



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



# FINAL ENVIRONMENTAL ASSESSMENT REPORT (FEAR-I)

for

TRANSMISSION AND DISTRIBUTION (T&D) NETWORK

In

Lunglei & Lawngtlai 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



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For: GREEN CIRCLE, INC.






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## ABBREVIATIONS

<b>ADC</b>	Autonomous District Council
<b>AP</b>	Angle Point
<b>ASI</b>	Archaeological Survey of India
<b>CBIS</b>	Capacity Building & Institutional Strengthening
<b>CEA</b>	Central Electricity Authority
<b>CPTD</b>	Compensation Plan for Temporary Damages
<b>CPIU</b>	Central Project Implementation Unit
<b>dB</b>	Decibel
<b>DC</b>	District Collector
<b>DL</b>	Distribution Line
<b>E&amp;S</b>	Environmental and Social
<b>EHS</b>	Environment, Health & Safety
<b>EHV</b>	Extra High Voltage
<b>EMF</b>	Electro Magnetic Field
<b>ESMC</b>	Environment & Social Management Cell
<b>ESPPF</b>	Environment and Social Policy & Procedures Framework
<b>EMP</b>	Environmental Management Plan
<b>EP</b>	Electric Pole
<b>FCA,1980</b>	Forest (Conservation) Act, 1980
<b>FEAR</b>	Final Environment Assessment Report
<b>GCC</b>	General Conditions of Contract
<b>GCI</b>	Green Circle Inc
<b>GIS</b>	Geographic Information System
<b>GPS</b>	Global Positioning System
<b>GOI</b>	Government of India
<b>GoM</b>	Government of Mizoram
<b>GRM</b>	Grievances Redressal Mechanism
<b>GRC</b>	Grievance Redressal Committee
<b>HFL</b>	Highest Flood Level
<b>IA</b>	Implementing Agency
<b>IBA</b>	Important Bird Areas
<b>IEAR</b>	Initial Environmental Assessment Report
<b>IP</b>	Indigenous People
<b>IUCN</b>	International Union for Conservation of Nature
<b>MoEF&amp;CC</b>	Ministry of Environment, Forest and Climate Change
<b>NEEPCO</b>	North Eastern Electric Power Corporation Limited
<b>LOA</b>	Letter of Award
<b>NOC</b>	No Objection Certificate
<b>NER</b>	North Eastern Region
<b>NERPSIP</b>	North Eastern Region Power System Improvement Project



<b>NHPC</b>	National Hydroelectric Power Corporation
<b>O &amp; M</b>	Operation & Maintenance
<b>OPs</b>	Operational Policies
<b>PAP</b>	Project Affected Persons
<b>PCB</b>	Pollution Control Board
<b>PCR</b>	Physical Cultural Resources
<b>PED</b>	Power and Electricity Department
<b>PIU</b>	Project Implementation Unit
<b>POWERGRID</b>	Power Grid Corporation of India Ltd.
<b>PPEs</b>	Personal Protective Equipment
<b>PMU</b>	Project Management Unit
<b>PTCC</b>	Power Telecom Co-ordination Committee
<b>RoW</b>	Right of Way
<b>R &amp; R</b>	Rehabilitation and Resettlement
<b>RRM</b>	Random Rubble Masonry
<b>SMF</b>	Social Management Framework
<b>S/S</b>	Substation
<b>SPCU</b>	State Project Coordination Unit
<b>T &amp; D</b>	Transmission & Distribution (T&D)
<b>TL</b>	Transmission Line
<b>TT</b>	Transmission Tower
<b>WB</b>	World Bank

### **WEIGHTS & MEASURES**

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



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## **EXECUTIVE SUMMARY**

North Eastern Region Power Supply Improvement Project (NERPSIP) is a World Bank (WB) funded project aimed at improving the impoverished power transmission and distribution (T&D) system in the North Eastern states of India, which is being implemented by Power Grid Corporation of India Ltd. (POWERGRID), the single transmission utility of the country as the implementing agency (IA). Although the present T&D system covers many areas of the State, it is inadequate in its reach and due to non-availability of redundant T&D system, breakdown of any transmission system element results in long term power shortages making the system highly unreliable.

The present Final Environment Assessment Report (FEAR) is for the part of priority works of strengthening of T&D System under Tranche-1 of NERSIP in Lunglei and Lawngtlai districts of Mizoram State. The scope of work includes construction of 2 nos 132/33kV Transmission Lines (TLs), 1 no of 33 kV Distribution Lines (DL), 1 No. of 132/33 kV transmission substation (S/S), 1

No. of 132/33 kV transmission substation augmentation and 1 No of 33/11 kV distribution S/S. FEAR is undertaken to verify the actual location details of the project elements, identification of any additional environmental and social issues apart from those identified in IEAR, to report any impacts on the biodiversity of the region / protected area (PA), compensation to 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 FEAR I include:

### **Transmission Lines (TL)**

- Lungsens - Chawngte 132 kV S/C line (charged at 33 KV) – 20.087 km Establishment of 2 x 12.5 MVA, 132/33 kV new substation at Lungsens.
- Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 kV) – 25.15 km Augmentation of Lunglei substation by replacing existing 2x12.5 MVA, 1 3 2 /33 KV transformer with 2 x 25 MVA 132/33KV transformer

