ Guideline value/ Stamp Act rates for tower base area (between four legs) impacted severely due to installation of tower/pylon structure;

—/—

- (ii) Compensation towards diminution of land value in the width of Right of Way (RoW) Corridor due to laying of transmission line and imposing certain restriction would be decided by the States as per categorization/type of land in different places of States, subject to a maximum of 15% of land value as determined based on Circle-rate/ Guideline value/ Stamp Act rates.
- (iii) In areas where land owner/owners have been offered/ accepted alternate mode of compensation by concerned corporation/ Municipality under Transfer Development Rights (TDR) policy of State, the licensee /Utility shall deposit compensation amount as per (i) & (ii) above with the concerned Corporation/ Municipality/ Local Body or the State Government.
- (iv) For this purpose, the width of RoW corridor shall not be more than that prescribed in the table at Annex-2 and shall not be less than the width directly below the conductors.
3. Necessary action may kindly be taken accordingly. These guidelines may not only facilitate an early resolution of RoW issues and also facilitate completion of the vital transmission lines through active support of State/ UT administration.
4. All the States/UTs etc are requested to take suitable decision regarding adoption of the guidelines considering that acquisition of land is a State subject.

Yours faithfully,

Jyoti Arora
(Jyoti Arora)

Joint Secretary (Trans.)
Tele: 011-2371 0389

Copy, along with enclosure, forwarded to the following:

1. Secretaries of Government of India (Infrastructure Ministries/Deptt including MoEF - As per attached list)
2. Prime Minister's Office (Kind Attn: Shri Nripendra Mishra, Principal Secretary to PM)
3. Technical Director, NIC, Ministry of Power with the request to host on the website of Ministry of Power.

Copy to PS to Hon'ble MoSP (IC) / Secretary (Power) / AS (BNS) / AS (BPP) / All Joint Secretaries/EA/ All Directors/DSS, Ministry of Power.



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 8

The letter was issued to PEDM regarding adoption of MoP, GoI Guidelines for payment of compensation towards damages in regards to RoW for Transmission lines vide ref. *WB-6/2018-EC(PC)/SPUC/21 dated 07/02/2019.*

(21)
GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

No. WB-6/2018-EC(PC)/SPCU/21

Dated Aizawl, the 7th February, 2019

To,

The Secretary to the Govt. of Mizoram
Power & Electricity Department
Mizoram, Aizawl.

Subject : Submission of proposal for issuance of Executive Order/Government Notification on payment of compensation towards damages in regard to Right of way for transmission lines.

Sir,

I have the honour to inform you that M/s Power Grid Corporation of India Ltd. is executing the following Power transmission lines on behalf of Power & Electricity Department, Government of Mizoram:-

- 1) 132 kV West Phaileng to Marpara transmission line (59 km)
- 2) 132 kV Lungsen to Chawngte single circuit transmission line (39 km)
- 3) 132 kV Chawngte to South Bungtlang S/C transmission line (45 km)
- 4) 33 kV line from Lungsen (existing 33 kV station) to new Lungsen (upcoming 132 kV S/S being constructed under NERPSIP) (1 km)

In addition to the above, Power & Electricity Department, Government of Mizoram is also constructing the following transmission lines:-

- 1) 132 kV line from West Phaileng to Bairabi (74 km approx.)
- 2) 132 kV line from Melriat (Aizawl) to Lunglei (110 km approx.)

Regarding payment of compensation towards damages in regards to Right of way for such transmission lines, the Ministry of Power, Government of India issued broad guidelines vide No.3/7/2015-Trans dated 15.10.2015 requesting all State/UT administrations to take suitable decision regarding adoption of the guidelines considering that land acquisition is a State subject (copy enclosed as Annexure-A).

Accordingly some of the N.E. States like Assam, Manipur & Meghalaya adopted methods for payment of compensation in accordance with the Guidelines of Ministry of Power for maintaining uniformity in compensation payment to the affected land owners during construction of transmission lines. Copies of Govt. notifications of Manipur, Assam and Meghalaya are enclosed herewith – Annexure B, C & D.

The present practice followed in Mizoram for payment of compensation to affected land owners during construction of transmission lines is to compensate for surface damages occurred during construction (for tree and crop damages) as decided/finalized by Deputy Commissioner of respective area on case to case basis. No compensation for diminishing value of land is being paid to affected land owners (ownership of land continues to be land owner even after construction).

As per the Govt. of India Circular referred above, followings are the two options which shall be additionally paid to the affected land owners in addition to the compensation for surface damages (tree & crops damages).

Option 1 : 85% of the diminishing land value for the tower base area and 15% of the land value for the corridor (right of way) of the transmission lines.

Option 2 : 100% land diminishing for the tower base area and no payment for land diminishing value for the corridor (right of way).

The matter was thoroughly discussed amongst the field engineers of the Department involved in construction of transmission lines and concluded that the Department should follow **Option 2**, i.e. compensation for land diminishing value for 100% tower base area (between 4 legs of the tower base). Hence, it is proposed to compensate the affected landowners for land diminishing value for tower footing area as 100% land diminishing value (to be arrived at based on the rates of the area as per Revenue Dept. rates) and no compensation for transmission line corridor (right of way) area – 27 metres width for 132 kV transmission lines.

Regarding compensation for surface damages for tree and crop damages of affected land owners to have uniformity and fairness among the rates payable for different land owners and to avoid future litigations, it is proposed to compensate for the trees and crops damaged based on the approved/published rates of various Govt. Departments. (Forest/Horticulture, etc. as the case may be) after site assessment and quantifying the damages.

It is, therefore proposed to adopt the above compensation procedure for all the transmission lines from 33 kV voltage level and above for future/upcoming transmission line projects including the transmission lines under NERPSIP and other Departmental Transmission Line projects.


The methodology of payment of compensation towards damages proposed is highlighted below –

- (i) Compensation @100% of land value as determined by the Deputy Commissioner concerned for tower base area (between four legs at ground level) impacted severely due to installing of tower/poly structure based on rate amount to be negotiated with the Land owners since the Land Acquisition Act is presently stayed by the High Court.
- (ii) Compensation towards damaged of crops and trees in the base area and along the line of corridors/right of way corridor shall be determined by the Dy. Commissioner concerned.
- (iii) For this purpose, the width of right of way corridor shall not be more than 27 meter and shall not be less than the width directly below the conductors.

Therefore, the above proposal is submitted for your kind consideration and further necessary action.

Encl: As stated above.

Yours faithfully,


(C. LIANLUNGA)
Chief Engineer (RE)
for Engineer-in-Chief, P&E Deptt.

Annexure 9

PEDM intimated POWERGRID that Govt. of Mizoram has decided for continuing with the prevailing practice of payment of compensation towards damage in regards to RoW for Transmission lines.

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

WB-6/2018-EC(PC)/SPCU/36

Dated Aizawl, the 17th May, 2019

To,

The General Manager (NERPSIP)
POWERGRID CORPORATION OF INDIA LIMITED
Tuivamit, B.P.O – Tanhril
Aizawl – 796009

Subject: Notification: Methodology for payment of compensation towards damages in regard to right of way for transmission line.

Ref: No.D.11028/8/2017-P&E : dated 1.5.2019

Sir,

Please find enclosed herewith the above referenced letter regarding notification in connection with the methodology for payment of compensation towards damages in regard to right of way for transmission line for your information and necessary action.

Encl: As stated above.

Yours faithfully,

(VULMAWIA)

Superintending Engineer (Civil)
Office of the Engineer-in-Chief

Dated Aizawl, the 17th May, 2019

Memo No. WB-6/2018-EC(PC)/SPCU/36

Copy to:-

1. The Chief Engineer (System Operation), for information and necessary action with a copy of the enclosure.
2. The Chief Engineer (Distribution), for information and necessary action with a copy of the enclosure.
3. The Superintending Engineer, Lunglai Power Circle for information and necessary action with a copy of the enclosure.
4. The Superintending Engineer, Transmission Circle for information and necessary action with a copy of the enclosure.

Superintending Engineer (Civil)
Office of the Engineer-in-Chief
Power & Electricity Department

**GOVERNMENT OF MIZORAM
POWER & ELECTRICITY DEPARTMENT**

NOTIFICATION

Dated Aizawl, the 1st May, 2019.

No.D.11028/8/2017-P&E : The Governor of Mizoram is pleased to notify the following Methodology for payment of compensation towards damages in regard to right of way for transmission line in accordance with the guidelines of Ministry of Power, Govt. of India, Reference No.3/7/2015-Trans dt. 15.10.2015 for maintaining uniformity in compensation payment to the affected land owners during construction of transmission lines. These guidelines of payment methodology of Compensation towards damages as stipulated in section 67 & 68 of the Electricity Act, 2003 read with section 10 and 16 of Indian Telegraph Act 1885 shall be in addition to the compensation towards normal crop and tree damages. This amount will be payable only for transmission lines supported by tower base of 33kV and above.

1. Compensation @ 100% of land value as determined by the Deputy Commissioner concerned for tower base area (between legs at ground level) impacted severely due to installation of tower/poly structure based on rate amount to be negotiated with the land owners since the land Acquisition Act is presently stayed by the High Court.
2. Compensation towards the damages of crop and trees in the base area and along the line of corridor/right of way corridor shall be determined by the Deputy Commissioner concerned.
3. For this purpose, the width of right of way corridor shall not be more than 27 meters and shall not be less than the width directly below the conductors or width of right way as per Ministry of Environment and Forests (MoEF) guidelines dated 05.05.2014 whichever is applicable as below :

Table for RoW width for different voltage line

Transmission voltage in kV	Width of Right of Way in meters
33 kV & 66 kV	18
132 kV	27
220 kV	35
400 kV S/C	46
400 kV D/C	46
765 S/C (with delta configuration)	64
765 D/C	67

Contd...

These guidelines shall be effective from the date of issue of notification for those new transmission lines/projects and balance uncompleted portion of on-going transmission lines/projects. These guidelines shall not be applicable for (i) existing transmission line which are already in service or completed portion of all on-going transmission line, (ii) maintenance of any existing transmission line, (iii) stringing of second circuit on the existing double circuit transmission tower, (iv) re-conducting/re-stringing of aged transmission line, (v) repairing/re-construction of existing transmission tower.

This is issued with the approval of the Finance Department which was conveyed vide I.D. No.FIN(E) 1121/2018 dt. 02.04.2019 and of Law & Judicial Department vide ID No.LJC.33/2019/287 dt. 19.3.2019.

Sd/- B. LALHMINGTHANGA
Secretary to the Govt. of Mizoram
Power & Electricity Department

Memo No.D.11028/8/2017-P&E : **Dated Aizawl, the 1st May, 2019.**
Copy to :

1. The Engineer-in-Chief, Power & Electricity Department for information and necessary action.
2. The Chief Engineer (Distribution)/Chief Engineer (SO), Power & Electricity Department for information and necessary action.
3. All Deputy Commissioners in Mizoram.

(THANCHUNGNUNGI)
Under Secretary to the Govt. of Mizoram
Power & Electricity Department



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 10

POWERGRID modalities for payment of compensation for NERSIP Project in Mizoram State

DOC Id:- 267514

**पावर ग्रिड कार्पोरेशन ऑफ इंडिया लिमिटेड
एनईआरपीएसईपी, मिजोरम****पावरग्रिड**

Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/ 372

Date: 19.03.2019

Subject: Modalities for Payment of Compensation for NERPSIP project : MIZORAM

A. NERPSIP project spread over 6 States in NER namely Assam, Meghalaya, Manipur, Tripura, Nagaland and Mizoram. Existence of large volume of Un-classified State Forests and Non-digitized land records in NER as well as special provisions in particular State about land ownership insists to deal ownership verification of land very cautiously. This issue is equally critical as Compensation of Land for tower footing is under review and approval by Mizoram State also as well as it has significant implication in the project cost. Moreover, compensation will also have high probability of disputes with affected land owners/cultivators. Land owners/Cultivators generally approaches Courts for redressal of their grievances for settlement of compensation.

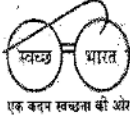
B. To explore the Compensation modality for Mizoram State, Government guidelines, Legal provisions and Prevailing practices for compensation payment in Mizoram as well as POWERGRID requirements for release of payments have been reviewed and summary of the same mentioned as below :-

- NERPSIP is a major consultancy projects for POWERGRID having great impact for strengthening power scenario of Mizoram and other NER states.
- NERPSIP project is being funded by World Bank and Government of India both with 50% sharing.
- POWERGRID and Power and Electricity Department of Mizoram signed an implementation/participation agreement for execution of the strengthening projects vide MoU dated 03.07.2015 (Copy attached).
- Subsequently, owner of NERPSIP scheme in Mizoram will be Power & Electricity Department, Mizoram. Owing to which, P& E Dept of Mizoram has important role to resolve ROW issues and arranging statutory clearances from Forests, National Highways, Railways etc. They have active participation in providing lands for substation projects.
- On Right of Way clearance, associated financial implication will be taken care by POWERGRID. Thus, payments for forest clearances as well as Compensation payment in respect of crops, lands etc are to be released by POWERGRID on behalf of Mizoram.
- POWERGRID put the matter of crop, tree and land compensation in front of Power and Electricity Dept. of Mizoram and requested for sharing prevailing practices of Compensation payment within the State. World bank also insisted POWERGRID to resolve this vital issue on top priority well before the execution started in full swing otherwise progress might be hampered due to non-payment of compensation.
- World Bank also advised POWERGRID to obtain consent of Mizoram Government for implementing Government of India guidelines issued on dated 15.10.2015 for payment of Crop, Tree, Land and that compensation under NERPSIP project (Copy attached). It has mainly following provisions:

NERPSIP

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(एनईआरपीएसईपी)


**पावर ग्रिड कापोरेशन ऑफ इंडिया लिमिटेड
एनईआरपीएसईपी, मिजोरम**


Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/372.

Date: 19.03.2019

 Subject: Modalities for Payment of Compensation for NERPSIP project : MIZORAM

Table No-1

GOVERNMENT OF INDIA GUIDELINES DATED 15.10.2015	
S.No	Description
i	Compensation @ 85% of land value as determined by District Magistrate or any other authority based on Circle rate / Guideline value / Stamp Act rates for tower base area (between four legs) impacted severely due to installation of tower/pylon structure;
ii	Compensation towards diminution of land value in the width of RoW Corridor due to laying of transmission line and imposing certain restriction would be decided by the States as per categorization/type of land indifferent places of States, subject to a maximum of 15% of land value as determined based on Circle rate / Guideline value / Stamp Act rates;
iii	In areas where land owner/owners have been offered/accepted alternate mode of compensation by concerned corporation/ Municipality under Transfer Development Rights (TOR) policy of State, the licensee /Utility shall deposit compensation amount as per (i) & (ii) above with the concerned Corporation/ Municipality/ Local Body or the State Government.
iv	For this purpose, the width of RoW corridor shall not be more than that prescribed in Para 1.3 above, and shall not be less than the width directly below the conductors.

C. Being Consultant of NERPSIP projects, all the works including Compensation need to be handled sincerely so that post handing over issues eliminated completely. Compensation is a sensitive issue and to be dealt very carefully to escape from Public disputes, litigation and other ROW problems, which may have adverse impact on progress of the projects.

In consideration to the above, basic concept about compensation for developing State-wise modality is proposed for Mizoram state during execution works as per Table No 2.

Table No: 2

BASIC CONCEPTS BEHIND COMPENSATION MODELITY		
S.No	Aspects	Description
01	Budget Approval	Availability of Budget / RCE approval in advance for Compensation payment is prime and essential pre-requisite which should always be maintained to avoid pending settlement for issued notices.
02	Pre-identification of Ownership details	Confirmation of ownership title of the land affected at tower footing and Right of Way shall be made in advance. This may prevent many disputes at site at the time of commencement of work. New pattern of compensation involves significant additional amount for the land compensation. Once the compensation notice is given, reversal will be a difficult task.
03	Printing and Handling of Compensation Notices	Uniform compensation notice format, approved by Mizoram Government, is to be used within the state during construction of the projects. Its Printing & issuance essentially controlled by Project Manager Office.

NERPSIP

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पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
एनईआरपीएसईपी, मिजोरम



पावरग्रिड

Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/372

Date: 19.03.2019

Subject: Modalities for Payment of Compensation for NERPSIP project : MIZORAM

BASIC CONCEPTS BEHIND COMPENSATION MODELITY		
S.No	Aspects	Description
04	Issuance of Notice prior to commencement of works	In support of the legal provisions for construction of transmission lines, prior intimation about the on-going construction works and estimated damage should be given to the land owner. This will escape POWERGRID from litigation because of blame of un-authorized entry i.e. without serving compensation notice.
05	Recording of Compensation Notices for crops, trees and huts.	Post construction damages should be measured, verified and recorded in Compensation certificate in presence of Land Owner and 02 witnesses. Presence of local Revenue Authority is desirable for immediate verification of ownership and Khasra / Patta /Dag no. of the land. For approach road to the construction site/ location, notice can be served for possible damages and they are eligible for Compensation.
06	Recording of Compensation Notices for Land under Tower Footing(100% tower footing area)	Land compensation for tower footing will be paid as per the Notification of Mizoram Government(Not yet released by the Govt of Mizoram same is under process) and area eligible for compensation will be Area covered within 04 legs of the Tower.
07	Compensation Register	Maintaining Compensation Register at every construction unit is essential. Register should be maintained Line wise with entry of Notices issued pertains to tower location and line span. It should also have information about Budget availability, processed cases for settlement / payment etc.
08	Signature of State Utility	State Utility shall be important part of the Compensation payment because of subsequent status as owner and agency, who will carried out O&M of lines.
09	Rate for Compensation settlement.	Damage of Crops should be evaluated based on Yield and Rate available with Agriculture Dept. Horticulture Dept. having rates mainly for fruit-bearing trees. Non-fruit bearing trees assess through Yield of timber and Rate as per State Forest Dept. Certified Circle rate/ Guideline value/ Stamp Act rates collected from District Magistrate is to be utilized recommended for land compensation.
10	Assessment Authority for Compensation	As per the provision of Electricity act, Executive Magistrate is empowered to assess the compensation amount against the loss / damage. Generally, concerned Sub-Tahsildar, Tahsildar, Sub-Divisional Magistrate and District Magistrate have assessment authority.
11	Processing for Approval	Assessed compensation cases shall be processed for release of payment to the affected owner or cultivators. It is routed to Finance department through the Competent Authority as per clause 25 of Section-I the prevailing Delegation of Power mentioned.

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**पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
एनईआरपीएसईपी, मिजोरम**

पावरग्रिड

Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/ 372

Date: 19.03.2019

Subject: Modalities for Payment of Compensation for NERPSIP project : MIZORAM

BASIC CONCEPTS BEHIND COMPENSATION MODELITY		
S.No	Aspects	Description
12	Disbursement of Compensation	On-line disbursement of Compensation will be adopted for compensation disbursement. Hence, verification of bank account details and collection of supporting documents will be taken care during issue of Compensation Notices.
14	Monthly Report on Compensation	A monthly report on Compensation payments to be sent to NERPSIP headquarters for review and monitoring of pending status and budget utilization.
14	Deviation from the above	Any major deviation shall be dealt separately by the Project Manager with proper justifications and supporting documents.

D. During the 4th Steering Committee meeting dated 18.05.2018 held at Guwahati (MoM attached), compensation issue has been raised strongly by POWERGRID and requested State and Central Government representatives for quick action on the issue of Compensation payment during the construction of transmission lines. During the discussion, it transpired that procedure and practices of compensation payment for damages of crops & trees are identical among the NER States and also as per provisions of Indian Electricity Act. They have the practice to pay compensation for actual damages assessed by Revenue Authority or Executive Magistrate as mentioned in the Act. However, their opinions differed in case of land compensation. Hence, they were requested to confirm their modality through Notification so that POWERGRID can adopt the same during construction works. Also, as Mizoram state did not communicate the practice being followed, this issue was again raised in the 5th Steering Committee held on 12.11.2018 also.

In compliance of the above, Mizoram P&E Dept. initiated a proposal to the state Govt. vide letter no. WB-6/2018-EC(PC)/SPCU/21 dated Aizawl, 7th February 2019 (Copy attached)

E. All the activities related to the Compensation payment shall be dealt at construction site by POWERGRID officials for which a note will be initiated for approval and release of the compensation after assessment of compensation. Under the circumstances, Delegation of the Power amended by POWERGRID vide Office Order no. 87/2017 (copy attached) has come into picture and shall be complied according to the provisions as briefly listed below:

Table No -3

Clause 25, Section-I of DOP for payment of Compensation for Right of Way				
a	Tower Base	ED/G M	Full Powers	Land rate by DM/DC based on Circle rate/ Guideline value/ Stamp Act rates. Compensation 100% of land value for area between 04 legs. Deviation in determining land rate from the above required approval of ED before disbursement of Compensation.
b	Corridor	ED/ GM	Full Powers	No corridor payment is proposed by P&E Dept./State Govt., Mizoram
c	Tree and Crop compensation	AGM/ DGM	Full Powers	Subject to satisfaction of procedure laid down in the guidelines for tree & crop compensation with prior verification by local revenue authorities till the provisions of estimated amount in

NERPSIP
(एनईआरपीएसईपी)

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**पावर ग्रिड कार्पोरेशन ऑफ इंडिया लिमिटेड
एनईआरपीएसईपी, मिजोरम**


Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/372

Date: 19.03.2019

Subject: Modalities for Payment of Compensation for NERPSIP project : MIZORAM

				DPR exist.
d	Hut / Structure/ Bore well etc	ED	Full Powers	Subject to prior assessment on admissibility of such compensation in accordance with CEA regulations notified on 20.09.2010 and recommendation of case specific committee.

F. Considering the above Legal / Act provisions, Government guidelines, State notification and prevailing practices as well as POWERGRID Delegation of Powers pertaining to compensation payment during construction of transmission lines, Compensation modality for Mizoram NERPSIP works as under:

Table No-4

MIZORAM STATE – COMPENSATION MODALITY		
S.No	MODALITY	DESCRIPTION
01	Budget Availability	NERPSIP is a consultancy project for POWERGRID. Line wise budget availability shall be ensured positive / surplus. All Line In Charges, regularly review budget availability and arrange prior approval before budget exhausted.
02	Pre-identification of Ownership details	Prior to issuance of Compensation Notices, ownership verification from concerned Revenue Authority is essential for all type of Compensation payment.
03	Printing and Handling of Compensation Notices	Overall control on printing and issuance of Compensation Notices shall rest with the Project Manager of the Mizoram State. Each notice shall have a unique number having detail of State/Line/SI.no. such as MZ/WPG-MPR/01. Notice should be in triplicate, the original copy shall be for assessment proposal, the duplicate copy for the owner/cultivator, and the third copy for office (to be retained in the book).
04	Notice to land owner prior to commencement of works	Issuance of Notice cum Compensation certificate applicable for all Compensation cases. Samples are given and attached as Format I & II for this purpose.
05	Recording of affected area in Compensation certificate /Notices for crops	Damaged crop area in Square Meter derived by multiplying Average Length and Average Width of the affected land. Surface damages for Touzi- Land (settlers on Govt Land without patta) shall also be admissible on certification by Revenue Authority.
06	Recording of damages on Compensation certificate / Notices for Trees	Details of trees as Total Quantity, Species of each trees, Type of tree(Fruit bearing or Non-Fruit bearing)& Girth of each trees shall be recorded in certificate.
07	Record of Compensation certificate / Notices for Land at tower footing	Land area covered within 04 legs of the casted tower. Measurement taken at exterior edge of chimney at ground level. Where, revertment provided measurement to be taken at outer of the wall.
08	Record of Compensation Notices for Land along Right of way	Not applicable for NERPSIP, Mizoram

NERPSIP

(एनईआरपीएसईपी)

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पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
एनईआरपीएसईपी, मिजोरम



Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/372

Date: 19.03.2019

Subject: Modalities for Payment of Compensation for NERPSIP project : MIZORAM

MIZORAM STATE – COMPENSATION MODALITY		
S.No	MODALITY	DESCRIPTION
	width	
09	Compensation Register	To be maintained line wise at concerned site offices with details of Budget, Notice, location and span etc as shown in the sample format III.
10	Signature of State Utility	Signature of concerned State utility shall be taken on Compensation Assessment sheet.
11	Basis and Rate for Compensation	CROP: Production Yield of a crop as per Agriculture deptt and its Rate for the Yield from Agriculture / Co-operative/ can be used for evaluating compensation to be paid. TEA: Tea bush compensation as per prevailing rate of concerned Tea authority / Government. FRUIT BEARING TREE: Rate of Horticulture deptt shall be used for calculation of compensation. NON-FRUIT BEARING TREES: Yield of Wood for a particular tree as per its girth and Rate of its wood as per Forest Department shall be used for calculation of compensation. LAND: Certified Circle rate/ Guideline value/ Stamp Act rates collected from Office of District Magistrate. HUT: Assessment of compensation for huts from concerned State Public Works Department and certified from Revenue Authority / Administration
12	Land Compensation at Tower Footing for Transmission lines 66 kV and above	100% of Land value according to Certified Circle rate/ Guideline value/ Stamp Act rates collected from District Magistrate.
13	Land compensation where retaining wall is required to be constructed	100% of Land value according to Certified Circle rate/ Guideline value/ Stamp Act rates collected from District Magistrate.
14	Land Compensation within ROW for Transmission lines 66 kV and above.	No compensation provisions.
15	Assessment Authority for Compensation	Executive Magistrate/ Revenue Authority (Nayab Tahsildar, Tahsildar, SDM, or other Competent Authority specified by Mizoram State) is empowered to assess the compensation amount. Sample shown at Format IV and V
16	Processing for Approval	Note sheet with document ID to be submitted to the approving authority as per POWERGRID Delegation of Power, Section I, Clause no.25. Note should have Assessment sheet, Notices, Bank details duly verified from Original pass book as well as Budget status for the concern transmission system.

NERPSIP

(एनईआरपीएसईपी)

Page 6 of 7



**पावर ग्रिड कार्पोरेशन ऑफ इंडिया लिमिटेड
एनईआरपीएसईपी, मिजोरम**



Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/372

Date: 19.03.2019

Subject: Modalities for Payment of Compensation for NERPSIP project : MIZORAM

MIZORAM STATE – COMPENSATION MODALITY		
S.No	MODALITY	DESCRIPTION
17	Disbursement of Compensation	On line disbursement to the bank account of the beneficiary. Self attested photocopy of Bank Passbook having Bank and Client name, account no, IFSC code /cancelled cheque of owner/cultivator shall be attached while processing the Note for approval.
18	Monthly Report on Compensation	Ensure submission of monthly report every month by 25 th day as per the proposed Format VI.

In view of the above, Compensation modality for NERPSIP works in Mizoram State is proposed as under:

- Payment of Compensation for Crop and Tree in Mizoram is as per provisions of IE Act / Rules and is similar to prevailing practice of POWERGRID and recommended to be followed accordingly in NERPSIP.
- Payment of Land compensation for Transmission line construction under NERPSIP in Mizoram is 100 % land value as per the above stated modality. There is no compensation provision for land affected along ROW width.
- Compensation payment in Mizoram shall be regulated as per Modalities mentioned in Table No-4.

Considering that proposal for land compensation for tower footing area of transmission lines is under process by Mizoram Govt., the compensation modality for transmission lines under Mizoram NERPSIP works shall be provisionally approved by ED/NERPSIP/Guwahati vide clause 25 section I of D.O.P.

Submitted for approval.

(T.V Rao)
19/3/2019

(T.V Rao)
Deputy General Manager
NERPSIP, West Phaileng

GM/NERPSIP/AIZAWL/MIZORAM

GM (ESMD) may please review for kind approval

ED/NERPSIP

(Signature)
19/3/19

GM (ESMD)/NERPSIP/Guwahati

NERPSIP

Page 7 of 7

(एनईआरपीएसईपी)



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 11

Details of Landowners for Land Compensation 132kV D/c West Phaileng Marpara TL Land Compensation Estimates for Mizoram under NERSIP Land Rates in Mizoram

Details of Land Owner							
As per Detailed Survey							
W.Phaileng - Marpara 132KV T/L							
Tower Location: AP7-AP21							
Name of the village: Kawnmawi & Chhippui							
VC: Pu Sangliana							
Contact no: 8837047661							
Sl.No.	AP No.	Name	Address	Pass No.	Contact No.	Remarks	Consent/NOC
1	7	Maisawmthanga	N.Chhippui	116	8787383294	Document Collected	
		S/O Lalchawia			8731058469		
2	8	Biakchhawna	Kawnmawi	143	8787383294	Document Collected	
		S/O Chalthnama			8731058469		
3	9	Lalrinchhana	Kawnmawi	163	No Mobile	Document Collected	
		F/L Rinsanga					
4	10	Lalthansangzuala	Kawnmawi	149	No Mobile	Document Collected	
		S/O Lalhankima					
5	11	Rohmingthanga	Chhippui	188	No Mobile	Document Collected	
		S/O Challiana	Kawnmawi				
6	12	Rohmingthanga	Chhippui	188	No Mobile	Document Collected	
		S/O Challiana	Kawnmawi				
7	13	Ramngaihuala	Chhippui	188	No Mobile	Document Collected	
		S/O Rohmingthanga	Kawnmawi				
8	14	Game and Sports Association (play ground)	Kawnmawi	190	9856850149	Document Pending	

9	15	Lalsanglura	T Section, Chhippui	110	857530739	Document Collected	
		S/O Liankung	N.Chhippui				
10	16	Village Council,kawnmawi	Vanapa Section	22	8837047661	Document Collected	
		C Sangliana	kawnmawi				
11	17	RH Mawizuala (President)	Taitesena Section	192	8575301261	Document Collected	
		Young Mizo Association	N.Chhippui				
12	18	RH Mawizuala	Taitesena Section	168	8575301261	Document Collected	
		S/O Tlanthanga	N.Chhippui				
13	19	Lalkailuia	Vengthar	156	7005487439	Document Collected	
		S/O Zinga	N.Chhippui				
14	20	Hrangthanmawia	H.No.10 Chhippui	171	7005450612	Document Collected	
		S/O T.Lalruata	Chhippui				
15	21	C Sangliana	Vanapa Section	92	8837047661	Document Collected	
		S/O Biaksanga	kawnmawi				

VC copy
Details of Land Owner

As per Detailed Survey

W.Phaileng - Marpara 132KV T/L

Tower Location: AP22 - AP39

Name of the village: Lallen

VC: Pu Saithansanga

Contact no: 9366065365

Sl.No.	AP No.	Name	Address	Pass No.	Contact No.	Remark	Consent/NOC
1	22	Laihmuaaka S/O Laihnuna	Near Community Hall Venglai, Lallen	53	8575301897	Document Collected	
2	23	Laihmuaaka S/O Laihnuna	Near Community Hall Venglai, Lallen	53	8575301897	Document Collected	
3	24	Village Council, Lallen Saithansanga S/O Lalzuala	63, Near Community Hall Venglai, Lallen		9366065365	Document Collected	
4	25	Thankhuma S/O Zakhuma	Aizawl road, Lallen		8787375708	Document Collected	
5	26	H. Rohmingthanga S/O Khuanaga	35, Lallen Town/Vill-Lallen	145	8837291776	Document Collected	
6	27	Rozirhanga S/O Thangsuaka	Below Presbyterian church Vengchhak, Lallen	193	8787809510	Document Collected	
7	28	Lalnunmawia S/O Lusia (L)	Below Primary School Vengthlang, Lallen	95	9612524341	Document Collected	
8	29	Chuaulmingthanga S/O Thanchhanga (L)	Near Presby Church Vengchhak, Lallen	83	9615365756	Document Collected	
9	30	H.T. Kimi W/O Vanlalruata	107, Lallen Town/Vill-Lallen		7005705971	Document Collected	
10	31	H. Pachhanga	Aizawl Road, Vengthlang	194	7005881884	Document Collected	

11	32	Lalsangzela S/O Ralkapzauva	101, Near Bazar Shed Vengthlang, Lallen	28	9366264995	Document Collected	
12	33	Village Council, Lallen Saithansanga S/O Lalzuala	63, Near Community Hall Venglai, Lallen		9366065365	Document Collected	
13	34	Village Council, Lallen Saithansanga S/O Lalzuala	63, Near Community Hall Venglai, Lallen		9366065365	Document Collected	
14	35	Village Council, Lallen Saithansanga S/O Lalzuala	63, Near Community Hall Venglai, Lallen		9366065365	Document Collected	
15	36	Village Council, Lallen Saithansanga S/O Lalzuala	63, Near Community Hall Venglai, Lallen		9366065365	Document Collected	
16	37	Village Council, Lallen Saithansanga S/O Lalzuala	63, Near Community Hall Venglai, Lallen		9366065365	Document Collected	
17	38						
18	38A						
19	39	Lalchhuanawma S/O Thangkima	Near Community Hall Venglai, Lallen	58	8787378962	Document Collected	

POWER GRID CORPORATION OF INDIA LIMITED
NERPSIP-AIZAWL
Compensation Estimate for Tower Footing Land Area

Date: 30.07.2019

Sl. No.	Name of the Line	Line length(km)	No. of towers	Tower base area In sq.m (Approx.)	Total Area (sq.m)	Total Area in Acres (1acre=4048sq.m)	Rate/Acre (Rs.10Lakh/Ha) **	Total compensation (Rs)
1	132 kV S/C on D/C West Phaileng to Marpara TL	50.292	* 46	200	9200	2.27	404858	919028
2	132 kV S/C Lungsien to Chawngte	30.985	118	200	23600	5.83	404858	2360327
3	132 kV S/C Chawngte - South Bungtlang	35.000	121	200	24200	5.98	404858	2421051
4	132 kV S/C Lunglei - Lungsien Interconnection	0.556	5	200	1000	0.25	404858	101215
Total Estimated Compensation(Rs)								5801616

* Total no. of Locations in West Phaileng-Marpara line are 174 Nos. Out of this, 128 Locations falls under Dampa Tiger Reserve forest, which are not considered for area calculation

** As per the Agricultural land rates provided by Land Revenue & Settlement Dept. Considered the highest value of the issued rate i.e. @Rs.10,00,000/- per Ha.


 टी. वी. राव / T.V. Rao
 जल महसूल अधिकारी / DGM
 पावरग्रिड / POWERGRID
 एन.ई.आर.पी.एस.आई.सी. मिज़ोरम / NERPSIP-Mizoram

**AGRICULTURAL LAND
A. PERIODIC PATTA**

SCHEDULE - V

	Premium per hectare		Annual Land Revenue per hectare		Land Valuation	
	Rate as per 2011 (in Rs.)	Revised Rate w.e.f. 1.4.2014	Rate as per 2011 (in Rs.)	Revised Rate w.e.f. 1.4.2014	Rate as per 2011 (in Rs.)	Revised Rate w.e.f. 1.4.2014
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Grade - I	250.00	300.00	200.00	250.00	-	5,00,000
Grade - II	200.00	250.00	160.00	200.00	-	25,000
Grade - III	150.00	200.00	108.00	150.00	-	10,000

B. AGRICULTURAL LAND: LSC/LAND LEASE

Grade	Land Recording Fees per sqm.		Land Redemption Fee per sqm.		Annual Land Revenue per hectare		Land Valuation	
	Rate as per 2011 (in Rs.)	Revised Rates w.e.f. 1.4.2014	Rate as per 2011 (in Rs.)	Revised Rates w.e.f. 1.4.2014	Rate as per 2011 (in Rs.)	Revised Rates w.e.f. 1.4.2014	Rate (in Sq.m) as per 2006	Revised Rate (in Hectare) w.e.f. 1.4.2014
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Grade - I	0.10	0.50	1.00	2.00	400.00	150.00	8.00	10,00,000.00
Grade - II	0.10	0.30	0.60	1.00	360.00	400.00	6.00	5,00,000.00
Grade - III	0.10	0.20	0.40	0.75	270.00	300.00	4.00	2,00,000.00

Attested

 D. BANUMATHAN (DGM)
 Sub-Divisional
 Land Revenue & Settlement
 Shillong, Mizoram

Annexure 12

Sample Copy Tree/ Crop Compensation Notices 132kV West Phaileng Marpara TL along with Damage Assessment

Book No.: 102 Format I

**POWER & ELECTRICITY DEPARTMENT
(Government of Mizoram)**
 Executing Agency : Power Grid Corporation of India Ltd. (A Govt of India Enterprise)
 Office Address : Tuivamit B.P.O- Tanhril, Aizawl- 796009, Contact no : 9449599072

NOTICE CUM COMPENSATION CERTIFICATE FOR CROP AND TREE

003

Serial No : Mizoram/WP-MP/..... Dated... 26/08/19

To,

Shri/Smt. Lalzamlava S/W/o. Chaukung Village Pakzung Vengthar
 Tahsil West Phaileng District Mammit State Mizoram
 Ph: 9862008449

Subject : Construction of 132 kV Power Transmission System from WEST PHAILENG to MARPARA under NERPSIP.

Sir/Madam,

Under the power vested in The Electricity Act 2003, Section , 68 and 164 read with part III of Indian Telegraph Act 1885 and the Central Electricity Authority (measures relating to Safety and Electricity Supply) Regulation 2010, A Notice is hereby given that 132 kV S/C on D/C tower WEST PHAILENG to MARPARA Transmission Line will go through your property.

Certain minimum unavoidable damage of Crop/Tree is likely to take place during the Foundation/ Erection / Stringing works of the aforesaid transmission-line. The tree(s) or Crops(s) so fell/ cut or dealt with will be handed over to you . You are therefore to remain present to received the same personally . The compensation for yield component of the tree(s) so fall and the crop (s) actually damage will be paid to you as assessed by the Executive Magistrate/ Revenue Department or any other Competent Authority specified by the appropriate Government in this behalf.

SL NO.	LOCATION /SPAN	DETAIL OF DAMAGES DURING CONSTRUCTION			REMARKS																				
		LAND KHASARA/DAG/ PATTA NO.	NAME OF THE CROP OR TREES	AREA OR NOS																					
	152/0	As per VC Pass No-6	Banana Bansboo	- 26 Nos. - 62 Nos	Tower Foundation area																				
			<table border="1"> <thead> <tr> <th>Tree No</th> <th>Name</th> <th>Girth</th> <th>Height</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Jungle tree</td> <td>- 50cm</td> <td>5m</td> </tr> <tr> <td>3</td> <td>Thlan Vauong</td> <td>- 70cm</td> <td>8m</td> </tr> <tr> <td>84</td> <td>Jungle tree</td> <td>- 120cm</td> <td>10m</td> </tr> <tr> <td>85</td> <td>Jungle tree</td> <td>- 50cm</td> <td>5m</td> </tr> </tbody> </table>	Tree No	Name	Girth	Height	1	Jungle tree	- 50cm	5m	3	Thlan Vauong	- 70cm	8m	84	Jungle tree	- 120cm	10m	85	Jungle tree	- 50cm	5m		
Tree No	Name	Girth	Height																						
1	Jungle tree	- 50cm	5m																						
3	Thlan Vauong	- 70cm	8m																						
84	Jungle tree	- 120cm	10m																						
85	Jungle tree	- 50cm	5m																						

*GIRTH OF TREE MEANS CIRCUMFERENCE AT CHEST LEVEL.

Received Noticed with consent for work For and On behalf of Power & Electricity Department ,Mizoram

Owner's Signature Rox Roeygi (wife)
 Sign of Witness I Vangro Vanlal-faka
 Sign of Witness II Lallawmruati

VARIIFICATION BY REVENUE AUTHORITY

Certified that land under Khasra /Dag/ Patte no VC Pass No-6 of Village Pakzung Vengthar Tahsil West Phaileng
 District Mammit State Mizoram belongs to Shri/Smt Lalzamlava Son/Wife of Chaukung
 He / She is sole / Shared owner of the above mentioned Land / property. (Crop/trees)

Seal & Signature of Circle Officer/ Revenue Authority

59


ASSESSMENT OF CROP DAMAGE/COMPENSATION IN CONNECTION WITH CONSTRUCTION OF: Power Grid, MAMIT DISTRICT


Name of Land Owner: Mr. LAIZAMLOVA Father's Name: CHVAUKUNGA Address: PURZING VENGTHAR
 Location: Purzing Vengthar (Tadyma 12-0) Group No: Notia No. 13


Sl No	Name of Plants/Crops/Trees	SEEDLINGS			WELL ESTABLISHED YOUNG PLANTS					FRUIT BEARING STAGE			TOTAL
		Upto 45 cms Nos	Above 45 cms Rate	Amount	Below 1.5 mtrs Nos	Above 1.50 mtrs Rate	Amount	Nos	Rate	Amount			
1.	Banana									26	50/-	1300	13,000.00
2.	Bamboo									62	100/-	6200	6200.00
												Total Rs 19200/-	

Assessment hi ka pawm a, ka sign hnzn e.


Assessed by:


 Signature of
Land/Property holder


 Land Revenue & Settlement
Mamit District


 Signature with seal
Power Grid Representative

 सानु के डी / Sanu K D
 अधिकारी / Officer
 पावरग्रिड / Power Grid
 एन ई आर पी सी आई
 NERPSIP, V&S Division


 District Collector
Mamit District

 District Collector
Mamit District, Mamit



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 13

Tree Compensation Process and Budget Estimate

TREE / CROP/ TOWER FOOTING COMPENSATION PROCESS (OTHER THAN FOREST LAND COMPENSATION)

As per the statutory requirements (IS-5613, Part 3, 1989) all the trees and bushes, including saplings coming in the ROW limit i.e. clearance belt of transmission lines must be cut and removed. The procedure for clearing of trees and crops is as illustrated below. As per the provisions of Indian Telegraph Act 1885 Part III Section 10 (b) which prohibits acquisition of any rights other than that of use only, land for tower and right of way is not acquired and agricultural activities are allowed to continue. However, as per clause 10 (d) of same act stipulates that the user agency shall pay full compensation to all interested for any damages sustained during the execution of said work. Accordingly, PEDM pays compensation to land owners towards damages if any to trees or crop during implementation of transmission project as well as during Operation and maintenance phase. The procedure followed for such compensation is as follows:

PEDM follows the principle of avoidance, minimization and mitigation in the construction of line in agricultural field having crop due to inherent flexibility in phasing the construction activity and tries to defer construction in cropped area to facilitate crop harvesting. However, if it is unavoidable and is likely to affect project schedule, compensation is given at market rate for standing crops. All efforts are also taken to minimize the crop damage to the extent possible in such cases. As regards trees coming in the Right of Way (ROW) following procedure is adopted for enumeration:

All the trees which are coming within the clearance belt of ROW on either side of the center line are identified and marked/numbered from one AP (Affected Person) to the other and documented. Type, Girth (Measured 1 m. above ground level), approximate height of the tree is also noted for each tree. Trees belonging to Govt., Forest, Highways and other local bodies may be separately noted down or timely follow up with the concerned authorities for inspection and removal. Cashew, Guava, Lemon and other hybrid trees which are not of tall growing nature are not marked for cutting since these trees can be crossed using standard tower extensions if required.

PEDM also pay compensation to affected land owners for utilization of their land for tower footing. To arrive compensation rate mechanism of negotiated settlement is followed. The association of local authorities like Dy. Commissioner/Addl. Dy. Commissioner (Revenue) of concerned district and concerned Circle officers is also ensured during such negotiation. The circle value for the land price fixation as per the Department of Registration for different categories of land for the villages along the transmission line corridor will be obtained from the district registrars. This guidance value will be referred to by the negotiation committee. Once the negotiated rate is finalised & consent is received from land owners, the same is approved by Dy. Commissioner of concerned district for payment of compensation to land owners by PEDM. All efforts are made to release such payment before construction activities. A notice under Indian Telegraph Act/Electricity Act, 2003 is served to the landowners informing that the proposed transmission line is being routed through the property of the individual concerned. The notice shall contain the particulars of the land, ownership details and the details of the trees/crops inevitability likely to be damaged during the course of the construction of the proposed transmission line and acknowledgement received from land owner. A copy of said notice is further issued to the Revenue Officer, who has been authorized by the Mizoram Govt. for the purpose of assessment/valuation and disbursement of compensation to the affected parties.