### **Distribution Lines (DL)**

- 33 kV line from 132/33 KV Lungsens (new) substation to 33/11 kV Lungsens (existing) substation–5km Establishment of 33/11 kV new substation at South Bungtlang

Situated in the North Eastern part of India, Mizoram covers geographical area of 21,081 sq km, which is 0.64% of the geographical area of the country. The State lies between 21°56'N to 24°31'N latitude and 92°16'E to 93°26'E longitude and shares borders with Mizoram in the west, Assam and Manipur in the north. Mizoram also shares international border with Myanmar on the east and Bangladesh in the south and west. Physiographically, the State is comprised of rugged, steep hill ranges and interspersed valleys. The State has a climate ranging from moist tropical to moist sub-tropical. The annual rainfall ranges between 2,100 mm to 3,500 mm and the annual temperature during winter, 11°C to 24°C and in summer between 18°C to 29°C. It rains heavily 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 has rich flora and fauna including many rare and endemic species of plants and animals. Amongst all the States, Mizoram has the highest area under forest cover in terms of



Percentage of geographical area. The forests of the State are under a three-tier management viz those owned and controlled by the State, district councils and village councils.

Mizoram is one of the leading producers of bamboo in India supplying 14% of the country's commercial bamboo. Recorded Forest area (RFA) refers to all lands more than one hectare in area with a tree canopy of more than 10 % irrespective of land use, ownership and legal status. It may include even orchards, bamboo, palm, etc. The term RFA also refers to all the geographic areas recorded as 'Forests' in government records. RFA largely consists of Reserved Forests (RF), Protected Forests (PF) and Unclassified Forest Area (UCF), which have been constituted under the provisions of Indian Forest Act 1927 and 1980. RFA in the State is 5641 sq km of which 4483 sq km is RF and 1,158 sq km is 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.

Mizoram is a land of rolling hills, valleys, rivers and lakes. As many as 21 major hill ranges or peaks of different heights run through the length and breadth of the state, with plains scattered here and there. The average height of the hills to the west of the state are about 1,000 meters (3,300 ft). These gradually rise up to 1,300 meters (4,300 ft) to the east. Some areas, however, have higher ranges which go up to a height of over 2,000 meters (6,600 ft). Phawngpui Tlang also known as the Blue Mountain, situated in the south-eastern part of the state, is the highest peak in Mizoram at 2,210 meters (7,250 ft).

The terrain of the project districts is almost rolling hill and sloppy through which the TL / DL are crossing and Substations (S/S) are planned. Since, the towers/poles for the proposed T&D lines are constructed mostly in hilly area and due care is being taken to control erosion 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 to avoid possibility silt runoff /erosion.

The proposed project activities include the detailed survey for finalizing the route alignment, and installation of TLs and DLs 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 land use along the RoW (27 m for 132 kV) of TLs comprises of agricultural land, private plantation and government land. The total length of the project TLs is 45.237 km and total number of 174 towers are being/to be erected for all proposed 2 TLs. The earlier length of TL in IEAR was 75.57 km. However, during the detailed and check survey further optimization of route by IA through careful route selection has reduced the line length substantially without involvement of any environmentally and socially sensitive areas. As a result, the environmental and social footprints have been reduced further as envisaged in IEAR.



 पावरग्रिड POWERGRID	FEAR for T&D subprojects in Lunglei & Lawngtlai District under NERPSIP in Mizoram	 GREEN CIRCLE INC. THE GREEN PEOPLE
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According to legal status, the project districts is blessed with 5641 Sq. Km of forests having



various types of flora and fauna. The final layout of TLs and DL has been carefully selected from three given options. Final routes of TLs and DLs and sites for construction of new S/S don't involve any monuments of historical or cultural significance. The proposed final TLs and DLs and S/S are not passing through / planned in any notified Reserved Forest, PA like national parks (NP), wildlife sanctuaries (WLS), designated wildlife/elephant and biosphere reserves etc., as all such areas have been completely avoided through meticulous route selection. Initially it was noted that the Line Chawngte-S.Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 kV) is passing through RF / Forest Department plantations. However, after field verifications by DCCF office, it was confirmed that the line is outside RF land. Accordingly, NOC has been obtained from Government of Mizoram (GoM), Office of the Principal Chief Conservator of Forest (PCCF), MOEFCC, Aizawl, Mizoram subject minimum damage to forest vegetation during construction and operation of proposed lines.

The infrastructure facilitates required for the construction and maintenance of S/S like access road, water, and transport facility is well available. The Sub-station requires last mile connectivity and strengthening of the existing road. 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 TLS, DLs, 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 firefighting 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. Adequate measures are taken into consideration from design stage to implement the flood, erosion protection measures like construction of retaining and boundary wall along with sewerage system. All 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.