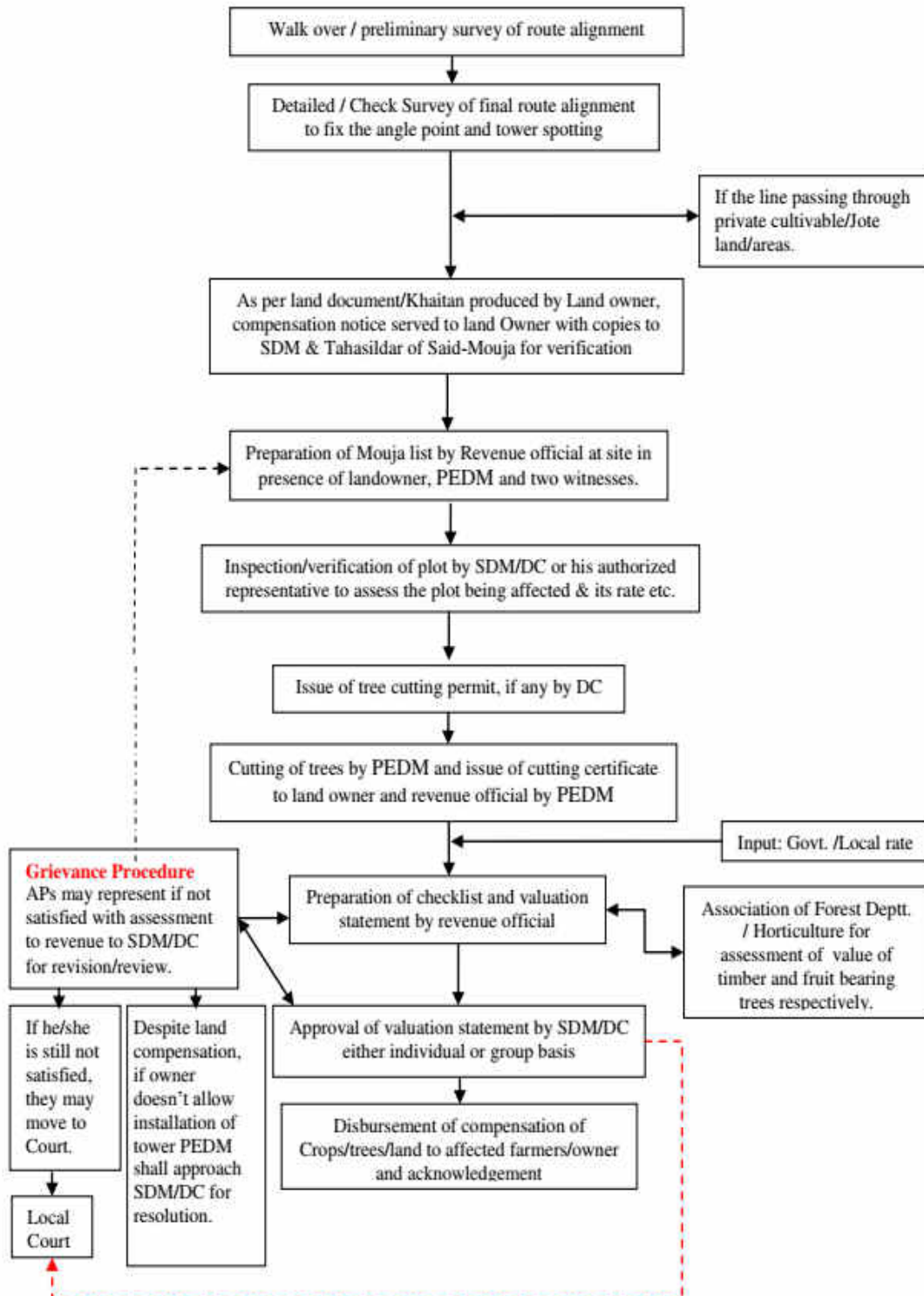
The revenue officer shall further issue a notice of intimation to the concerned landowner and inspect the site to verify the documents related to the proof of ownership and a detailed Mouja

list is prepared for the identified trees and crops inevitably damaged during the course of the construction. For assessing the true value of timber yielding trees help of forest officials is taken and for fruit bearing trees help of Horticulture department is taken. The Mouja list shall contain the land owner details type of tree/crop, its present age, variety, yielding pattern etc. and the same is prepared at site in the presence of the land owner. These Mouja lists are further compiled and a random verification is conducted by the concerned District Collector or his authorized representative in order to ascertain the assessment carried out by the revenue office is genuine and correct. After this process the District collector issues a tree cutting permit to PEDM to enable removal / damage to the standing tree/crop identified in the line corridor.

Once the tree/crop is removed / damaged, PEDM shall issue a tree cutting/crop damaged notice to the land owner with a copy to the Revenue Officer to process the compensation payment. Based on the above the compensation payment is generated by means of a computerized programme developed by the National Informatics Center exclusively for this purpose. The detailed Valuation statement thus generated using this programme is verified at various levels and approval of payment of compensation is accorded by the concerned District Collectors.

On approval of compensation, the revenue officer shall further intimate the amount payable to the different landowners and PEDM arranges the payment by way of Demand Draft to the affected parties. The payment is further disbursed at the local village office after due verification of the documents in presence of other witnesses.

**TOWER FOUNDATION/FOOTING LAND /TREE / CROP COMPENSATION PROCESS
OTHER THAN FOREST LAND COMPENSATION**



Budget Estimation

BUDGET ESTIMATE TOWARDS FOREST AND CROP/TREE/ TOWER FOOTING COMPENSATION

Total 132 kV T/L length – 50.265 km.

Total 132 kV tower locations - 174 approx.

A. Compensation

1. Forest & wildlife – 104.77 ha. approx

- Forest and wildlife compensation including = **4758 lakhs**

@ 5 times NPV & 2% of project cost

2. Crop & Trees

- Transmission Line length in Private /Revenue land – 12 km

- Crop/tree compensation for 132 kV line- (50.265 x 5,00,000/-) = **Rs. 251.325 lakhs**

3. Land compensation for 132 kV tower footing- (174 towers x 15600) = **Rs 27.15 lakhs**

Sub Total of A (1+2+3) = Rs 5036.475 lakhs

B. Implementation Monitoring & Audit

i) Man-power involved for EMP implementation
& Monitoring in entire route of transmission
& distribution line (Rs.20, 000/-x 50 Km) = **Rs 10 lakhs**

ii) Independent Audit (LS) if needed = **Rs. 10.00 lakhs**

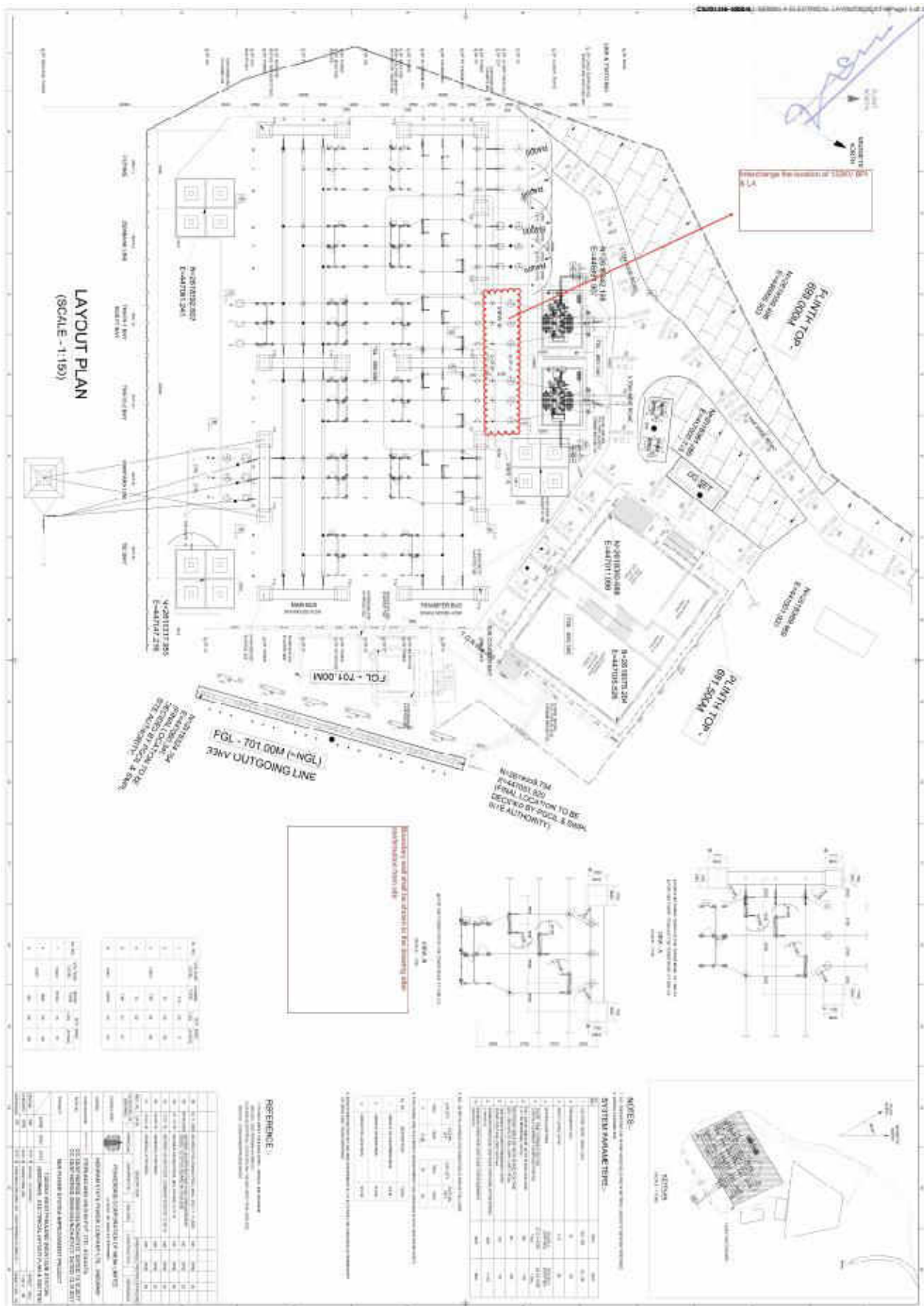
Sub Total of B (i+ ii) = Rs. 20 lakhs

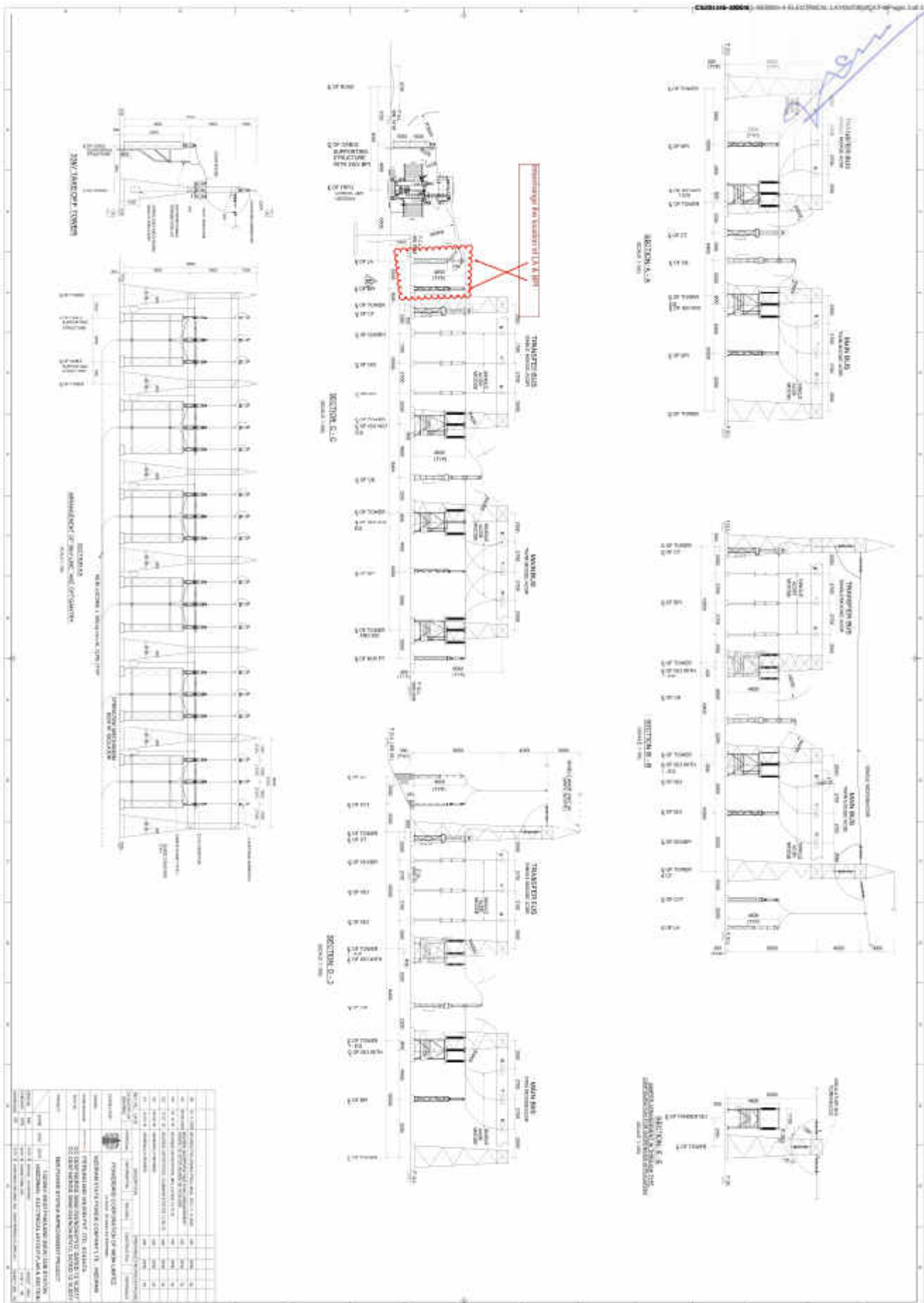
Grand Total (A+B) = Rs. 5056.475 lakhs

Annexure 14

GA Layout / Drawings of RRM Wall / Pretension Wall / Boundary Wall

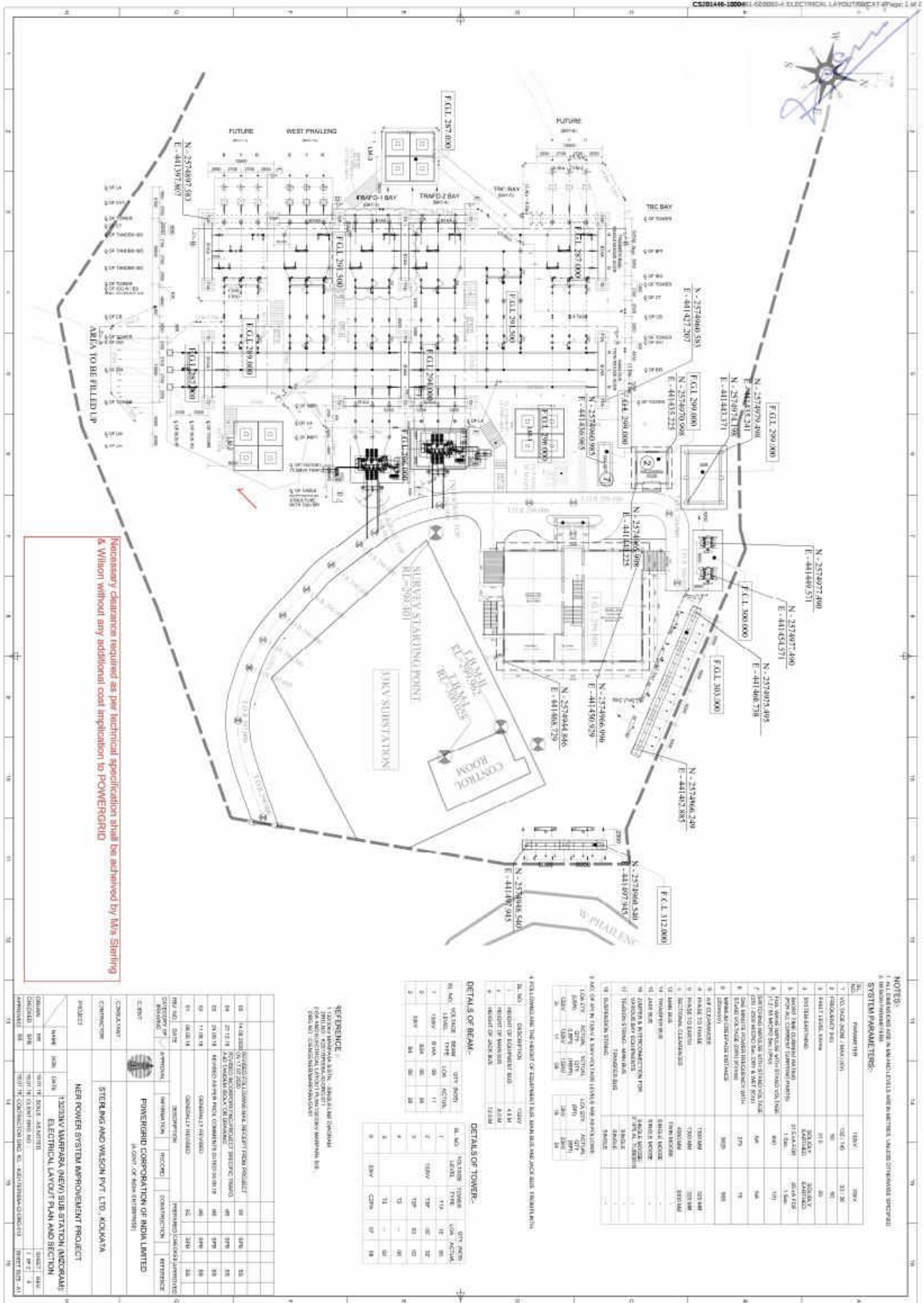
West Phaileng 132/33 kV S/S - Electrical Drawing

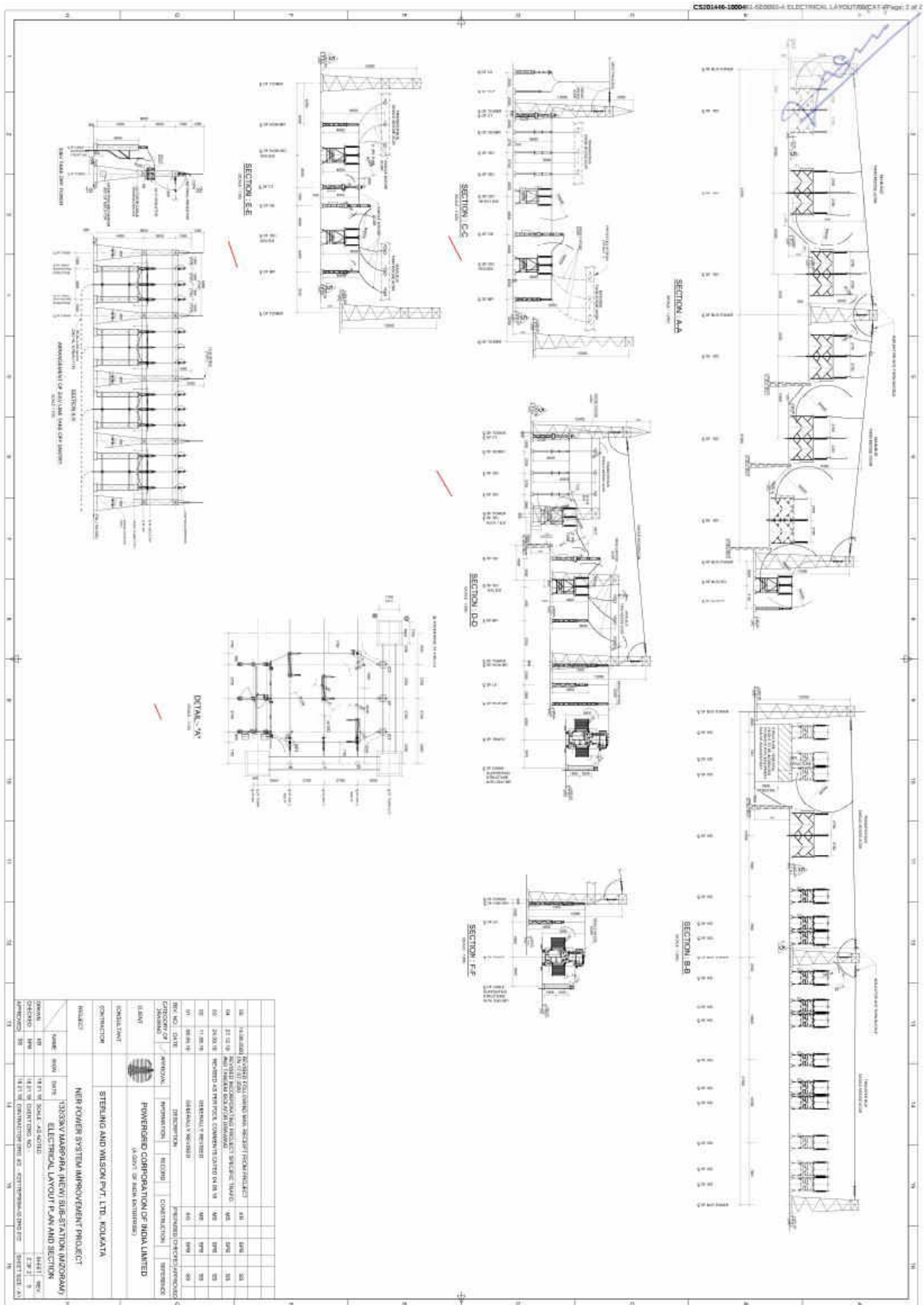




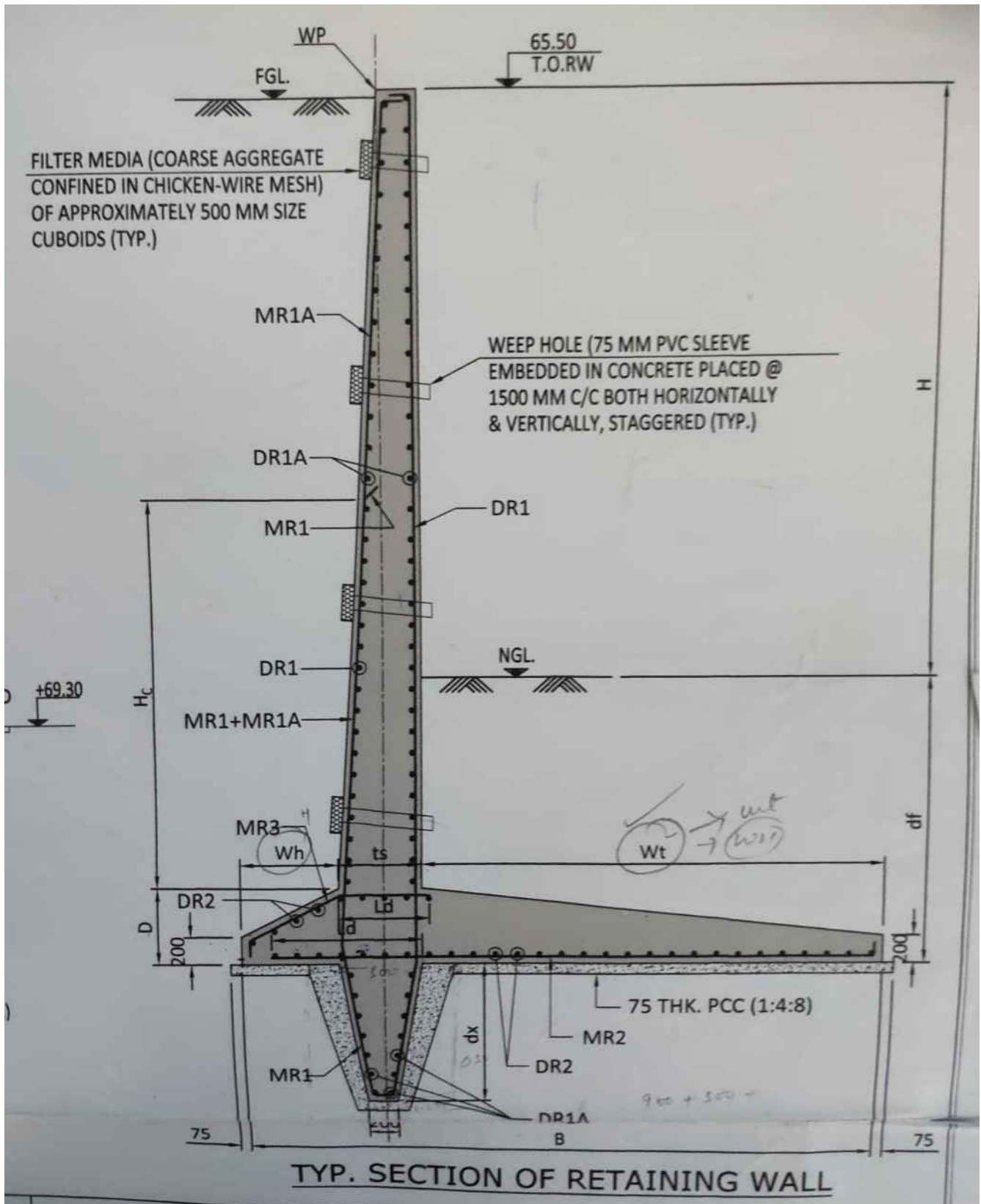
Marpara 132/33 kV S/S - GA Drawing

Marpara 312/33 kV - Electrical Drawing

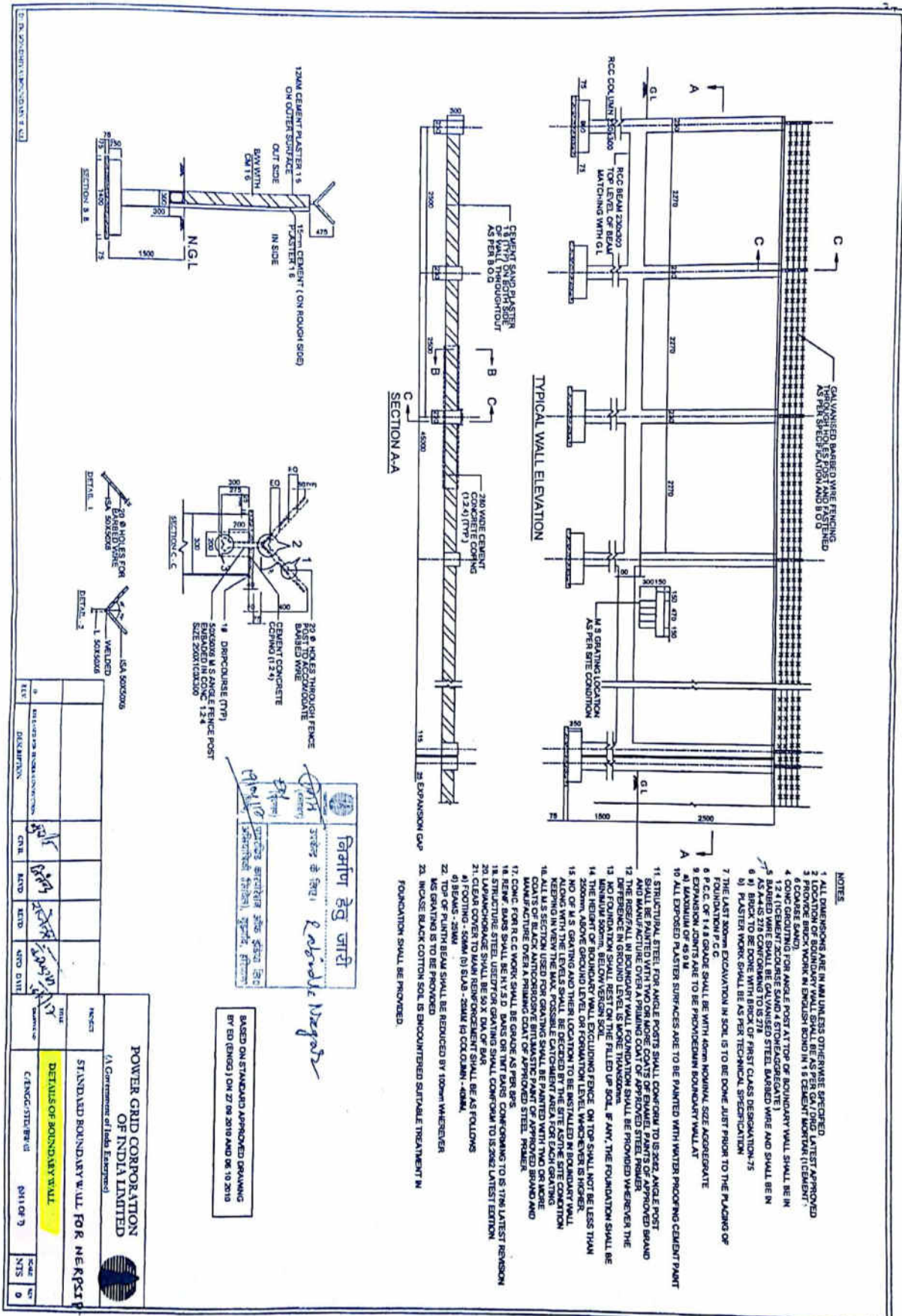




Drawing of Retention Wall (Standard)



Drawing of Boundary Wall (Standard)



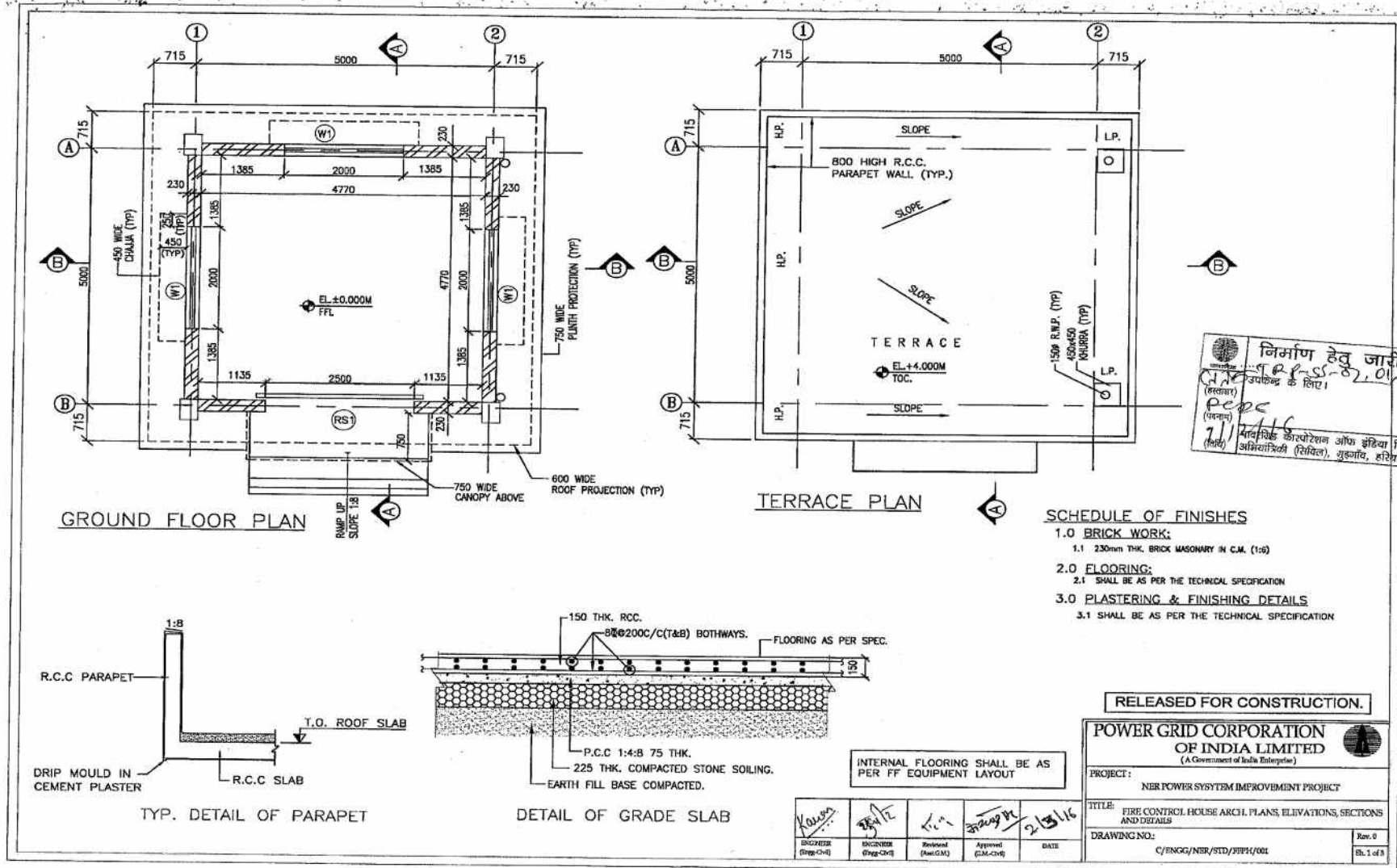


FEAR for T&D subprojects in Mamit District under
NERPSIP in Mizoram

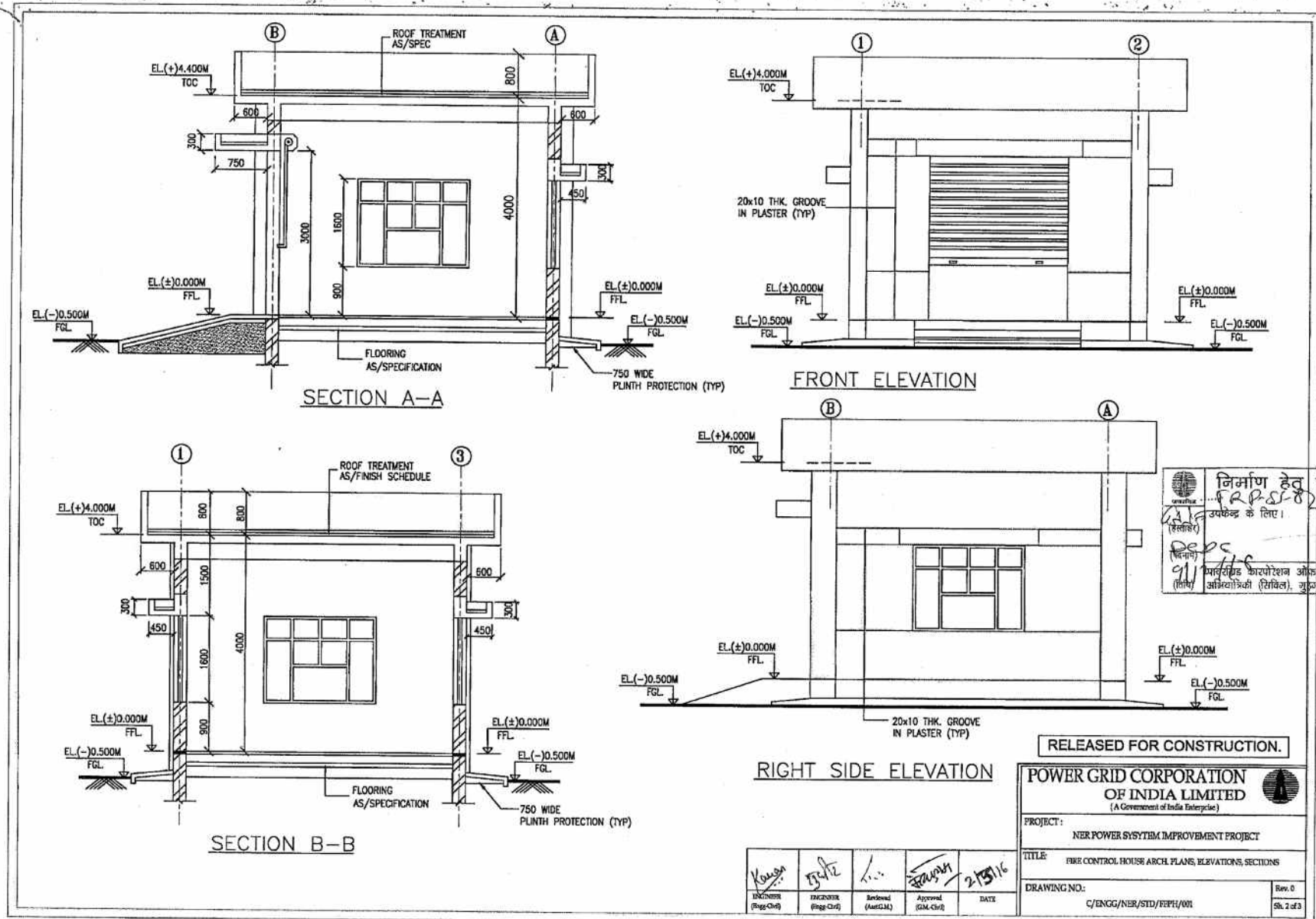


Annexure 15

Fire Fighting System



निर्माण हेतु जारी
 23/11/16
 711
 पर्यटन, कौशल विकास और युवा विकास विभाग
 अमरावती (महाराष्ट्र), मुंबई, हरियाणा



निर्माण हेतु जारी
FRPS-87/01/03
उपकेन्द्र के लिए।
DRPC
मिनिमम
पावरग्रिड कन्सल्टिंग एंड इंजीनियरिंग लि. 0
(लिमिटेड) आइआरसीडी (सिबिलि), मुंबई, महाराष्ट्र

RELEASED FOR CONSTRUCTION.

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

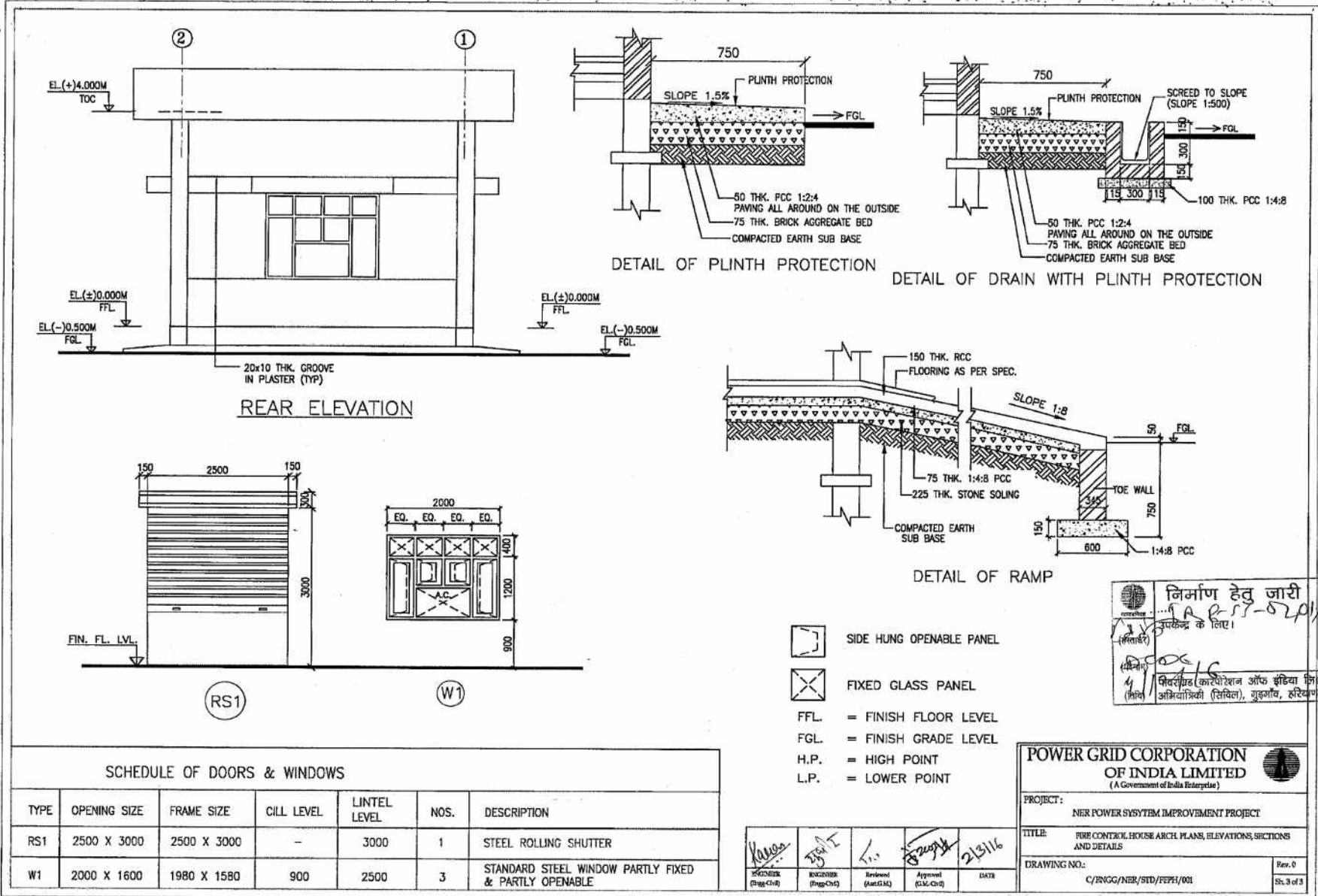
PROJECT: NER POWER SYSTEM IMPROVEMENT PROJECT

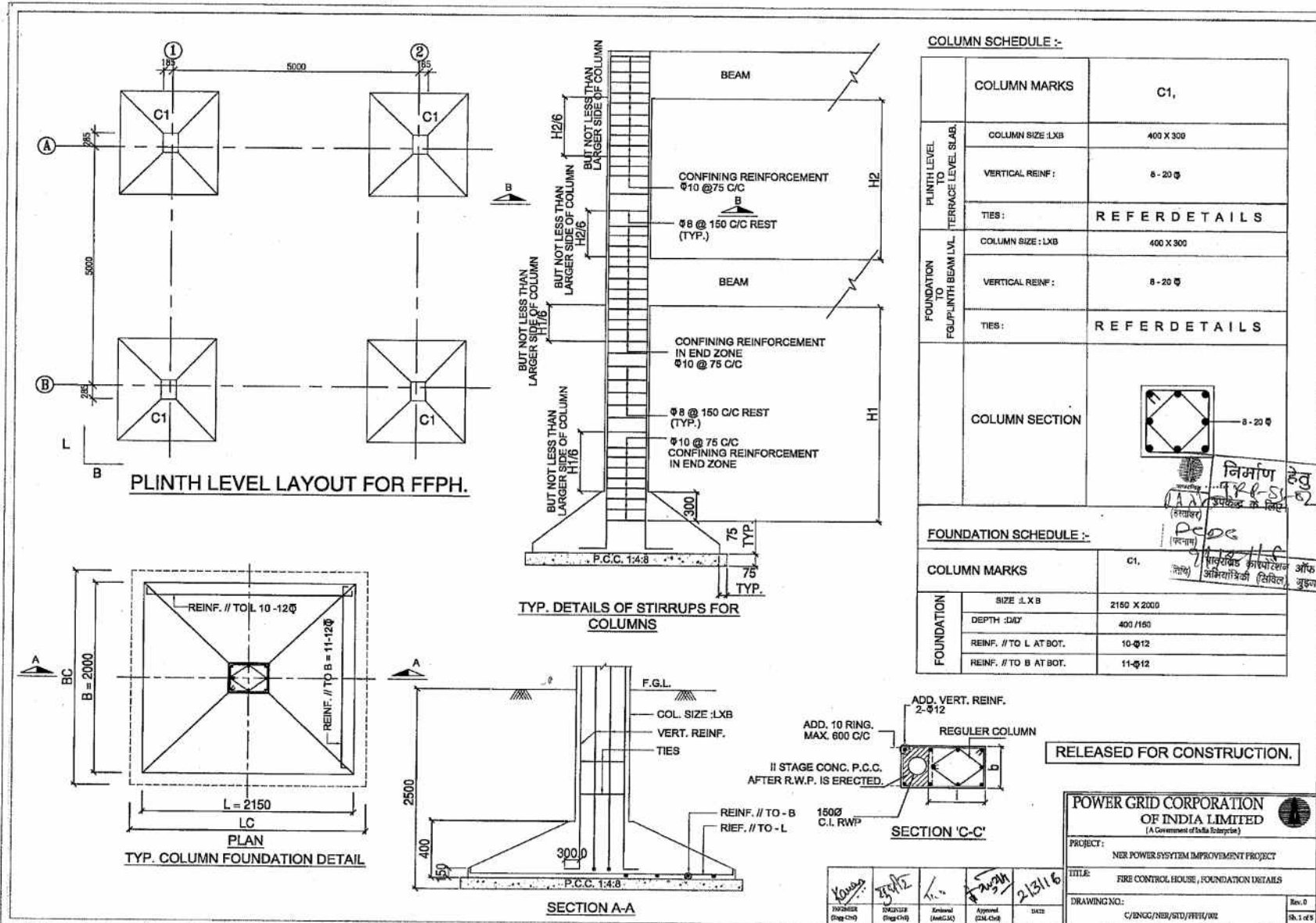
TITLE: FIRE CONTROL HOUSE ARCH. PLANS, ELEVATIONS, SECTIONS

DRAWING NO.: C/ENGG/NER/STD/FFPH/001

Rev. 0
Sh. 2 of 3

DRINKER (Page-Clk)	ENGINEER (Page-Clk)	REVIEWED (Aut.G.M.)	APPROVED (G.M.-Clk)	DATE 2/15/16
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COLUMN SCHEDULE :-

	COLUMN MARKS	C1,
PLINTH LEVEL TO TERRACE LEVEL SLAB	COLUMN SIZE : LXB	400 X 300
	VERTICAL REINF :	8 - 20 ϕ
	TIES :	REFER DETAILS
FOUNDATION TO FOUR PLINTH BEAM LVL	COLUMN SIZE : LXB	400 X 300
	VERTICAL REINF :	8 - 20 ϕ
	TIES :	REFER DETAILS
COLUMN SECTION		

FOUNDATION SCHEDULE :-

	COLUMN MARKS	C1,
FOUNDATION	SIZE : L X B	2150 X 2000
	DEPTH : D/D'	400 / 150
	REINF. // TO L AT BOT.	10- ϕ 12
	REINF. // TO B AT BOT.	11- ϕ 12

निर्माण हेतु जारी
22/01/03
PCC
POWER GRID CORPORATION OF INDIA LIMITED
अभियंता कार्यालय
अभियंता कार्यालय
अभियंता कार्यालय

RELEASED FOR CONSTRUCTION.

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

PROJECT: NER POWER SYSTEM IMPROVEMENT PROJECT

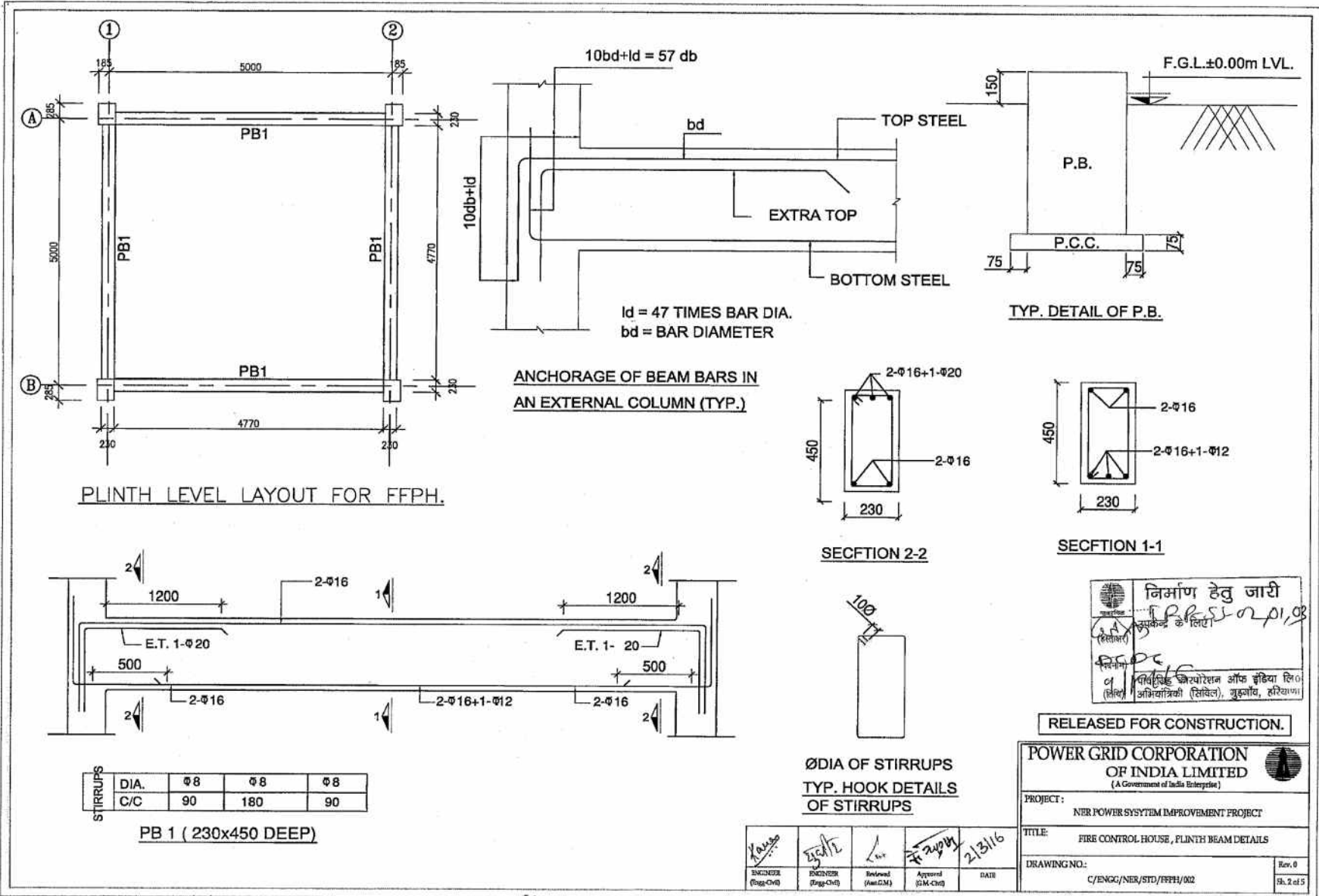
TITLE: FIRE CONTROL HOUSE, FOUNDATION DETAILS

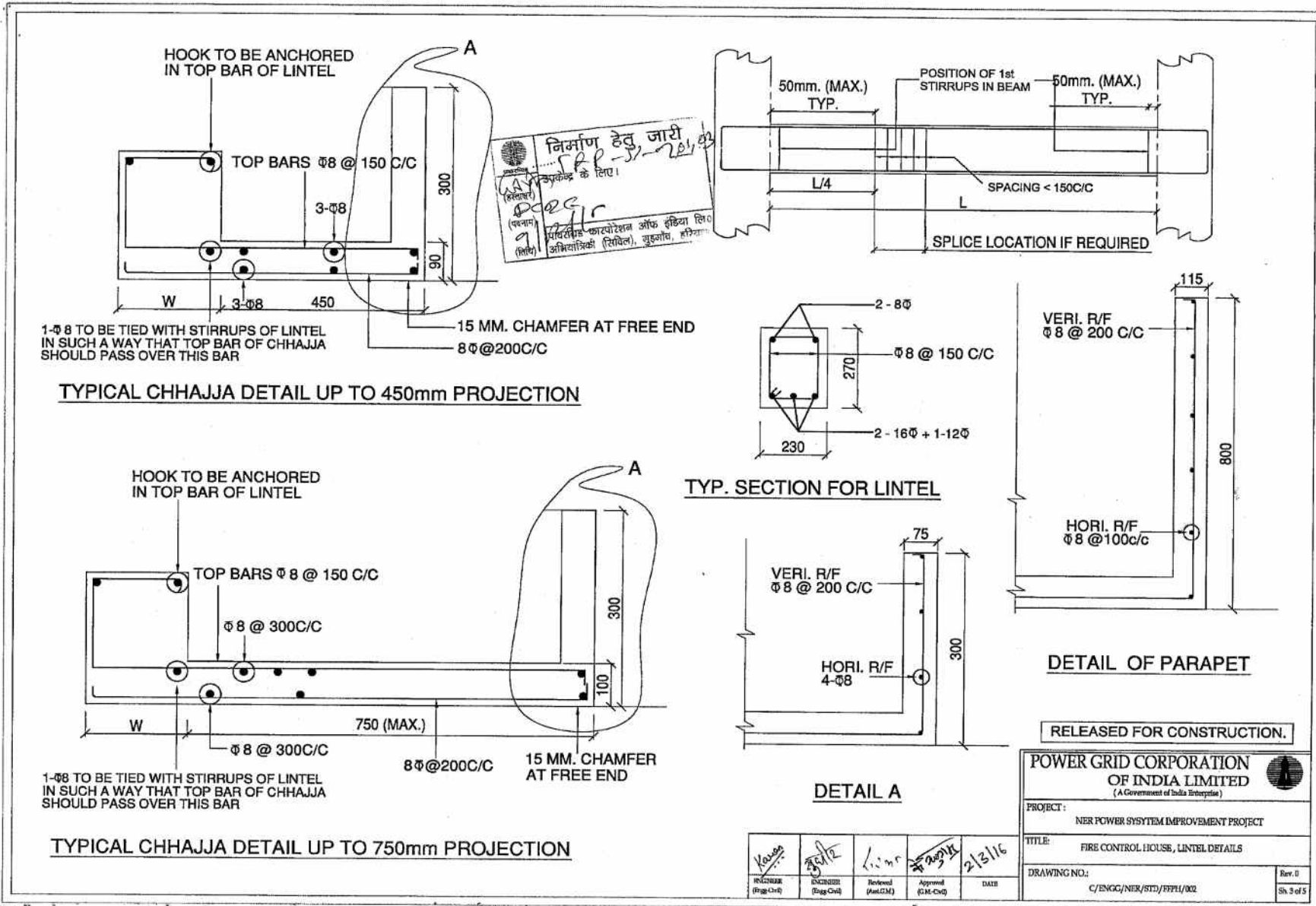
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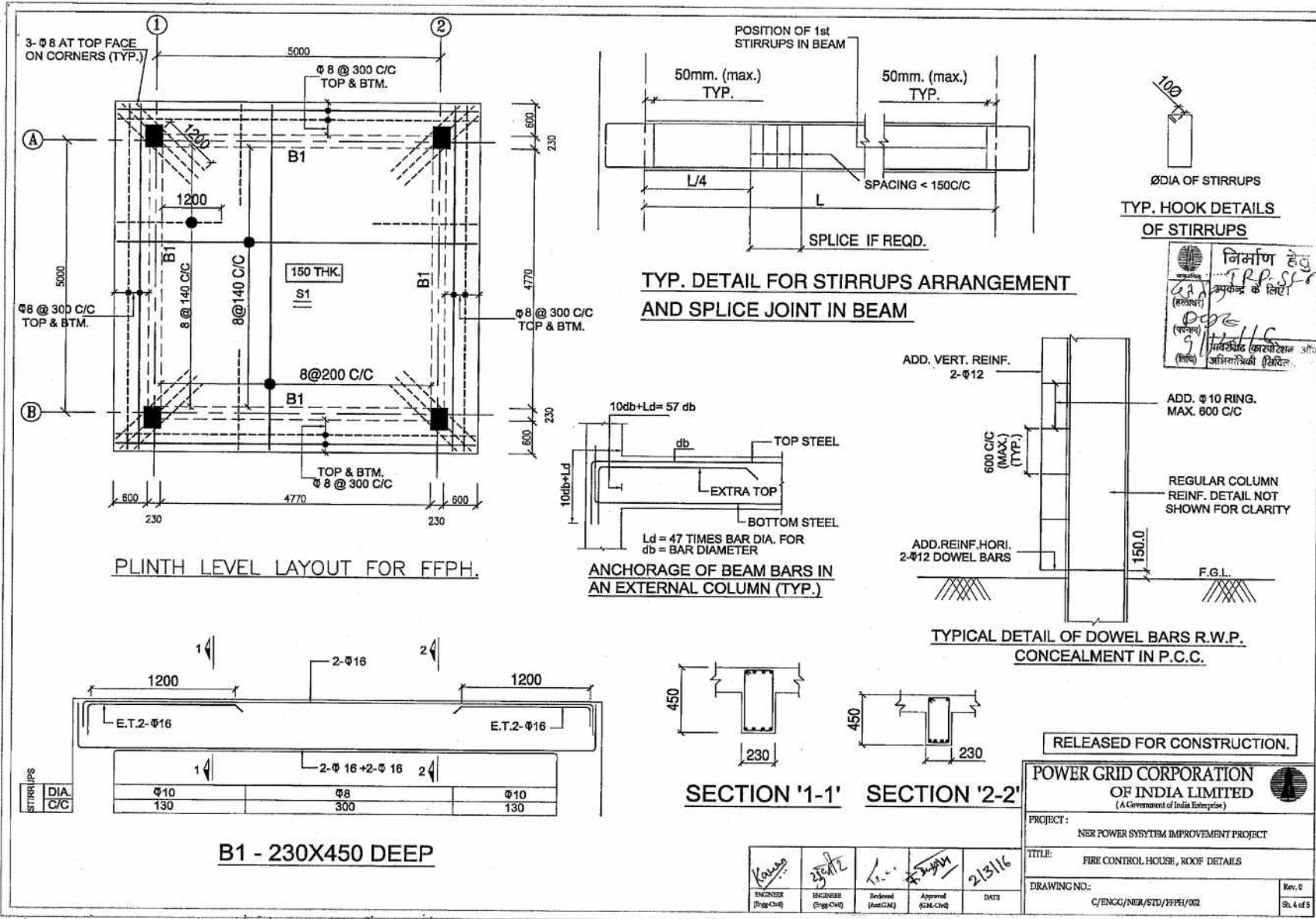
Rev. 0

Sh. 1 of 8

Prepared (Eng. Ctr)	Checked (Eng. Ctr)	Approved (MGR/M)	Approved (D.M. Chd)	DATE
				21/3/16







2013



FEAR for T&D subprojects in Mammit District under
NERPSIP in Mizoram



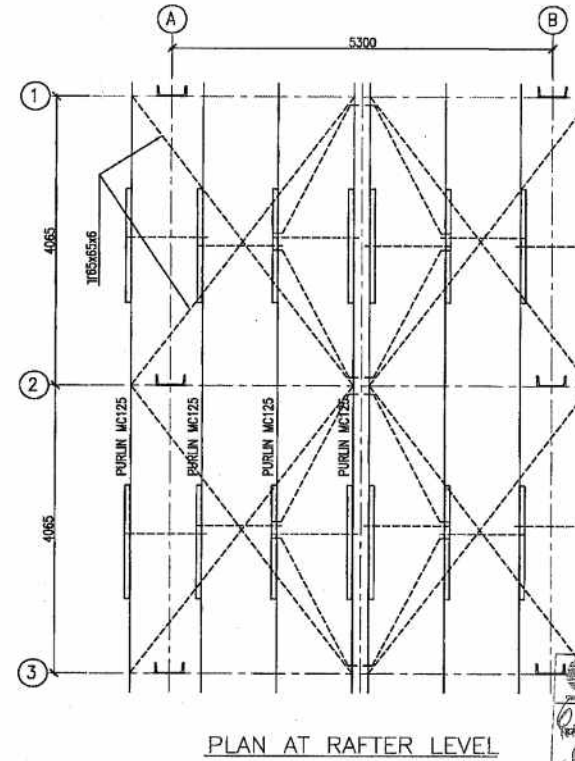
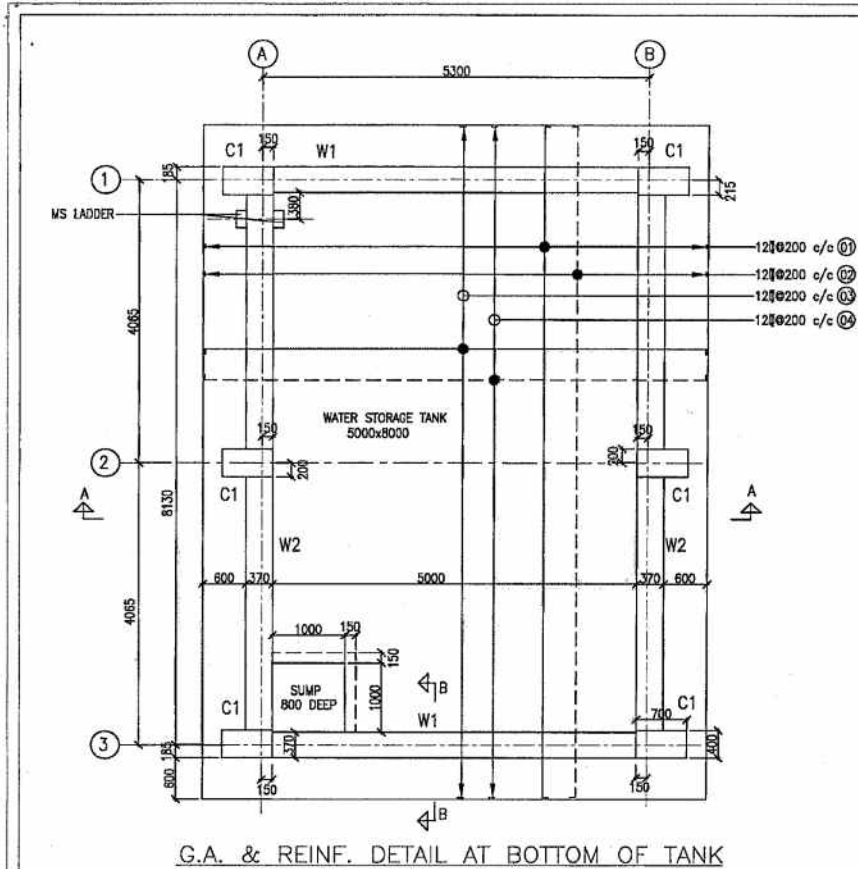
GENERAL NOTES:-

- (1) ALL DIMENSIONS ARE IN MM AND LEVEL IN METERS.
- (2) DO NOT SCALE THE DRG. FOLLOW WRITTEN DIMENSIONS ONLY
- (3) UNLESS OTHERWISE NOTED ALL R.C.C. SHALL BE OF GRADE M-25.
- (4) ALL LEAN CONCRETE SHALL BE 1:4.8 (1 CEMENT ,4 COARSE SAND 8 GRADED STONE AGGREGATE 40 MM NOMINAL SIZE).A SLIDING LAYER OF BITUMEN PAPER OR CRAFT PAPER SHALL BE PROVIDED BETWEEN BASE SLAB
- (5) ALL REINFORCEMENT SHALL BE OF GRADE Fe 500 CONFORMING TO IS:1786-1985.
- (6) CLEAR COVER TO REINFORCEMENT SHALL BE AS UNDER
 - * BOTTOM AND SIDES OF FOUNDATION - 50 MM
 - * FOR COLUMN - 40 MM
 - * FOR BEAMS - 25 MM
 - * FOR LINTELS, CHAJJAS & SLABS - 20 MM
- 7 PROVIDE CLEAR COVER TO REINFORCEMENT FOR WATER TANK AS GIVEN BELOW..
25 mm FOR FACE IN CONTACT WITH WATER
50 mm FOR FACE IN CONTACT WITH SOIL
- 8 ALL LAPS SHALL BE STAGGERED AND LAP LENGTH SHALL BE 50 TIMES THE BAR DIA.
- 9 CONSTRUCTION JOINT BE IN CONSULTATION WITH SITE INCHARGE TO SUIT CONCRETING PROGRAMME/FORM WORK.
- 10 WATER NOT TO BE FILLED IN TANK UNTIL TOP LIFT HAS BEEN CAST & CURED
- 11 INTEGRAL WATER PROOFING COMPOUND SHALL BE ADDED WHILE CONCRETING AS PER Manufacturer's RECOMMENDATIONS
- 12 ALL INSERTS, NOZZLES, PIPE SLEEVES ETC. SHALL BE PLACED IN POSITION BEFORE CONCRETING AS PER FIRE FIGHTING REQUIREMENTS.
- 13 DIMENSIONS OF EQUIPMENT FOUNDATIONS SHALL BE AS PER F.F.SYSTEM REQUIREMENTS.
- 14 PURL INS SHALL BE MANUFACTURED AFTER EXACT MEASUREMENT AT SITE.
- 15 COLOUR SCHEME MATCHING WITH CR BUILDING SHALL BE DECIDED AT SITE
- 16 ALL EXTERNAL WALLS ARE 230 THICK
- 17 WATER PROOFING SHALL BE DONE AS PER SPECIFICATION
- 18 ALL EXTERNAL SURFACES SHALL HAVE 18 MM THK CEMENT PLASTER AS PER SPECIFICATION.
- 19 ALL INTERNAL SURFACES SHALL HAVE 12 MM THK CEMENT PLASTER ON SMOOTH SURFACE OF BRICK WALL & 15mm THK. CEMENT PLASTER ON ROUGH SIDE OF BRICK WALL AS PER SPECIFICATION.
- 20 CEILINGS SHALL HAVE 6MM THK CEMENT PLASTER AS PER SPECIFICATION .
- 21 OUTSIDE AND INSIDE SURFACES OF FIRE WATER TANK SHALL BE UNPLASTERED AND PROVIDED WITH A NEAT COAT OF CEMENT WASH
- 22 FOUNDATION HAS BEEN DESIGNED FOR A BEARING CAPACITY OF 9.0 MT/SQM
- 23 LEVELS OF PLINTH BEAM SHALL BE VERIFIED AS PER CABLE ENTRY DETAILS.

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 5/28-5-02/01/03
 DDC
 पावरग्रिड कारपोरेशन ऑफ इंडिया लि०
 अभियांत्रिकी विभाग, गुडगाँव, हरियाणा

DESIGNER (Engg-Clk)	ENGINEER (Engg-Clk)	Reviewed (Asst.G.M)	Approved (S.M-Clk)	DATE 2/3/16
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POWER GRID CORPORATION OF INDIA LIMITED (A Government of India Enterprise)	
PROJECT: NER POWER SYSTEM IMPROVEMENT PROJECT	
TITLE: FIRE CONTROL HOUSE, GENERAL NOTES	
DRAWING NO.: C/ENGG/NER/STD/FFPH/002	Rev. 0 Sh. 5 of 5



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[Signature]
[Date: 02/01/09]
[Signature]
[Date: 11/01/09]

NOTES:-

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METRES.
2. FIGURED DIMENSIONS ONLY SHALL BE FOLLOWED.
3. THIS DWG. IS TO BE READ IN CONJUNCTION WITH DWG. NO. C/ENGGNER/STD/FFPH/001
4. UNLESS OTHERWISE NOTED ALL R.C.C. SHALL BE OF GRADE M-25.
5. ALL REINFORCEMENT SHALL BE OF GRADE Fe 500 CONFORMING TO IS:1785-1985.
6. CLEAR COVER TO REINF. INCLUDING LINKS FOR R.C.C MEMBERS SHALL BE AS UNDER:-
FOOTING =50mm COLUMN =50mm WALL =40mm

7. STANDARD 'L' HOOKS SHALL BE PROVIDED AT THE ENDS OF ALL BARS.
8. LAP LENGTH/DEVELOPMENT LENGTH FOR MAIN REINFORCEMENT BARS AS PER IS: 456-2000 SHALL BE 50xDIA OF BAR
9. LAPS SHALL BE STAGGERED AND AVOIDED AT THE SECTIONS OF MAX. BENDING MOMENT
10. ANY LOOSE POCKET PATCH BELOW FDN. SHALL BE CLEARED AND FILLED WITH P.C.C. 1:4:8
11. BOTTOM BAR INDICATES: \dashrightarrow
12. TOP BAR INDICATES: \dashleftarrow
13. ANTICORROSSIVE PAINTING SHALL BE GIVEN TO ALL STEEL MEMBERS.

ALL DIMENSIONS, INSERTS, NOZZLES, PIPE SLEEVES ETC. SHALL BE VERIFIED BEFORE CONCRETING AS PER FIRE FIGHTING REQUIREMENTS.

RELEASED FOR CONSTRUCTION.

**POWER GRID CORPORATION
OF INDIA LIMITED**
(A Government of India Enterprise)

PROJECT: NER POWER SYSTEM IMPROVEMENT PROJECT

TITLE: FIRE CONTROL HOUSE, WATER TANK DETAILS

DRAWING NO: C/ENGG/NER/STD/FFPH/003

Rev. 0
Sh. 2 of 2

<i>[Signature]</i> DESIGNER (Engg-Chk)	<i>[Signature]</i> ENGINEER (Engg-Chk)	<i>[Signature]</i> Reviewed (Asst.Engg)	<i>[Signature]</i> Approved (S.M.-Chk)	DATE 2/3/16
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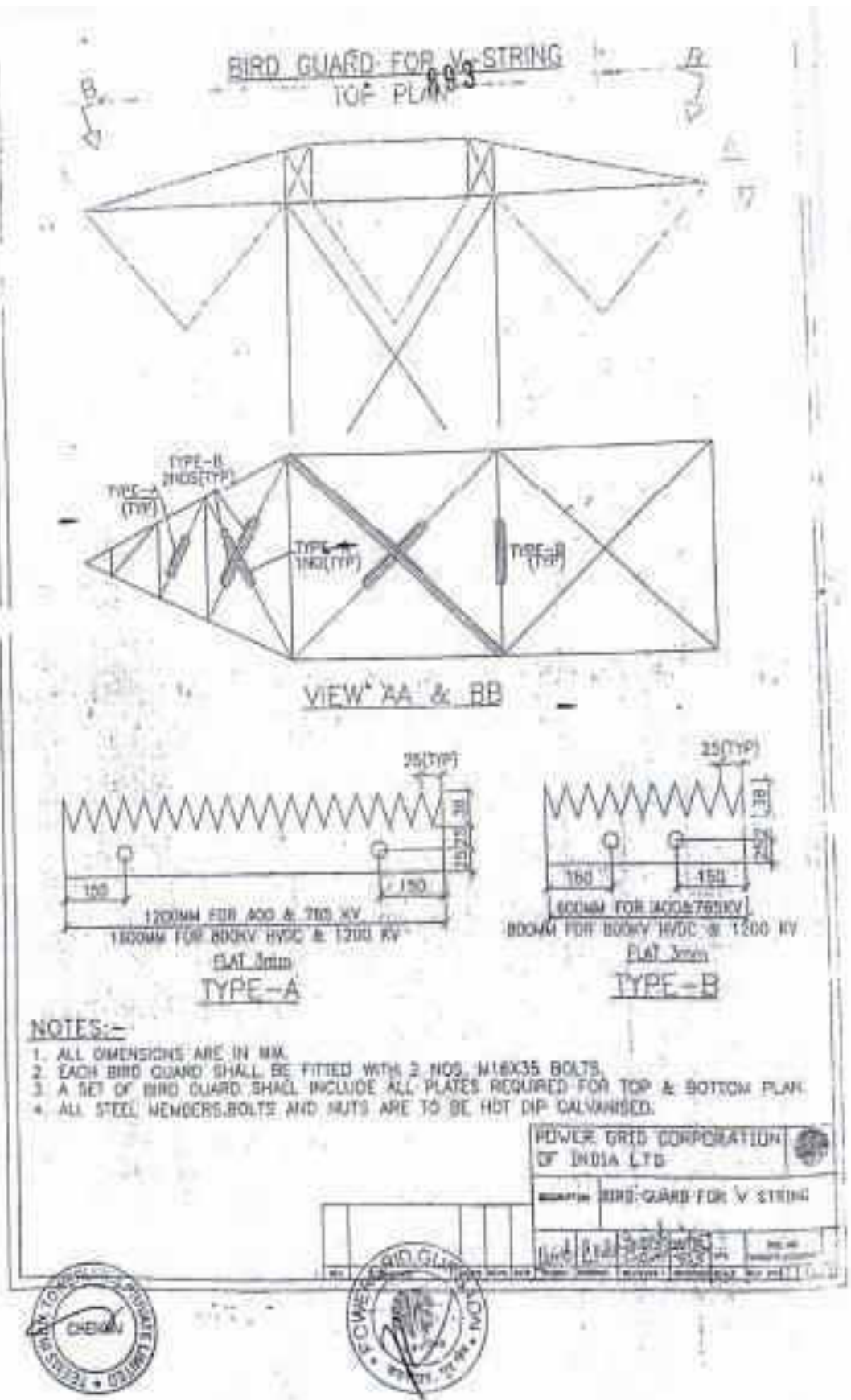


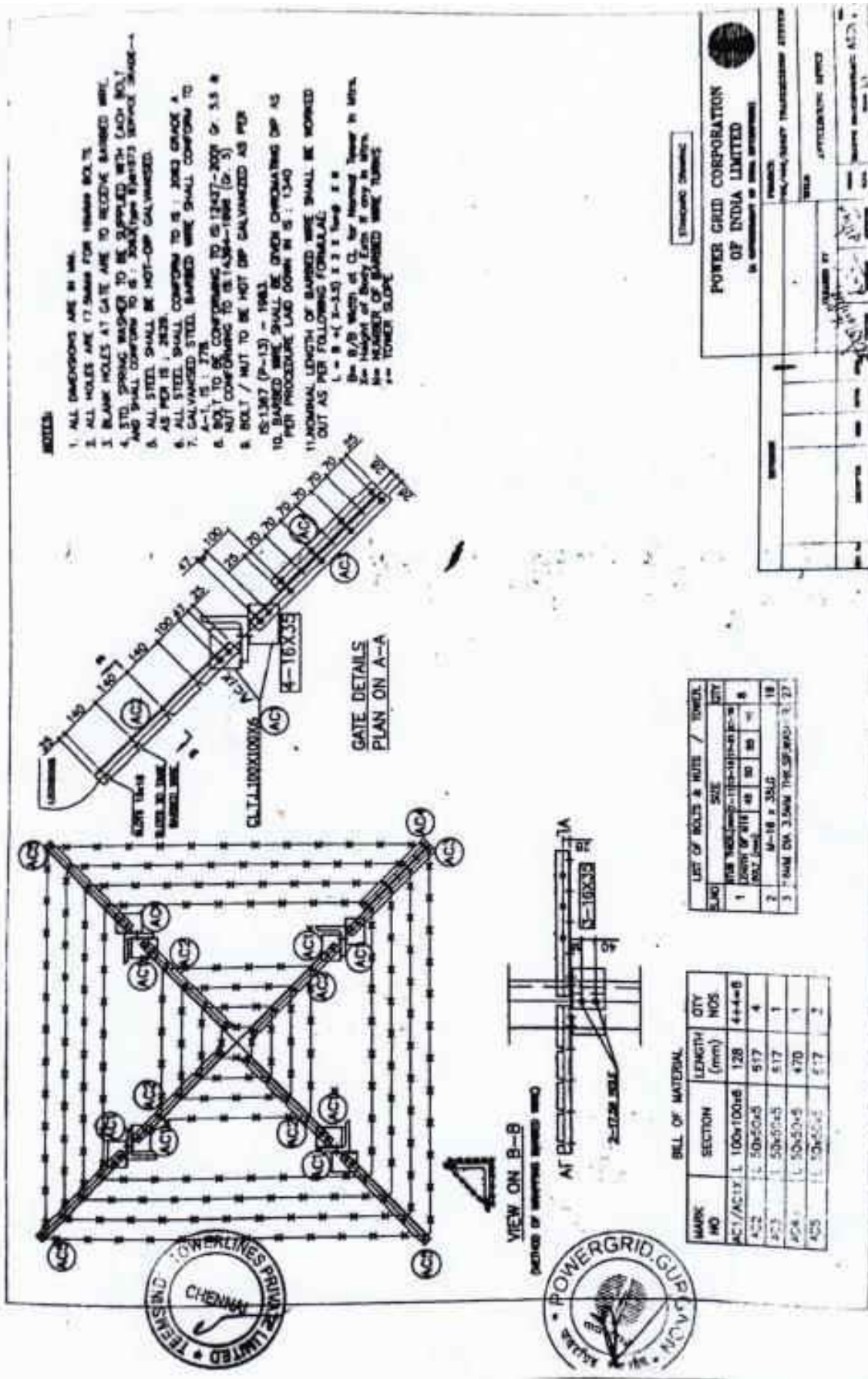
FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 16

Bird Guard and Anti-Perch Device







FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 17

Safety Plan

Issued to M/s Sterling and Wilson Pvt Ltd



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SAFETY PLAN

THIS SAFETY PLAN is made this 21st day of February, 2018 by Sterling & Wilson Pvt. Ltd., a company registered under Companies Act, 2013 having its Registered Office at 9th Floor, Universal Majestic P.L. Lokhande Marg, Chembur (West), Mumbai-400043 (herein after called as 'Contractor' which expression shall include its successors and permitted assigns) for approval of Power Grid Corporation of India Ltd. a company incorporated under the Companies Act, 1956 having its Registered office at B-9 Qutab Institutional Area, Katwaria Sarai, New Delhi – 110 016 for its Contract for CC-CS/87-NER/SS-3558/1/G4/NOA-II/7412, CC-CS/87-NER/SS-3558/1/G4/NOA-II/7413

Whereas PGCIL has awarded to the Contractor aforesaid Contract vide its Notification of Award/ Contract No. CC-CS/87-NER/SS-3558/1/G4/NOA-II/7412, CC-CS/87-NER/SS-3558/1/G4/NOA-II/7413 dated 13/10/2017 (hereinafter called the Contract) in terms of which the contractor is required to submit 'Safety Plan' along with certain documents to the Engineer In Charge/ Project Manager of the Employer within sixty (60) days of Notification of Award for its Approval.

NOW THEREFORE, the Contractor undertakes to execute the Contract as per the safety plan as follows:

1. THAT the Contractor shall execute the works as per provisions of Bidding Documents including those in regard to Safety Precautions/ provisions as per statutory requirements.
2. THAT the Contractor shall execute the works in a well-planned manner from the commencement of Contract as per agreed mile stones of work completion schedule so that planning and execution of construction works goes smoothly and consistently throughout the contract duration without handling pressure in last quarter of the financial

Signature

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year/last months of the Contract and the shall be finalized in association with POWERGRID Engineer In-charge/Project Manager from time to time as required.

3. THAT the Contractor has prepared the safe work procedure for each activity i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. to be executed at site, which is enclosed at **Annexure – 1A (SP)** for acceptance and approval of Engineer In-charge/Project Manager. The Contractor shall ensure that on approval of the same from Engineer In-charge/Project Manager , the approved copies will be circulated to Employer's personnel at site [Supervisor(s)/Executive(s)] and Contractor's personnel at site [Gang leader, supervisor(s) etc.] in their local language / language understood by gang.

THAT the Contractor has prepared minimum manpower deployment plan, activity wise as stated above, which is enclosed at **Annexure – 1B (SP)** for approval of Engineer In-charge/Project Manager.

4. THAT the Contractor shall ensure while executing works that they will deploy minimum 25% of their own experienced work force who are on the permanent roll of the company and balance 75% can be a suitable mixed with the hired gangs / local workers / casual workers if required. The above balance 75% work force should be provided with at least 10 days training by the construction agencies at sites and shall be issued with a certificate. No worker shall be engaged without a valid certificate. Hired gang workers shall also follow safe working procedures and safety norms as is being followed by company's workmen. It should also be ensured by the contractor that certified fitters who are climbing towers / doing stringing operations can be easily identifiable with a system like issue of Badge / Identification cards (ID cards) etc. Colour identification batches should be worn by the workers. Contractor has to ensure that inexperience workers / unskilled workers should not be deployed for skilled job.
5. THAT the Contractor's Gang leader / Supervisor / Senior most member available at every construction site shall brief to each worker daily before start of work about safety requirement and warn about imminent dangers and precautions to be taken against the imminent dangers (Daily Safety Drill). This is to be ensured without fail by Contractor and maintain record of each gang about daily safety instructions issued to workers and put up to POWERGRID site In-charge for his review and record.
6. THAT the Contractor shall ensure that working Gangs at site should not be left at the discretion of their Gang Leaders who are generally hired and having little knowledge about safety. Gang leader should be experienced and well versed with the safe working procedures applicable for transmission line/ Sub Station works. In case gang is having Gang leader not on permanent roll of the company then additional Supervisor from company's own roll having thorough knowledge about the works would be deployed so as to percolate safety instructions up to the grass root level in healthy spirits. Contractor has to ensure close supervision while executing critical locations of transmission lines / sub stations and ensures that all safety instructions are in place and are being followed.
7. THAT the Contractor shall maintain in healthy and working condition all kind of Equipment / Machineries / Lifting tools / Lifting tackles / Lifting gears / All kind of Ropes including wire

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ropes / Polypropylene ropes etc. used for Lifting purpose during execution of the project and get them periodically examined and load tested for safe working load in accordance with relevant provisions and requirement of Building & other construction workers Regulation of Employment and Conditions of Services Act and Central Rule 1998, Factories Act 1948, Indian Electricity Act 2003 before start of the project. A register of such examinations and tests shall be properly maintained by the contractor and will be promptly produced as and when desired by the Engineer In-charge/Project Manager or by the person authorised by him. The Contractor has to ensure to give special attention on the formation / condition of eye splices of wire rope slings as per requirement of IS 2762 Specification for wire rope slings and sling legs.

THAT the Contractor has prepared a list of all Lifting machines, lifting Tools / Lifting Tackles / Lifting Gears etc. / All types of ropes and Slings which are subject to safe working load is enclosed at **Annexure -- 2 (SP)** for review and approval of Engineer In-charge/Project Manager.

8. THAT the Contractor has to procure sufficient quantity of Personal Protective Equipment (PPE) conforming to Indian / International standards and provide these equipment to every workman at site as per need and to the satisfaction of Engineer-in-charge/Project Manager of POWERGRID. The Contractor's Site Supervisor/ Project Manager has to ensure that all workmen must use Personal Protective Equipment at site. The Contractor shall also ensure that Industrial Safety helmets are being used by all workmen at site irrespective of their working (at height or on ground). The Contractor shall further ensure use of safety shoes by all ground level workers and canvas shoes for all workers working at height, Rubber Gum Boots for workers working in rainy season and concreting job, Use of Twin Lanyard Full body Safety Harness with attachment of light weight such as aluminum alloy etc. and having features of automatic locking arrangement of snap hook, by all workers working at height for more than three meters and also for horizontal movement on tower shall be ensured by contractor. The Contractor shall not use ordinary half body safety harness at site. The Contractor has to ensure use of Retractable type fall arrestors by workers for ascending / descending on suspension insulator string and other similar works etc., Use of Mobile fall arrestor for ascending / descending from tower by all workers. The contractor has to provide cotton / leather hand gloves as per requirement, Electrical Resistance Hand gloves for operating electrical installations / switches, Face shield for protecting eyes while doing welding works and Dust masks to workers as per requirement. **The Contractor shall also provide Reflective Jackets to all workmen working on the site including differently colored such Jackets to the persons working at height.** The Contractor will have to take action against the workers not using Personal Protective Equipment at site and those workers shall be asked to rest for that day and also their Salary be deducted for that day. POWERGRID may issue warning letter to Project Manager of contractor in violation of above norms.

THAT the Contractor shall prepare a detailed list of PPEs, activity wise, to commensurate with manpower deployed, which is enclosed at **Annexure – 3 (SP)** for review and approval of Engineer In-charge/Project Manager. It shall also be ensured that the sample of these equipment shall be got approved from POWERGRID supervisory staff before being distributed to workers. The contractor shall submit relevant test certificates as per IS / International Standard as applicable to PPEs used during execution of work. All the PPE's

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to be distributed to the workers shall be checked by POWERGRID supervisory staff before its usage.

The Contractor also agrees for addition / modification to the list of PPE, if any, as advised by Engineer In-Charge/Project Manager.

9. THAT the Contractor shall procure, if required sufficient quantity of Earthing Equipment / Earthing Devices complying with requirements of relevant IEC standards (Generally IECs standards for Earthing Equipment's / Earthing Devices are – 855, 1230, 1235 etc.) and to the satisfaction of Engineer In-Charge/ Project Manager and contractor to ensures to maintained them in healthy condition.

THAT the Contractor has prepared / worked out minimum number of healthy Earthing Equipment with Earthing lead confirming to relevant IS / European standards per gang wise during stringing activity/as per requirement, which is enclosed herewith at **Annexure – 4 (SP)** for review and acceptance of Engineer In-Charge/ Project Manager prior to execution of work.

10. THAT the Contractor shall provide communication facilities i.e. Walky – Talkie / Mobile Phone, Display of Flags / whistles for easy communication among workers during Tower erection / stringing activity, as per requirement.

11. THAT the Contractor undertakes to deploy qualified safety personnel responsible for safety as per requirements of Employer/Statutory Authorities.

THAT the Contractor employing more than 250 workmen whether temporary, casual, probationer, regular or permanent or on contract, shall employ at least one full time officer exclusively as qualified safety officer having diploma in safety to supervise safety aspects of the equipment and workmen who will coordinate with Engineer In-charge /Project Manager/Safety Co-ordinator of the Employer. In case of work being carried out through sub-contractors the sub – contractor's workmen / employees will also be considered as the contractor's employees / workmen for the above purpose. If the number of workers are less than 250 then one qualified safety officer is to be deployed for each contract. He will report directly to his head of organization and not the Project Manager of contractor He shall also not be assigned any other work except assigning the work of safety. The curriculum vitae of such person shall be got cleared from POWERGRID Project Manager / Construction staff.

The Contractor shall deploy one dedicated Safety Staff(s) for every 200 kms of a Transmission Line Project.

The name and address of such safety officers/staff(s) of contractor will be promptly informed in writing to Engineer In-charge with a copy to safety officer - In-charge before start of work or immediately after any change of the incumbent is made during the currency of the contract. The list is enclosed at **Annexure – 5A (SP)**.

THAT the Contractor has also prepared a list including details of Explosive Operator (if required), Safety officer / Safety Staff/ Safety supervisor / nominated person for safety for each erection / stringing gang, list of personnel trained in First Aid Techniques as well as

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copy of organization structure of the Contractor in regard to safety. The list is enclosed at **Annexure – 5B (SP)**.

12. The Project Manager shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove shortcomings promptly. The Contractor after stopping the specific work can, if felt necessary, appeal against the order of stoppage of work to the Project Manager within 3 days of such stoppage of work and decision of the Project Manager in this respect shall be conclusive and binding on the Contractor.
13. THAT, if, any Employer's Engineer/ supervisor at site observes that the Contractor is failing to provide safe working environment at site as per agreed Safety Plan / POWERGRID Safety Rule/ Safety Instructions / Statutory safety requirement and creates hazardous conditions at site and there is possibility of an accident to workmen or workmen of the other contractor or public or the work is being carried out in an un safe manner or he continues to work even after being instructed to stop the work by Engineer / Supervisor at site / RHQ / Corp. Centre, the Contractor shall be bound to pay a penalty of Rs. 10,000/- per incident per day till the instructions are complied and as certified by Engineer / Supervisor of Employer at site. The work will remain suspended and no activity will take place without compliance and obtaining clearance / certification of the Site Engineer / Supervisor of the Employer to start the work.
14. THAT, if the investigation committee of Employer observes any accident or the Engineer In-charge/Project Manager of the Employer based on the report of the Engineer/Supervisor of the Employer at site observes any failure on the Contractor's part to comply with safety requirement / safety rules/ safety standards/ safety instruction as prescribed by the Employer or as prescribed under the applicable law for the safety of the equipment, plant and personnel and the Contractor does not take adequate steps to prevent hazardous conditions which may cause injury to its own Contractor's employees or employee of any other Contractors or Employer or any other person at site or adjacent thereto, or public involvement because of the Contractor's negligence of safety norms, the Contractor shall be liable to pay a compensation of Rs. 15,00,000/- (Rupees Fifteen Lakh only) per person affected causing death and Rs. 5,00,000/- (Rupees Five Lakh only) per person for serious injuries / 25% or more permanent disability to the Employer for further disbursement to the deceased family/ Injured persons. The permanent disability has the same meaning as indicated in Workmen's Compensation Act 1923. The above stipulations is in addition to all other compensation payable to sufferer as per workmen compensation Act / Rules

Notwithstanding above, the Contractor shall also be responsible for payment of sum as indicated below additionally which shall be deposited in Safety Corpus Fund pursuant to GCC Sub-Clause 18.3.3.26:

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a.	Upon 1 st Fatal Accident due to negligence by the Contractor	Rs. 50,00,000/-
b.	Upon 2 nd Fatal Accident due to negligence by the Contractor	Rs. 75,00,000/-
c.	Upon 3 rd Fatal Accident due to negligence by the Contractor	Rs. 1,00,00,000/-
d.	Re-occurrence of Fatal Accident even after 3 rd Fatal Accident due to negligence by the Contractor	Rs. 1,00,00,000/- per fatal accident
e.	Tower Collapse leading to more than one (01) death attributable to the Contractor as per the Accident Enquiry Committee Report	Rs. 1,00,00,000/- per fatal accident in addition to a, b, c or d above, as applicable

THAT as per the Employer's instructions, the Contractor agrees that this amount shall be deducted from their running bill(s) immediately after the accident, That the Contractor understands that this amount shall be over and above the compensation amount liable to be paid as per the Workmen's Compensation Act /other statutory requirement/ provisions of the Bidding Documents.