During construction, utmost care is being taken to prevent clear felling of tree, as mostly trees will be trimmed/pruned to carry out work as far as possible to maintain electrical safety clearance. Tree cutting in non-forest areas are executed strictly under the provisions Electricity Act, 2003/ Indian Telegraph Act, 1885. Further, for felling protected 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 tree felling guidelines notified by State of Mizoram in compliance of Supreme Court Order 2004. 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 per state govt. notification dated 01.05.2019 on adoption of MoP Guidelines of Oct.' 2015. Similarly for tree compensation 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.

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 any incidents.



FEAR for T&D subprojects in Lunglei & Lawngtlai  
District under NERPSIP in Mizoram



Construction management practice has helped in to reduce the soil erosion. 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. The labours are provided required PPE's. Arrangement for shifting of affected persons to nearby hospitals are also in place. Compensation for injury and death has been ensured through provisions in Safety Plan & Contract conditions. Proper sanitation facilities and safe drinking water are being provided in the project locations. The monitoring committee i.e., IA of this project is very vigilant. It has been observed that concerns of public are informed regularly about project through public consultation process which started from project planning, continued in the construction period and will be continued in operation and maintenance also. As per record available, no written complaint or court case is registered against any of the sub projects. It has been observed from surveys, public meetings and discussion with PAP, that they are appreciating the efforts taken by both the government and funding agencies to improve power network of that area. Local people believe that this project will enhance their quality of life, as well as this project, will help them to get new income sources in near future like the engagement of skilled and semiskilled people in the T&D subprojects from the local areas.

Overall, the planning and layout of the project elements have been undertaken in a judicious manner so as to ensure minimum environmental impact. During construction phase, IA is regularly monitoring the implementation of EMP and OHS compliance with reference to the IEAR. However, following suggestions may be considered to further improvement in the safeguard measures;

- E & S capacity development programs for officials of IA & Utility need to be organized more frequently for better understanding of project safeguards requirements during construction and O & M phase;
- IA needs to ensure strict compliance of the contract provisions/EMP by Contractor especially in respect of workers health and safety during the construction phase.
- At time of the construction period, the implementing agency must ensure that the contractor adheres to the contract provisions/EMP, particularly in terms of worker health and safety.
- At all locations, there is a need for a regular induction and training programme for labourers and engineers.
- PMU staff will receive training in the monitoring and implementation of EMP, as proposed
- Maintain hygiene in camps and construction sites, training and awareness about cleanliness and generated waste management.
- Health checks of laboures 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.

Construction is underway at different sub-project sites. Our observations from site inspections conclude that the EMP is implemented primarily on-site. (Please refer Section 5.8). Besides, regular monitoring of work progress is being carried out at site and regional levels including compliance of E & S issues. The FEAR provides insight on possible environmental & social issues and also describes management measures to minimize/mitigate it based on Power and Electricity Department of Mizoram (PEDM) 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 being undertaken at ground level by POWERGRID during construction stages. However regular monitoring and compliance report are recommended to compare the EMP implementation progress periodically and short comings if

## **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 Mizoram. 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
<b>Total</b>	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
<b>Total</b>	<b>2511.165</b>	<b>2511.165</b>	<b>89.00</b>	<b>5111.33</b>

## 1.2. Project Justification

The state of Mizoram is spread over an area of about 21081<sup>2</sup> sq. km with a population of more than 1.09 million. 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.

### 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 Reports (IEARs). 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 31<sup>st</sup>December 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 TLs, 33/11 kV DLs and associated S/S in Lunglei and Lawngtlai 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 impacts on the biodiversity of the region / PA, if any, consultation with the project affected people (PAP) and assessment of onsite compliance of the Initial Environment Assessment Report (IEAR) / Environment Management Plan (EMP) prepared and submitted by the IA. The study is carried out adhering

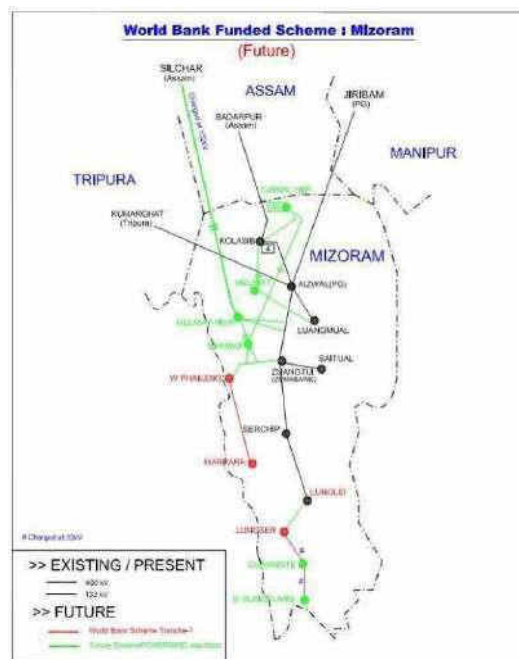
to ESPPF of PEDM, Operation Policies of WB designated for Electric Power T&D projects. Refer **Table No. 1.4** for the project scope components.