15. THAT the Contractor shall submit Near-Miss-Accident report along with action plan for avoidance such incidence /accidents to Engineer – In-charge/ Project Manager. Contractor shall also submit Monthly Safety Activities report to Engineer – In-charge/ Project Manager and copy of the Monthly Safety Activities report also to be sent to Safety In-charge at RHQ of the Employer for his review record and instructions.
16. THAT the Contractor is submitting a copy of Safety Policy/ Safety Documents of its Company which is enclosed at **Annexure – 6 (SP)** and ensure that the safety Policy and safety documents are implemented in healthy spirit.
17. THAT the Contractor shall make available of First Aid Box [Contents of which shall be as per Building & other construction workers (Regulation of Employment and Conditions of Services Act and Central Rule 1998 / POWERGRID Guidelines)] to the satisfaction of Engineer In-Charge/ Project Manager with each gang at site and not at camp and ensures that trained persons in First Aid Techniques with each gang before execution of work.
18. THAT the Contractor shall submit an 'Emergency Preparedness Plan' for different incidences i.e. Fall from height, Electrocution, Sun Stroke, Collapse of pit, Collapse of Tower, Snake bite, Fire in camp / Store, Flood, Storm, Earthquake, Militancy etc. while carrying out different activities under execution i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. which is enclosed at **Annexure – 7 (SP)** for approval of the Engineer In-Charge/ Project Manager before start of work.

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19. THAT the Contractor shall organise Safety Training Programs on Safety, Health and Environment and for safe execution of different activities of works i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. for their own employees including sub-contractor workers on regular basis.

The Contractor, therefore, submits copy of the module of training program, enclosed at **Annexure – 9 (SP)**, to Engineer In-charge/Project Manager for its acceptance and approval and records maintained.

20. THAT the Contractor shall conduct safety audit, as per Safety Audit Check Lists enclosed at **Annexure – 8 (SP)**, by his Safety Officer(s) every month during construction of Transmission Lines / Sub Stations / any other work and copy of the safety audit report will be forwarded to the Employer's Engineer In-charge / Site In-charge/Project Manager for his comments and feedback. During safety audit, healthiness of all Personal Protective Equipment's (PPEs) shall be checked individually by safety officer of contractor and issue a certificate of its healthiness or rejection of faulty PPEs and contractor has to ensure that all faulty PPEs and all faulty lifting tools and tackles should be destroyed in the presence of POWERGRID construction staff. Contractor has to ensure that each gang be safety audited at least once in two months. During safety audit by the contractor, Safety officer's feedback from POWERGRID concerned shall be taken and recorded. The Employer's site officials shall also conduct safety audit at their own from time to time when construction activities are under progress. Apart from above, the Employer may also conduct surveillance safety audits. The Employer may take action against the person / persons as deemed fit under various statutory acts/provisions under the Contract for any violation of safety norms / safety standards.
21. THAT the Contractor shall develop and display Safety Posters of construction activity at site and also at camp where workers are generally residing.
22. THAT the Contractor shall ensure to provide potable and safe drinking water for workers at site / at camp.
23. THAT the Contractor shall do health checkup of all workers from competent agencies and reports will be submitted to Engineer In-Charge within fifteen (15) days of health checkup of workers as per statutory requirement.
24. THAT the Contractor shall submit information along with documentary evidences in regard to compliance to various statutory requirements as applicable which are enclosed at **Annexure – 10A (SP)**.

The Contractor shall also submit details of Insurance Policies taken by the Contractor for insurance coverage against accident for all employees are enclosed at **Annexure – 10B (SP)**.

25. THAT a check-list in respect of aforesaid enclosures along with the Contractor's remarks, wherever required, is attached as **Annexure – Check List** herewith.

THE CONTRACTOR shall incorporate modifications/changes in this 'Safety Plan' necessitated on the basis of review/comments of the Engineer In-Charge/Project Manager within fourteen (14) days of receipt of review/comments and on final approval of the Engineer In-Charge/Project Manager of

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this 'Safety Plan', the Contractor shall execute the works under the Contract as per approved 'Safety Plan'. Further, the Contractor has also noted that the first progressive payment towards Services Contract shall be made on submission of 'Safety Plan' along with all requisite documents and approval of the same by the Engineer In-Charge/Project Manager.

IN WITNESS WHEREOF, the Contractor has hereunto set its hand through its authorised representative under the common seal of the Company, the day, month and year first above mentioned.

For and on behalf of
M/s. Sterling And Wilson Pvt. Ltd.

Signature..... *Dubey*
Name..... **V.K. Dubey**
Construction Manager
Sterling Wilson Pvt.Ltd
Address: **31 G. N. Block, Benfish IT Building**
3rd Floor, Sector – V, Salt Lake City,
Kolkata –700 091
Authorised representative

Common Seal



WITNESS

1. Signature..... *Rajesh Sellappan*
Name..... **RAJESH SELLAPPAN**
Address.....

2. Signature.....
Name.....
Address.....

Note:

All the annexure referred to in this "Safety Plan" are required to be enclosed by the contractor as per the attached "Check List "

1. Safety Plan is to be executed by the authorised person and (i) in case of contracting Company under common seal of the Company or (ii) having the power of attorney issued under common seal of the company with authority to execute such contract documents etc., (iii) In case of (ii), the original Power of Attorney if it is specifically for this Contract or a Photostat copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to this Safety Plan.
2. For all safety monitoring/ documentation, Engineer In-charge / Regional In-charge of safety at RHQ will be the nodal Officers for communication.

Sarita *Dubey*

S.N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
1.	Annexure - 1A (SP) Safe work procedure for each activity i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. to be executed at site.	Yes ✓	
2.	Annexure - 1B (SP) Manpower deployment plan, activity wise foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc.	Yes	
3.	Annexure - 2 (SP) List of Lifting Machines i.e. Crane, Hoist, Triffor, Chain Pulley Blocks etc. and Lifting Tools: and Tackles i.e. D shackle, Pulleys, come along clamps, wire rope slings etc. and all types of ropes i.e. Wire ropes, Poly propylene Rope etc. used for lifting purposes along with test certificates.	Yes ✓	
4.	Annexure - 3 (SP) List of Personal Protective Equipment (PPE), activity wise including the following along with test certificate of each as applicable: 1. Industrial Safety Helmet to ail workmen at site. (EN 397 / IS 2925) with chin strap and back stay arrangement. 2. Safety shoes without steel toe to all ground level workers and canvas shoes for workers working on tower. 3. Rubber Gum Boot to workers working in rainy season. Concreting job. 4. Twin lanyard full body safety harness with shock absorber and leg strap arrangement for all workers working at height for more than three meters. Safety Harness should be with attachments of light weight such as of aluminum alloy etc. and having a feature of automatic locking arrangement of snap hook anti comply with EN 361 / IS 3521 standards. 5. Mobile fall arrestors for safety of workers during their ascending / descending from tower / on tower. EN_ 353 -2 (Guided type fall arresters oh a flexible anchorage line.) _	Yes ✓	

Shankar

Dubey

	<p>6. Retractable type fall arrestor (EN360: 2002) for ascending / descending on suspension insulator string etc.</p> <p>7. Providing of good quality cotton hand gloves / leather hand gloves for workers engaged in handling of tower parts or as per requirement at site.</p> <p>8. Electrical Resistance hand gloves to Workers for handling _ electrical equipment / Electrical -connections. IS: 4770. ' -</p> <p>9. Dust masks to workers handling cement as per requirement.</p> <p>10. Face shield for welder and Grinders. IS: 1179/IS: 2553</p> <p>11. Other PPEs, if any, as per requirement etc.</p>		
5	Annexure – 4 (SP) List of Earthing Equipment / Earthing Devices with earthing lead conforming to IECs for earthing equipment are (855, 1230, 1235 etc.) gang wise for stringing activity as per requirement.	Yes	
6	Annexure – 5A (SP) List of Qualified safety Officer (s) along with their contact details.	Yes	
7	Annexure – 5B (SP) Details of explosive Operator (If Required), Safety officer / stringing gang, any other person nominated for safety, list of personnel trained in First Aid as well as brief information about safety set up by the contractor along with copy of organization of the contractor in regard to safety.	Yes	
8	Annexure – 6 (SP) Copy of Safety Policy/ Safety Document of the contractor's company.	Yes	
9	Annexure – 7 (SP) 'Emergency Preparedness Plan' for different incidences i.e. Fall from height, Electrocution, Sun stroke, Collapse of Pit, Collapse of tower, snake Bite, Fire in camp / Store, Flood, storm, earthquake, Militancy, etc. while carrying out different activities under execution i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site/ store etc.	Yes	
10	Annexure – 8 (SP) Safety Audit Check Lists	Yes	
11	Annexure – 9 (SP) Copy of the module of Safety Training Programs on Safety, Health and Environment, safe execution of different activities of works for Contractor's own employees on regular basis and sub-contractors employees.	Yes	

Sanjiv

Dubey

12	Annexure – 10A (SP) Information along with documentary evidences in regard to the Contractor's compliance to various statutory requirements including the following:		
i)	Electricity Act 2003	Yes	
ii)	Factories Act 1948	Yes	
iii)	Building and other construction workers (Regulation of employment & conditions of Services act and Central act 1996) and Welfare Cess Act 1996 with rules.	Yes	
* iv)	Workmen Compensation Act 1923 and Rules.	Yes	
v)	Public Insurance Liabilities Act 1991 and Rules	Yes	
vi)	Indian Explosive Act 1948 and Rules	NA	
vii)	Indian Petroleum Act 1934 and Rules	NA	
viii)	License under the contract Labour (Regulation & Abolition) Act 1970 and Rules.	Yes	
ix)	Indian Electricity Rule 1956 and amendments if any, from Time to Time.	Yes	
x)	The Environment (Protection) act 1986 and Rules.	Yes	
xi)	Child Labour (Prohibition & Regulation) Act 1986	Yes	
xii)	National Building code of India 2005 (NBC 2005)	NA	
xiii)	Indian Standards for construction of Low/ Medium/ High/ Extra High voltage Transmission Line.	Yes	
xiv)	Any other statutory requirement (s)	No	
13.	Annexure - 10B (SP) Details of Insurance Policies along with documentary evidences taken by the Contractor for the insurance coverage against accident for all employees as below:		
i)	Under Workmen Compensation Act 1923 and Rules.	Yes	
ii)	Public Insurance Liabilities Act 1991	Yes	
iii)	Any Other Insurance policies	No	

Shankar

Dubey



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 18

Labor License

M/s Sterling and Wilson Pvt Ltd



GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
OFFICE OF THE ASSISTANT LABOUR COMMISSIONER (CENTRAL)
"KENDRIYA SADAN", CHIRUKANDI ROAD, RAMNAGAR, SILCHAR-788 003, ASSAM
E-mail alc.sil-as@gov.in
TELEPHONE NO. 03842-268330

No. 46 (92)/2018 - S / A

Dated - 22.03.2021

To

M/s STERLING AND WILSON PRIVATE LIMITED
POWER GRID CORPORATION OF INDIA LIMITED CONTRACTOR
REPRESENTED THROUGH:
(1) Smt. ZARINE YAZDI DARUVALA, DIRECTOR
(2) Shri KHURSHED YAZDI DARUVALA, DIRECTOR
(3) Shri PALLON SHAPOOR MISTRY, DIRECTOR
BENFISH, I.T.BUILDING, 31, G. N. BLOCK, 3RD FLOOR, SECTOR-V, SALT LAKE CITY
KOLKATA-700091
E-mail vinay.dubey@sterlingwilson.com / M - 09402307520.

Subject: Contract Labour (Regulation and Abolition) Act, 1970 and its Central Rules, 1971 -
Renewal of Licence No. CLA / 86 / 2018 - S / A dated-05.04.2018.

Dear Sir,

Please refer to your Application No. Nil dated-19.03.2021 (received at this office on 22.03.2021) for Renewal of Licence along with Rs. 190/- (Rupees ONE HUNDRED NINETY) only deposited through online towards Renewal fee of the above noted Licence.

In this connection, please find enclosed herewith the original Licence duly **RENEWED UP TO 04. 04. 2022** under the provision of Section-13 (3) of the Contract Labour (Regulation and Abolition) Act, 1970 read with Rule-29 of its Central Rules, 1971.

Please acknowledge the receipt of the same.

Encl: 1 (ONE) LICENCE.



Yours faithfully,

(S. K. CHAKMA)

Assistant Labour Commissioner (Central)
GUWAHATI

And Additional Charge of Assistant Labour Commissioner (Central)

Govt. of India
Ministry of Labour & Employment
Silchar

Under C.L. (R&A) Act. 1970

SILCHAR

Copy forwarded to:

- (1) The Labour Enforcement Officer (Central), AGARTALA. A copy of the Form-II is enclosed.
- (2) The Deputy General Manager, Power Grid Corporation of India Limited, NERPSIP, Mizoram, Aizawl Project Office, Tuivamit, B.P.O., Tanhril, Near Ramrikawn Taxi Stand, Aizawl-796009, Mizoram for information.

Assistant Labour Commissioner (Central)
GUWAHATI

And Additional Charge of Assistant Labour Commissioner (Central)

Government of India

SILCHAR

**FORM-VI
(SEE RULE- 25(1))
GOVERNMENT OF INDIA
MINISTRY OF LABOUR & EMPLOYMENT
OFFICE OF THE LICENSING OFFICER
AND ASSISTANT LABOUR COMMISSIONER (CENTRAL)
COLLEGE ROAD, SILCHAR-788004, DIST. CACHAR, ASSAM**

LICENCE NO. CLA/86/2018-S/A

DATE: 05.04.2018

LICENCE FEE PAID	Rs.150.00 (RUPEES ONE HUNDRED FIFTY) ONLY	Deposited through bharatkosh.gov.in vide Transaction Ref. No. 0504180001193 dated - 05.04.2018
------------------	--	--

L I C E N C E

1. Licence is hereby granted to M/s STERLING AND WILSON PRIVATE LIMITED, POWER GRID CORPORATION OF INDIA LIMITED CONTRACTOR, REPRESENTED THROUGH: (1) Smt. ZARINE YAZDI DARUVALA, DIRECTOR (2) Shri KHURSHED YAZDI DARUVALA, DIRECTOR (3) Shri PALLON SHAPOOR MISTRY, DIRECTOR, BENFISH, I.T.BUILDING, 31, G. N. BLOCK, 3RD FLOOR, SECTOR-V, SALT LAKE CITY, KOLKATA-700091 under Section 12 (1) of the Contract Labour (Regulation and Abolition) Act, 1970 subject to the conditions specified in the ANNEXURE.

2. The Licence is for doing the work - "Construction of 132 KV West Phaileng (New) S/S, 132 KV Marpara (New) S/S, 33 KV South Bungtlang (New) S/S, Aug 33 KV West Phaileng S/S - addition of 2 new bays, 132 KV West Phaileng - Marpara Line and 33 KV Lungsen (New) - Lungsen Line under NER Power System Improvement Project (Intra-State: Mizoram) vide NOA Ref: CC-CS/87-NER/SS-3558/1/G4/NOA-1/7412 dated-13.10.2017 & CC-CS/87-NER/SS-3558/1/G4/NOA-1/7413 dated-13.10.2017 to be carried out from 13.10.2017 to 12.04.2020" in the establishment of Deputy General Manager, Power Grid Corporation of India Limited, NERPSIP, Mizoram, Aizawl Project Office, Tuivamit, B.P.O., Tanhril, Near Ramrikawn Taxi Stand, Aizawl-796009, Mizoram.

3. The Licence shall remain in force **TILL 04. 04. 2019**




Date: 05.04.2018



Signature and Seal of Licensing Officer

**RENEWAL
(Rule-29)**

Asst. Labour Commissioner (Central)
Silchar & Registering Licensing Officer
Under C.L. (R&A) Act, 1970

Date of Renewal	Fee paid for Renewal	Date of Expiry	Signature and Seal of Licensing Officer and Date
08-04-2019	Rs. 170/-	04-04-2020	 ALC(C) SILCHAR
08.04.2020	Rs. 190/-	04.04.2021	 R.L.C.(C) DIBRUGARH
22.03.2021	Rs. 190/-	04.04.2022	 ALC(C) SILCHAR

ANNEXURE

THE LICENCE IS SUBJECT TO THE FOLLOWING CONDITIONS:

1. *The Licence shall be non - Transferable.*
2. *The number of workmen employed as Contract Labour in the establishment shall not, on any day, exceed **119 (ONE HUNDRED NINETEEN) NOS.***
3. *Except as provided in the rules the fees paid for the grant, or as the case may be, for renewal of the licence shall be non refundable.*
4. *The rates of wages payable to the workmen by the contractor shall not be less than the rates prescribed for the Schedule of Employment under the Minimum Wages Act, 1948 (11 of 1948), and where applicable and where the rates have been fixed by agreement, settlement or award, not less than the rates so fixed.*
5. (a) *In case where the workmen employed by the contractor perform the same or similar kind of work as the workmen directly employed by the principal employer of the establishment, the wage rates, holidays, hours of work and other conditions of service of the workmen of the contractor shall be the same as applicable to the workmen directly employed by the principal employer of the establishment on the same or similar kind of work; provided that in the case of any disagreement with regard to the type of work the same shall be decided by the Deputy Chief Labour Commissioner (Central) whose decision shall be final.*
(b) *In other cases the wage rates, holidays, hours of work and conditions of service of the workmen of the contractor shall be such as may be specified in this behalf by the Deputy Chief Labour Commissioner (Central).*
6. *Every Contract Labour shall be entitled to allowances, benefits, facilities etc. as prescribed in the Contract Labour (Regulation and Abolition) Act, 1970 (37 of 1970) and Rules made there under.*
7. *In every establishment where 20 (twenty) or more female workmen are ordinarily employed as contract labour there shall be provided 2 (two) rooms of reasonable dimensions for the use of their children under the age of 6 (six) years. One of such rooms would be used as a playroom for the children and the other as bedroom for the children. For this purpose the contractor shall supply adequate number of toys and games in the playroom and sufficient number of cots and beddings in the sleeping room. The standard of construction and maintenance of the crèches may be such as specified in this behalf by the Chief Labour Commissioner (Central) New Delhi.*
8. *No women shall be employed by any Contractor before 6 A.M. or after 7 P.M.*
Provided that this clause shall not apply to the employment of workmen in pit head baths, crèches and canteen and as mid-wives and nurses in Hospitals and Dispensaries.
9. *The licence shall notify any change in the number of workmen or the conditions of work to the Licencing Officer.*
10. *A copy of the licence shall be displayed prominently at the premises where the contract work is being carried on.*
11. *The Licence shall, within 15 (fifteen) days of the commencement and completion of each contract work, submit a return to the Inspector appointed under Section 28 of the Contract Labour (Regulation and Abolition) Act, 1970 (37 of 1970) intimating the actual date of the commencement or, as the case may be, completion of such contract work in FORM VII.*
12. *Renewal of Licence: Every such application shall be in Form-II (in triplicate) and shall be made not less than 30(THIRTY) days before the date on which the licence expires.*

Date: 05.04.2018



Assistant Labour Commissioner (Central) and
Licensing Officer and Registering Officer under
Contract Labour (Regulation and Abolition) Act, 1970

Asstt. Labour Commissioner (Central)
Shillai & Registering/Licensing Officer
Under C.L. (R&A) Act, 1970

Powergrid
Mizoram



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 19

Checklist for Safety Plan

CHECK LIST FOR SAFETY PLAN

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
1.	Annexure – 1A (SP) Safe work procedure for each activity i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc. to be executed at site.	Yes/No	
2.	Annexure – 1B (SP) Manpower deployment plan, activity wise foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc.	Yes/No	
3.	Annexure – 2 (SP) List of Lifting Machines i.e. Crane, Hoist, Triffor, Chain Pulley Blocks etc. and Lifting Tools and Tackles i.e. D shackle, Pulleys, come along clamps, wire rope slings etc. and all types of ropes i.e. Wire ropes, Poly propylene Rope etc. used for lifting purposes along with test certificates.	Yes/No	
4.	Annexure – 3 (SP) List of Personal Protective Equipment (PPE), activity wise including the following along with test certificate of each as applicable: <ol style="list-style-type: none"> 1. Industrial Safety Helmet to all workmen at site. (EN 397 / IS 2025) with chin strap and back stay arrangement. 2. Safety shoes without steel toe to all ground level workers and canvas shoes for workers working on tower. 3. Rubber Gum Boot to workers working in rainy season / concreting job. 4. Twin lanyard Full Body Safety harness with shock absorber and leg strap arrangement 	Yes/No	

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	<p>for all workers working at height for more than three meters. Safety Harness should be with attachments of light weight such as of aluminium alloy etc. and having a feature of automatic locking arrangement of snap hook and comply with EN 361 / IS 3521 standards.</p> <p>5. Mobile fall arrestors for safety of workers during their ascending / descending from tower / on tower. EN 353 -2 (Guided type fall arrestors on a flexible anchorage line.)</p> <p>6. Retractable type fall arrestor (EN380: 2002) for ascending / descending on suspension insulator string etc.</p> <p>7. Providing of good quality cotton hand gloves / leather hand gloves for workers engaged in handling of tower parts or as per requirement at site.</p> <p>8. Electrical Resistance hand gloves to workers for handling electrical equipment / Electrical connections. IS : 4770</p> <p>9. Dust masks to workers handling cement as per requirement.</p> <p>10. Face shield for welder and Grinders. IS : 1179 / IS : 2553</p> <p>11. Other PPEs, if any, as per requirement etc.</p>		
5.	<p>Annexure – 4 (SP)</p> <p>List of Earthing Equipment / Earthing devices with Earthing lead conforming to IECs for earthing equipments are – (855, 1230, 1235 etc.) gang wise for stringing activity/as per requirement</p>	Yes/No	
6.	<p>Annexure – 5A (SP)</p> <p>List of Qualified Safety Officer(s) along with their contact details</p>	Yes/No	
7.	<p>Annexure – 5B (SP)</p> <p>Details of Explosive Operator (if required), Safety officer / Safety supervisor for every erection / stringing gang, any other person nominated for safety, list of personnel trained in First Aid as well as brief information about safety set up by the</p>	Yes/No	


S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	Contractor alongwith copy of organisation of the Contractor in regard to safety		
8.	Annexure – 6 (SP) Copy of Safety Policy/ Safety Document of the Contractor's company	Yes/No	
9.	Annexure – 7 (SP) 'Emergency Preparedness Plan' for different incidences i.e. Fall from height, Electrocutation, Sun Stroke, Collapse of pit, Collapse of Tower, Snake bite, Fire in camp / Store, Flood, Storm, Earthquake, Militancy etc. while carrying out different activities under execution i.e. foundation works including civil works, erection, stringing (as applicable), testing & commissioning, disposal of materials at site / store etc.	Yes/No	
10.	Annexure – 8 (SP) Safety Audit Check Lists (Formats to be enclosed)	Yes/No	
11.	Annexure – 9 (SP) Copy of the module of Safety Training Programs on Safety, Health and Environment, safe execution of different activities of works for Contractor's own employees on regular basis and sub contractor employees.	Yes/No	
12.	Annexure – 10A (SP) Information along with documentary evidences in regard to the Contractor's compliance to various statutory requirements including the following:		
(i)	Electricity Act 2003 <hr/> <i>[Name of Documentary evidence in support of compliance]</i>	Yes/No	
(ii)	Factories Act 1948	Yes/No	

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
	any, from time to time. <u>[Name of Documentary evidence in support of compliance]</u>		
(x)	The Environment (Protection) Act 1986 and Rules. <u>[Name of Documentary evidence in support of compliance]</u>	Yes/No	
(xi)	Child Labour (Prohibition & Regulation) Act 1986. <u>[Name of Documentary evidence in support of compliance]</u>	Yes/No	
(xii)	National Building Code of India 2005 (NBC 2005). <u>[Name of Documentary evidence in support of compliance]</u>	Yes/No	
(xiii)	Indian standards for construction of Low/ Medium/ High/ Extra High Voltage Transmission Line <u>[Name of Documentary evidence in support of compliance]</u>	Yes/No	
(iv)	Any other statutory requirement(s) [please specify] <u>[Name of Documentary evidence in support of compliance]</u>	Yes/No	
13.	Annexure – 10B (SP) Details of Insurance Policies alongwith documentary evidences taken by the Contractor for the insurance coverage against accident for all employees as below:		

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
(i)	Under Workmen Compensation Act 1923 and Rules. _____ [Name of Documentary evidence in support of insurance taken]	Yes/No	
(ii)	Public Insurance Liabilities Act 1991 _____ [Name of Documentary evidence in support of insurance taken]	Yes/No	
(iii)	Any Other Insurance Policies _____ [Name of Documentary evidence in support of insurance taken]	Yes/No	

EMPLOYER

SAMPLE COPY OF FILLED CHECKLIST

 Safety Check List TL Const - 02, Revision-1 (May, 2014)

**POWER GRID CORPORATION OF INDIA LTD.,
(CORPORATE OPERATION SERVICES)**

SITE SAFETY INSPECTION / AUDIT CHECK LIST
EXCAVATION & FOUNDATION

DATE OF INSPECTION: 20.02.2019 **NAME OF THE LINE / IS :** 33/11 S. Bungal lang etc.

LOCATION NO: **CLASSIFICATION OF SOIL & TYPE OF TOWER:**

NAME OF THE AGENCY: Stirling & Wilson.

SITE ENGINEER / SUPERVISOR OF THE AGENCY: Jaysup Harkar

SAFETY OFFICER OF THE AGENCY: NIL

S.NO:	CHECK LIST	YES / NO	REMARKS, IF ANY
1	Check List to be verified by the Agency's Site supervisor / Gang leader is available at Site and updated.	NO	
2	Safe Work Procedures / Instructions in the language understood by the workers available with Site supervisor / Gang leader and workers are aware of the safe work procedures.	NO	
3	Pep talk on safety issues to the workers being done by the Safety Stewards / Supervisor / Engineer / Safety Officer of the Agency.	Yes.	
4	Appropriate safety messages / warnings are displayed at site to caution the workers	NO	
5	Adequate warning / protection to public / children moving nearby ensured (RED FLAGS / CAUTION TAPE / ROPE / BOARDS).	NO	
6	Sufficient Angle of Repose / slope provided to prevent collapse of soil at vulnerable locations.	NO	
7	Adequate shoring and shuttering provided in colapsible soil conditions.	N/A	
8	(a) Drilling and Blasting, if any, carried out with adequate precautions. (b) Whether the blaster is a valid license holder?	N/A	
9	Dewatering of the pits is being done, wherever required.	N/A	
10	Clear edges to prevent fall of objects inside the pit - the excavated earth, stones and tools dumped atleast half of the depth of the pit away from the pit edges.	-	
11	Machines like concrete mixer, vibrator, etc, placed away atleast half of the depth of the pit from the pit to avoid collapse of the pit due to vibrations produced by these machines.	Yes	

Contd..2..

- 2 -

12	The steel plate (chute) used for pouring the concrete into the pit properly anchored to prevent the same from falling into the pit, endangering the persons inside the pit.	Yes.	
13	Jacks used for supporting the template are properly positioned / anchored to avoid sliding down of the template from the jacks and endangering the workers.	N/A	
14	All ladders used are of sound construction, appropriate height and free from any defect.	No	
15	All the workers are provided with good quality SAFETY HELMETS confirming to BIS Standard IS:2925.	Yes.	
16	All the workers engaged in steel work are provided with LEATHER SAFETY GLOVES.	No	
17	The workers engaged in concreting work inside the pit are provided with GUMBOOTS.	Yes	
18	The workers engaged in handling cement are provided with appropriate DUST MASKS.	NO	
19	Appropriate SAFETY BELT / fall protection provided to workers working on form box to pour concrete into the form box / ramming in form box.	N/A	
20	(a) First aid box with listed items as per BOCW Act, 1996 available.	Yes.	Instructed to maintain a register. PHC, Aungmye (8)
	(b) Number of First Aid Trained persons and their names.	NO	
	(c) First Aid Register is available at site.	NO	
	(d) Nearby medical facilities for use during exigencies identified (Location / Phone No.)	PHC, Aungmye (8)	
21	Atleast one vehicle (four wheeler) is available for use in case of emergencies.	NO.	

Handwritten Signature
20/02/2019
SIGNATURE / NAME / DESIGNATION
OF POWERGRID REPRESENTATIVE

Handwritten Signature
20/2/19
Kangkan Ligma
FO-ESM & Safety
SIGNATURE / NAME / DESIGNATION
OF AGENCY'S REPRESENTATIVE
POWERGRID

Copy To:

(5) Regional In-charge / POWERGRID / _____

(6) Projects In-charge (Region) / POWERGRID / _____

(7) Site Incharge / POWERGRID / _____

(8) Project In-charge / AGENCY / _____



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 20

**letter issued to M/s Starling and Wilson Pvt Ltd for
noncompliance of HSE**



Ref: NERPSIP/Mizoram/S&W/Safety/F-118/2019/675

Date: 27.12.2019

To,
The Project Head T&D East,
M/s Sterling & Wilson Pvt. Ltd,
Kolkata

Attn: Mr. Indrajit Das Gupta

Sub: Non-compliance of Safety aspects, Unsafe work conditions, Non-compliance of safety instructions regd.

Ref: Letter No: 1] NERPSIP/MIZORAM/S&W/SAFETY/F-118/2018/210 DATE: 03.11.2018
2] NERPSIP/MIZORAM/S&W/SAFETY/F-118/2019/297 DATE: 22.01.2019
3] Safety Inspection Report on 20.02.2019
4] Email on Non-submission of Monthly Safety Report dated: 02.04.2019, 27.07.2019 & 03.10.2019
5] NERPSIP/MIZORAM/SAFETY/F-118/SW/2019/652 DATE: 26.11.2019
6] Email on Incomplete submission of Monthly Safety Report dated: 26.12.2019

Dear Sir,

As you are aware and had agreed to follow the terms and conditions of the SAFETY PLAN, As per clause No. 8 you had ensured that all workmen must use PPE at site during work, as per clause No.11 you had accepted to deploy qualified safety personnel for the concerned awarded work, many times during POWERGRID officials visit it was found that your safety officer was not present, after repeated written and verbal communications from us submission of monthly safety report is not complied, also it had been seen your workmen working in unsafe conditions without using any safety gears.

Accordingly as per clause no.13 we shall be bound to impose a penalty of Rs 10,000/day if not complied from your end at the earliest.

This is for your kind information and needful action.


(TV RAO)
DGM/NERPSIP
AIZAWL

Encl: As mentioned above.

Copy To:

- 1] COO, S&W, Mumbai - For kind information.
- 2] Project Manager, S&W, Aizawl



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Annexure 21

GRC Details

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

No.WB-3/2014-EC(PC)/SPIU/Pt/101

Dated Aizawl, the 11th Sept, 2018

To,

✓
The Dy. General Manager (NERPSIP)
POWERGRID CORPORATION OF INDIA LIMITED
Tuivamit, B.P.O – Tanhril
Aizawl – 796009

Chief Manager Aizawl
18/09/18

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)
Ref: Your Letter NERPSIP/Aizawl/Grievance/F-102/29, dt. 09.03.2018

Sir,

Enclosed please find herewith the Site Level Grievance Redressal Committee (GRC) for the following works for your information and necessary action:

- 1) Construction of 132/22 kV Sub-Station at W.Phaileng and Marpara.
- 2) Construction of 132 kV Single Circuit on Double Circuit Tower line from W.Phaileng to Marpara.

Encl: As above.

Yours faithfully,

Lalramliana
(LALRAMLIANA)
Engineer-in-Chief

Memo No.WB-3/2014-EC(PC)/SPIU/Pt/101

Dated Aizawl, the 11th Sept, 2018

Copy to:-

The Chief Engineer (Distribution), for favour of information.

Engineer-in-Chief
Power & Electricity Department

Receipt No: 214
प्राप्ति सं: 19/09/18
POWERGRID-NERPSIP
AIZAWL/आइजोल

**GOVERNMENT OF MIZORAM
OFFICE OF THE SUPERINTENDING ENGINEER, PROJECT CIRCLE-I
POWER & ELECTRICITY DEPARTMENT
AIZAWL : MIZORAM**

NOTIFICATION

*Dated Aizawl
The 20th August, 2018*

No.T-11014/1/2016_SEPC-I/22: It is hereby notified that Site Level Grievance Redressal Committee (GRC) is Constituted to interact with public on grievances/dispute/concerns etc. with respect to environment, social and compensation for the following works :

1. Construction of 132/33kV Sub Station at W.Phaileng and Marpara respectively
2. Construction of 132kV Single Circuit on Double Circuit Tower line from W.Phaileng to Marpara

Necessary Informations shall be conveyed to higher authority through the Executive Engineer, P&E Department, Mamit Power Division, Mamit

List of Villages/Department and Members with Contact Nos. of Site Level Grievance Redressal Committee are enclosed in Annexure

Encl : List of Villages & Members (Annexure)

Sd/- F.Lalrinpuia
Superintending Engineer, P&E
Project Circle-I : Aizawl.

Memo No.T-11014/1/2016_SEPC-I/22 : **Dated Aizawl, the 20th August, 2018.**

Copy to:

- 1) The Engineer-in-Chief, P&E Department, for favour of information. This has refrence to his letter vide No.WB-6/2018-EC(PC)/SPCU/6 : Dt. 18.07.2018
- 2) The Chief Engineer (Distribution) for favour of information. This has refrence to his letter vide No.T-28015/18-CE(D)/3 : Dt. 25.06.2018
- 3) The Dy.General Manager(NERPSIP), POWERGRID CORPORATION OF INDIA LTD, Tuivamit, BPO - Tanhril, Aizawl for information & necessary action
- 4) The Executive Engineer, Mamit Power Division, Mamit for information and necessary action. This has refrence to his letter vide No.T-13010/1/18-EE(MPD)/31 dt.24.7.2018 He is also requested to inform & guide the persons concerned in this regards.
- 5) Notice Board.

AIZAWL/Jan 2018
POWERGRID-NERPSIP
Receipt No: 180

DCM (NERPSIP)

Superintending Engineer, P&E
Project Circle-I : Aizawl.

**LIST OF VILLAGES REPRESENTATIVE FOR
SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GRC)
(Along with Designation & Contact Nos.)**

Sl. No.	Name of Village/Department	Member	Designation	Contact No.
1.	W.PHAILENG	1) Pu Lalchhuanmawia	VC President	9378165452
		2) Pu Rokima Rokhum	YMA President	7085626883
		3) Pu Ngursangkima Sailo	YMA Secretary	8730907317
		4) Pu B.Lalhruaikima	VC Treasurer	8131955661
2.	NEW W.PHAILENG	1) Pu C.Lalramthanga	Dampa Group YMA President	9862221048
		2) Pu PC Zarzoliana	VC Member	8413005283
		3) Pu Duhsanga	YMA President, BethlehemBr.	7629970272
		3) Pi Ronguri	VC President	7628974017
3.	KAWNMAWI/ CHHIPUI	4) Pu H.Lalchungnunga	YMA President , New W.Phaileng Br.	7005352803
		1) Pu Sangliana	VC President	8837047661
		2) Pu Robuanga	YMA	8837331518
		3) Pu Malsawmthanga	VC Member	8014343798
4.	LALLEN	4) Pi Lalzawmliani	VC Vice President	9615712934
		1) Pu Saithansanga	VC President	9366065365
		2) Pu Rinawma	YMA President	8787668601
		3) Pu Pachhunga	VC Secretary	7005881884
5.	SAITHAH	4) Pu Raltawna		8837208061
		1) Pu MS Dawngliana	VC Vice President	8014366107
		2) Pu Lalhmingthanga	YMA President	9615249396
		3) Pu Sakhawliana	YMA Com.Member	8787739160
6.	PHULDUNGSEI	1) Pi J.Lalrinmawii	VC President	8132845046
		2) H.Lalhmingthanga	YMA President	7005090071
		3) Pu C.Pachhunga	MUP President	8118910726
		4) Pi Rotluangi Sailo	VC Member	7638074501
		6) Lalhuaplina	YMA President Chaltui Br.	8118910726
		8118910726		
7.	PHULPUI	1) Pu A.Roliana	VC President	8014343185
		2) Pu A.Lalpeka	YMA Secretary	
		3) Pu A.Pazawna		9383180094
8.	PUKZING	1) Pu Zathanga	VC President	9774332664
		2) H.Chanchinmawia	YMA President	8256926287
		3) Pu Lalnunhlina	YMA Secretary	8259932137
		4) Pu Lalrotlinga		8794815681
9.	PHULPUI VENGTHAR	1) Pu Lalnunzira	VC President	7085120235
		2) Pi Lalrimawii	VC Member	9612226960
		3) Pu Rinsiamia	YMA President	9862391585
10.	HRUIDUK	1) Pu Ratna Kumar	VC President	9485373685
		2) Pu Loki Ronjon	YC President	9485311668
		3) Pu Budo Sash		9485023475
11.	P&E DEPARTMENT	1) Er. B.Rothangliana	SDO, W.Phaileng Power Sub-Division	9436151953
		2) Pu Lallawmawma Chenkual	Junior Engineer, W.Phaileng Power S/D	9436150292
12.	P.G.C.I.	1) Mr.C.Gopi	Dy.Gen. Manager, (NERPSIP)	9449599072

Sd/-
Executive Engineer, P&E
Mamit Power Division

Superintending Engineer, P&E
Project Circle-I : Aizawl

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)



पावरग्रिड

NERPSIP Mizoram, Tuivamit, B.P.O.-Tanhriil, Aizawl-796009
Mail : nerpsip.mizoram@powergrid.co.in, Contact No. : 9449599072

Ref.: NERPSIP/Aizawl/Grievance/F- 120/218

दिनांक / Date: 06.11.2018

To,
The Engineer-in-chief
Power & Electricity Department
New Secretariat Complex
Aizawl, Mizoram

विषय/Sub :- Updated list of members from POWERGRID for site level Grievance Redressal Committee (GRC).

Ref :1) NERPSIP/Aizawl/Grievance/F-102/29 : Dated: 09.03.2018
2) T-11014/1/2016_SEPC-I/22 : Dated: 20.08.2018
3) WB-3/2014-EC(PC)/SPIU/Pt/94 : Dated: 07.08.2018
4) WB-3/2014-EC(PC)/SPIU/Pt/101 : Dated: 11.09.2018

Dear Sir,

You attention is invited the subject and reference cited above. As few more employees have joined recently, the members of POWERGRID for site level Grievance Redressal Committee has modified as per Annexure-I enclosed herewith.

This is for your kind information.

Thanking you

Yours Sincerely,

Encl: As above



(C.GOPI)

GM (NERPSIP)

AIZAWL, MIZORAM

Copy To: For Kind Information:

1) Superintending Engineer, P & E Dept. Project Circle-I, Aizawl

o/c

ANNEXURE-I

The List of packages along with Project Site/Office locations under NERPSIP, MIZORAM and concerned representatives of POWERGRID:

Package Name	Details of Sub-projects	Location of concerned Site-office & Name of Contact Person (POWERGRID)
MIZ SS01	New 132/33 KV S/S 132/33 KV Lungsen S/S	Lungsen Site Office
MIZ TW01	EHV Transmission Lines 132 kv S.C (on D.C Tower) Lungsen-Chawngte Line 132 kv S.C (on D.C Tower) Lunglei-Lungsen Interconnection	1) D. Talukdar (Dy. General Manager) 2) P. B Sharma (Ch. Manager) 3) Sujeeet Kumar (Engineer)
MIZ SS02	DMS Transmission Lines 33 kv line from 132.33 kvlungsen(new)-Lungsen Line	
MIZ TW01	EHV Transmission Lines 132 kv S.C (on D.C Tower) Chawngte-S. Bungleiang Line	S. Bungleiang Site Office
MIZ SS02	New 33/11 KV DMS S/S 33/11 KV South Bungleiang S/S	1) D. Talukdar (Dy. General Manager) 2) Pritam Das (Engineer)
MIZ SS02	EHV Transmission Lines 132 kv S.C (on D.C Tower) W. Phaileng-Marpara Line Bay Extension, Capacity Augmentation at existing 33/11 KV S/S	W. Phaileng Site Office
	Aug. 33kv West Phaileng S/S- Addition of 2 new 33kv bays New 132/33 KV S/S 132/33 KV West Phaileng S/S 132/33 KV Marpara S/S	1) T.V Rao (Dy. General Manager) 2) Pradip Das (Ch. Manager)

8/11/18
Pradip Das

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

No.WB-3/2014-EC(PC)/SPIU/Pt/101

Dated Aizawl, the 11th Sept, 2018

To,

✓
The Dy. General Manager (NERPSIP)
POWERGRID CORPORATION OF INDIA LIMITED
Tuivamit, B.P.O – Tanhril
Aizawl – 796009

Chief Manager
Aizawl
18/9/18

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)
Ref: Your Letter NERPSIP/Aizawl/Grievance/F-102/29, dt. 09.03.2018

Sir,

Enclosed please find herewith the Site Level Grievance Redressal Committee (GRC) for the following works for your information and necessary action:

- 1) Construction of 132/22 kV Sub-Station at W.Phaileng and Marpara.
- 2) Construction of 132 kV Single Circuit on Double Circuit Tower line from W.Phaileng to Marpara.

Encl: As above.

Yours faithfully,

Mansurina
(LALRAMLIANA)
Engineer-in-Chief

Dated Aizawl, the 11th Sept, 2018

Memo No.WB-3/2014-EC(PC)/SPIU/Pt/101

Copy to:-

The Chief Engineer (Distribution), for favour of information.

Engineer-in-Chief
Power & Electricity Department

Receipt No.: 219
दिनांक : 19/09/18
POWERGRID-NERPSIP
AIZAWL/असम

GOVERNMENT OF MIZORAM
OFFICE OF THE SUPERINTENDING ENGINEER, PROJECT CIRCLE-I
POWER & ELECTRICITY DEPARTMENT
AIZAWL : MIZORAM

NOTIFICATION

Dated Aizawl
The 20th August, 2018

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2. Construction of 132kV Single Circuit on Double Circuit Tower line from W.Phaileng to Marpara

Necessary Informations shall be conveyed to higher authority through the Executive Engineer, P&E Department, Mamit Power Division, Mamit

List of Villages/Department and Members with Contact Nos. of Site Level Grievance Redressal Committee are enclosed in Annexure

Encl: List of Villages & Members (Annexure)


Sd/- F.Lalrinpuia
Superintending Engineer, P&E
Project Circle-I : Aizawl.

Memo No.T-11014/1/2016_SEPC-I/22

Dated Aizawl, the 20th August, 2018

Copy to :

- 1) The Engineer-in-Chief, P&E Department, for favour of information. This has reference to his letter vide No.WB-6/2018-EC(PC)/SPCU/6 : Dt. 18.07.2018
- 2) The Chief Engineer (Distribution) for favour of information. This has reference to his letter vide No.T-28015/18-CE(D)/3 : Dt. 25.06.2018
- 3) The Dy.General Manager(NERPSIP), POWERGRID CORPORATION OF INDIA LTD, Tuivamit, BPO - Tanhrii, Aizawl for information & necessary action
- 4) The Executive Engineer, Mamit Power Division, Mamit for information and necessary action. This has reference to his letter vide No.T-13010/1/18-EE(MPD)/31 dt.24.7.2018. He is also requested to inform & guide the persons concerned in this regards.
- 5) Notice Board.