**Table 1-4 Project Scope Components**

Sr. No.	Name of the Line	Name of the New / Existing S/S
<b>A. TRANSMISSION SCHEME</b>		
1	Lungsen - Chawngte 132 kV S/C line (charged at 33 KV) - <b>20.087 km</b>	Establishment of 2 x 12.5 MVA, 132/33 kV new substation at Lungsen
2	Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV) - <b>25.15 km</b>	Augmentation of Lunglei substation by replacing existing 2x12.5 MVA, 132/33 KV transformer with 2 x 25 MVA 132/33 KV transformer
<b>B. DISTRIBUTION SCHEME</b>		
1	33 kV line from 132/33 KV Lungsen (new) substation to 33/11 kV Lungsen (existing) substation- <b>5 km</b>	Establishment of 33/11 kV new substation at South Bungtlang

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**

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

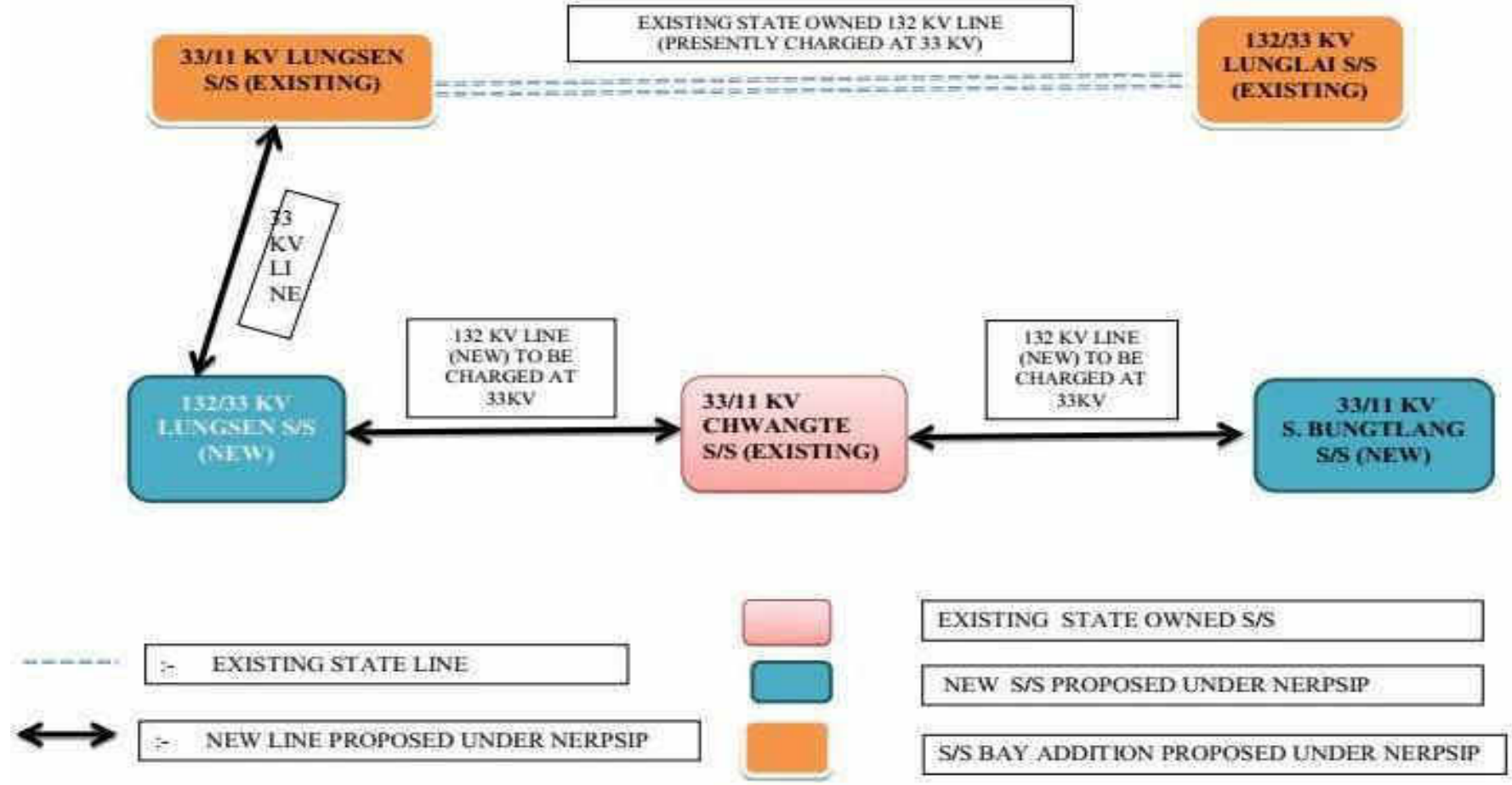


Figure 1-2 Schematic Map Showing Proposed T&D network in Lunglai & Lawngtlai Districts of Mizoram State under NERPSIP

## 1.6. Overall Project Progress

A brief status on project implementation progress of various T&D components till February, 2022 is presented below;

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

Sr. No.	Name of the T&D Component	Progress as on Feb, 2022
<b>A. TRANSMISSION SCHEME: AGENCY – KSA Powerinfra Pvt Ltd &amp; Sterling &amp; Wilson Pvt. Ltd</b>		
<b>1</b>	<b>Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)</b>	
	TL Length: 30.985 Km	<ul style="list-style-type: none"> <li>Route Alignment Survey for 30.66 km completed</li> <li>Tower Profile and schedule for 30.1 km completed.</li> <li>Tower foundation under process Cum. Progress 91 out of 116 completed</li> <li>Tree enumeration completed for 30.66 km</li> <li>Expected Completion Date: May 2022</li> </ul>
<b>2</b>	<b>Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)</b>	
	TL Length: 35 Km	<ul style="list-style-type: none"> <li>Route Alignment Survey for 34.0 km completed</li> <li>Tower profile and schedule completed for 34.512 km</li> <li>Tree enumeration completed for 34 km.</li> <li>Total Cum. Progress 35 no of tower foundation and erection completed &amp; other in process</li> <li>Expected completion date: July 2022</li> </ul>
<b>C. SUBSTATIONS: AGENCY – KSA Powerinfra Pvt Ltd</b>		
<b>1</b>	<b>Establishment of 2 x 12.5 MVA, 132/33 kV new substation at Lungsen</b>	<ul style="list-style-type: none"> <li>Work is completed on dated 31.01.2021.</li> </ul>
<b>2</b>	<b>Augmentation of Lunglei substation by replacing existing 2x12.5 MVA, 132/33 KV transformer with 2 x 25 MVA 132/33 KV transformer</b>	<ul style="list-style-type: none"> <li>Total 4 no transformer foundation completed.</li> <li>Expected Completion of work on site: June 2022</li> </ul>
<b>3</b>	<b>Establishment of 33/11 kV new substation at South Bungtlang</b>	<ul style="list-style-type: none"> <li>Total 8 no of tower foundation completed.</li> <li>Expected Completion of work on site: May 2022</li> </ul>

## 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, and Compensation Plan for Temporary Damage (CPTD) etc. was undertaken and suitably incorporated in the present report.



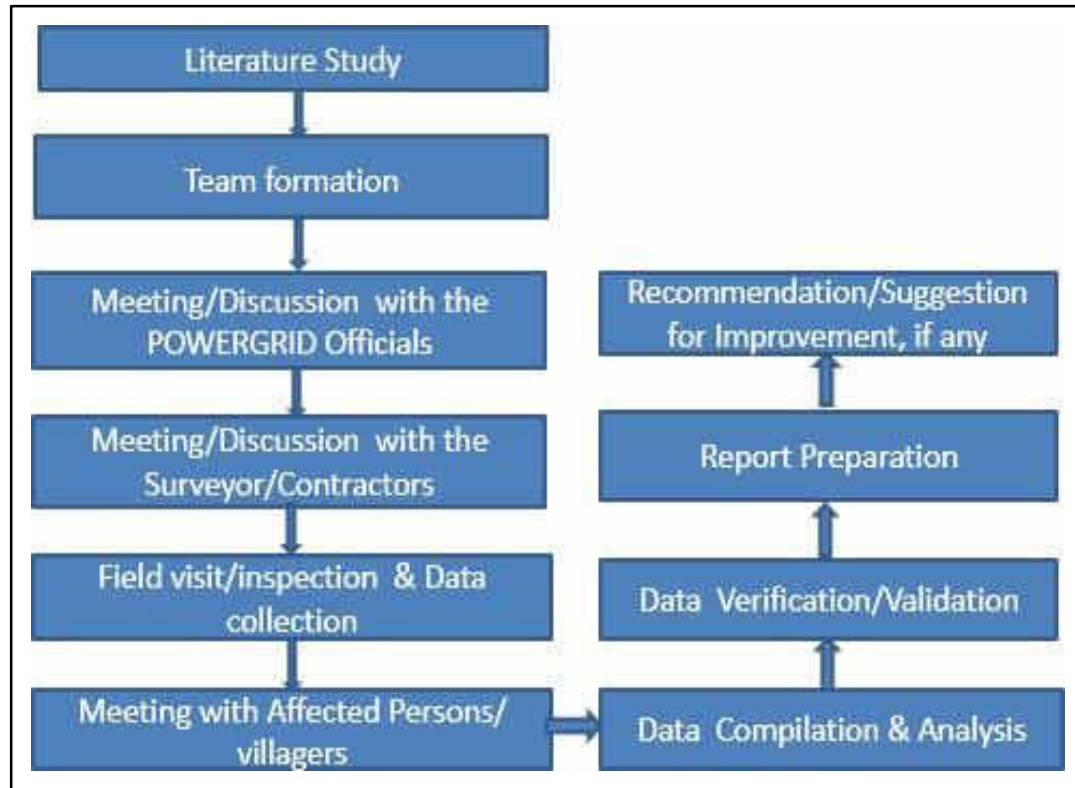


Figure 1-3 Study Methodology for Preparation of FEAR

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 21. 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 up to May 2021

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. The details are reported in chapter 2 section 2.4.4. 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 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.

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.