Superintending Engineer, P&E
Project Circle-I : Aizawl.

3307
21/8/18

Handwritten notes and signatures:
E-in-C
21/8/18
et.

**LIST OF VILLAGES REPRESENTATIVE FOR
SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GRC)
(Along with Designation & Contact Nos.)**

Sl. No.	Name of Village/Department	Member	Designation	Contact No.
1.	W.PHAILENG	1) Pu Lalchhuanmawia	VC President	9378165452
		2) Pu Rokima Rokhum	YMA President	7085626883
		3) Pu Ngursangkima Sailo	YMA Secretary	8730907317
		4) Pu B.Lalhruaikima	VC Treasurer	8131955661
2.	NEW W.PHAILENG	1) Pu C.Lalramthanga	Dampa Group YMA President	9862221048
		2) Pu PC Zarzoliana	VC Member	8413005283
		3) Pu Duhsanga	YMA President, Bethlehem Br.	7629970272
		3) Pi Ronguri	VC President	7628974017
		4) Pu H.Lalchungnunga	YMA President, New W.Phaileng Br.	7005352803
3.	KAWNMAWI/ CHHIPUI	1) Pu Sangliana	VC President	8837047661
		2) Pu Robuanga	YMA	8837331518
		3) Pu Malsawmthanga	VC Member	8014343798
		4) Pi Lalzawmliani	VC Vice President	9615712934
4.	LALLEN	1) Pu Saithansanga	VC President	9366065365
		2) Pu Rinawma	YMA President	8787668601
		3) Pu Pachhunga	VC Secretary	7005881884
		4) Pu Raltawna		8837208061
5.	SAITHAH	1) Pu MS Dawngliana	VC Vice President	8014366107
		2) Pu Lalhmingthanga	YMA President	9615249396
		3) Pu Sakhawliana	YMA Com.Member	8787739160
6.	PHULDUNGSEI	1) Pi J.Lalrinmawii	VC President	8132845046
		2) H.Lalhmingthanga	YMA President	7005090071
		3) Pu C.Pachhunga	MUP President	8118910726
		4) Pi Rotluangi Sailo	VC Member	7638074501
		6) Lalhuaplana	YMA President Chaltui Br.	8118910726
7.	PHULPUI	1) Pu A.Roliana	VC President	8014343185
		2) Pu A.Lalpeka	YMA Secretary	
		3) Pu A.Pazawna		9383180094
8.	PUKZING	1) Pu Zathanga	VC President	9774332664
		2) H.Chanchinmawia	YMA President	8256926287
		3) Pu Lalnunhlina	YMA Secretary	8259932137
		4) Pu Lalrotlinga		8794815681
9.	PHULPUI VENGTHAR	1) Pu Lalnunzira	VC President	7085120235
		2) Pi Lalrimawii	VC Member	9612226960
		3) Pu Rinsiana	YMA President	9862391585
10.	HRUIDUK	1) Pu Ratna Kumar	VC President	9485373685
		2) Pu Loki Ronjon	YC President	9485311668
		3) Pu Budo Sash		9485023475
11.	P&E DEPARTMENT	1) Er. B.Rothangliana	SDO, W.Phaileng Power Sub-Division	9436151953
		2) Pu Lallawmawma Chenkual	Junior Engineer, W.Phaileng Power S/D	9436150292
12.	P.G.C.I.	1) Mr.C.Gopi	Dy.Gen. Manager, (NERPSIP)	9449599072

Sd/-
Executive Engineer, P&E
Mamit Power Division

Superintending Engineer, P&E
Project Circle-1: Aizawi

**GOVERNMENT OF MIZORAM
OFFICE OF THE SUPERINTENDING ENGINEER, PROJECT CIRCLE-I
POWER & ELECTRICITY DEPARTMENT
AIZAWL : MIZORAM**

NOTIFICATION

*Dated Aizawl
The 20th August, 2018*

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Encl: List of Villages & Members (Annexure)

Sd/- F.Lalrinpuia
Superintending Engineer, P&E
Project Circle-I : Aizawl.

Memo No.T-11014/1/2016_SEPC-I/22 : **Dated Aizawl, the 20th August, 2018.**

Copy to:

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- 2) The Chief Engineer (Distribution) for favour of information. This has refrefence to his letter vide No.T-28015/18-CE(D)/3 : Dt. 25.06.2018
- 3) ~~The~~ Dy.General Manager(NERPSIP), POWERGRID CORPORATION OF INDIA LTD, Tuivamit, BPO - Tanhril, Aizawl for information & necessary action
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- 5) Notice Board.

Superintending Engineer, P&E
Project Circle-I : Aizawl.

Receipt No: 180
Date: 18/08/2018
POWERGRID-NERPSIP
AIZAWL/Aizawl

DGM (NERPSIP)

**LIST OF VILLAGES REPRESENTATIVE FOR
SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GRC)
(Along with Designation & Contact Nos.)**

Sl. No.	Name of Village/Department	Member	Designation	Contact No.
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		4) Pu B.Lalhruaikima	VC Treasurer	8131955661
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		2) Pu PC Zartzoliana	VC Member	8413005283
		3) Pu Duhsanga	YMA President, Bethlehem Br.	7629970272
		3) Pi Ronguri	VC President	7628974017
3.	KAWNMAWI/ CHHIPUI	1) Pu Sangliana	VC President	8837047661
		2) Pu Robuanga	YMA	8837331518
		3) Pu Malsawmthanga	VC Member	8014343798
		4) Pi Lalzawmliani	VC Vice President	961571293
4.	LALLEN	1) Pu Saithansanga	VC President	9366065365
		2) Pu Rinawma	YMA President	8787668601
		3) Pu Pachhunga	VC Secretary	7005881884
		4) Pu Raltawna		8837208061
5.	SAITHAH	1) Pu MS Dawngliana	VC Vice President	8014366107
		2) Pu Lalhmingthanga	YMA President	9615249396
		3) Pu Sakhawliana	YMA Com.Member	8787739160
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		2) Pu Lallawmawma Chenkual	Junior Engineer, W.Phaileng Power S/D	9436150292
12.	P.G.C.I.	1) Mr.C.Gopi	Dy.Gen. Manager, (NERPSIP)	9449599077

Sd/-

Executive Engineer, P&E
Mamit Power Division

Superintending Engineer, P&E
Project Circle-I : Aizawl

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

No.WB-3/2014-EC(PC)/SPIU/Pt/94

Dated Aizawl, the 7th August 2018

To,

✓ The Dy. General Manager (NERPSIP)
POWERGRID CORPORATION OF INDIA LIMITED
Tuivamit, B.P.O – Tanhril
Aizawl – 796009

Chief Mgr (Aizawl)
FE (Env.) Aizawl
For info and m
8/8

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)
Ref: Your Letter NERPSIP/Aizawl/Grievance/F-102/29, dt. 09.03.2018

Sir,

Enclosed please find herewith the Site Level Grievance Redressal Committee (GRC) for Lungsen and South Bungtlang for favour of your information and necessary action.

Encl: As above.

Yours faithfully,

M. Ramliana
(LALRAMLIANA)
Engineer-in-Chief

Dated Aizawl, the 7th August, 2018

Memo No.WB-3/2014-EC(PC)/SPIU/Pt/94
Copy to:-

The Chief Engineer (System Operation), for favour of information.

Engineer-in-Chief
Power & Electricity Department

POWER GRID CORPORATION OF INDIA LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)



NERPSIP Mizoram, Tuivamit, B.P.O. – Tanhril, Aizawl – 796009

Mail: nerpsip.mizoram@powergrid.co.in, Contact no. 9449599072

Ref.: NERPSIP/Aizawl/Grievance/F-102/29

दिनांक / Date: 09.03.2018

To,

The Engineer-in-Chief
Power & Electricity Department
New Secretariat Complex
Aizawl, Mizoram

विषय/Sub :- Constitution of Site Level Grievance Redressal Committee (GRC).

Dear Sir,

With reference to the subject mentioned above, this is to inform you that as per the agreed World Bank *Project Appraisal Document (PAD)* on NERPSIP (*copy enclosed*), it is imperative for the State Utility, Mizoram (*i.e. P & E Deptt, Mizoram*) to set up a “**Grievance Redressal Mechanism**” in line with the provisions of state-specific ESPPF which was adopted by Mizoram for implementation of NERPSIP. The sole purpose of the GRM is to effectively address all project related grievances in a time bound manner without affecting project implementation.

In this regard, as envisaged in the state specific ESPPF, a “**Site Level Grievance Redressal Committee (GRC)**” is required to be constituted for each project site/office (*copy enclosed*). The site level GRC will comprise **representative from P & E Deptt, Mizoram, Local administration, Village representative (VCPs), reputed persons from society and representatives from Autonomous Councils, if involved.**

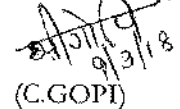
The respective site offices of POWERGRID will closely interact with the **Site level GRC** related to any public grievances/disputes/concerns etc. with respect to environment/social/compensation related issues for effective & time bound disposal. The Site level GRC shall keep records of all grievances received during the execution of the project including contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and final outcome. *The composition of the GRC is also required to be displayed in village panchayats, circle offices, district headquarters for wider coverage.*

Therefore, it is requested to kindly initiate action for constitution of Site Level Grievance Redressal Committee at your end.

Thanking you

Encl: As above

Yours faithfully,


9/3/18
(C.GOPI)

DGM (NERPSIP)
AIZAWL, MIZORAM

Copy to :

- 1) Secretary, Power & Electricity Department (Mizoram) for kind information.

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

No.WB-3/2014-EC(PC)/SPIU/Pt/101

Dated Aizawl, the 11th Sept, 2018

To,

✓
The Dy. General Manager (NERPSIP)
POWERGRID CORPORATION OF INDIA LIMITED
Tuivamit, B.P.O – Tanhril
Aizawl – 796009

Chief Manager Aizawl
18/09/18

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)
Ref: Your Letter NERPSIP/Aizawl/Grievance/F-102/29, dt. 09.03.2018

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- 1) Construction of 132/22 kV Sub-Station at W.Phaileng and Marpara.
- 2) Construction of 132 kV Single Circuit on Double Circuit Tower line from W.Phaileng to Marpara.

Encl: As above.

Yours faithfully,

Lalramliana
(LALRAMLIANA)
Engineer-in-Chief

Memo No.WB-3/2014-EC(PC)/SPIU/Pt/101

Dated Aizawl, the 11th Sept, 2018

Copy to:-

The Chief Engineer (Distribution), for favour of information.

Engineer-in-Chief
Power & Electricity Department

Receipt No: 214
प्राप्ति सं: 19/09/18
POWERGRID-NERPSIP
AIZAWL/आइजोल

GOVERNMENT OF MIZORAM
OFFICE OF THE SUPERINTENDING ENGINEER, PROJECT CIRCLE-I
POWER & ELECTRICITY DEPARTMENT
AIZAWL : MIZORAM

NOTIFICATION

Dated Aizawl
The 20th August, 2018

No.T-11014/1/2016_SEPC-I/22: It is hereby notified that Site Level Grievance Redressal Committee (GRC) is Constituted to interact with public on grievances/dispute/concerns etc. with respect to environment, social and compensation for the following works :

1. Construction of 132/33kV Sub Station at W.Phaileng and Marpara respectively
2. Construction of 132kV Single Circuit on Double Circuit Tower line from W.Phaileng to Marpara

Necessary Informations shall be conveyed to higher authority through the Executive Engineer, P&E Department, Mamit Power Division, Mamit

List of Villages/Department and Members with Contact Nos. of Site Level Grievance Redressal Committee are enclosed in Annexure

Encl : List of Villages & Members (Annexure)

Sd/- F.Lalrinpuia
Superintending Engineer, P&E
Project Circle-I : Aizawl.

Memo No.T-11014/1/2016_SEPC-I/22 : **Dated Aizawl, the 20th August, 2018.**

Copy to:

- 1) The Engineer-in-Chief, P&E Department, for favour of information. This has refrence to his letter vide No.WB-6/2018-EC(PC)/SPCU/6 : Dt. 18.07.2018
- 2) The Chief Engineer (Distribution) for favour of information. This has refrence to his letter vide No.T-28015/18-CE(D)/3 : Dt. 25.06.2018
- 3) The Dy.General Manager(NERPSIP), POWERGRID CORPORATION OF INDIA LTD, Tuivamit, BPO - Tanhril, Aizawl for information & necessary action
- 4) The Executive Engineer, Mamit Power Division, Mamit for information and necessary action. This has refrence to his letter vide No.T-13010/1/18-EE(MPD)/31 dt.24.7.2018 He is also requested to inform & guide the persons concerned in this regards.
- 5) Notice Board.

Superintending Engineer, P&E
Project Circle-I : Aizawl.

AIZAWL/Jan 2018
POWERGRID-NERPSIP
Receipt No: 180

DCM (NERPSIP)

**LIST OF VILLAGES REPRESENTATIVE FOR
SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GRC)
(Along with Designation & Contact Nos.)**

Sl. No.	Name of Village/Department	Member	Designation	Contact No.
1.	W.PHAILENG	1) Pu Lalchhuanmawia	VC President	9378165452
		2) Pu Rokima Rokhum	YMA President	7085626883
		3) Pu Ngursangkima Sailo	YMA Secretary	8730907317
		4) Pu B.Lalhruaikima	VC Treasurer	8131955661
2.	NEW W.PHAILENG	1) Pu C.Lalramthanga	Dampa Group YMA President	9862221048
		2) Pu PC Zarzoliana	VC Member	8413005283
		3) Pu Duhsanga	YMA President, BethlehemBr.	7629970272
		3) Pi Ronguri	VC President	7628974017
3.	KAWNMAWI/ CHHIPUI	4) Pu H.Lalchungnunga	YMA President , New W.Phaileng Br.	7005352803
		1) Pu Sangliana	VC President	8837047661
		2) Pu Robuanga	YMA	8837331518
		3) Pu Malsawmthanga	VC Member	8014343798
4.	LALLEN	4) Pi Lalzawmliani	VC Vice President	9615712934
		1) Pu Saithansanga	VC President	9366065365
		2) Pu Rinawma	YMA President	8787668601
		3) Pu Pachhunga	VC Secretary	7005881884
5.	SAITHAH	4) Pu Raltawna		8837208061
		1) Pu MS Dawngliana	VC Vice President	8014366107
		2) Pu Lalhmingthanga	YMA President	9615249396
		3) Pu Sakhawliana	YMA Com.Member	8787739160
6.	PHULDUNGSEI	1) Pi J.Lalrinmawii	VC President	8132845046
		2) H.Lalhmingthanga	YMA President	7005090071
		3) Pu C.Pachhunga	MUP President	8118910726
		4) Pi Rotluangi Sailo	VC Member	7638074501
		6) Lalhuaplina	YMA President Chaltui Br.	8118910726
		8118910726		
7.	PHULPUI	1) Pu A.Roliana	VC President	8014343185
		2) Pu A.Lalpeka	YMA Secretary	
		3) Pu A.Pazawna		9383180094
8.	PUKZING	1) Pu Zathanga	VC President	9774332664
		2) H.Chanchinmawia	YMA President	8256926287
		3) Pu Lalnunhlina	YMA Secretary	8259932137
		4) Pu Lalrotlinga		8794815681
9.	PHULPUI VENGTHAR	1) Pu Lalnunzira	VC President	7085120235
		2) Pi Lalrimawii	VC Member	9612226960
		3) Pu Rinsiamia	YMA President	9862391585
10.	HRUIDUK	3) Pu Budo Sash		9485373685
		1) Pu Ratna Kumar	VC President	9485311668
		2) Pu Loki Ronjon	YC President	9485023475
11.	P&E DEPARTMENT	1) Er. B.Rothangliana	SDO, W.Phaileng Power Sub-Division	9436151953
		2) Pu Lallawmawma Chenkual	Junior Engineer, W.Phaileng Power S/D	9436150292
12.	P.G.C.I.	1) Mr.C.Gopi	Dy.Gen. Manager, (NERPSIP)	9449599072

Sd/-
Executive Engineer, P&E
Mamit Power Division

Superintending Engineer, P&E
Project Circle-I : Aizawl

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

No.WB-3/2014-EC(PC)/SPIU/P1/94

Dated Aizawl, the 7th August, 2018

To,

✓ The Dy. General Manager (NERPSIP)
POWERGRID CORPORATION OF INDIA LIMITED
Tuivamit, B.P.O – Tanhril
Aizawl – 796009

Chief Mgr (Aizawl)
FE (Env.) Aizawl
For info and re
21/8/18

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)
Ref: Your Letter NERPSIP/Aizawl/Grievance/F-102/29, dt. 09.03.2018

Sir,

Enclosed please find herewith the Site Level Grievance Redressal Committee (GRC) for Lungsen and South Bungtlang for favour of your information and necessary action.

Encl: As above.

Yours faithfully,

Mansiana
(LALRAMLIANA)
Engineer-in-Chief

Memo No.WB-3/2014-EC(PC)/SPIU/P1/94
Copy to:-

Dated Aizawl, the 7th August, 2018

The Chief Engineer (System Operation), for favour of information.

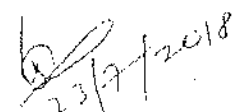
Engineer-in-Chief
Power & Electricity Department

Received 174
Date 09.08.2018
PCO PSIP
Aizawl

**CONSTITUTION OF SITE LEVEL GRIEVANCE REDRESSAL
COMMITTEE (GRC)**

A site level Grievance Redressal Committee has been constituted w.e.f 23.07.2017 for the work 'Construction of 132kV (on D.C Tower) Chawngte S - Bungtlang South' under Sub-Divisional Officer Bungtlang South Power Sub-Division as under :-

- 1) Nomination from P&E Department : Mizoram
Pu David Chakma, Sub-Divisional Officer : Bungtlang South Power Sub Division.
Contact No : 8119 866 052
- 2) Nomination from local administration
Pu Daniel Sailo, Block Development Officer : Bungtlang South
Contact No : 8731 058 236
- 3) Nomination from village representative
Pu Liangkunga President : Village Council : Bungtlang South.
Contact No : 9402 188 208
- 4) Nomination from reputed persons from society :-
 - 1) Pu H.C Singkhuma, President Young Lai Association : Bungtlang South.
Contact No : 7627 912 550
 - 2) Pu B. Lalmuankima, Headmaster Bungtlang South High School.
Contact No : 9436 148 357
- 5) Nomination from Lai Autonomous District Council :
Pu J C Ngurluaia, MDC : Bungtlang South
Contact No : 8131 960 017


Executive Engineer
Lawngtlai Power Division
Lawngtlai

Constitution of Site Level Grievance Redressal Committee (GRC)

A site level Grievance Redressal Committee has been Constituted w.e.f 24.7.2018 for the work construction of 132 kV (on DC Tower) Lungsan to Chawngte 'L' under Sub-Divisional Officer, Lungsan Power Sub-Division, Lungsan as under -

1) Chairman / Representative from Local Administration :-

Block Development Officer
Lungsan Rural Development Block, Lungsan

2) Member Secretary / Representative from P & E Department : Mizoram :-

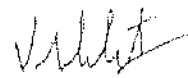
Sub-Divisional Officer,
Lungsan Power Sub-Division, Lungsan

3) Members :-

1. VCP or his representative, Lungsan Village Council-I.
2. VCP or his representative, Lungrang.
3. VCP or his representative, Rualalung Village.
4. VCP or his representative, Rangte Village.
5. VCP or his representative, Chawngte 'L'.
6. VCP or his representative, Lahnubi Village.

4) Members (Reputed Persons from Society) :-

1. V. Lalremruata, Chhumkhum
President Young Mizo Association, Lungsan Group.
2. K. Siamliana, Lungsan
Headmaster Government Middle School - I


Sub-Divisional Officer
Lungsan Power Sub-Division
Lungsan

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM: AIZAWL

No.WB-3/2014-EC(PC)/SPIU/Pt/101

Dated Aizawl, the 11th Sept, 2018.

To,

✓
The Dy. General Manager (NERPSIP)
POWERGRID CORPORATION OF INDIA LIMITED
Tuivamit, B.P.O – Tanhril
Aizawl – 796009

Chief Manager Aizawl
[Signature]
18/9/18

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)
Ref: Your Letter NERPSIP/Aizawl/Grievance/F-102/29, dt. 09.03.2018

Sir,

Enclosed please find herewith the Site Level Grievance Redressal Committee (GRC) for the following works for your information and necessary action:

- 1) Construction of 132/22 kV Sub-Station at W.Phaileng and Marpara.
- 2) Construction of 132 kV Single Circuit on Double Circuit Tower line from W.Phaileng to Marpara.

Encl: As above.

Yours faithfully,

[Signature]
(LALRAMLIANA)
Engineer-in-Chief

Dated Aizawl, the 11th Sept, 2018

Memo No.WB-3/2014-EC(PC)/SPIU/Pt/101

Copy to:-

The Chief Engineer (Distribution), for favour of information.

Engineer-in-Chief
Power & Electricity Department

Receipt No: 214
दिनांक: 18/09/18
POWERGRID-NERPSIP
AIZAWL

NEKPSIP/MTZ/WD.PT./R304

Sl. No.	Name and address of affected person	Date	Type of Complaint	Issue	Status
13	Sh. Thangzila Sh. Vengachut, Pakzing, Co. Phaleng, Mamit, Mizoram	02.07.2020	Verbal	Demanded advance compensation and amount, the detailed compensation procedure should be as per market and got assistance from V.P. value of the tower. Party informed him compensation amount refused to receive notice will be informed after getting assessment report from DC/mamit. Notice issued on 29.07.2020.	
14	Sh. Lalhupell Sh. Sanghuliana, Pakzing, W. Phaleng, Mamit.	06.07.2020	Verbal	Demanding compensation explained the technical issues for the abandoned stone for shifting of the towers and also quarry nearby the line tower position is not available route. Permitted path of nearby. Mr. and will be removed. Informed team to submit the and submitted by the party. Copy of Permits path or V.P. pass. Party refused to accept so that notices can be served. notice till permit path is. Company permit has not been issued by Revenue Dept/Mamit received after 2005. Owner also demanding to shift the Loc-134 to get clearance from Stone quarry.	
15	Sh. Chanchinmawia President, YMA, Pakzing, Co. Phaleng, Mamit (Yang Mizo Association)	08.08.2020	Verbal	YMA President and Vice President refused to accept notice the tower and explained the details and location is adjacent to the technical constraints for shifting of cemetery and they demanded the location. YMA president to shift the tower. The matter informed that they will call will be discussed in the Area meeting to inform other upcoming meeting for getting permission from other members.	

Details of Grievances/Complaints:

July - Sept 2018

S N	Name of the line /substation	Loca-Tion No.	Name of complainants	Date of complaints/ Court case	Main Issue of complaints	Status of complaint
A. Court Cases						
1	132 kV West Phaileng - Marpara TL	West phaileng	NIL	NIL	NIL	NIL
2	132 kV Lungsen - Chawngte TL	Lungsen	NIL	NIL	NIL	NIL
3	132 kV Chawngte - South Bungtlang TL	Lungsen	NIL	NIL	NIL	NIL
B. Written Complaints						
1	132 kV West Phaileng - Marpara TL	West phaileng	NIL	NIL	NIL	NIL
2	132 kV Lungsen - Chawngte TL	Lungsen	NIL	NIL	NIL	NIL
3	132 kV Chawngte - South Bungtlang TL	Lungsen	NIL	NIL	NIL	NIL
C. Verbal Complaints						
1	132 kV West Phaileng - Marpara TL	West phaileng	NIL	NIL	NIL	NIL
2	132 kV Lungsen - Chawngte TL	Lungsen	NIL	NIL	NIL	NIL
3	132 kV Chawngte - South Bungtlang TL	Lungsen	NIL	NIL	NIL	NIL

Shri. Kangam/FE/ESM,
 Send an interim reply
 req. current status mentioning
 that after 31.12.18, updated
 status will be sent. Meanwhile first
 try to organize informal public consultation
 meeting to start with. 7/12/18

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
 एन.आर.पी.एस.आई.पी, Guwahati



अंतर कार्यालय झापन

प्रेषक / From : General Manager
 (ESMD, Safety & FQA)

सेवा में/To: Project Managers
 (Assam/Manipur/Meghalaya/Manipur/Tripura
 /Mizoram/Nagaland),

CC : ED (NERPSIP)
 CGM (NERPSIP)

संदर्भ संख्या / Ref :

दिनांक / Date : 22.11.2018
 30

विषय/Sub :- Data on Grievance & public consultation for Quarterly Progress Report

You might be aware that as per the NERPSIP Project Agreement with World Bank, POWERGRID is required to submit "Quarterly Progress Report"(QPR) to World Bank. In the QPR, inter-alia, data on "result indicators" pertaining to Grievances & public consultation are required to be provided to the World Bank as below:-

DESCRIPTION	REQUIREMENT	STATUS
Details of public consultation & no. of femals participated in consultations meetings.	Since, public interaction occurs at every stages of project execution, therefore, data on any kind of informal/foimal meeting with landowners/community/project affected person/village council etc. during route survey/RoW settlement/ Compensation estimation etc. may be provided.	For the quarter (Oct, 18 to Dec, 2018)
Details of grievances received that are addressed within two months of receipt (percentage)	It is mandatory to keep a Grievance register at each project site office for recording any sort of public grievances and subsequent addressal of the grievances. The data may be provided on quarterly basis.	For the quarter (Oct, 18 to Dec, 2018)

In view, of the above, it is requested to send the above data to us from concerne States on quarterly basis for onward submission to World Bank through Quarterly Progress Report.

Encl - Format-

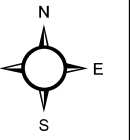
30.11.18
 (Dr. R. K. Dubey)

**DATA ON GRIEVANCE AND PUBLIC CONSULTATION FOR
“QUARTERLY PROGRESS REPORT”**

Details of public consultation	
No. of meetings (formal/informal)	-
Total no of persons involved	-
No. of females participated	-
Reporting period (<i>Quarterly</i>)	-
Details of Grievances	
No of public grievances received	-
No of grievances addressed within 2 months of receipt.	-
Reporting period (<i>Quarterly</i>)	-

Signature of Project Manager












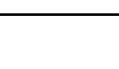
Annexure A and B



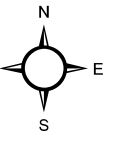
Annexure A1








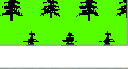





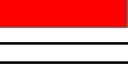
Legend

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Cart Track
-  Electric Substation
-  Forest Plantation (Segun)
-  Grazing Land
-  Nala/Drain
-  Open Forest
-  Open Scrub Land
-  Orange Plantation
-  Road

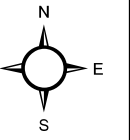
LAND USE/LAND COVER DETAILS OF 132 KV SC (ON DC TOWER) W.PHAILENG TO MARPARA TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)
PREPARED BY GREEN CIRCLE INC,



Legend

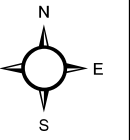
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LAND USE/LAND COVER DETAILS OF 132 KV SC (ON DC TOWER) W.PHAILENG TO MARPARA TRANSMISSION LINE
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PREPARED BY GREEN CIRCLE INC,



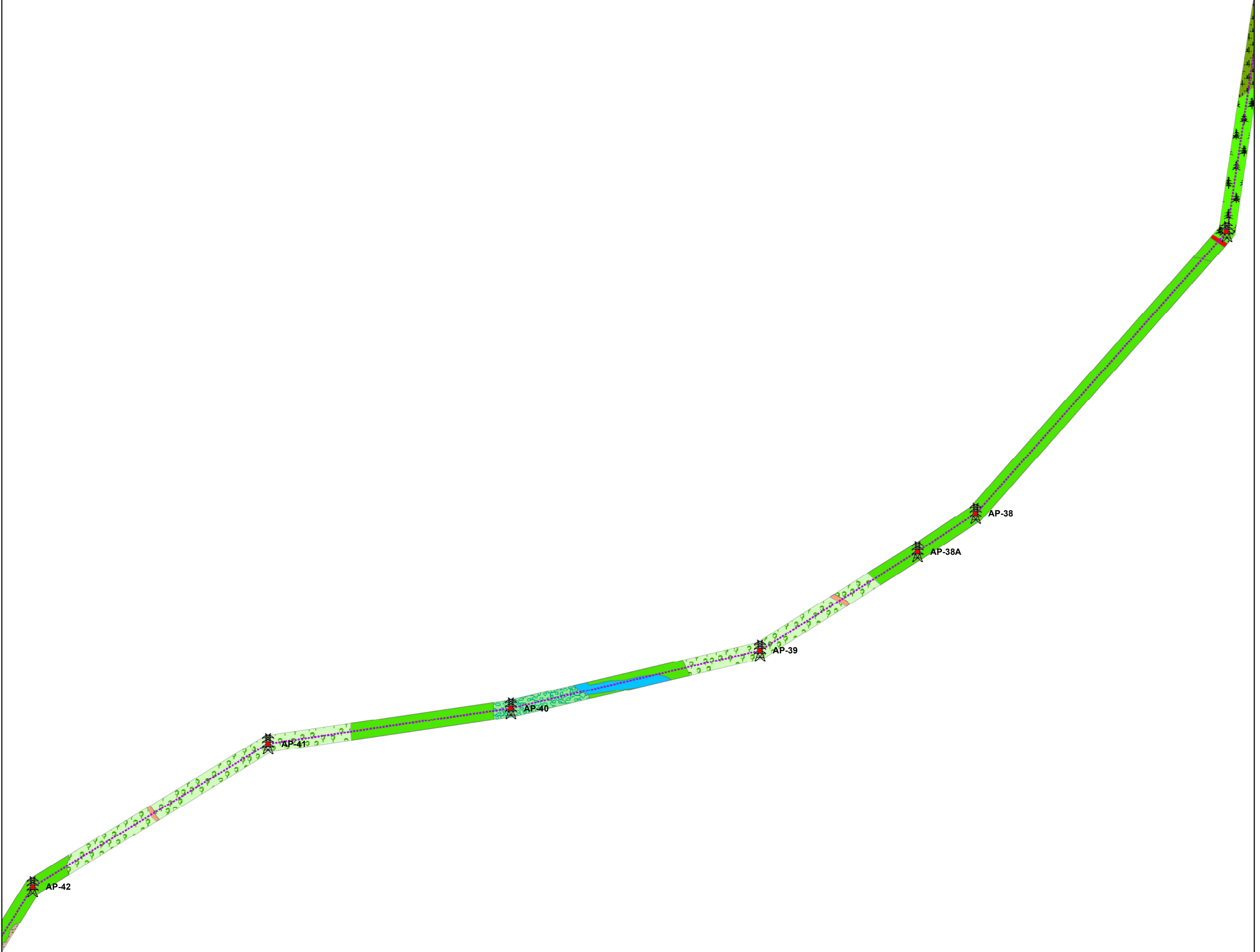
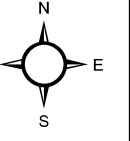
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LAND USE/LAND COVER DETAILS OF 132 KV SC (ON DC TOWER) W.PHAILENG TO MARPARA TRANSMISSION LINE
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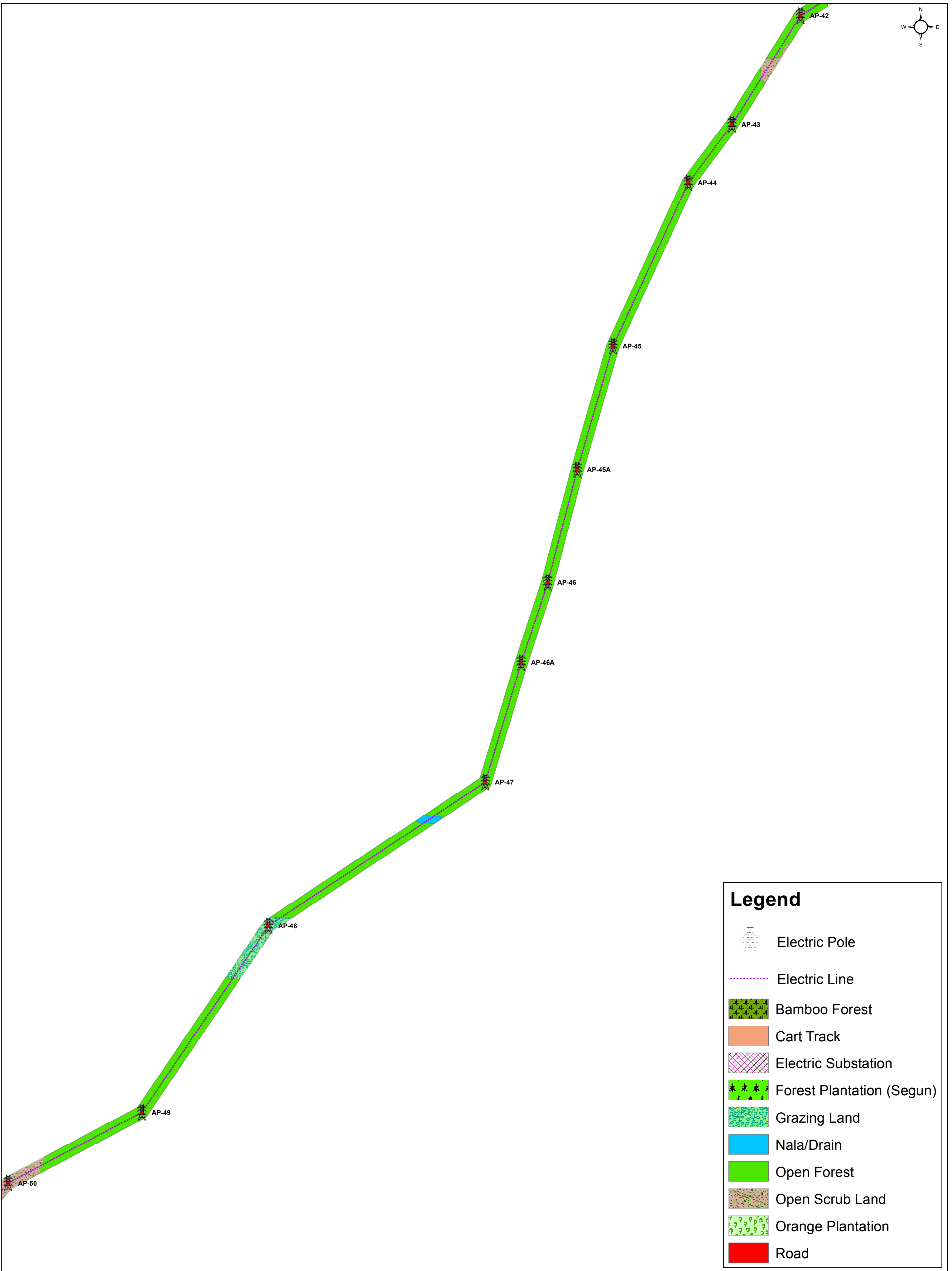
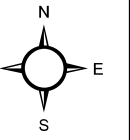
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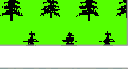





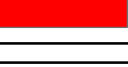


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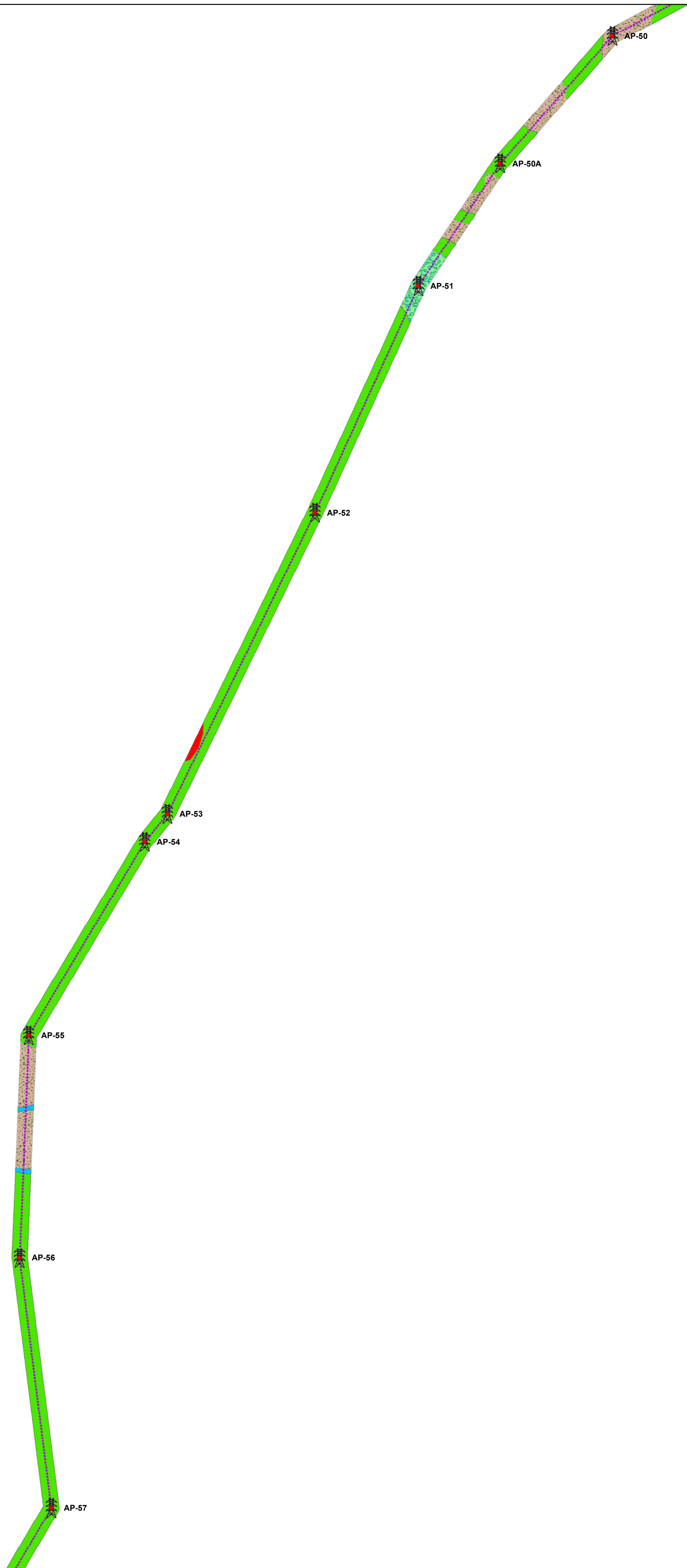
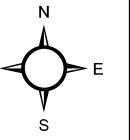
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CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)
PREPARED BY GREEN CIRCLE INC,





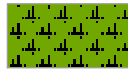









Legend

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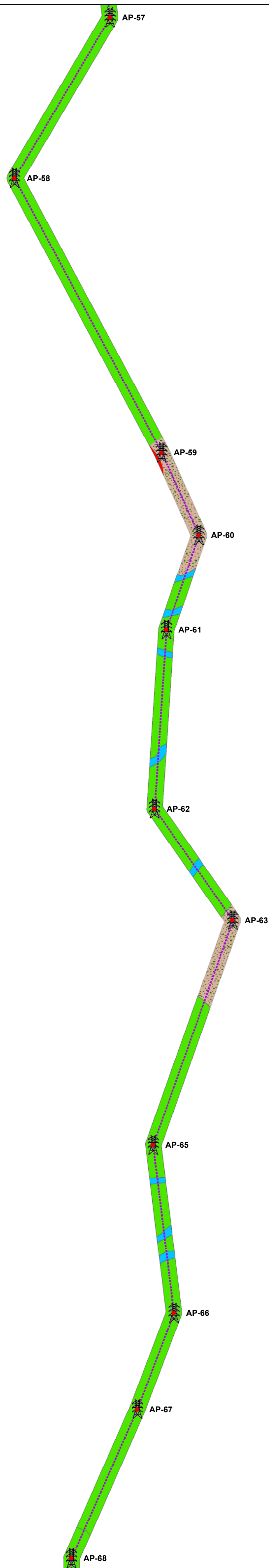
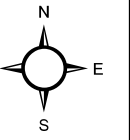
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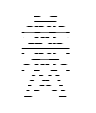


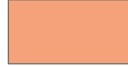








Legend

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-  Orange Plantation
-  Road

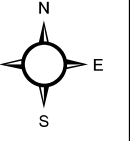
LAND USE/LAND COVER DETAILS OF 132 KV SC (ON DC TOWER) W.PHAILENG TO MARPARA TRANSMISSION LINE
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)
PREPARED BY GREEN CIRCLE INC,














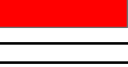
Legend

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Cart Track
-  Electric Substation
-  Forest Plantation (Segun)
-  Grazing Land
-  Nala/Drain
-  Open Forest
-  Open Scrub Land
-  Orange Plantation
-  Road