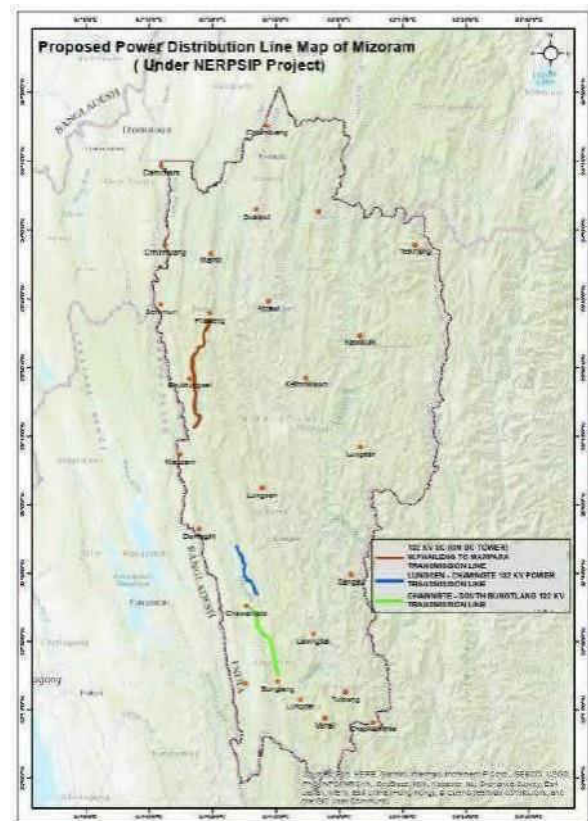
### 2.2. Project Location

The project is an intra-state power sector project located in the State of Mizoram and covers the districts of Lunglei and Lawngtlai. **Please refer Figure 2-2.** The map showing location of various subprojects is presented in **Figure 2-1.**

Figure 2-2 Location Map of the Project<sup>4</sup>



Figure 2-1 Topo Map Showing Subprojects Locations



### 2.2.1. Study area Description

Study area Lunglei & Lawngtlai is located in Mizoram state, Mizoram is situated in the NE part of India, Mizoram covers geographical area of 21,081 sq km, which is 0.64% of the geographical area of the country. The State lies between 21°56'N to 24°31'N latitude and 92°16'E to 93°26'E longitude and shares borders with Mizoram in the west, Assam and Manipur in the north. Mizoram also shares international border with Myanmar on the east and Bangladesh in the south and west. The basic environmental settings of the State and subject project districts are discussed in the upcoming sections.

Lunglei District occupies more or less the central part of Mizoram, extending more to the southern side. It is bounded on the north- west by Mamit District, on the north- east by Serchhip District, on the south by Lawngtlai District, on the southeast by Saiha District. It shares international borders with Myanmar on the east and Bangladesh on the west. Lunglei district is located at 22.88°N & 92.73°E with an average elevation of 722 mt. Total geographical area of the district is 4,538 sq. km. There are four Rural Development Blocks within the district viz. Lunglei, Hnahthial, Lungsen and Bunghmun.



Lawngtlai district is one of the eight districts of Mizoram state in India. The district is bounded on the north by Lunglei district, on the west by Bangladesh, on the south by Myanmar and on the east by Saiha district. The district occupies an area of 2557.10 km<sup>2</sup>. Lawngtlai town is the administrative headquarters of the district. The district shares its boundaries with Lunglei and Saiha districts on the north and south respectively. The inhabitants of the district are mainly the ethnic groups of tribals like Pang, Lai and Chakma, who are among the minor tribal communities of Mizoram.

### 2.3. Salient features of Districts:

Table 2-1 Salient Features

<b>Location</b>	
State	Mizoram
District	Lunglei & Lawngtlai
<b>Details of River (with Length)</b>	
Tlawng	185.15
Tiau	159.39
Chhingtuipei (Kolodyne)	138.46
Tut	138.25
Tuivai	134.61
Khawthlangtuipei (Karnaphuli)	128.08
Tuichang	120.75
Tuirial	117.53
Tuichawng	107.87
Mat	90.16
Tuipui	86.84
Langkaih	85.43
Tuivawl	72.45
Teirei	70.84
Tuirini	59.57



	<b>FEAR for T&amp;D subprojects in Lunglei &amp; Lawngtlai District under NERPSIP in Mizoram</b>	
Serlui	56.35	
<b>Details of Wetlands</b>		
Inland wetland Natural		
Lakes/Ponds	3	
Waterlogged	2	
River/Stream	25	
<b>Protected Area (in sq.km)</b>		
Murlen National Park	100	
Phawngpui National Park	50	
Dampa Tiger Reserve	500	
Ngengpui Wildlife Sanctuary	110	
Khawnglung Wildlife Sanctuary	35.75	
Lengteng Wildlife Sanctuary	60	
Tawi Wildlife Sanctuary	35	
Thorangtlang Wildlife Sanctuary	50	
Pualreng Wildlife Sanctuary	50	
Tokalo Wildlife Sanctuary	250	

#### 2.4. Topography

Mizoram is a land of rolling hills, valleys, rivers and lakes. As many as 21 major hill ranges or peaks of different heights run through the length and breadth of the state, with plains scattered here and there. The average height of the hills to the west of the state are about 1,000 mt (3,300 ft). These gradually rise up to 1,300 metres (4,300 ft) to the east.

The general topography of the study area Lunglei District varies widely. Physiographically, the district is a mountainous terrain with prominent relief. The hills have ranges running from North to South. Mostly anticlinal longitudinal parallel to sub parallel hill ranges and synclinal narrow valleys create deep gorges in between North- South hill ranges. Basically, these are structural hills. The denudation and weathering is still undergoing in response to various physicochemical processes. One of the dominant processes of the formation of such land form is running water. Based upon relief, drainage, lithology and structural pattern, the district has been divided into two major units i.e. a) Denudation Structural Hills and b) 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 north or to the south creating deep gorges. Numbers of perennial streams flow through the district from North to South and join the Kaladan River.

The district has the similar topography as the state. The district is mostly occupied by denudo structural hills which is predominantly argillaceous. These are north-south trending parallel to sub-parallel hill ranges with synclinal narrow valleys. The hills are steep and separated by rivers, which flow either to north or to the south, creating deep gorges. Basically, these are structural hills. The denudation and weathering is still under-going in response to various processes. One of the dominant processes of the formation of such landform is running water. Based upon relief, drainage, lithology and structural pattern; it has been classified as follows: i) Low linear ridges, ii) Moderate linear ridges.

Physiographically, the district is mostly represented by North-South trending hill ranges with moderately steep slopes, in the southeastern part of the district, the relief is comparatively lower

land the slopes are moderate to steep. Thega or Kawnpui, Tuichang and Kaladan or Tuipui river with its tributaries drain the district.

## 2.5. Landuse Pattern:

For Land use details of Mizoram State and Project Districts, Land use statistics of Ministry of Agriculture, GOI, 2018-2019 and North Eastern Development Finance Corporation Ltd (NEDFI), 2018 are referred. Majority of the Mizoram State area is 75% is covered by forest land followed by 8.52% agricultural land.

### 2.5.1. Study area land use pattern

The modern technique of satellite remote sensing facilitates such type of studies, reporting area for Landuse in study area is given in **Table 2.2**.

Table 2-2 Landuse Pattern of Project District – Lunglei

Sr. No	Land Use Classes	Area in Ha		
		Lunglei	Lawngtlai	
1	Geographical area	453800	255618	
2	Forest Area	354458	185597	
3	Land Not Available for Agricultural Use	16964	28464	
4	Land under Misc. tree Crops & groves not including in net Area sown	27334	27436	
5	Permanent pasture & other grazing land	1530	320	
6	Culturable Waste land	1652	350	
7	Fallow Land	Current Fallow	5140	767
8		Fallow Land Other than Current fallow	28011	-
9	Net Cropped area	16576	41556	
10	Barren Uncultivable land	1050	1028	