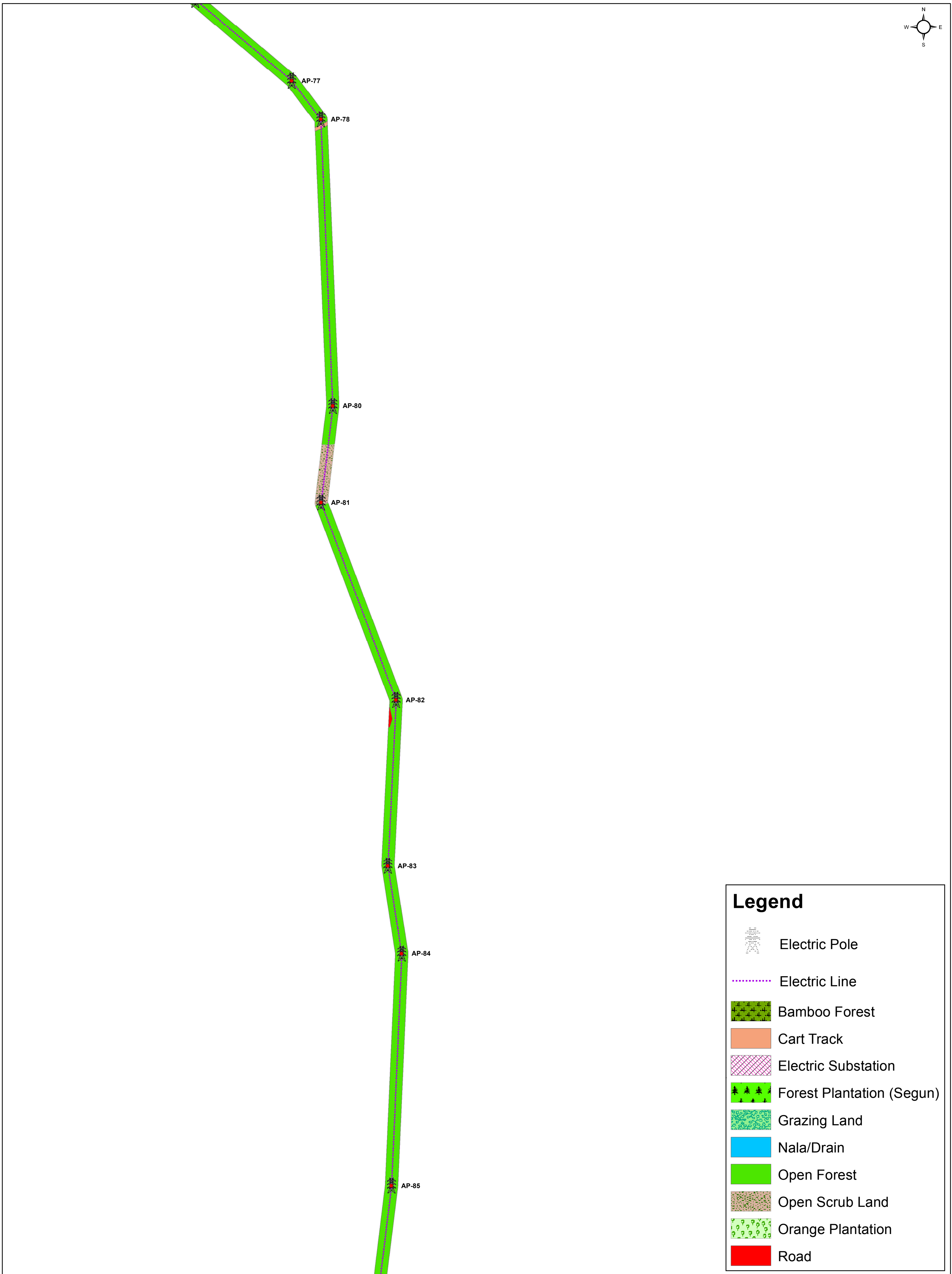
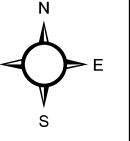
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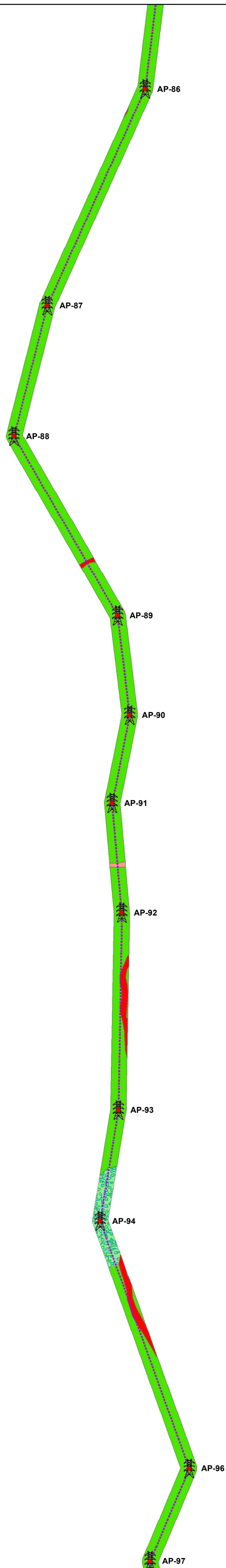
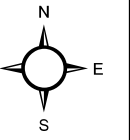
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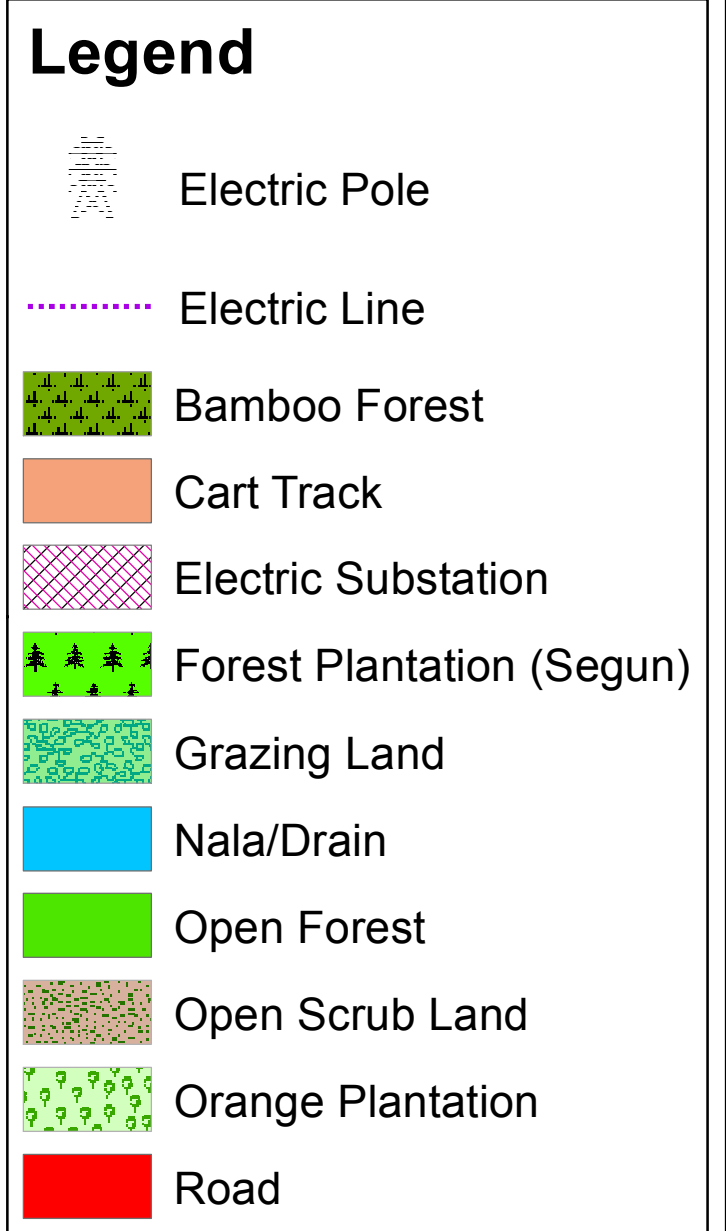
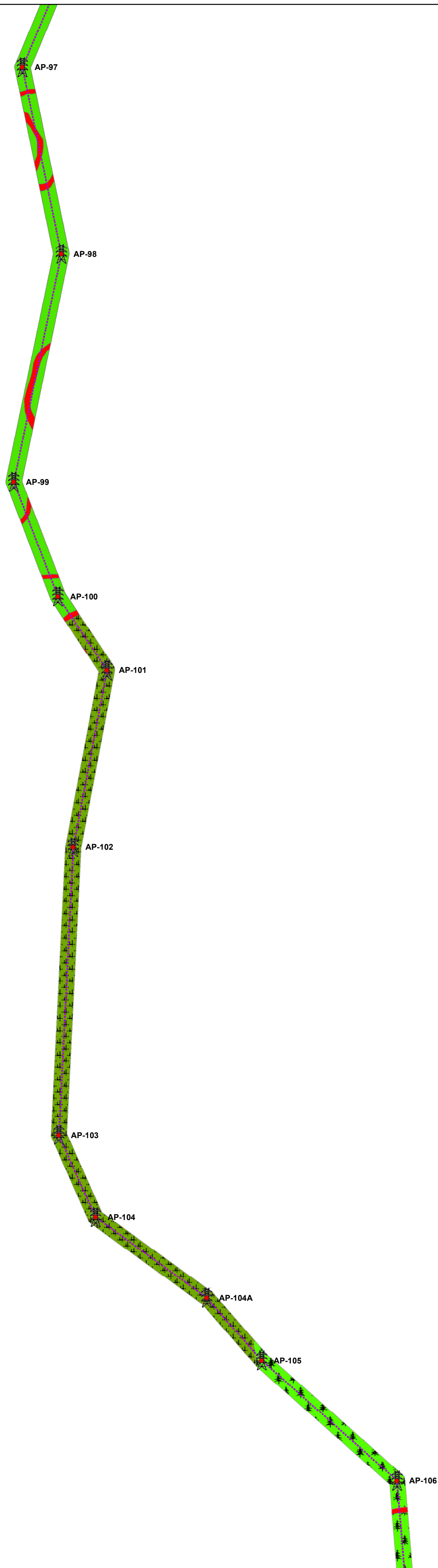
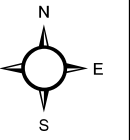
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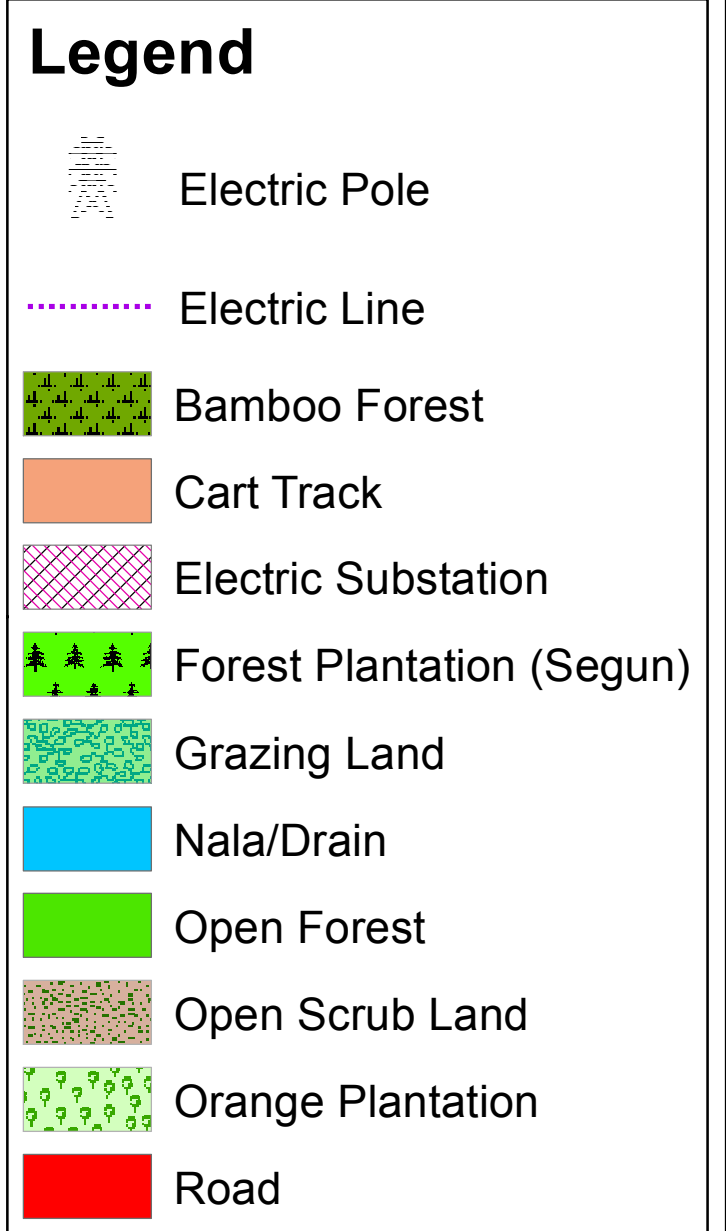
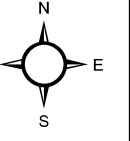


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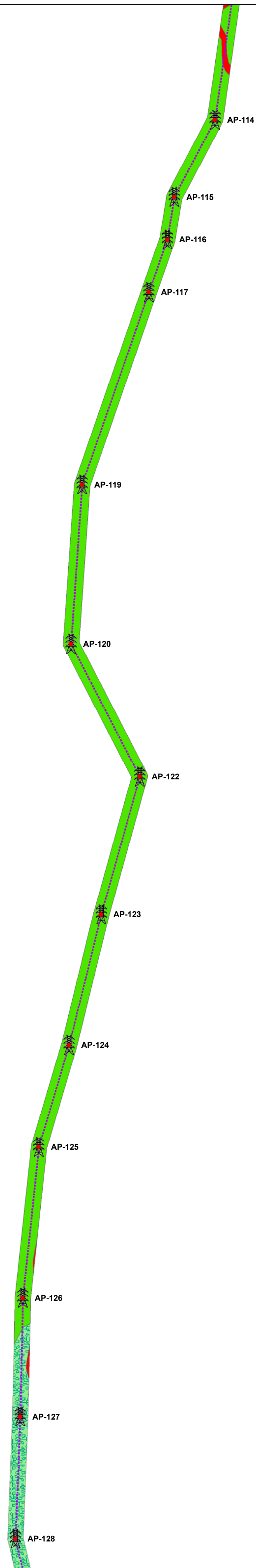
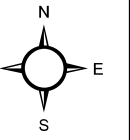
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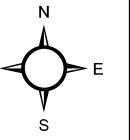


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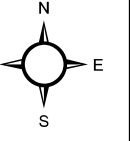
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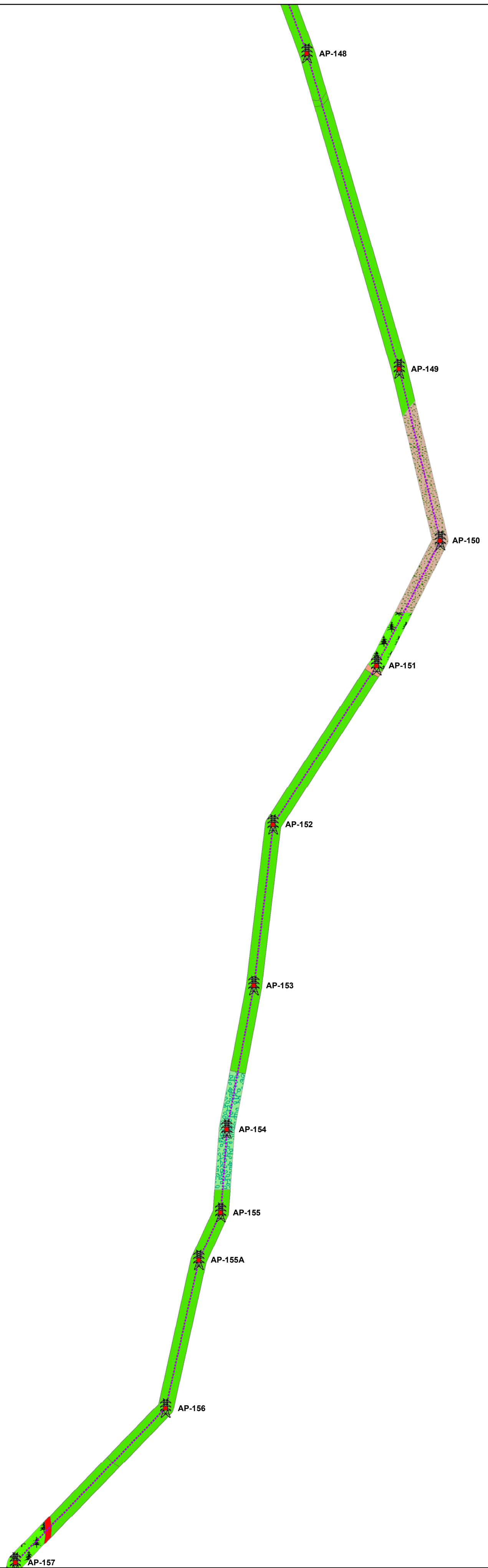
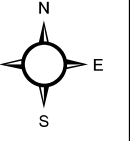
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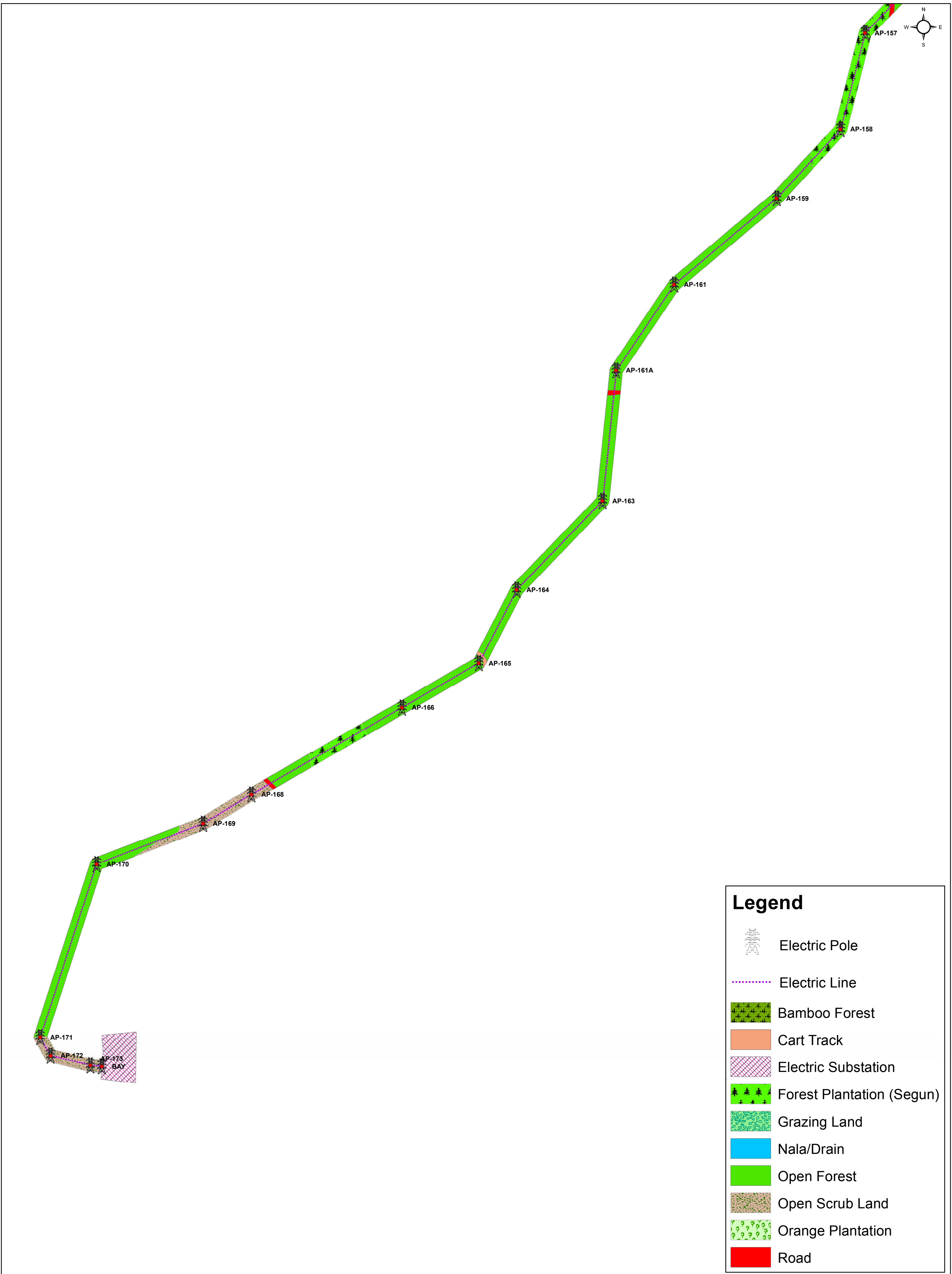
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Appendix



FEAR for T&D subprojects in Mammit District
under NERPSIP in Mizoram



Appendix A

Environmental Baseline

A. Soils Taxonomic Classification in Project Districts

Soil Unit	Description	Taxonomic Classification
1	Deep, somewhat excessively drained, loamy skeletal soils on very steeply sloping side slopes of high relief structural hills having loamy surface with very severe erosion hazard	Loamy skeletal Typic Dystrochrepts Fine loamy
	Associated with: Deep to very deep, well drained, fine loamy soils on steeply sloping ridges with severe erosion hazard	Typic Dystrochrepts
2	Deep to very deep, somewhat excessively drained, fine loamy skeletal soils on steeply sloping hill summits having loamy surface with severe erosion hazard	Fine loamy Typic Udorthents Fine loamy
	Associated with: Deep, somewhat excessively drained, fine loamy soils on side slopes of high relief structural hill with severe erosion hazard and slight stoniness	Typic Dystrochrepts
3	Deep, well drained, loamy skeletal soils on steeply sloping side slopes of high relief structural hills having loamy surface with very severe erosion hazard and moderate stoniness	Loamy skeletal Typic Dystrochrepts Fine loamy
	Associated with: Deep to very deep well drained, fine loamy soils on moderately steeply sloping hill summit with severe erosion hazard and slight stoniness	Typic Haplumbrepts Fragmental Lithic Udorthents
4	Deep to very deep, well drained, fine loamy soils on moderately dissected side slopes of ridges having loamy surface with severe erosion hazard	Fine loamy Typic Hapludults Fine loamy
	Associated with: Deep, somewhat excessively drained, fine loamy soils on moderately steeply sloping ridge top with moderate erosion hazard and slight stoniness	Umbric Dystrochrepts
5	Very deep, excessively drained, Coarse loamy soils on the slopes of moderately sloping medium relief having loamy surface with severe erosion hazard	Coarse loamy Typic Udorthents Loamy over sandy
	Associated with: Deep, well drained, loamy over sandy soils on moderately sloping side slopes of the hills with moderate erosion hazard	Typic Dystrochrepts Fine Loamy Typic Dystrochrepts
6	Deep, well drained, fine loamy soils on the side slopes of parallel ridges, moderately steeply sloping having loamy surface with severe erosion hazard	Fine Typic Dystrochrepts Coarse loamy over sandy
	Associated with: Deep, well drained, coarse loamy over sandy soils on steeply sloping side slopes of the hills with moderate erosion hazard	Typic Udorthents Fine loamy Typic Hapludults
7	Very deep, well drained, fine loamy soils on the moderately steeply sloping hill top having loamy surface with severe erosion hazard	Fine loamy Typic Dystrochrepts Fragmental lithic
	Associated with: shallow, well drained, fragmental soils very steeply sloping parallel ridges, with severe erosion hazard and severe stoniness	Udorthents Fine loamy Typic Haplumbrepts
8	Deep to very deep, excessively drained, fine loamy soils on the moderately sloping side slopes of medium relief parallel ridges having loamy surface with severe erosion hazard and slight stoniness	Fine loamy Typic Dystrochrepts Fine loamy
	Associated with: Deep, well drained, fine loamy soils on moderately sloping side slopes of the hills with moderate erosion hazard	Typic Haplumbrepts Coarse loamy Typic Udorthents
9	Deep, somewhat excessively drained, fine loamy soils on the steeply sloping hill top having loamy surface with severe erosion hazard	Fine loamy Typic Dystrochrepts Coarse loamy

Soil Unit	Description	Taxonomic Classification
	Associated with: moderately Deep, excessively drained, coarse loamy soils on steeply sloping side slopes of the hills with severe erosion hazard and slight stoniness	Typic Udorthents Fine loamy Typic Hapludults
10	Deep to very deep, well drained, fine loamy soils on the moderately steeply sloping hill top having loamy surface with moderate erosion hazard	Fine Typic Dystrochrepts Fine loamy
	Associated with: Deep, well drained, fine loamy soils on gently sloping side slopes with moderate erosion hazard	Typic Dystrochrepts Fine loamy Typic Paleudults
11	Very deep, somewhat excessively drained, coarse loamy soils on moderately steeply sloping hill slopes having loamy surface with severe erosion hazard	Fine loamy Typic Udorthents Fine Loamy
	Associated with: very Deep, well drained, fine loamy soils on moderately sloping hill top with moderate erosion hazard	Typic Haplumbrepts Fine Loamy Umbric Dystrochrepts
12	Very deep, well drained, loamy skeletal soils on the steeply sloping sides of ridges having loamy surface with moderate erosion hazard and moderate stoniness	Loamy skeletal Umbric Dystrochrepts Fine loamy
	Associated with: Deep, well drained, fine loamy soils moderately sloping sides slopes with moderate erosion hazard	Typic Dystrochrepts
13	Moderately Deep, somewhat excessively drained, coarse loamy soils on the moderately steeply sloping side slopes of ridges having loamy surface with severe erosion hazard	Coarse loamy Typic Udorthents Fine loamy
	Associated with: Deep, well drained, fine loamy soils on moderately sloping hill tops with moderate erosion hazard	Umbric Dystrochrepts Fine loamy Typic Dystrochrepts
14	Deep to very deep, well drained, fine loamy soils on the moderately steeply sloping side slopes of low relief hills having loamy surface with severe erosion hazard	Fine Typic Dystrochrepts Coarse loamy
	Associated with: Deep, somewhat excessively drained, coarse loamy soils on moderately sloping ridge tops with severe erosion hazard	Typic Udorthents Fine Loamy Umbric Dystrochrepts
15	Deep, well drained, fine loamy soils on moderately sloping flat topped denudation hills having clay loam surface with moderate erosion hazard	Fine loamy Typic Kandiuadlts Fine loamy
	Associated with: Deep, well drained, fine loamy soils on gently sloping flat topped denudation hills having clay loam surface with moderate erosion hazard	Typic Dystrochrepts Fine Loamy Umbric Dystrochrepts
16	Deep, well drained, fine loamy soils on moderately to gently sloping flat topped denudation hills having clay loam surface with moderate erosion hazard	Fine loamy Typic Kandiuadlts Fine loamy
	Associated with: Deep, imperfectly drained, fine loamy soils on gently sloping hill top with moderate erosion hazard	Aquic Dystrochrepts Fine Typic Dystrochrepts
17	Deep, well drained, coarse loamy soils on gently sloping low-lying residual hills having sandy loam surface with moderate erosion hazard	Coarse loamy Typic Dystrochrepts Fine loamy
	Associated with: very Deep, well drained, fine loamy soils on moderately sloping low-lying residual hills with moderate erosion hazard	Typic Hapludults Clay Loamy Skeletal typic Dystrochrepts

Soil Unit	Description	Taxonomic Classification
18	Deep, well drained, fine loamy soils on moderately sloping low-lying residual hills having clay loamy surface with moderate erosion hazard	Fine loamy Typic Dystrachrepts Coarse loamy
	Associated with: very Deep, imperfectly drained, coarse loamy soils on gently sloping narrow interhall basin under poor to moderate cultivation of paddy	Aquic Udorthents Fine Loamy Aquic Dystrachrepts
19	Deep, moderately well drained, fine loamy soils on gently to moderately sloping undulating plains with low mounds having clay loam surface with moderate erosion hazard	Fine loamy Typic Dystrachrepts Fine loamy
	Associated with: moderately shallow, poorly to imperfectly drained, fine loamy soils on very gently sloping narrow valleys with slight flooding hazard and slight erosion hazard	Typic Epiaquepts Coarse loamy Typic Dystrachrepts
20	Deep, well drained, fine loamy soils on gently to moderately sloping undulating plains with low mounds having loamy surface with moderate erosion hazard	Fine Typic Dystrachrepts Coarse loamy over sandy
	Associated with: very deep, well drained, coarse loamy over sandy soils on side slopes of moderately sloping low mounds with moderate erosion hazard	Typic Dystrachrepts Fine loamy Typic Hapludults
21	Deep, moderately well drained, fine loamy soils on gently sloping undulating plains with low mounds having loamy surface with moderate erosion hazard	Fine loamy Typic Dystrachrepts Fine Loamy Aquic
	Associated with: deep to very deep, poorly or imperfectly drained, fine loamy soils with slight erosion hazard	Dystrachrepts Fine Loamy Oxyaquic Dystrachrepts
22	Deep, moderately well drained, fine loamy soils on gently to moderately sloping undulating plains with low mounds having loamy surface with moderate erosion hazard	Fine loamy Typic Dystrachrepts Fine Loamy Oxyaquic
	Associated with: Deep to very deep, imperfectly drained, fine loamy soils with slight erosion hazard	Dystrachrepts Course Loamy Typic Udorthents
23	Moderately deep, well drained, fine loamy soils on moderately sloping undulating plains with low mounds having loamy surface with moderate erosion hazard	Fine loamy Typic Kandiodalts Fine silty over sandy loamy
	Associated with: Deep to very deep, imperfectly to poorly drained, fine silty over sandy soils with slight erosion hazard	Aquic Dystrachrepts Course Loamy Typic Udorthents
24	Very Deep, well drained, fine loamy soils on gently sloping low lands having loamy surface with moderate erosion hazard	Fine Loamy Oxyaquic Dystrachrepts
	Associated with: very deep, poorly drained, fine loamy soils with slight erosion hazard	Fine Loamy Aquic Udorthents
25	Very Deep, moderately well drained, fine loamy soils on gently sloping low mounds having loamy surface with moderate erosion hazard	Fine loamy Typic Kandiodalts Fine loamy
	Associated with: very deep, poorly drained, fine loamy soils on gently sloping low mounds with moderate erosion hazard	Umbric Dystrachrepts Fine Loamy Typic Udorthents
26	Deep, moderately well drained, clayey soils on upland of gently to very gently sloping interhall valleys having fine loamy surface with moderate to slight erosion hazard	Fine Typic Dystrachrepts Fine Loamy Aquic
	Associated with: very deep, imperfectly drained, fine loamy soils on very gently sloping narrow interhall valleys with slight erosion hazard	Dystrachrepts Fine Loamy Typic Epiaquepts

Soil Unit	Description	Taxonomic Classification
27	Very Deep, well drained, fine loamy soils on the upland of gently to very gently sloping interhill valleys having clay loamy surface with moderate erosion hazard	Fine loamy Typic Haplumbrepts Fine Loamy Dystrochrepts
	Associated with: very deep, well drained, fine loamy soils on gently sloping interhill valleys with moderate erosion hazard	
28	Deep, well drained, fine loamy soils on upland of gently to very gently sloping interhill valleys having coarse loamy surface with moderate to slight erosion hazard	Fine loamy Fluventic Umbric Haplumbrepts Fine silty Epiaquepts
	Associated with: very deep, poorly drained, fine silty soils on very gently sloping narrow interhill valleys with occasional flooding hazard and slight erosion hazard	
29	Deep, well drained, fine loamy soils on upland of gently to very gently sloping interhill valleys having fine loamy surface with moderate erosion hazard	Fine loamy Typic Dystrochrepts Coarse loamy Typic Dystrochrepts Fine loamy Typic Hapludults
	Associated with: very deep, well drained, coarse loamy soils on the upland of gently sloping interhill with moderate erosion hazard	
30	Deep, well drained, fine loamy soils on upland of gently to very gently sloping interhill valleys having clay loam surface with moderate erosion hazard	Fine loamy Typic Dystrochrepts Coarse loamy Typic Dystrochrepts Coarse loamy Typic Udorthents
	Associated with: very deep, well drained, coarse loamy soils on the gently sloping interhill valleys with moderate erosion hazard	
31	Deep, well drained, fine loamy soils on upland of gently to very gently sloping interhill valleys having clay loam surface with moderate erosion hazard	Fine loamy Typic Dystrochrepts Coarse loamy Typic Dystrochrepts Coarse loamy Typic Hapludults
	Associated with: very deep, well drained, coarse loamy soils on the gently sloping interhill valleys with moderate erosion hazard	
32	Deep, poorly to imperfectly drained, coarse loamy soils on gently to very gently sloping interhill valleys having sandy loam surface with moderate erosion hazard	Coarse loamy Aquic Udorthents Fine loamy Typic Dystrochrepts
	Associated with: very deep, well drained, clayey soils on the upland of gently sloping interhill valleys with moderate erosion hazard	
33	Deep, imperfectly drained, coarse loamy soils on gently to moderately gently sloping interhill valleys having sandy loam surface with moderate erosion hazard and occasional flooding hazard	Fine loamy Aeric Dystrochrepts Fine loamy Aquic Dystrochrepts
	Associated with: very deep, poorly drained, fine loamy soils on gently sloping interhill valleys with slight erosion hazard and occasional flooding hazard	
34	Moderately Deep, imperfectly drained, fine loamy soils on gently sloping interhill valleys having clay loam surface with slight erosion hazard and occasional flooding hazard	Fine loamy Aquic Dystrochrepts Coarse loamy Fluventic Dystrochrepts
	Associated with: very deep, moderately well drained, coarse loamy soils on gently sloping interhill valleys with slight erosion hazard and occasional flooding hazard	
35	Deep, imperfectly to poorly drained, fine loamy soils on very gently sloping alluvial plain having loamy surface with moderate to severe flooding hazard and slight erosion hazard	Fine Aeric Epiaquepts Fine Loamy Typic Epiaquepts

Soil Unit	Description	Taxonomic Classification
	Associated with: very deep, very poorly drained, fine loamy soils on gently sloping alluvial plain having loamy surface with moderate to severe flooding hazard	
36	Deep, imperfectly to poorly drained, fine loamy soils on very gently sloping alluvial plain having loamy surface with moderate to severe flooding hazard and slight erosion hazard	Fine Aeric Epiaquepts Fine Loamy Typic Epiaquepts Sandy Over Loamy Typic Epiaquepts
	Associated with: very deep, very poorly drained, fine loamy soils on gently sloping alluvial plain having loamy surface with moderate to severe flooding hazard	
37	Very Deep, imperfectly drained, clayey soils developed on very gently sloping alluvial plain having silty clay surface with moderate flooding hazard and slight erosion hazard	Fine loamy Aquic Dystrochrepts Fine Typic Epiaquepts
	Associated with: very deep, very poorly drained, clayey soils on very gently sloping alluvial plain with moderate flood hazard	
38	Very Deep, imperfectly drained, coarse loamy developed on gently sloping alluvial plain having sandy loam surface with occasional flooding hazard and slight erosion hazard	Coarse Loamy Aeric Epiaquepts Fine Loamy Aquic Dystrochrepts Typic Udipsamments
	Associated with: very deep, imperfectly drained, fine loamy soils on gently sloping alluvial plain with occasional flooding hazard	
39	Deep, very poorly drained, clayey soils on gently sloping floodplain having silty clay surface with severe to very severe flooding hazard and slight erosion hazard	Fine Loamy Typic Epiaquepts Fine Loamy over Sandy Typic Epiaquepts
	Associated with: very deep, imperfectly drained, fine silty soils on very gently sloping flood plain with severe to very severe flooding hazard and slight erosion hazard	
40	Very Deep, very poorly drained, clayey soils on very gently sloping floodplain having clay loam surface with severe flooding hazard and very slight erosion hazard	Fine Typic Epiaquepts Fine Loamy Typic Epiaquepts Coarse loamy over Sandy Typic Fluvaquentic Dystrochrepts
	Associated with: very deep, poorly to very poorly drained, fine loamy soils	
41	Very Deep, moderately well to imperfectly drained, fine loamy soils on very gently sloping floodplain having clay loam surface with moderate flooding hazard and very slight erosion hazard	Fine Aquic Dystrochrepts Fine Oxyaquic Dystrochrepts Fine Aquic Dystrochrepts
	Associated with: very deep, moderately well drained, clayey soils on very gently sloping flood plain with occasional flooding hazard	
42	Very deep, poorly to very poorly drained, fine loamy soils on very gently sloping floodplain having clay loam surface with moderate to severe flooding hazard and very slight erosion hazard	Fine Typic Epiaquepts Fine Loamy Aeric Epiaquepts
	Associated with: very deep, poorly drained, fine loamy soils on very gently sloping flood plain with moderate to very severe flooding hazard and slight erosion hazard	
43	Very Deep, moderately well to imperfectly drained, fine loamy soils on very gently sloping floodplain having clay loam surface with moderate flooding hazard and very slight erosion hazard	Fine loamy Typic Haplumbrepts Fine Loamy Pachic Haplumbrepts Fine Typic Dystrochrepts
	Associated with: very deep, moderately well drained, clayey soils on very gently sloping flood plain with occasional flooding hazard	

B: Flora of Project Area Recorded during Site Survey along TL

1. Tree Species Recorded Along the TL Route

Name of the Species	Common Name	Family	IUCN Status
<i>Acrocarpus fraxinifolius</i>	Ngan bawm	Caesalpiniaceae	Not assessed
<i>Alangium chinense</i>	Arsarimnam	Alangiaceae	Not assessed
<i>Albizia chinensis</i>	Vang	Mimosaceae	Not assessed
<i>Albizia procera</i>	Kangtek	Mimosaceae	Not assessed
<i>Alphonsea lutea</i>	Zawngbalhla	Annonaceae	Not assessed
<i>Alstonia scholaris</i>	Thuamriat	Apocynaceae	Lower risk
<i>Anthocephalus chinensis</i>	Banphar	Rubiaceae	Not assessed
<i>Apourosa octandra</i>	Chhawn tual	Euphorbiaceae	Not assessed
<i>Areca catechu</i>	Kuhva-kung	Arecaceae	Not assessed
<i>Artocarpus chama</i>	Tatkawng	Moraceae	Not assessed
<i>Artocarpus heterophyllus</i>	Lamkhuang	Moraceae	Not assessed
<i>Artocarpus lakoocha</i>	Theitat	Moraceae	Not assessed
<i>Baccaurea ramiflora</i>	Pangkai	Euphorbiaceae	Not assessed
<i>Balacata baccata</i>	Thing-vawk-pui	Euphorbiaceae	Not assessed
<i>Bauhinia variegata</i>	Vaube	Caesalpiniaceae	Least concern
<i>Beilschmedia roxburghiana</i>	Khuang hlang	Lauraceae	Not assessed
<i>Betula cylindrostachya</i>	Hriang- zau	Betulaceae	Not assessed
<i>Bischofia javanica</i>	Khuangthli	Phyllanthaceae	Not assessed
<i>Boehmeria rugulosa</i>	Len-lang	Urticaceae	Not assessed
<i>Bombax ceiba</i>	Phunchawng	Bombacaceae	Not assessed
<i>Bombax insigne</i>	Pang	Bombacaceae	Not assessed
<i>Bridelia retusa</i>	Thing-phak-tel	Euphorbiaceae	Not assessed
<i>Calicarpa arborea</i>	Hnahkiah	Verbenaceae	Not assessed
<i>Caryota urens</i>	Tum	Arecaceae	Not assessed
<i>Cassia fistula</i>	Ngaingaw	Caesalpiniaceae	Not assessed
<i>Cassia javanica</i>	Mak-pa-zang-kang	Caesalpiniaceae	Not assessed
<i>Castanopsis tribuloides</i>	Then mim	Fagaceae	Not assessed
<i>Celtis timorensis</i>	Thingmarcha	Ulmaceae	Not assessed
<i>Choerospondias axillaris</i>	thei-khuang-chawn	Anacardiaceae	Not assessed
<i>Chukrasia velutina</i>	Zawng tei	Meliaceae	Not assessed
<i>Cinnamomun obtusifolium</i>	Thakthibngsuak	Lauraceae	Not assessed
<i>Cinnamomun verum</i>	Thakthing	Lauraceae	Not assessed
<i>Colona floribunda</i>	Hnah-thap	Tiliaceae	Not assessed
<i>Cordia fragrantissima</i>	Mukpui	Boraginaceae	Not assessed
<i>Dalbergia obtusifolia</i>	Bianghrei	Fabaceae	Not assessed
<i>Dendrocnide sinuate</i>	Thak-pui	Urticaceae	Not assessed
<i>Derris robusta</i>	Thingkha	Papilionaceae	Not assessed
<i>Dipterocarpus indicus</i>	Lawngthing	Dipterocarpaceae	Endangered
<i>Duabanga grandiflora</i>	Zuang	Sonneratiaceae	Not assessed
<i>Dyospyros stricta</i>	Thing sam kir	Ebenaceae	Not assessed
<i>Dysoxylum binectariformum</i>	Sa ha tah	Meliaceae	Not assessed
<i>Elaeocarpus serratus</i>	Vantha	Elaeocarpaceae	Not assessed
<i>Embliba officinalis</i>	Sun hlu	Euphorbiaceae	Not assessed
<i>Erythrina variegata</i>	Fartuah	Fabaceae	Least concern
<i>Eurya cerasifolia</i>	Sihneh	Theaceae	Not assessed

Name of the Species	Common Name	Family	IUCN Status
<i>Eurya japonica</i>	Sihneh	Theaceae	Not assessed
<i>Ficus auriculata</i>	Theibal	Moraceae	Not assessed
<i>Ficus elastica</i>	Thialret	Moraceae	Not assessed
<i>Ficus hirta</i>	Sazutheipui	Moraceae	Not assessed
<i>Ficus hispida</i>	Paihtemaian	Moraceae	Not assessed
<i>Ficus racemose</i>	Chhohe	Moraceae	Not assessed
<i>Ficus semicordata</i>	Theipui	Moraceae	Not assessed
<i>Gmelina arborea</i>	Thlanvawng	Verbenaceae	Not assessed
<i>Gmelina oblongifolia</i>	Vawngthla	Verbenaceae	Not assessed
<i>Grewia laevigata</i>	Varitabelkang	Tiliaceae	Not assessed
<i>Heteropanax fragrans</i>	Changkhen	Araliaceae	Not assessed
<i>Knema linifolia</i>	Thingthi	Myristicaceae	Not assessed
<i>Ligustrum robustum</i>	Chawmzil	Oleaceae	Not assessed
<i>Lithocarpus pachyphyllus</i>	Thil	Fagaceae	Not assessed
<i>Litsea cubeba</i>	Sernam	Lauraceae	Not assessed
<i>Macaranga indica</i>	Hnahkhar	Euphorbiaceae	Not assessed
<i>Macaranga peltata</i>	Kharduap	Euphorbiaceae	Not assessed
<i>Macaranga pustulata</i>	Hnahkharpa	Euphorbiaceae	Not assessed
<i>Mallotus paniculatus</i>	Khar-pa	Euphorbiaceae	Not assessed
<i>Mangifera indica</i>	Theihai	Anacardiaceae	Not assessed
<i>Manihot esculenta</i>	Pangbal	Euphorbiaceae	Not assessed
<i>Mesua ferrae</i>	Herhse	Guttiferae	Not assessed
<i>Michelia champaca</i>	Ngiau	Magnoliaceae	Not assessed
<i>Neolitsea umbrosa</i>	Thakthing-suak	Lauraceae	Not assessed
<i>Neonauclea purpurea</i>	Lungkhup	Rubiaceae	Not assessed
<i>Olea dioica</i>	Sevuak	Oleaceae	Not assessed
<i>Oroxylum indicum</i>	Archangkawm	Bignoniaceae	Not assessed
<i>Parkia timoriana</i>	Zawngtah	Mimosaceae	Not assessed
<i>Persea villosa</i>	Bul bawn	Lauraceae	Not assessed
<i>Phoebe hainesiana</i>	Bul-eng	Lauraceae	Not assessed
<i>Protium serratum</i>	Bil	Burseraceae	Not assessed
<i>Rhus semialata</i>	Khawm hma	Anacardiaceae	Not assessed
<i>Sapium baccatum</i>	Thing vak pui	Euphorbiaceae	Not assessed
<i>Sapium eugeniaefolium</i>	Thingvawkpukungm am	Euphorbiaceae	Not assessed
<i>Saraca asoca</i>	Mual hawih	Caesalpiniaceae	Not assessed
<i>Schima wallichii</i>	Khiang	Theaceae	Not assessed
<i>Securinega virosa</i>	Sai siak	Phyllanthaceae	Not assessed
<i>Spondias pinata</i>	Tawitaw	Moraceae	Not assessed
<i>Sterculia alata</i>	Thing van dawt	Sterculiaceae	Not assessed
<i>Sterculia urens</i>	Pang khau	Sterculiaceae	Not assessed
<i>Sterculia villosa</i>	Khaupui	Sterculiaceae	Not assessed
<i>Stereospermum chelonoides</i>	Zihngal	Bignoniaceae	Not assessed
<i>Syzygium clariflorum</i>	Pichilimim	Myrtaceae	Not assessed
<i>Syzygium cumini</i>	Lenhmui	Myrtaceae	Not assessed
<i>Tectona grandis</i>	Tlawr	Verbenaceae	Not assessed
<i>Terminalia myriocarpa</i>	Char	Combretaceae	Not assessed
<i>Tetrameles nudiflora</i>	Thingdawl	Datisceae	Lower risk
<i>Toona ciliata</i>	Teipui	Meliaceae	Lower risk
<i>Trema orientalis</i>	Belphuar	Cannabaceae	Not assessed
<i>Vitex peduncularis</i>	Thing khawi lu	Verenaceae	Not assessed
<i>Wendlandia budleioides</i>	Batling	Rubiaceae	Not assessed

2. Identified Herbs and Shrubs in sampling area

Name of the Species	Common	Family	IUCN Status	Remarks
<i>Abelmoschus manihot</i>	Ui chu hlo	Malvaceae	Not assessed	Herb
<i>Acacia gageana</i>	Khang hu	Mimosaceae	Not assessed	Climber
<i>Acacia pruinescens</i>	Khang Pawl	Mimosaceae	Not assessed	Climber
<i>Achyranthus aspera</i>	Bu chhawl	Amaranthaceae	Not assessed	Herb
<i>Achyranthus bidentata</i>	Vangvat hlo	Amaranthaceae	Not assessed	Herb
<i>Acmella paniculata</i>	An sa te	Asteraceae	Not assessed	Herb
<i>Acmella uliginosa</i>	An sa te	Asteraceae	Not assessed	Herb
<i>Adenia trilobata</i>	Cho ak a umsuak	Passifloraceae	Not assessed	Shrub
<i>Aeschynomene indica</i>	Hlo nuar suak	Fabaceae	Not assessed	Herb
<i>Ageratum conyzoides</i>	Vaihlen-hlo	Asteraceae	Not assessed	Herb
<i>Alternanthera philoxeroides</i>	Ngha-te-ril	Amaranthaceae	Not assessed	Herb
<i>Alternanthera sessilis</i>	An-ngha-ril	Amaranthaceae	Not assessed	Herb
<i>Amaranthus viridis</i>	Len-hling- hling- nei-lo	Amaranthaceae	Not assessed	Herb
<i>Ammorium maximum</i>	Ai-du	Zingiberaceae	Not assessed	Herb
<i>Anisochilus pallidus</i>	Phunglengser	Lamiaceae	Not assessed	Herb
<i>Argyreia splendens</i>	Phel-phek	Convolvulaceae	Not assessed	Climber
<i>Arisaema album</i>	Mitthi-vai-mim	Araceae	Not assessed	Herb
<i>Bauhinia scandens</i>	Zawng-alei-lawn	Caesalpiniaceae	Not assessed	Climber
<i>Borassus flabellifer</i>	Sial-lu	Arecaceae	Not assessed	Palm
<i>Bridelia Montana</i>	Phaktel	Euphorbiaceae	Not assessed	Shrub/small tree
<i>Bridelia stipularis</i>	Hrui-phak-tel	Euphorbiaceae	Not assessed	Shrub
<i>Bridelia tomentosa</i>	Se-be-hliang	Euphorbiaceae	Not assessed	Shrub
<i>Byttneria pilosa</i>	Sa- zuk- nghawng- hlap	Sterculiaceae	Not assessed	Climber
<i>Centella asiatica</i>	Lam-bak	Apiaceae	Not assessed	Herb
<i>Cheilocostus speciosus</i>	Sum-bul	Zingiberaceae	Not assessed	Herb
<i>Chromolaena odorata</i>	Tlang-sam	Asteraceae	Not assessed	Shrub
<i>Cissampelos pareira</i>	Hnah-bial-hrui	Menispermaceae	Not assessed	Climber
<i>Cissus japonica</i>	Sa-nghar-hmai	Vitaceae	Not assessed	Climber
<i>Cissus repens</i>	Hrui-pawl	Vitaceae	Not assessed	Climber
<i>Clausena excavate</i>	Arpa-sen-til	Rutaceae	Not assessed	Shrub
<i>Clerodendron infortunatum</i>	Phui-hnam-chhia	Verbenaceae	Not assessed	Shrub
<i>Codariocalyx gyroides</i>	Hmei-thai-sa-rawh-t	Fabaceae	Not assessed	Shrub
<i>Colebrookiana oppositifolia</i>	Kawih- thuang-suak	Lamiaceae	Not assessed	Shrub
<i>Colocassia affinis</i>	Lep-lawp	Araceae	Not assessed	Herb
<i>Colquhounia coccinea</i>	Zumzuk	Lamiaceae	Not assessed	Shrub
<i>Combretum indicum</i>	--	Combretaceae	Not assessed	Climber
<i>Connarus paniculatus</i>	Hmeh-keh-rep	Connaraceae	Not assessed	Climber
<i>Crassocephalum crepidioides</i>	Buar-thau	Asteraceae	Not assessed	Herb
<i>Crotalaria micans</i>	Di-ral	Fabaceae	Not assessed	Shrub
<i>Cryptolepis dubia</i>	Thei-kel-ki-suak	Asclepiadaceae	Not assessed	Climber
<i>Cyanotis cristata</i>	Vawm-kur	Commelinaceae	Not assessed	Herb
<i>Daemonorops jenkinsiana</i>	Rai-chhawk	Arecaceae	Not assessed	Palm
<i>Dalbergia pinnata</i>	Saizawl	Fabaceae	Not assessed	Shrub
<i>Debregeasia longifolia</i>	Leh-ngo	Urticaceae	Not assessed	Shrub
<i>Dendrolobium triangulare</i>	Se-be-hliang	Fabaceae	Not assessed	Shrub
<i>Dendrophthoe falcate</i>	Thikhthli-ek-bawm- chi- khat	Loranthaceae	Not assessed	Bushy parasite
<i>Dioscorea alata</i>	Ba-chhim	Dioscoriaceae	Not assessed	Climber
<i>Dioscorea glabra</i>	Hra-kai	Dioscoriaceae	Not assessed	Climber

Name of the Species	Common	Family	IUCN Status	Remarks
<i>Dioscorea hispida</i>	li-liam	Dioscoriaceae	Not assessed	Climber
<i>Dioscorea pentaphylla</i>	Vawk-pui-ba-hra	Dioscoriaceae	Not assessed	Climber
<i>Entada purseatha</i>	Khawihrui	Fabaceae	Not assessed	Climber
<i>Gallinsoga parviflora</i>	Sazu-pui-chaw	Asteraceae	Not assessed	Herb
<i>Ipomoea hederifolia</i>	Ni-pui-par	Convolvulaceae	Not Assessed	
<i>Jasmenium elongatum</i>	Hlo-kha	Oleaceae	Not assessed	Climber
<i>Jasmenium laurifolium</i>	Kangfimhrui	Oleaceae	Not assessed	Climber
<i>Jasmenium multiflorum</i>	Hlo-kha	Oleaceae	Not assessed	Climber
<i>Jasmenium nervosum</i>	Hrui-kha	Oleaceae	Not assessed	Climber
<i>Jasmenium scandens</i>	Hrui-dam-dawi	Oleaceae	Not assessed	Shrub
<i>Leea compactiflora</i>	Kum-tin-tuai	Leeaceae	Not assessed	Shrub
<i>Lepionurus sylvestris</i>	Anpangthuam	Olacaceae	Not assessed	Shrub
<i>Maesa indica</i>	Arngeng	Myrsinaceae	Not assessed	Shrub
<i>Melastoma malabathricum</i>	Bui-lu-kham	Melastomaceae	Not assessed	Shrub
<i>Merremia umbellata</i>	Thian-pa	Convolvulaceae	Not assessed	Climber
<i>Mussanda macrophylla</i>	Va-kep	Rubiaceae		Shrub
<i>Nervilia arangoana</i>	Hnah-khat	Orchidaceae	Not assessed	Climber
<i>Osbeckia stellata</i>	Bui-lu-kham-pa	Melastomaceae	Not assessed	Shrub
<i>Oxyspora paniculata</i>	Kham-par	Melastomaceae	Not assessed	Shrub
<i>Pavetta indica</i>	Thai-nu-rual	Rubiaceae	Not assessed	Shrub
<i>Pericampylus glaucus</i>	Khau-chhim	Menispermaceae	Not assessed	Climber
<i>Polygonum chinense</i>	Diktawn	Polygalaceae	Not assessed	Herb
<i>Pothos chinensis</i>	Liking-chang-dam	Araceae	Not assessed	Climber
<i>Pothos scandens</i>	Laiking-tai-rua	Araceae	Not assessed	Climber
<i>Premna coriacea</i>	Kuam	Verbinaceae	Not assessed	Climber
<i>Rhododendronjohnstonanum</i>	Chhawkhlei-par-var	Ericaceae	Not assessed	Shrub
<i>Rubia cordifolia</i>	Saphit	Rubiaceae	Not assessed	Climber
<i>Rubus alceifolius</i>	Siali-nu-chhu	Rosaceae	Not assessed	Shrub
<i>Saccharum arundinaceum</i>	Rai- Ruang	Poaceae	Not assessed	Grass
<i>Sarcochlamyspulcherrima</i>	Leh-ngo	Urticaceae	Not assessed	Shrub
<i>Sida acuta</i>	Khing-khieh	Malvaceae	Not assessed	Shrub
<i>Smilax glabra</i>	Tluang-ngil	Smilacaceae	Not assessed	Climber
<i>Smilax ovalifolia</i>	Kai-ha-pui	Smilacaceae	Not assessed	Climber
<i>Stachyphryniumplacentarium</i>	Hnah-thial-pa	Marantaceae	Not assessed	Herb
<i>Tadehagi triquetrum</i>	Ui-fawm-a-ring	Fabaceae	Not assessed	Herb
<i>Thysanolaena maxima</i>	Hmunphiah	Poaceae	Not assessed	Grass
<i>Triumfetta rhomboidea</i>	Se-hnap-suak	Tiliaceae	Not assessed	Shrub
<i>Urena lobata</i>	Se-hnap	Malvaceae	Not assessed	Shrub

3. Identified Bamboo, Orchids and Ferns in Sampling Area

Name of the Species	Common	Family	IUCN Status	Remarks
<i>Adiantum phillippense</i>	Lungpui-sam	Adiantaceae	Not assessed	Fern
<i>Aerides rosea</i>	Nauban	Orchidaceae	Not assessed	Orchid
<i>Aglaomorpha coronans</i>	Tuai-bur	Polypodiaceae	Not assessed	Fern
<i>Bambusa tulda</i>	Rawthing	Poaceae	Not assessed	Bamboo
<i>Bulbophyllum lobbi</i>	Hnankhat	Orchidaceae	Not assessed	Orchid
<i>Cyathea chinensis</i>	Kawk-pui	Cyatheaceae	Not assessed	Tree fern
<i>Dendrobium chrysanthum</i>	Danghang	Orchidaceae	Not assessed	Orchid
<i>Dendrobium falconeri</i>	Lenpatkungbawl	Orchidaceae	Not assessed	Orchid
<i>Dendrobium formosum</i>	Nauban parvar	Orchidaceae	Not assessed	Orchid
<i>Dendrobium nobile</i>	Nauban	Orchidaceae	Not assessed	Orchid
<i>Dendrobium watti</i>	Nauban parvar	Orchidaceae	Not assessed	Orchid
<i>Dendrocalamusdampaensis</i>	Dampa mau	Poaceae	Not assessed	Bamboo
<i>Dendrocalamushamiltonii</i>	Phulrua	Poaceae	Not assessed	Bamboo
<i>Dendrocalamuslongispathus</i>	Rawnal	Poaceae	Not assessed	Bamboo
<i>Dicranopteris linearis</i>	Ar-thla-dawn	Gleicheniaceae	Not assessed	Fern
<i>Dinochloa compactiflora</i>	Sairil	Poaceae	Not assessed	Bamboo
<i>Drynaria quercifolia</i>	Tui bur suak	Polypodiaceae	Not assessed	Fern
<i>Dryopteris sp.</i>	Katchatpui	Polypodiaceae	Not assessed	Fern
<i>Lygodium flexuosum</i>	Dawnzempui	Lygodiaceae	Not assessed	Fern
<i>Melocanna baccifera</i>	Mautak	Poaceae	Not assessed	Bamboo
<i>Schizostachyum dullosa</i>	Rawthla	Poaceae	Not assessed	Bamboo

4. Identified Birds in Sampling Area

S. No	Common Name	Scientific Name	IUCN Status
1	White cheeked Partridge	Arborophila atrogularis	Near Threatened
2	Mountain bamboo Partridge	Bambusicola fytchii	Least Concern
3	Red jungle fowl	Gallus gallus	Least Concern
4	Striated heron	Butorides stariata	Least Concern
5	Cattle egret	Bubulcus ibis	Least Concern
6	Mountain hawk eagle	Nisaetus nipalensis	Least Concern
7	Spotted dove	Streptopelia chinensis	Least Concern
8	Ashy-headed green pigeon	Treron phayei	Near Threatened
9	Wedge tailed green pigeon	Treron sphennurus	Least Concern
10	Mountain scops owl	Otus spilocephalus	Least Concern
11	Oriental scops owl	Otus sunia	Least Concern
12	Silver backed Needle tail	Hirundapus cochinchii	Least Concern
13	House swift	Apus nipalensis	Least Concern
14	Red head trogon	Harpactes erythrocephalus	Least Concern
15	Oriental dwarf kingfisher	Ceyx erithaca	Least Concern
16	Stork billed kingfisher	Pelargopsis capensis	Least Concern
17	Blue eared kingfisher	Alcedo meneiting	Least Concern
18	Blue beared bee eater	Nyctornis athertoni	Least Concern
19	Indian roller	Coracias benghalensis	Least Concern
20	Eurasian hoopoe	Epupa epops	Least Concern
21	Great hornbill	Buceros bicornis	Near Threatened
22	Wreathed hornbill	Aceros undulatus	Least Concern
23	Great barbet	Megalaima virens	Least Concern
24	Grey capped woodpecker	Dendrocopos canicapillus	Least Concern
25	Rufous woodpecker	Celeus brachyurus	Least Concern
26	Pied falconet	Microhierax melanoleucus	Least Concern
27	Eurasian kestrel	Falco tinnunculus	Least Concern
28	Large woodshrike	Tephrodornis gularis	Least Concern
29	Short billed minivet	Pericrocotus brevirostris	Least Concern
30	Scarlet minivet	Pericrocotus speciosus	Least Concern
31	Grey backed shrike	Lanius tephonotus	Least Concern
32	Black hooded oriole	Oriolus xanthornus	Least Concern
33	Ashy drongo	Dicrurus leucophaeus	Least Concern
34	Crow billed Drongo	Dicrurus annectans	Least Concern
35	Black naped Monarch	Hypothymis azurea	Least Concern
36	Common green magpie	Cissa chinensis	Least Concern
37	Large billed crow	Corvus macrorhynchos	Least Concern
38	Grey headed canary- Flycatcher	Culicipa ceylonensis	Least Concern
39	Black crested bulbul	Pycnonotus flaviventris	Least Concern
40	Red vented bulbul cupwing	Pycnonotus cafer	Least Concern
41	Scaly breasted/pygmy	Pnoepyga albiventer	Least Concern
42	Grey billed Tesia	Tesia cyaniventer	Least Concern
43	Slaty bellied tesia	Tesia olivea	Least Concern
44	Yellow bellied warbler	Abroscopus superciliaris	Least Concern
45	Black faced warbler	Abroscopus schisisticeps	Least Concern
46	Yellow brown/Hume's Warbler	Phylloscopus inornatus	Least Concern

47	Eastern crowned leaf warbler	<i>Phylloscopus trochiloides</i>	Least Concern
48	Golden spectacled warbler	<i>Seicurus burkii</i>	Least Concern
49	Blyth's reed warbler	<i>Acrocephalus dumotum</i>	Least Concern
50	Western crowned warbler	<i>Phylloscopus occipitalis</i>	Least Concern
51	Thick billed warbler	<i>Phragmaticola aedon</i>	Least Concern
52	Common tailorbird	<i>Orthotomus sutorius</i>	Least Concern
53	Refescent prina	<i>Prinia rufescens</i>	Least Concern
54	Oriental white eye	<i>Zosteropus palpebrosus</i>	Least Concern
55	Pin striped tit Babbler	<i>Mixornis gularis</i>	Least Concern
56	Rufous-fronted Babbler	<i>Cyanordema rufirons</i>	Least Concern
57	White browed Scimitar- Babbler	<i>Pomatorhinus schisticeps</i>	Least Concern
58	Large scimitar babbler	<i>Megapomatorhinus hypoleucos</i>	Least Concern
59	Grey throated babbler	<i>Stachyris nigriceps</i>	Least Concern
60	White hooded babbler	<i>Gampsorhynchus rufulus</i>	Least Concern
61	Puff throated babbler	<i>Pellornum ruficeps</i>	Least Concern
62	Eyebrowed wren babbler	<i>Napothera epilepidota</i>	Least Concern
63	Nepal fulvetta	<i>Alcippe nipalensis</i>	Least Concern
64	White crested laughingthrush	<i>Garrulax leucolophus</i>	Least Concern
65	Greater Necklaced Laughingthrush	<i>Lanthocincla pectoralis</i>	Least Concern
66	Asian fairy bluebird	<i>Irena puella</i>	Least Concern
67	Brown breasted flycatcher	<i>Muscicapa muttui</i>	Least Concern
68	Oriental magpie Robin	<i>Copsychus saularis</i>	Least Concern
69	White tailed flycatcher	<i>Cornis concretus</i>	Least Concern
70	Verditer flycatcher	<i>Eumyias thalassinus</i>	Least Concern
71	Blue whistling thrush	<i>Myophonus caureleus</i>	Least Concern
72	Spotted forktail	<i>Enicurus maculatus</i>	Least Concern
73	Black backed forktail	<i>Enicurus immaculatus</i>	Least Concern
74	Siberian rubythroat	<i>Calliope calliope</i>	Least Concern
75	Little pied flycatcher	<i>Ficedula westermanni</i>	Least Concern
76	Rufous gorgeted flycatcher	<i>Ficedula strophciata</i>	Least Concern
77	White capped redstart	<i>Phoenicurus leucocephalus</i>	Least Concern
78	Blue rock- thrush	<i>Monticola solitarius</i>	Least Concern
79	Grey bushchat	<i>Saxicola ferreus</i>	Least Concern
80	Dark sided flycatcher	<i>Muscicapa sibirica</i>	Least Concern
81	Dark sided thrush	<i>Zootgera marginata</i>	Least Concern
82	Common hill myana	<i>Gracula religiosa</i>	Least Concern
83	Common myana	<i>Acridotheres tristis</i>	Least Concern
84	Golden fronted leafbird	<i>Chloropsisaurifrons</i>	Least Concern
85	Plain flowerpecker	<i>Dicaeum minullum</i>	Least Concern
86	Ruby cheeked sunbird	<i>Chalcoparis singalensis</i>	Least Concern
87	Little spiderhunter	<i>Arachnothera longirostra</i>	Least Concern
88	Streaked spiderhunter	<i>Arachnothera magna</i>	Least Concern
89	Grey wagtail	<i>Motacilla cinerea</i>	Least Concern
90	Forest wagtail	<i>Dendronanthus indicus</i>	Least Concern
91	Eurasian tree sparrow	<i>Passer montanus</i>	Least Concern
92	Black stork	<i>Ciconia nigra</i>	Least Concern
93	Himalyan bluetail	<i>Tarsiger cyanurus</i>	Least Concern

5. Identified Mammals in Sampling Area

	Common Name	Scientific Name	Vernacular Name	IUCN status
Mammals	Western Hoolock gibbon	<i>Hoolock hoolock</i>	Hauhuk	Endangered
	Rhesus macaque	<i>Macaca mulatta</i>	Zawng	Least Concern
	Assamese macaque	<i>Macaca assamensis</i>	Zo/Khan Zawng	Not Threatened
	Stump tailed macaque	<i>Macaca arctiodes</i>	Zawnghmaisen	Vulnerable
	Capped leaf monkey	<i>Trachypithecus pileatus</i>	Ngau	Vulnerable
	Flying fox	<i>Pteropus giganteus</i>	Not known	Least Concern
	Short-nosed fruit bat	<i>Cynopterus sphnix</i>	Not known	Least Concern
	Rat-headed bat	<i>Tylonycteris pachypus</i>	Not known	Least Concern
	House-mouse	<i>Mus musculus</i>	Not known	Least Concern
	House rat	<i>Rattus rattus</i>	Not known	Least Concern
	Jungle cat	<i>Felis chaus</i>	Sauak	Least Concern

6. Identified Amphibians in Sampling Area

	Family	Scientific Name	IUCN Status
Frogs	Bufonidae	<i>Bufo melanostictus</i>	Least Concern
	Megophryidae	<i>Xenophrys parva</i>	Least Concern
	Ranidae	<i>Amolops marmoratus</i>	Least Concern
	Ranidae	<i>Rana danielli</i>	Least Concern
	Rhacophoridae	<i>Philautus sp.</i>	Least Concern
		<i>Rhacophorus bipunctatus</i>	Least Concern
		<i>Rhacophorus maximus</i>	Least Concern

7. Identified Reptiles in Sampling Area

	Family	Scientific Name	IUCN Status
Lizards	Agamidae	<i>Draco sp.</i>	Least Concern
	Agamidae	<i>Draco maculates</i>	Least Concern
	Agamidae	<i>Ptyctolaemus gularis</i>	Not assessed
	Gekkonidae	<i>Gekko gekko</i>	Not assessed
	Scincidae	<i>Mabuya multifasciata</i>	Not assessed
Snakes	Colubridae	<i>Amphiesma xenura</i>	Not assessed
		<i>Xenochrophis piscator</i>	Not assessed
	Viperidae	<i>Trimeresurus cf. stejnegeri</i>	Not assessed
	Elapidae	<i>Bungarus fasciatus</i>	Least Concern

8. Identified Butterflies in Sampling Area

Family	Scientific Name	Common Name	IUCN Status
Butterflies Papilionidae	<i>Pailio paris</i>	Pari peacock	Not assessed
	<i>Graphium doson</i>	Common jay	Not assessed
	<i>Graphium xenocles</i>	Great zebra	Not assessed
	<i>Graphium megarus</i>	Spotted zebra	Not assessed
	<i>Papilio polytes</i>	Common Mormon	Not assessed
	<i>Graphium eurypylus</i>	Great Jay	Not assessed
	<i>Papilio castor</i>	Common mime	Not assessed
	<i>Papilio nephelus</i>	Yellow helen	Not assessed
	<i>Byasa dasarada</i>	Great windmill	Not assessed
	Pieridae	<i>Catopsilia pyranthe</i>	Mottled emigrant
<i>Catopsilia pomona</i>		Lemon emigrant	Not assessed
<i>Eurema andersoni</i>		One spot grass yellow	Not assessed
<i>Cepora nerissa</i>		Common gull	Not assessed
<i>Appias indra</i>		Plain buffin	Not assessed
<i>Delias pasithoe</i>		Red-base jezebel	Not assessed
<i>Eurema hecabe</i>		Common grass yellow	Not assessed
<i>Gandaca harina</i>		Tree yellow	Not assessed
<i>Pieris canidia</i>		Asian cabbage white	Not assessed
Nymphalidae		<i>Apatura ambica</i>	Indian purple emperor
	<i>Mimathyma chevana</i>	Sergeant emperor	Not assessed
	<i>Athyma cama</i>	Orange staff sergeant	Not assessed
	<i>Symbrenthia hypselis</i>	Spotted jester	Not assessed
	<i>Euploea core</i>	Common crow	Not assessed
	<i>Danaus chrysippus</i>	Plain tiger	Not assessed
	<i>Paranoia aglea</i>	Glassy tiger	Not assessed
Hesperiidae	<i>Iton semamura</i>	Common wight	Not assessed
	<i>Odontoptilum angulata</i>	Chestnut angle	Not assessed
	<i>Hasora vita</i>	Plain banded awl	Not assessed
	<i>Lambrix salsala</i>	Chestnut bob	Not assessed
	<i>Sarangesa dasahrara</i>	Common small flat	Not assessed



FEAR for T&D subprojects in District District
under NERPSIP in Mizoram



Appendix B

Public Consultation

Sr. No.	Place	Date	No. of People Present
01	West Phulpui	17.5.2019	06
02	West Phulpui	17.5.2019	07
03	Marpara	17.5.2020	03



West Phulpui, West Phaileng, Mizoram



Marprara, Mizoram

GOVERNMENT OF MIZORAM
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT
MIZORAM : AIZAWL

MEETING NOTICE


Dated Aizawl, the 4th Sept.,2014

No.WB-3/2014-EC(PC)/SPIU/33 : In the interest of public service there will be Public Consultation meeting for new Transmission Lines proposed under Tranche-I of the NER Power System Improvement Project pertaining to Mizoram as below:

Sl No.	Date	Location of Meeting	EE to conduct the Meeting.
1	9.9.2014	S.Bungtlang	EE, Saiha.
2	10.9.2014	Chawngte	EE, Maintenance Division-II, Lunglei
3	11.9.2014	Lungsen	EE, Maintenance Division-II, Lunglei
4	13.9.2014	W.Phaileng	EE, Mamit.

Concerned Executive Engineer will make public announcement and make all preparations for the meeting. The co-ordinator from POWERGRID is Mr. H.Sailo, Manager, Phone No-9436352280. All the management and activities will be carried out by POWERGRID. However, convening of the public along with site selection will be done by the Departemnt.


All the expenditure involved shall be borne by the PGCIL.


(LIANNGHINGLOVA PACHUAU)
Engineer-in-Chief
Power & Electricity Department
Dated Aizawl, the 4th Sept.,2014

Memo No.WB-3/2014-EC(PC)/SPIU/33

Copy to :

- ✓ 1) General Maneger, NERPSIP, Power Grid Corporation of India Ltd. Monal Tower, 6th Floor, (Opposite to Assam Secretariat), G.S. Road, P.O-Dispur, Guwahati-781006.
- 2) The Chief Engineer, System Operation/Distribution for favour of information. He is requested to detail Engineers to represent the Departemnt for each meeting.
- 3) The Superintending Engineer, Lunglei Power Circle/Project Circle-I for information.
- 4) All concerned Executive Engineer for information and necessary action.
- 5) Mr. H.Sailo, Manager, NERPSIP, POWERGRID, Aizawl for information and necessary action.


Engineer-in-Chief
Power & Electricity Department

OFFICE OF THE ENGINEER-IN-CHIEF
POWER & ELECTRICITY DEPARTMENT : GOVT. OF MIZORAM
Mizoram :: Aizawl : 796 007

PROJECT SUMMARY

North Eastern States a kan power ruangam (scenario) tihchangtlun nan India Sawrkar (Government of India) chuan World Bank tanpuinain North Eastern Region Power System Improvement Project (NERPSIP) a din a. Hetah hian Mizoram pawh a tel ve a. NERPSIP hmathlir chu Power Sub-station thar siam, Transmission line thar leh Distribution line thar din te mai bakah Sub-station leh Transmission line hlui deuh tawhte thawm that leh tihchangtlun a ni. Mizoram state tana NERPSIP-in a tih tum te chu :-

- Load sang zawk la thei tura Mizoram state transmission leh distribution network-te tihchangtlun leh Transmission & Distribution (T&D) loss tih hniam.
- Power mamawh dan chiang taka hre tur leh power supply tha pe thei tura hmalak.

Mizoram chhungah chuan Power & Electricity Department, Govt. of Mizoram hi a neitu an nia. A hnatak thawk tur chuan Govt. of India atangin Power Grid Corporation of India Ltd.(PGCIL) he project hi kengkawhtur a ruat an ni a. NERPSIP hnuaiah hian, W.Phaileng - Marpara 132 kV line siam hi telh a ni a. He line siam avang hian a ngheta ram lak sak a tul hran lova. A siam laia ram emaw thlai tih chhiat palh te chu a hu tawk zel a rulh (compensate) an ni thung ang. Chumi ti thei tur chuan he project ruahman lain ruahmanna siam fel vek a ni.

Mizoram state-a North Eastern Power System Improvement Project (NERPSIP) kan hman hian ram leh hnam ngelnghehna leh intodelh kawnga hmasawna a thlen ngei kan beisei a ni.

Er. Lianghinglova Pachuau
Engineer-in-Chief, P & E Deptt.
Mizoram, Aizawl

OFFICE OF THE ENGINEER -IN-CHIEF
POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM
MIZORAM : AIZAWL : 796007

**Minutes / proceedings of Public consultation held on 15th September,
2014 at West Phaileng, Mammit District, Mizoram under North
Eastern Region Power System Improvement Project (NERPSIP) in
Mizoram**

Subject - Construction of 132 kV S/C WEST PHAILENG – MARPARA Transmission Line and associated 33 KV distribution line (100 M overhead cable connection from existing West Phaileng 33 KV S/s to proposed 132 KV S/s at West Phaileng) under the scope of NERPSIP in Mammit District, Mizoram.

Annexure – Signatures of members of the Village Council / general public and officials of Power and Electricity Department, Govt. of Mizoram and Power Grid Corporation of India Limited (PGCIL) who attended the meeting (*Photographs of the public meeting is also enclosed*)

Venue of the Meeting: - Village Community Hall, West Phaileng

The SDO (Electrical.) West Phaileng, welcomed all the public and officials who had spare their valuable time to attend the hearing. The SDO (Elect.) gave a brief description about the project and he also informed that the project will be funded by the World Bank and the Central Government of India. He urged the public to co-operate and inform that the officials of PGCIL will brief them about the project.

Accordingly, Shri H. Sailo, Manager, POWERGRID had given a brief account about the North Eastern Region Power System Improvement Project (NERPSIP) and explained the detail scope to be covered under the Project in Mizoram. He informed that a 132 KV S/C (on D/C Tower) Transmission line connecting WEST PHAILENG to MARPARA is proposed to be constructed under the scheme for strengthening the existing transmission network. He also informed that from 132 KV WEST PHAILENG Sub-station (proposed), a 33 kV distribution line (i.e. 100 M overhead cable connection) will also be constructed connecting to 33 KV existing WEST PHAILENG S/s for strengthening of the distribution network and end user connectivity in the West Phaileng area. He informed that the common public will be directly benefited by the Project. He also informed that care will be taken to construct the line in such way as to avoid human habitat, but in case it is unavoidable, sufficient compensation will be paid by PGCIL as per State Government Assessment for which

adequate provision has been kept in the project cost. He sought the co-operation of all the public to make this project successful.

Since most of the public attending the meeting belong to Mizo Community, therefore Shri H. Sailo has explained the details of the above speech in Mizo language.

The public enquired various issues regarding compensation to be paid, final route of the line vis-à-vis affected persons, need for further consultation with the villagers etc.

In this regard, the SDO (Electrical) West Phaileng and POWERGRID representative explained that at present only a tentative route is identified for the line. However, a detail survey/check survey will be carried out before construction and accordingly each and every affected landowner/person will be identified for assessment of compensation. The compensation will be paid at par with Govt. rate after joint survey of the damages. It was also explained that every care will be taken to avoid any human habitation during final survey of the line and in case if it cannot be avoided the damages caused to the public will be adequately compensated.

In conclusion, the public has unanimously agreed that the construction of the transmission line and sub-stations and associated distribution lines is for the sole benefit of the State and the public, provided care should be taken to inflict minimum damage to crops, forests and any structure during construction.

The hearing concluded with the vote of thanks from the SDO (Electrical) West Phaileng and also assured that all stake holder will be taken into confident during the construction.

Sd/-

SDO (Elect) West Phaileng

OFFICE OF THE ENGINEER -IN-CHIEF
POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM
MIZORAM : AIZAWL : 796007

Minutes / proceedings of Public consultation held on 15th September, 2014 at West Phaileng, Mamit District, Mizoram under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram

Subject - Construction of 132 kV S/C WEST PHAILENG – MARPARA Transmission Line and associated 33 KV distribution line (100 M overhead cable connection from existing West Phaileng 33 KV S/s to proposed 132 KV S/s at West Phaileng) under the scope of NERPSIP in Mammit District, Mizoram.

Annexure – Signatures of members of the Village Council / general public and officials of Power and Electricity Department, Govt. of Mizoram and Power Grid Corporation of India Limited (PGCIL) who attended the meeting (*Photographs of the public meeting is also enclosed*)

Venue of the Meeting: - Village Community Hall, West Phaileng

Pu Zothansanga, SDO, Power & Electricity Department, West Phaileng chuan mipui leh hotu liante, an hun hlu tak senga an rawn kal thei chu lawmawm a tih thu sawiin lo kalkhawm zawng zawngte alo lawm a. SDO chuan he project chungchang tawifel taka sawiin, a senso tur zawng zawngte chu World Bank leh India Sawrkar laipui tum tur anih thu te a sawi lang a. Mipui lo kalkhawm te chu sawrkar hmalakna thawhpuia sawmin PGCIL hotuten he project chungchang hi kimchang zawka an rawn sawi tur thu mipuite a han hrilh a.

Pu H. Sailo, Manager, POWERGRID chuan North Eastern Region Power System Improvement Project (NERPSIP) chungchang te sawifiahin, Mizoram chhunga he project kalphung leh nihdan te sawizauna a han nei a. He 132kV S/C(on D/C Tower) West Phaileng –Marpara Transmission line hi electric line lo awm tawh sate tihchangtlun nana ruahman anih thu te a han sawi chho zel a. Tin, 132 kV Sub-Station, West Phaileng siam thar tur atangin meter 100 vel a thui 33kV line hmangin Sub-Station lo awmsa chu thlunzawm ani anga, power semdarhna tihchangtlun nan leh West Phaileng leh a chhehvela mi te tan chhenfakawm tak anih tur thu pawh a han sawi lang nghal a. He line siam nan hian mihring chenna te tichhe lo thei ang bera kalpui anih tur thu leh, lohtheihloha ram lak leh tihchhiat te a awm anih erawh chuan, zawngnadawmna felfai tak, dan hnuaia tihfel turin he project ah hian ruahmanna siam

ani tih te mipui a han hrilh hria a, mipuite chu he project hlawhtlinna tura theihtawp chhuahpui tur leh tawiawm turin a han sawm nghal bawk ani.

Mipui lo kalkhawmte hi Mizo vek an nih avangin Pu H.Sailo hian Mizo tawngin hrilhfiahna leh thusawina hun hi a hmang ani.

Mipui lo kalkhawmte chuan zangnadawmna leh line kawng kal dan tur te an zawt chik hle a, in rawnkhawmna te neih leh zel nise an ti a.

Wet Phaileng SDO chuan he elctric kawng tur hi ruahman chhin phawt anih thu leh nakinah survey kimchang neih anih leh hnu ah he line ina mimal ram a hrut dan tur leh zangnadawmna te tihfel ala ni dawn ani tih mipuite a han hrilh ve leh a. A theih chin chin ah mimal ram te tichhe lo zawnga kalpui anih tur thu leh, lohtheihloh ah erawh chuan sawrkar dan hnuai ah fel taka zangnadawmna pek an nih tur thu te a hrilh bawk a.

Ngun taka sawiho anih hnu ah mipui lo kalkhawmte chuan he line leh sub-station siam tur te hi mipuite leh sawrkar hamthatna tur leh hmasawmna tur ani tih lungrual takin an pawma. Amaherawhchu, thlai, thing leh mau leh bungrua te tichhe lo thei ber tura kalpui nise an duh ani.

Tichuan, West Phaileng SDO in lawmthusawina neiin, mipuite chu a tul ang zel a rawn an ni ang tih sawiin, he inrawnkhawmna hun hi a titawp ta ani.

Sd/-

SDO,P&E Depptt., West Phaileng

Photographs of Public Consultation held on 15th Sept'2014 at West Phaileng







PUBLIC CONSULATION MEETING

1
5

Venue: W. Thairep, MAMIT DISTRICT, MIZORAM

Date: 15/09/14

ATTENDANCE

Sl. No.	Name	Signature
1.	J. LALMAWIZUALH	
2.	LAL ROSANGA	
3.	LAL RINPUI	
4.	BWATSANDA	
5.	LALSAMLIANA	
6.	LALLIANA	
7.	ROAMINGLIANA	
8.	ROCHUNG NUNGA	
9.	LAMHLEMA	
10.	VANLALVENA	
11.	C. ZAI THANGA	
12.	REMEIAMA	
13.	LALHMINGTHANGA	
14.	REMRUAIKIMA	
15.	LALZOLIANA	
16.	MAURETHAWA	
17.	H. LALVUMAWIA	
18.	P.C. LALLIANAWA	
19.	B. Zadingliang	
20.	Lalrauhang	

PUBLIC CONSULTATION MEETING

Venue: W. Phaiter

Date: 15/09/14

2/5

ATTENDANCE

Sl. No.	Name	Signature
21	Lalraungang,	Lalraungang
22	Lalraungthang,	Lalraungthang
23	Rini	Rini
24	Uaulalehelo,	Uaulalehelo
25	Lalromang,	Lalromang
26	Raehung,	Raehung
27	C. Lalraungmawis	C. Lalraungmawis
28	Zothang,	Zothang
29	Lalraungthang,	Lalraungthang
30	Lalthanmawis	Lalthanmawis
31	Lalthanmawis	Lalthanmawis
32	Uaulahriats	Uaulahriats
33	Lalraungthang,	Lalraungthang
34	K.C. Lalthanmawis	K.C. Lalthanmawis
35	Zothang,	Zothang
36	C. Lalraungthang	C. Lalraungthang
37	C. Zothanmawis	C. Zothanmawis
38	B. Lalthanmawis	B. Lalthanmawis
39	Lalraungthang,	Lalraungthang
40	J. Mawis	J. Mawis

PUBLIC CONSULTATION MEETING

3/5

Venue: W. Phaikef

Date: 15/09/14

ATTENDANCE

Sl. No.	Name	Signature
41	LALAWOMPUIA	Ampua
42	MOUATITANA	Mouti
43	LALNUNMAOTA	L. Nuni
44	ZAKAALOVA	Zakalova
45	LALROKHAUNA	L. Rokhauna
46	THARENGI	Tharengi
47	B. RAZUARA	B. Rza
48	LALRAHEKUA	L. Rhea
49	NGURENG, ZAKVA	Ngura
50	Rani	Rani
51	ZORHEKALAMUA	Zorheka
52	LALNUNMAOTA	L. Nuni
53	ZIRA	Zina
54	ZORANNGHABA	Zoranngaba
55	JOSEPH RUMALRUARA	Rumalruara
56	ROTHANGPUIA	Rthangpua
57	LALHAINO THANA SAILO	L. Haino
58	LALRAKHAUNA	L. Rokhauna
59	LALRAATIANA	L. Raatia
60	AOMPUIA	Aompua

GOVERNMENT OF MIZORAM
OFFICE OF THE SUB-DIVISIONAL OFFICER
POWER AND ELECTRICITY DEPARTMENT,
WEST PHAILENG.

To,

Dated: 14.05.2017.

The Village Council President (VCP)
Phuldungsei,
Mamit District, Mizoram

Sub: Notice for public consultation meeting with regard to construction of 132 KV West Phaileng-Marpara T/L under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram

Dear Sir,

This is for your kind information that, Deptt of Power & Electricity, Govt. of Mizoram has undertaken a transmission project under NERPSIP (A project funded by World Bank and the Govt. of India) namely **132 KV West Phailang to Marpara T/L** in Mamit district of Mizoram for improvement of power scenario in the state. **Power Grid Corporation of India Limited** is the executing agency of the project on behalf of P & E Dept. Mizoram.

In this regard, it is intended to arrange a public consultation meeting at Phuldungsei to discuss the various environmental/social/compensation related issues of the project and to apprise the public about the project details and to ensure maximum public participation for success of the project.

The meeting is proposed to be arranged as below:

Venue: Community Hall, Phuldungsei
Date: 18/05/2017

SDO, West Phailang/POWERGRID representatives will deliberate the key issues in the meeting. You are, hereby, requested to kindly ensure the participation of villagers of Phuldungsei village in the said meeting.

Yours faithfully,


(B Lalrinthanga)
Sub-Divisional Officer, P & E
W. Phaileng Power Sub-Division
W. Phaileng

NO.F-11014/1/14-WPSD/20
GOVERNMENT OF MIZORAM
OFFICE OF THE SUB DIVISIONAL OFFICER : POWER SUB DIVISION
W.PHAILENG

Dated W.Phaileng, the 14th.May. 2017

To,

The Village Council President(VCP)
Phuldungsei
Mamit District, Mizoram

Subj: North Eastern Power system Improvement Project hnuaiia
W. Phaileng – Marpara 132kV line chungchanga inhmuh
khawmna.

Ka Pu,

Power & Electricity Department hmalaknain NERPSIP project
In World Bank sum hmanga 132kV line Mamit District chungga W. Phaileng
atanga Marpara line siam that dan tur chungchanga in hmuhkhawmna tur Power
Grid Corporation in a koh hi ngaih pawimawh ngei nise.

Hemi in a kaihhnawih theih tur thil chi hrang hrang
Khawthlang thil leh zangnadawmna chungchangte leh he project in a thawhtur te
leh a kaihhnawih thil sawihona neih turah hian mipui te a tam thei ang bera kal
tura lo in hriattir theih nise.

Hetiang hian inhmuh khawmna hun leh hmun siam a ni.

A hmun : Community Hall, Phuldungsei

A hun : Dt 18.5.2017

I rintlak


(B LALRINTHANGA)
Sub-Divisional Officer, P & E
W. Phaileng Power Sub-Division
W. Phaileng

**GOVT. OF MIZORAM
OFFICE OF THE SUB-DIVISIONAL OFFICER
W. PHAILENG POWER SUB-DIVISION
W. PHAILENG, MIZORAM.**

Minutes/proceedings of Public consultation held on 18th May 2017 at Phuldungsei, Mamit District, Mizoram under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram.

Sub: Construction of 132 kV S/C West Phailenfg – Marpara Transmission line under the scope of NERPSIP in Mamit District, Mizoram.


Venue of Meeting: Village Community Hall, Phuldungsei.

Shri B. Lalrinthanga, SDO, (Electrical), W. Phaileng, welcomed all the public and officials who had spare their valuable time to attend the meeting. The SDO (Elect.) gave a brief description about the project and he also informed that the project will be funded by World Bank and The Government of India. He requested and encouraged the public to co-operate and inform that the officials of PGCIL will brief the about the project.

Accordingly, Shri P. B. Sharma, Manager (NERPSIP), POWERGRID, Mizoram had given a brief account about the North Eastern Region Power System Improvement Project (NERPSIP) and explained the detail scope to be covered under the project in Mizoram. Being a non-mizo he can't speak in local language and hence one interpreter was arranged and translated to the public during his speech. He informed that a 132kV S/C (on D/C Tower) Transmission line will be constructed under the scheme connecting W. Phaileng to Marpara for strengthening the existing transmission network. He also informed that care will be taken to avoid human habitat while plotting line route by carrying out a final survey with the agency/company to be executed the construction. However, any unavoidable cases arise during the course, sufficient compensation will be paid as per the assessment of the Government of Mizoram for which provision has been kept in the project cost. He also convinced the public that after completion of the project all the structures such as S/S, T/L, etc. will be handed over to the Govt. of Mizoram. So, whatever in the scope of the project will be the property of Mizoram. Finally, he sought the co-operation and hearty helping hand of all the public to make the project successful.

The public enquired various issues. One individual raised a question 'why a 132kV S/S can't be constructed at Phuldungsei'. In response he was told that the entire scope of the project was based on the DPR of Govt. of Mizoram and PGCIL could not do anything about the scope. Further, he asked that during the course of construction can the local NGOs such as Village Council, YMA do the manual labour to earn something for their fund. In response, it was told that now-a-days most of the excavation work is carried out mechanically; however let us see the matter in course of time. All the public seems convinced and satisfied.

The hearing concluded with the vote of thanks from the SDO (Electrical) W. Phaileng and also assured that all the stake holder will be taken into confident during the construction.


(B. LALRINTHANGA)
Sub-Divisional Officer
Power Sub-Division
W. Phaileng.

GOVERNMENT OF MIZOAM
OFFICE OF THE SUB-DIVISIONAL OFFICER
W. PHAILENG POWER SUB-DIVISION
W. PHAILENG.

Minutes/Proceedings of Public consultation held on 18th. May.2017 at Phuldungsei, Mamit District, Mizoram under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram.

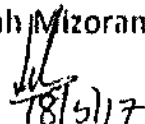
Subject: Construction of 132kV S/C WEST PHAILENG – MARPARA Transmission line under the scope of NERPSIP in Mamit District, Mizoram.

Venue of the Meeting:- Village Community Hall, Phuldungsei.

Pu B. Lalrinthanga, SDO P&E Department, W. Phaileng chuan he inhmuh khawmna hi a kalhruala, khawtlang hrualtute leh mipui te, an hun hlu tak seng a an rawn kal thei chu lawmawm a tih thu sawlin, local khawm zawng zawng te a lo lawm a. Project chungchang leh kalhmangte tawlfel takin a hrilhfiahin, a senso pawh Central India leh World Bank sum a siam a nih tur thute a sawi lang a. Mipui local khawm te chu sorkar hmalakna lo tawlawm a thawhpui thiam turin a sawm a. Tichuan, he project chungchang kim chang zawka sawi turin Pu P.B. Sharma, Manager, PGCIL a sawm zui nghal a ni. Pu P.B Sharmahian sap tawngin a sawi a, tawnglettu hmangln mizotawnga lehlin a ni.


Pu P.B. Sharma, Manager, PGCIL chuan North Eastern Power System Improvement Project (NERPSIP) chungchang te sawifiahin, Mizoram chhunga he Project kalpul dan te a sawi bawk a. He 132kV S/C W. Phaileng to Marpara Transmission line hi helal tlangdunga power system tih changtlun nana ruahman a nih dan te a sawi zau chho zel a. Tin, he project hi Central Sorkar leh World Bank sum atanga ruahman a nih dante a sawi bawk a. He line siam nan hian mihring chenna In leh huan leh ram thlaite ti chhelo thei ang bera kalpui leh ruahman a nih tur thu leh, loh theih loh a ram lak leh tihchhiatte a awm a nih chuan zangnadawmna felfai tak dan hnuai a tihfel a nih tur thu he project hian a ruahman tel dan te kalkhawmte a hrilhfiah a. Kal khawmte chu he Project hlawhtlinna atana theihtawpa thawhpui tur leh tawlawm turin a sawm a ni.

Hemi zawhah hian zawhna leh chhanna line kal dan leh zangnadawmna chungchang atan hun hman a niin he line kal dan tur leh thawh dan tur atana zawhna awm an gang te In hrilhfiah a ni. Engvangin nge 132kV S/S hi Phuldungsei ah a awm ve loh th zawhna a awm a, DPR ah Mizoram sorkarin a


18/5/17
Sub-Divisional Officer
W Phaileng Power Sub-Division
W Phaileng

telh loh avangin PGCIL chuan a telh theih loh thua chhan a ni a. Tin, ahmun laih leh thil dang hi a bulhnai ami NGO te - VC, YMA leh adangte hian thawh theih a nih leh nih loh zawhna a awm bawk a. Tunlain khawl hman thin ni a, engpawh nise, athawh hunah contractor te nenla sawi ho a ni ang tia chhan a ni.

Tichuan, SDO(P&E), W. Phaileng in lawmthu sawiin, mipui te chu a tul ang zela hmalak pui tura sawmin he inhmukhawmna hun hi a titawp ta a ni.


18/5/17
(B LALRINTHANGA)
Sub Divisional Officer
Power Sub Division
W. Phaileng

PUBLIC CONSULTATION MEETING

Venue: Phuldungsei, Mamit District, Mizoram.

Date: 18-05-2017.

Sl. No.	Name	Signature
1	J LALRIMAWII	[Signature]
2	Latrothuanpi	[Signature]
3	Lananghanga	[Signature]
4	R. Lalawla	[Signature]
5	J. Lallianmuis	[Signature]
6	Lalrohua	[Signature]
7	Landa	[Signature]
8	Lalmunthia	[Signature]
9	R. Sankhng	[Signature]
10	S. Lalmunthia	[Signature]
11	Lalmunthia	[Signature]
12	Van Lalawla	[Signature]
13	C. Sankhng	[Signature]
14	Van Lalawla	[Signature]
15	V. Lalawla	[Signature]
16	Zailianthang	[Signature]
17	Lalawla	[Signature]
18	R. Lalawla	[Signature]
19	Lalawla	[Signature]
20	Sapawni	[Signature]
21	Sapawni	[Signature]
22	J. Lalawla	[Signature]
23	Van Lalawla	[Signature]
24	Lalawla	[Signature]
25	Van Lalawla	[Signature]
26	Lalawla	[Signature]
27	Lalawla	[Signature]
28	Van Lalawla	[Signature]
29	Lalawla	[Signature]
30	H. Lalawla	[Signature]

[Signature]
18/05/17

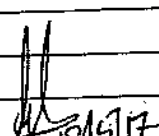
[Signature]
18/05/17
Sub-Divisional Officer
W. Phaileng Power Sub-Division
W. Phaileng

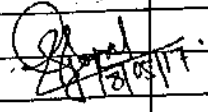
PUBLIC CONSULTATION MEETING

Venue: Phuldungsei, Mamit District, Mizoram.

Date: 18-05-2017.

Sl. No.	Name	Signature
1	H. Lalthianghlim	Lalthianghlim
2	Laldawida	Dawida
3	Lalthangpui	Thangpui
4	Lalreihkimi	Reihkimi
5	Laldikpui	Dikpui
6	Vankhuais	Vankhuais
7	Lalanmpui	Lalanmpui
8	Vanlathuati	Vanlathuati
9	C. Lalthangpui	Lalthangpui
10	Vanlathuati	Vanlathuati
11	Laldanpui	Danpui
12	Lalreimawii Falte	Falte
13	Zoramliani	Zoramliani
14	Vanlalpeko	Peke
15	K. Lalthangpui	Lalthangpui
16	Lalreimawii	Reimawii
17	Saithangpui	Saithangpui
18	K. VANLAL HMDITHARA	K. Vanlal Hmdithara
19	Lalreimawii Cherkhal.	Cherkhal
20		
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 Sub-Divisional Officer
 W. Phaileng Power Sub-Division
 W. Phaileng


 18/05/17

Photographs of Public Consultation held at Village Community Hall Phuldungsei on 18th May 2017







FEAR for T&D subprojects in District District
under NERPSIP in Mizoram



Appendix C

TOWER SCHEDULE

POWER GRID CORPORATION OF INDIA LIMITED
 NERPSIP, AIZAWL, MIZORAM
 Construction of 132kV S/C (on D/C tower) West Phalleng-Marpara Transmission Line

15.11.2019

Executing agency: M/s Sterling & Wilson Pvt.Ltd

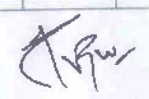
Consolidated Tower Schedule

Sl. No.	AP No.	Type of Tower	Un Equal Leg Eatin				Raised Chimney				Angle of Deviation	Span Length (m)	Section Length (m)	Cumulative change (m)	Reduced Level (m)	C.P.D	Level Diff	Sum of Adjacent Span (m)	Wind Span (m)	Weight Span Hot (m)			Weight Span Cold (m)			Remarks	Major Crossing details	Village Name	GPS CO-ORDINATE	
			A	B	C	D	A	B	C	D										Left	Right	Total	Left	Right	Total				EASTING	NORTHING
																					WGS 84									
1	WP Gantry									14°16'50"RT				695	0.00		116			-44.27	-44.27		-185.66	-185.66	A&B pit 4mtr benching close to new village approach road near West phalleg s/s		W. Phaling	92°28'50.08"	23°40'29.29"	
											116					6.54									2 Times SH	W. Phaling	92°28'51.30"	23°40'25.69"		
2	1/D	DD+6	9	9	6	6	1.5	3	-	13°58'29"LT		116	116	695.5	1.5		176	88	160.27	276.70	436.97	301.66	610.69	912.34		W. Phaling	92°28'51.30"	23°40'25.69"		
3	2/0	DB+6	6	9	7.5	6	-	-	-	01°24'00"LT		60	60	176	0.30		414	207	-216.70	-8.75	-225.45	-550.69	-131.40	-682.09		W. Phaling	92°28'52.40"	23°40'21.88"		
											354					36.3									11KV, 33KV, 2 Nos SH	W. Phaling	92°28'58.92"	23°40'14.26"		
4	3/0	DC+3	3	3	4.5	6	-	-	-	16°03'17"LT		354	530	725.1	0.00		449	224.5	362.75	-52.75	310.01	485.40	-153.65	331.75		W. Phaling	92°28'58.92"	23°40'14.26"		
											95					5.85										W. Phaling	92°29'1.43"	23°40'17.11"		
5	4/0	DD+3	3	3	4.5	6	-	-	-	37°31'34"RT		95	625	730.9	0.60		231	115.5	147.75	-795.64	-647.89	248.65	-1316.40	-1067.75	X-Arm Str approved		W. Phaling	92°29'1.43"	23°40'17.11"	
											136					64.8										W. Phaling	92°29'2.24"	23°40'17.79"		
6	5/0	DD+6	9	6	6	9	-	-	-	32°26'38"LT		136	761	792.1	0.00		275	137.5	931.64	462.31	1393.95	1452.40	745.16	2197.57	X-Arm Str approved		W. Phaling	92°29'2.24"	23°40'17.79"	
											139					-30										W. Phaling	92°29'5.59"	23°40'4.51"		
7	6/0	DB+3	3	6	6	3	-	-	-	02°59'23"RT		139	900	764.2	-0.80		325	162.5	-323.31	537.72	214.41	-606.16	793.85	187.69	X-Arm Str approved		W. Phaling	92°29'5.59"	23°40'4.51"	
											186					-46										W. Phaling	92°29'9.78"	23°39'58.82"		
8	7/0	DD+0	0	1.5	1.5	-1.5	-	-	-	50°25'25"RT		186	1086	722.4	0.00		480	240	-351.72	579.39	227.68	-607.85	847.16	239.31		SH				
											294					-70														
9	8/0	DC+0	0	0	1.5	1.5	-	-	-	14°34'06"RT		294	1380	652.6	0.30		833	416.5	-285.39	33.99	-251.41	-553.16	-120.65	-673.81	used DC Tower instead of DB due to Sum of Adj. Span Limit crossed.	Nala	Kawnmawi	92°29'7.91"	23°39'58.45"	
											539					70														
10	9/0	DC+3	3	3	3	3	-	-	-	02°30'59"LT		539	1919	720.1	0.80		781	390.5	505.01	827.92	1332.94	659.65	1273.14	1932.80	used DC Tower instead of DB due to Single Span Limit crossed. (X-Arm Str Suggested)		Kawnmawi	92°28'59.91"	23°39'34.54"	
											242					-94														
11	10/0	DC+0	0	0	0	0	-	-	-	02°11'19"LT		242	2161	628.9	0.90		823	411.5	585.92	249.04	-336.89	-1031.14	231.96	-799.18	used DC Tower instead of DB due to Single Span Limit crossed. (X-Arm Str Suggested)	Nala, Cart Track	Kawnmawi	92°28'56.52"	23°39'27.29"	
											581					13.3														
12	11/0	DC+0	1.5	-1.5	-1.5	1.5	3.0	-	2.0	06°24'38"RT		581	2742	641.3	0.00		660	330	331.96	-717.32	-385.35	349.04	-1286.59	-937.55	used DC Tower instead of DB due to Single Span Limit crossed. (X-Arm Str Suggested)		Kawnmawi	92°28'49.51"	23°39'9.56"	
											79					33														
13	12/0	DD+0	0	-1.5	0	1.5	-	-	-	53°40'26"LT		79	2821	675.4	1.20		225	112.5	796.32	55.61	851.92	1365.59	79.09	1444.67	X-Arm Str approved		Kawnmawi	92°28'48.3"	23°39'7.29"	
											146					1.4														
14	13/0	DD+6	6	6	9	7.5	-	-	-	36°59'22"RT		146	2967	670	0.35		490	245	90.39	321.49	411.89	66.91	439.42	506.33			Kawnmawi	92°28'50.72"	23°39'3.06"	
											344					-28														
15	14/0	DC+3	3	3	4.5	4.5	-	-	-	15°43'34"RT		344	3311	643.3	-1.00		500	250	22.51	59.63	82.13	-95.42	29.00	-66.42			Kawnmawi	92°28'48.59"	23°38'52.05"	
											156					1.58														
16	15/0	DB+3	3	3	4.5	4.5	-	-	-	14°14'51"RT		156	3467	645.4	-0.50		477	238.5	96.37	-162.40	-66.03	127.00	-385.34	-258.34			Chhippai	92°28'46.23"	23°38'47.37"	
											321					57.1														
17	16/0	DB+3	4.5	3	3	4.5	-	-	-	12°58'55"RT		321	3788	703.5	0.50		681	340.5	483.40	652.34	1135.74	706.34	955.57	1661.90	X-Arm Str approved	Vill Road	Chhippai	92°28'39.22"	23°38'39.51"	
											360					-94														
18	17/0	DD+6	7.5	9	6	6	-	-	-	35°23'24"LT		360	4148	606.5	0.25		658	329	-292.34	223.39	-68.95	-595.57	259.55	-336.01			Kawnmawi	92°28'28.74"	23°38'32"	
											298					-12														
19	18/0	DC+0	0	0	0	0	-	-	-	16°50'20"RT		298	4446	600.8	0.80		851	425.5	74.61	362.70	437.32	38.45	421.58	460.03			Kawnmawi	92°28'25.93"	23°38'22.98"	
											553					-26														
20	20/0	DC+3	3	3	3	3	-	-	-	10°30'09"LT		553	4999	571.2	0.40		787	393.5	190.30	-300.68	-110.38	131.42	-558.85	-427.43	used DC Tower instead of DB due to Single Span Limit crossed.	Nala	Kawnmawi	92°28'15.18"	23°38'8.14"	
											234					53.9														
21	21/0	DB+0	0	0	1.5	1.5	-	-	-	02°25'12"RT		234	5233	627.8	0.15		651	325.5	534.68	-14.31	520.37	792.85	-170.33	622.52	X-Arm Str approved		Kawnmawi	92°28'11.85"	23°38'11.85"	
											417					51.2														

Submitted by 
 M/s Sterling & Wilson Pvt.Ltd



Checked by 
 M/s Powergrid



Approved by 
 M/s Powergrid

POWER GRID CORPORATION OF INDIA LIMITED
NERPSIP, AIZAWL, MIZORAM
Construction of 132kV S/C (on D/C tower) West Phaileng-Marpara Transmission Line

15.11.2019


Executing agency: M/s Sterling & Wilson Pvt.Ltd

Consolidated Tower Schedule

Sl. No.	AP No.	Type of Tower	Un Equal Leg Extn				Raised Chimney				Angle of Deviation	Span Length (m)	Section Length (m)	Cumulative change (m)	Reduced Level (m)	C.P.D	Level Diff	Sum of Adjacent Span (m)	Wind Span (m)	Weight Span Hot (m)			Weight Span Cold (m)			Remarks	Major Crossing details	Village Name	GPS CO-ORDINATE					
			A	B	C	D	A	B	C	D										Left	Right	Total	Left	Right	Total				WGS-84					
22	22/0	DC+0	0	1.5	0	0	-	-	-	-	14°52'11"RT	417	5650	680.1	1.20		566	283	431.31	228.38	659.69	587.33	365.60	952.93	used DC Tower instead of DB due to Single Span Limit crossed.		Lallen	92°28'5.19"	23°37'48.91"					
											149					-13	369	184.5	-79.38	152.30	72.92	-216.60	176.39	-40.21			Lallen	92°28'1.87"	23°37'41.23"					
23	23/0	DB+0	0	0	0	0	-	-	-	-	12°56'49"LT	149	5799	666.4	0.20											Cart Track		Lallen	92°27'58.15"	23°37'38.95"				
											220					-5.1																		
24	24/0	DC+3	6	3	4.5	4.5	-	-	-	-	05°03'58"LT	220	6019	658.4	0.30		812	406	67.70	422.76	490.47	43.61	505.04	548.65	used DC Tower instead of DB due to Single Span Limit crossed.		Lallen	92°27'58.15"	23°37'38.95"					
											592					-41																		
25	25/0	DC+3	3	3	6	6	-	-	-	-	12°31'48"LT	200	6611	616.8	0.10		792	396	169.24	68.07	237.31	86.96	41.93	128.89	used DC Tower instead of DB due to Sum of Adj. Span Limit crossed.		Lallen	92°27'50.17"	23°37'21.14"					
											370					3.52	570	285	131.93	204.41	336.34	158.07	225.52	383.59			Lallen	92°27'48.75"	23°37'15"					
26	26/0	DC+3	3	3	6	6	-	-	-	-	15°10'57"LT	200	6811	620.5	0.30		570	285	131.93	204.41	336.34	158.07	225.52	383.59			Lallen	92°27'48.75"	23°37'15"					
											370					-4																		
27	27/0	DC+3	3	6	6	3	-	-	-	2.0	03°01'07"RT	370	7181	616	-0.25		950	475	165.59	391.52	557.11	144.48	447.12	591.61	used DC Tower instead of DB due to Sum of Adj. Span Limit crossed.		Lallen	92°27'49.99"	23°37'21"					
											580					-32																		
28	28/0	DC+0	0	0	-1.5	-1.5	-	-	-	-	01°12'00"RT	580	7761	587.4	0.60		973	486.5	188.48	47.04	235.52	-132.88	-23.48	109.40	used DC Tower instead of DB due to Sum of Adj. Span Limit crossed.		Lallen	92°27'50.55"	23°36'43.88"					
											393					32.4	694	347	345.96	-8.00	337.96	416.48	-167.42	249.05			Lallen	92°27'50.79"	23°36'51.17"					
29	29/0	DB+3	3	3	6	6	-	-	-	-	11°48'51"RT	393	8154	615.2	-1.00		694	347	345.96	-8.00	337.96	416.48	-167.42	249.05			Lallen	92°27'48.78"	23°36'21.56"					
											301					26.3	703	351.5	309.00	637.17	946.16	468.42	938.43	1406.85	X-Arm Str approved		Lallen	92°27'48.78"	23°36'21.56"					
30	30/0	DD+3	3	3	6	6	-	-	-	-	45°53'16"LT	301	8455	644.5	2.00		703	351.5	309.00	637.17	946.16	468.42	938.43	1406.85	X-Arm Str approved		Lallen	92°27'48.78"	23°36'21.56"					
											402					-97																		
31	31/0	DC+3	3	4.5	6	6	-	-	-	-	06°17'57"LT	402	8857	546.1	0.30		912	456	-235.17	692.35	457.18	-536.43	966.98	430.55	used DC Tower instead of DB due to Sum of Adj. Span Limit crossed. (X-Arm Str Suggested)		Lallen	92°27'56.94"	23°36'10.88"					
											510					-123																		
32	32/0	DD+0	0	0	0	0	-	-	-	-	47°35'09"RT	510	9367	426.4	0.50		984	492	-182.35	152.50	-29.84	-456.98	102.74	-354.23	Sum of Adj. Span Limit crossed Refer to Engineering (approved)	Nala	Lallen	92°28'07"	23°35'43.14"					
											474					22.1	716	358	321.50	-376.04	-54.54	371.26	-722.63	351.37			Lallen	92°28'07"	23°35'43.14"					
33	33/0	DD+3	3	3	6	6	-	-	-	-	34°21'04"RT	474	9841	445.2	0.20		716	358	321.50	-376.04	-54.54	371.26	-722.63	351.37			Lallen	92°28'01.56"	23°35'47.18"					
											242					66.3																		
34	34/0	DD+3	3	3	3	6	-	-	-	-	21°00'12"LT	242	10083	512.8	1.50		799	399.5	618.04	-68.24	549.80	964.63	-266.54	698.09	used DD Tower instead of DC due to Single Span Limit crossed. (X-Arm Str Suggested)		Lallen	92°28'01.56"	23°35'47.18"					
											557					106																		
35	35/0	DC+6	6	6	9	9	-	-	1.5	1.0	09°05'26"LT	557	10640	614.2	-0.50		852	426	625.24	322.73	948.17	823.54	444.07	1267.61	used DC Tower instead of DB due to Sum of Adj. Span Limit crossed. (X-Arm Str Suggested)		Lallen	92°27'55.11"	23°35'40.04"					
											295					-29																		
36	36/0	DB+6	6	6	9	9	-	-	3.0	2.5	02°23'43"LT	295	10935	585.2	-1.00		652	326	-27.93	-41.92	-69.85	-149.07	-198.10	-347.17			Lallen	92°27'53.30"	23°35'10.69"					
											357					43.4	947	473.5	398.92	337.71	736.63	555.10	366.76	921.86			Saithah	92°27'51.46"	23°34'59.06"					
37	37/0	DD+6	6	6	7.5	9	-	-	-	-	33°00'08"RT	357	11292	629.6	0.00		947	473.5	398.92	337.71	736.63	555.10	366.76	921.86		11KV, Vill Road		Lallen	92°27'37.88"	23°34'44.75"				
											590					-14																		
38	38/0	DC+3	4.5	4.5	3	3	-	-	-	-	15°11'31"RT	590	11882	618.5	-0.20		715	357.5	252.29	471.67	673.96	223.24	630.15	853.39	X-Arm Str approved		Lallen	92°27'34.04"	23°34'42.30"					
											125					-25	434	217	-296.67	618.71	321.54	-505.15	908.98	403.83	X-Arm Str approved	Cart Track		Lallen	92°27'34.04"	23°34'42.30"				
39	38A/0	DB+0	0	1.5	1.5	-1.5	-	-	-	-	00°48'20"RT	125	12007	597.1	0.20		434	217	-296.67	618.71	321.54	-505.15	908.98	403.83	X-Arm Str approved		Lallen	92°27'25.16"	23°34'37.13"					
											309					-79	713	356.5	-309.21	114.13	-195.08	-599.98	59.95	-540.03	X-Arm Str approved		Lallen	92°27'25.16"	23°34'37.13"					
40	39/0	DC+3	3	3	3	3	-	-	-	-	19°21'50"RT	309	12316	515.3	0.35		713	356.5	-309.21	114.13	-195.08	-599.98	59.95	-540.03	X-Arm Str approved		Nala	92°27'11.08"	23°34'34.04"					
											404					19.6	798	399	289.87	-38.63	251.24	344.05	-188.60	155.45			Saithah	92°27'11.08"	23°34'34.04"					
41	40/0	DB+3	3	3	3	6	-	-	-	-	05°07'37"RT	404	12720	534.8	0.25		798	399	289.87	-38.63	251.24	344.05	-188.60	155.45		2 Nos Cart Truck		Saithah	92°26'57.37"	23°34'32.46"				
											394					51.2	839	419.5	437.63	99.84	532.48	582.60	15.51	598.11			Saithah	92°26'57.37"	23°34'32.46"					
42	41/0	DC+9	9	9	9	9	-	-	-	-	23°21'11"LT	394	13114	580	0.30		839	419.5	437.63	99.84	532.48	582.60	15.51	598.11			Saithah	92°26'57.37"	23°34'32.46"					

Submitted by: 
M/s Sterling & Wilson Pvt.Ltd
Aizawl

Dubey

Checked by: 
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TRW

Approved by: 
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POWER GRID CORPORATION OF INDIA LIMITED
NERPSIP, AIZAWL, MIZORAM
Construction of 132kV S/C (on D/C tower) West Phaileng-Marpara Transmission Line

15.11.2019

Executing agency: M/s Sterling & Wilson Pvt.Ltd

Consolidated Tower Schedule

Sl. No.	AP No.	Type of Tower	Un Equal Leg Extn				Raised Chimney				Angle of Deviation	Span Length (m)	Section Length (m)	Cumulative change (m)	Reduced Level (m)	C.P.D	Level Diff	Sum of Adjacent Span (m)	Wind Span (m)	Weight Span Hot (m)			Weight Span Cold (m)			Remarks	Major Crossing details	Village Name	GPS CO-ORDINATE						
			A	B	C	D	A	B	C	D										Left	Right	Total	Left	Right	Total				WGS-84						
85	84/0	DC+0	0	0	1.5	0	-	-	-	-	11°25'29"RT	186	27090	512.7	-0.30		678	339	-694.03	136.72	-557.31	-1240.21	53.06	1187.15	used DC Tower instead of DB due to Single Span Limit crossed. (X-Arm Str Suggested)		Phuldungsei	92°25'38.93"	23°27'49.01"						
												492				29.6																			
86	85/0	DB+0	0	0	0	1.5	-	-	-	-	04°15'49"LT	492	27582	543.5	0.90		717	358.5	355.28	82.99	438.27	438.94	69.57	508.51			Phuldungsei	92°25'38.23"	23°27'33.01"						
												225				3.66																			
87	86/0	DD+6	6	7.5	9	6	-	-	3.0	-	31°14'58"RT	225	27807	541	0.70		653	326.5	142.01	347.21	489.22	155.43	445.41	600.83			Phuldungsei	92°25'38.65"	23°27'25.84"						
												428				-31																			
88	87/0	DC+6	6	6	9	9	-	-	-	-	13°48'08"LI	428	28235	508.6	-0.30		659	329.5	80.79	112.12	192.91	-17.41	84.33	66.93	used DC Tower instead of DB due to Single Span Limit crossed.		Phuldungsei	92°25'31.41"	23°27'13.50"						
												231				0.43																			
89	88/0	DD+0	0	-1.5	1.5	1.5	-	-	1.0	1.5	45°44'53"LT	231	28466	516	0.70		587	293.5	118.88	-83.14	35.74	146.67	-270.15	-123.48		SH, Vill Road	Phuldungsei	92°25'29.42"	23°27'6.74"						
												356				51.3																			
90	89/0	DC+6	4.5	3	6	6	-	-	2.5	3.0	25°27'46"RT	356	28822	562.6	2.00		531	265.5	439.14	-218.18	220.96	626.15	-350.81	275.34	X-Arm Str approved	11KV, 33KV	Phuldungsei	92°25'35.71"	23°26'56.24"						
												175				29.5																			
91	90/0	DC+3	3	3	4.5	4.5	-	-	-	-	15°54'44"RT	175	28997	593.2	0.20		324	162	393.18	-56.37	336.81	525.81	-131.30	394.51			Phuldungsei	92°25'36.51"	23°26'56.67"						
												149				10.8																			
92	91/0	DB+3	3	3	4.5	4.5	-	-	-	-	14°45'27"LT	149	29146	603.8	0.00		344	172	205.37	221.59	426.97	280.30	269.79	550.09			Phuldungsei	92°25'35.16"	23°26'45.73"						
												195				-13																			
93	92/0	DB+0	-1.5	0	0	0	-	-	-	-	03°27'12"RT	195	29341	594.5	1.00		532	266	-26.59	189.65	163.06	-74.79	217.17	142.32		SH	Phuldungsei	92°25'36.07"	23°26'59.11"						
												337				-3.9																			
94	93/0	DB+0	0	0	0	0	-	-	-	-	08°48'19"RT	337	29678	589.7	0.20		533	266.5	147.35	-73.22	74.13	119.88	-190.71	-70.83			Phuldungsei	92°25'35.91"	23°26'28.56"						
												196				18.5																			
95	94/0	DD+3	3	3	6	4.5	-	-	-	-	29°21'10"LT	196	29874	605.5	0.50		644	322	269.22	-32.83	236.39	386.71	-202.09	184.63	used DD Tower instead of DC due to Single Span Limit crossed.		Phuldungsei	92°25'34.83"	23°26'22.35"						
												448				63.4																			
96	96/0	DD+3	3	4.5	6	3	-	-	-	-	43°26'59"RT	448	30322	669.5	1.00		627	313.5	480.83	463.95	944.78	650.09	704.38	1354.47			Phuldungsei	92°25'40.29"	23°26'8.33"						
												179				-37																			
97	97/0	DD+0	-1.5	0	1.5	0	-	-	-	-	35°01'52"LI	179	30501	635.4	0.90		506	253	-284.95	77.79	-207.15	-525.38	39.83	-485.55		4 Times SH	Phuldungsei	92°25'37.94"	23°26'3.33"						
												327				15.5																			
98	98/0	DC+3	4.5	3	3	3	-	-	-	-	23°50'05"RT	327	30828	647	0.00		727	363.5	249.21	189.03	438.23	287.17	179.11	466.28		2 Times SH, 2 Nos 11KV	Phuldungsei	92°25'40.34"	23°25'52.89"						
												400				2.42																			
99	99/0	DD+3	6	3	3	4.5	-	-	-	-	33°07'12"LT	400	31228	649.6	0.20		610	305	710.97	107.59	318.57	220.89	83.84	304.72		2 Nos SH, 11KV	Phuldungsei	92°25'37.51"	23°25'40.13"						
												210				-0.3																			
100	100/0	DB+9	9	9	9	9	-	-	-	-	11°04'02"LT	210	31438	644.2	1.10		358	179	102.41	426.13	528.54	126.16	725.19	851.35	X-Arm Str Suggested	33KV, SH	Phuldungsei	92°25'40.22"	23°25'33.72"						
												148				-29																			
101	101/0	DD+6	6	6	9	9	-	-	1.5	-	43°34'43"RT	148	31586	616.5	-0.80		462	231	-278.13	163.18	-114.95	-577.19	152.00	-425.19			Phuldungsei	92°25'43.20"	23°25'29.61"						
												314				-1.1																			
102	102/0	DB+6	4.5	6	7.5	4.5	-	-	-	-	07°29'17"LT	314	31900	616.3	0.00		812	406	150.82	320.79	471.61	162.00	368.64	530.64			Phuldungsei	92°25'41.20"	23°25'19.70"						
												498				-20																			
103	103/0	DD+3	3	3	6	6	-	-	1.5	-	26°35'08"LT	498	32398	589.4	-0.20		651	325.5	177.21	-105.61	71.60	129.36	-180.27	-50.90	used DD Tower instead of DC due to Single Span Limit crossed.		Phuldungsei	92°25'40.40"	23°25'03.58"						
												153				15.4																			
104	104/0	DD+3	3	3	6	6	-	-	1.5	2.0	30°18'28"LT	153	32551	613.7	-1.25		392	196	258.61	20.53	279.14	333.27	-122.72	210.54			Phuldungsei	92°25'42.64"	23°24'58.99"						
												239				13																			
105	104A/0	DB+6	6	6	9	7.5	-	-	3	-	17°19'01"RT	239	32790	627	2.00		381	190.5	218.47	136.28	354.75	361.72	269.42	631.14			Phuldungsei	92°25'49.40"	23°24'54.5"						
												142				-5.1																			
106	105/0	DB+6	6	6	7.5	7.5	-	-	-	-	06°23'11"LI	142	32932	619.7	-0.20		461	230.5	5.72	91.38	97.10	-127.42	38.95	-88.47			Phuldungsei	92°25'52.73"	23°24'51.02"						
												319				12																			
107	106/0	DD+3	3	3	6	6	-	-	-	-	44°21'56"RT	319	33251	635.1	0.30		792	396	227.62	495.75	723.37	280.05	661.17	941.22			Phuldungsei	92°26'00.96"	23°24'44.32"						
												473				-68																			
108	107/0	DC+0	0	0	0	1.5	-	-	-	-	12°08'34"RT	473	33724	570.4	0.20		660	330	-22.75	-321.77	-344.52	-188.17	-568.91	-757.08	used DC Tower instead of DB due to Single Span Limit crossed.		W.Phulpui	92°26'02.40"	23°24'28.8"						

POWER GRID CORPORATION OF INDIA LIMITED
NERPSIP, AIZAWL, MIZORAM
Construction of 132kV S/C (on D/C tower) West Phaileng-Marpara Transmission Line

Executing agency: M/s Sterling & Wilson Pvt.Ltd

15.11.2019

Consolidated Tower Schedule

Sl. No.	AP No.	Type of Tower	Un Equal Leg Extn				Raised Chimney				Angle of Deviation	Span Length (m)	Section Length (m)	Cumulative change (m)	Reduced Level (m)	C.P.D	Level Diff	Sum of Adjacent Span (m)	Wind Span (m)	Weight Span Hot (m)			Weight Span Cold (m)			Remarks	Major Crossing details	Village Name	GPS CO-ORDINATE	
			A	B	C	D	A	B	C	D										Left	Right	Total	Left	Right	Total				WGS-84	
109	107A/0	DB+3	3	3	6	4.5	-	-	2.0	-	10°18'46"LT	187	187	33911	609.7	-0.30	42.8	273	136.5	508.77	198.88	707.65	755.91	208.01	963.92	X-Arm Str approved		W.Phulpui	92°26'01.58"	23°24'22.88"
110	108/0	DC+0	0	-1.5	0	1.5	-	-	-	-	12°54'20"RT	86	86	33997	606.7	1.00	-7.4	569	284.5	-112.88	308.73	195.85	122.01	363.57	241.55	used DC Tower instead of DB due to Single Span Limit crossed.		W.Phulpui	92°26'1.73"	23°24'20.17"
111	110/0	DD+6	4.5	4.5	7.5	7.5	-	-	2.0	2.5	23°30'03"LT	483	483	34480	581.8	0.00	-18	959	479.5	174.27	304.00	478.28	119.43	333.35	452.79	used DD Tower instead of DC due to Sum of Adj. Span Limit crossed.		W.Phulpui	92°25'58.54"	23°24'04.67"
112	111/0	DC+0	-1.5	0	0	-1.5	-	-	-	-	20°58'58"RT	259	476	34956	571.4	1.00	-31	735	367.5	172.00	347.88	519.87	142.65	495.32	637.96			W.Phulpui	92°26'02.25"	23°23'49.53"
113	112/0	DD+0	0	-1.5	0	1.5	-	-	-	-	29°51'10"RT	497	259	35215	539.9	0.60	195	756	378	-88.88	-463.48	-552.35	-236.32	-936.99	-1173.31	used DD Tower instead of DC due to Sum of Adj. Span Limit crossed. (X-Arm Str Suggested)	SH,11KV,33KV	W.Phulpui	92°26'00.98"	23°23'41.17"
114	113/0	DD+6	6	6	9	6	-	-	-	-	29°44'02"LT	467	497	35712	730.8	2.50	3.76	964	482	960.48	218.89	1179.37	1433.99	257.23	1691.22	used DD Tower instead of DC due to Sum of Adj. Span Limit crossed. (X-Arm Str Suggested)	2 Times SH	W.Phulpui	92°25'50.24"	23°23'28.47"
115	114/0	DC+6	9	6	9	9	-	-	2.5	3.0	19°09'30"RT	154	467	36179	730.8	-1.25	87.7	621	310.5	248.11	-956.38	-708.27	209.77	-1620.39	-1410.62	X-Arm Str approved		W.Phulpui	92°25'48.01"	23°23'13.43"
116	115/0	DC+6	6	6	9	9	-	-	1.0	4.5	17°20'06"LT	67	154	36333	818.8	-1.00	25.4	221	110.5	1110.38	-652.83	457.54	1774.39	-1264.34	510.06	X-Arm Str approved & (D-pit depth only 2mtr after giving 4.5mtr RC		W.Phulpui	92°25'45.50"	23°23'09.11"
117	116/0	DB+3	3	3	6	6	-	-	-	-	06°54'05"RT	99	67	36400	849.2	1.00	32	166	83	719.83	-536.47	183.36	1331.34	-802.80	528.54	X-Arm Str approved		W.Phulpui	92°25'45.14"	23°23'06.72"
118	117/0	DB+3	3	3	6	6	-	-	1.0	3.0	03°37'11"RT	349	99	36499	879.4	-0.75	-8.5	448	224	635.47	218.52	853.99	901.80	267.63	1169.42	X-Arm Str approved		W.Phulpui	92°25'44.04"	23°23'03.78"
119	119/0	DC+6	6	6	9	9	-	-	2.5	3.0	15°31'18"LT	276	349	36848	866.7	-2.00	11.3	625	312.5	130.48	63.93	194.41	81.37	-4.45	76.93			W.Phulpui	92°25'40.03"	23°22'52.99"
120	120/0	DB+3	3	3	6	6	-	-	2.0	3.0	31°43'33"LT	257	276	37124	881.9	-1.00	5.98	533	266.5	212.07	86.29	298.36	280.45	-67.25	213.20			W.Phulpui	92°25'39.40"	23°22'44.07"
121	122/0	DD+0	0	0	0	0	-	-	-	-	43°37'33"RT	245	257	37381	896.4	4.50	-41	502	251	170.71	423.55	594.25	374.75	710.93	1035.17			Phulpui	92°25'43.6"	23°22'36.67"
122	123/0	DB+6	4.5	4.5	7.5	7.5	-	-	2.0	-	00°49'59"LT	231	245	37626	845.8	0.50	6.96	476	238	-178.55	60.85	-117.70	-465.93	41.63	-424.30			Phulpui	92°25'41.3"	23°22'28.95"
123	124/0	DB+6	4.5	4.5	7.5	7.5	-	-	1.0	1.5	01°12'11"RT	185	231	37857	852.1	-0.10	-42	416	208	170.15	502.46	672.61	189.37	781.29	970.66	X-Arm Str approved		Phulpui	92°25'39.38"	23°22'21.63"
124	125/0	DB+3	3	3	6	6	-	-	-	-	09°52'52"LT	260	185	38042	812.7	-0.70	-27	445	222.5	-317.46	319.91	2.45	-596.29	412.82	-183.46			Phulpui	92°25'37.57"	23°22'15.92"
125	126/0	DB+0	0	-1.5	1.5	1.5	-	-	2.0	-	04°49'36"LT	207	260	38302	789.7	0.50	29.4	467	233.5	-59.91	-153.96	-213.87	-152.82	-317.00	-469.82			Phulpui	92°25'36.63"	23°22'07.47"
126	127/0	DB+6	6	6	9	7.5	-	-	-	-	02°30'48"RT	209	207	38509	813.1	0.50	20.5	416	208	360.96	-73.25	287.71	524.00	-163.13	360.87			Phulpui	92°25'36.5"	23°22'00.83"
127	128/0	DC+3	3	3	6	4.5	-	-	-	-	16°51'32"LT	171	209	38718	835.8	-0.30	35.9	380	190	282.25	-295.43	-13.18	372.13	-547.06	-174.93			Phulpui	92°25'36.74"	23°21'53.99"
128	129/0	DB+6	6	6	9	9	-	-	-	-	00°28'58"LT	315	171	38889	869	0.00	3.79	486	243	466.43	135.67	602.11	718.06	127.50	845.56	X-Arm Str approved		Phulpui	92°25'37.65"	23°21'48.55"
129	130/0	DC+6	4.5	6	7.5	7.5	-	-	2.5	-	17°35'50"RT	250	315	39204	872.5	-0.30	-28	565	282.5	179.33	331.21	520.54	187.50	449.95	637.45			Phulpui	92°25'40.29"	23°21'36.66"
130	131/0	DB+6	6	6	9	7.5	-	-	-	-	07°46'46"RT	266	250	39454	844.5	0.20	-25	516	258	-81.21	302.33	221.11	-199.95	409.55	209.61			Phulpui	92°25'39.64"	23°21'30.61"
131	132/0	DB+0	-1.5	-1.5	1.5	0	-	-	-	-	13°25'03"LT	266	266	39720	825.7	0.20	-25	572	286	-36.33	226.45	190.12	-143.55	263.28	119.72			Pukzing	92°25'37.67"	23°21'22.02"

Submitted by: *[Signature]*
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POWER GRID CORPORATION OF INDIA LIMITED
NERPSIP, AIZAWL, MIZORAM
Construction of 132KV S/C (on D/C tower) West Phalleng-Marpara Transmission Line

Executing agency: M/s Sterling & Wilson Pvt.Ltd

15.11.2019

Consolidated Tower Schedule

Sl. No.	AP No.	Type of Tower	Un Equal Leg Extn				Raised Chimney				Angle of Deviation	Span Length (m)	Section Length (m)	Cumulative change (m)	Reduced Level (m)	C.P.D	Level Diff	Sum of Adjacent Span (m)	Wind Span (m)	Weight Span Hot (m)			Weight Span Cold (m)			Remarks	Major Crossing details	Village Name	GPS CO-ORDINATE	
			A	B	C	D	A	B	C	D										Left	Right	Total	Left	Right	Total				WGS-84	
155	154/0	DB+6	6	6	9	9	-	-	2.0	2.5	10°3'12"LT	253	253	46317	336.6	-1.30	4.27	398	199	157.12	88.76	245.88	132.47	107.23	239.71			Pukzingventh	92°26'46.35"	23°18'31.59"
156	155/0	DC+6	6	6	9	9	-	-	2.0	3.0	21°34'57"RT	145	145	46462	335.1	-1.50	-1.9	234	117	156.24	121.75	177.98	37.77	24.19	61.96			Pukzingventh	92°26'46.01"	23°18'21.92"
157	155A/0	DB+3	3	3	6	6	-	-	-	-	10°16'43"LT	89	89	46551	336.5	0.70	-3.8	352	176	-32.75	274.13	241.39	64.81	414.03	478.83			Pukzingventh	92°26'44.68"	23°18'25.26"
158	156/0	DD+3	4.5	3	6	6	-	-	1.5	3.0	30°10'6"RT	263	263	46814	313.7	-1.50	-21	631	315.5	-11.13	-10.66	-21.79	151.03	-155.66	306.69			Pukzingventh	92°26'42.71"	23°18'16.93"
159	157/0	DD+3	3	3	6	6	-	-	-	-	30°14'58"LT	368	368	47182	354.5	0.15	39.5	582	291	378.66	76.82	465.48	523.66	56.33	579.99		33KV, 11KV, SH	Pukzingventh	92°26'33.64"	23°18'08.25"
160	158/0	DC+3	3	3	6	6	-	-	-	-	29°28'16"RT	214	214	47396	358.1	-0.10	3.56	414	207	137.18	-98.00	39.18	157.67	-244.12	-86.45			Pukzingventh	92°26'31.84"	23°18'01.61"
161	159/0	DB+0	0	0	0	1.5	-	-	-	-	4°12'24"RT	200	200	47596	383.6	0.60	71.8	478	239	298.00	416.64	714.64	441.12	594.59	1038.71	X-Arm Str approved		Pukzingventh	92°26'27.10"	23°17'56.84"
162	161/0	DB+0	0	0	1.5	0	-	-	-	-	14°35'30"LT	278	278	47874	341	0.50	-43	499	249.5	-138.64	749.00	610.36	-316.59	1113.12	796.53	X-Arm Str approved		Hruiduk	92°26'10.50"	23°17'50.88"
163	161A/0	DC+9	7.5	9	9	7.5	-	-	-	-	27°54'1"LT	221	221	48095	255.7	2.00	-78	501	250.5	-578.00	697.28	169.28	-807.17	3058.65	166.52	X-Arm Str approved		Hruiduk	92°26'15.20"	23°17'44.96"
164	163/0	DD+9	7.5	9	9	9	-	-	-	-	37°24'48"RT	280	280	48375	169.3	1.60	-86	538	269	417.28	570.17	152.84	778.65	977.02	98.38		33KV, 11KV, SH	Hruiduk	92°26'14.23"	23°17'35.90"
165	164/0	DC+0	0	0	1.5	0	-	-	-	-	16°7'30"LT	258	258	48633	114.3	0.40	-63	433	216.5	312.12	171.56	-140.55	619.02	711.26	-407.77	X-Arm Str Suggested		Hruiduk	92°26'07.86"	23°17'29.85"
166	165/0	DD+0	0	0	1.5	0	-	-	-	-	30°56'53"RT	175	175	48808	106.6	0.80	-8.1	361	180.5	3.44	146.15	249.59	-36.26	195.74	159.43			Hruiduk	92°26'05.06"	23°17'24.79"
167	166/0	DB+6	4.5	4.5	7.5	7.5	-	-	-	-	0°47'5"RT	186	186	48994	94.68	0.30	-5.4	555	277.5	39.85	-172.74	132.89	-0.74	-415.02	424.26	excavation under progress		Hruiduk	92°25'59.35"	23°17'21.72"
168	168/0	DB+9	7.5	9	9	7.5	-	-	-	-	1°13'58"LT	369	369	49363	155.4	1.30	72.7	489	244.5	541.74	623.84	1165.58	784.02	1057.44	1841.46	X-Arm Str approved (Foundation completed)		Hruiduk	92°25'48.17"	23°17'15.70"
169	169/0	DB+0	0	1.5	1.5	0	-	-	-	-	10°01'00"RT	120	120	49483	135.5	-0.25	-37	361	180.5	-503.84	595.60	91.75	-937.44	909.98	27.46	X-Arm Str approved (Foundation under progress)		Hruiduk	92°25'44.58"	23°17'14.68"
170	170/0	DD+3	3	6	6	4.5	-	-	-	-	51°07'08"LT	241	241	49724	68.83	-0.80	-63	626	313	-354.60	188.78	165.82	-668.98	151.02	517.95	Excavation under progress		Hruiduk	92°25'36.66"	23°17'10.81"
171	171/0	DD+0	1.5	0	0	0	-	-	-	-	50°22'17"LT	385	385	50109	74.92	1.50	0.79	490	215	196.22	267.33	-71.11	233.98	319.20	-85.72	Foundation completed		Hruiduk	92°25'32.52"	23°16'58.94"
172	172/0	DD+3	6	6	3	3	-	-	-	-	42°39'51"LT	45	45	50154	78.11	0.50	7.19	130	65	312.33	-30.77	282.06	364.20	-215.78	148.42			Hruiduk	92°25'33.30"	23°16'57.68"
173	173/0	DD+6	6	4.5	4.5	7.5	-	-	-	3	14°27'10"LT	85	85	50239	80.57	2.50	3.41	111	55.5	115.27	-92.35	22.92	300.78	410.68	711.46		S/S Boundary	Hruiduk	92°25'36.27"	23°16'57.02"
174	Marp. Gantry											50265	50265	87.07	0.00	1.51												Hruiduk	92°25'37.12"	23°16'56.96"

- Note:-
 1) During the check survey the DLE/RC combinations are changed w.r.t detailed survey report.
 2) The additional +3mtr body extension has provided for forest clearance from AP51 to AP AP57 as per direction is given by forest dept.
 3) The TSD changes has been incorporated in this survey report w.r.t detailed survey report.

Submitted by: 
 M/s Sterling & Wilson Pvt. Ltd.

Dubey


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