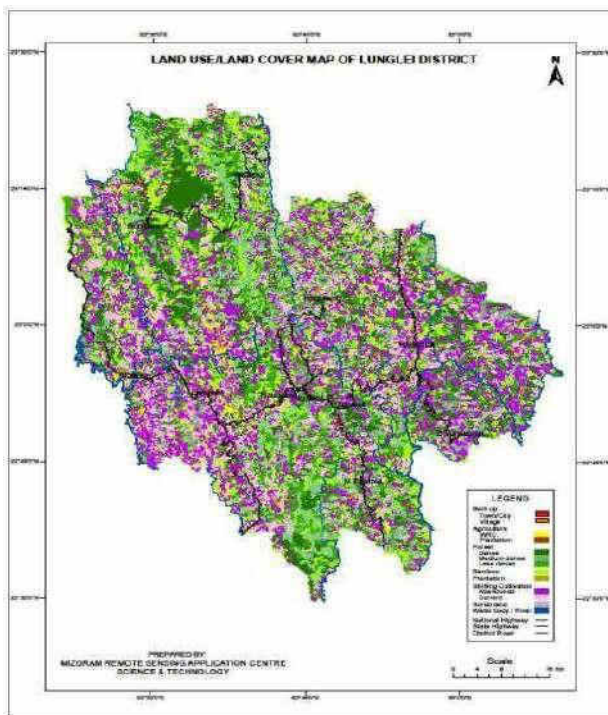


Figure 2-4 Land use of Lunglei

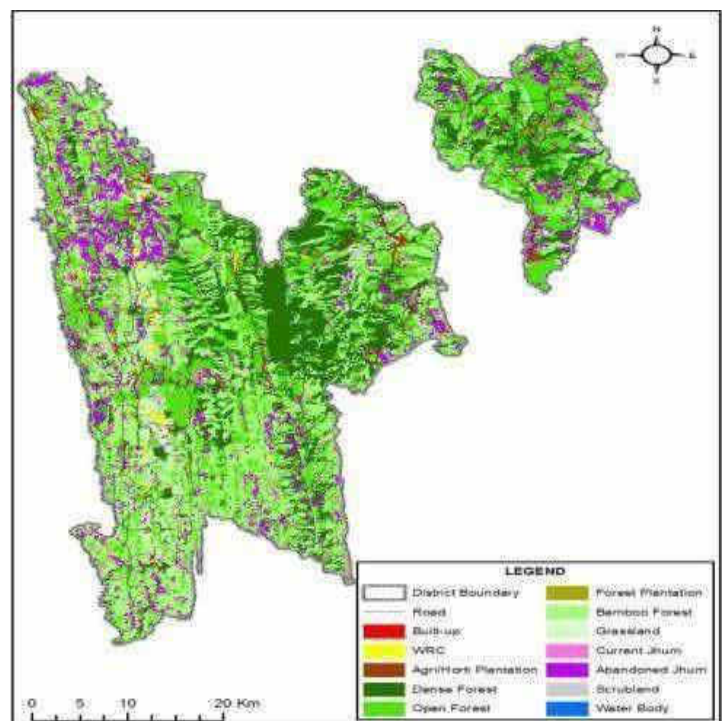


Figure 2-3 Land use of Lawngtlai

## 2.6. Soils

Typical soils in the state are sandy loam and clay loam, which have been heavily leached due to the high slopes leaving it porous and lacking in minerals or humus. The soils in the state are near neutral to strongly acidic (pH 4.5 - 7.3). The soils of the state can broadly be classified into two main groups namely; (i) Alluvium soils and (ii) Residual soils. The soil Map is depicted as below. According to Sarkar and Nandy (1976) the soils of Mizoram can be classed into three orders of taxonomy viz., Entisols, Inceptisols and Ultisols.

The soils of the district, in general, have been derived from parent rock such as ferruginous sandstone, shale, alluvial and colluvial materials. In general, the soil formations have been categorized into following groups: Hills – mostly colluvial soil, formed along the steep sided slopes because of accumulation of soil forming materials on slope surface, Valleys- mixture of colluvial and alluvial materials and is restricted to the rolling valleys along the river courses & Terraces - remnants of deposits of cobbles and pebbles.

Major soils associations' relationship with Physiography of the areas of the sub watersheds are deep, sandy to medium textured soils. The soil taxonomic (family) classification of project districts as per the data by National Bureau of Soil Survey & Land Use Planning (NBSS&LUP) the project area has been **given in Appendix A under heading A**. The map prepared by Mizoram Remote Sensing Department, 2019 is depicted as **Figure 2-5**.

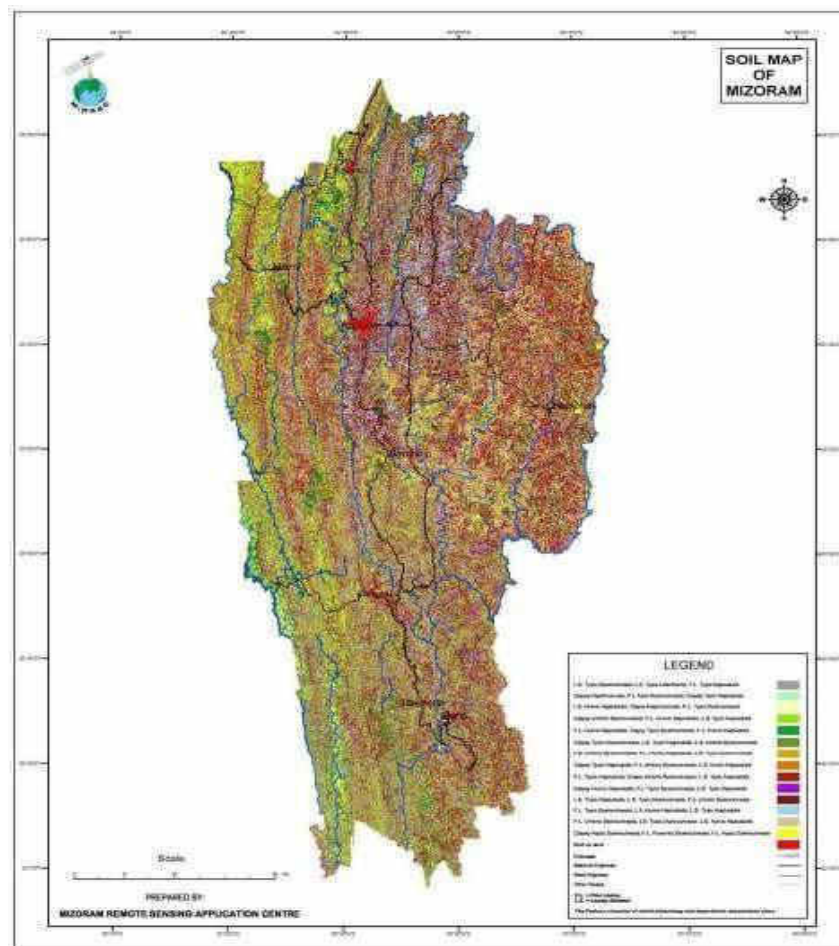


Figure 2-5 Soil map

## 2.7. Vulnerability

**Vulnerability of study area as given in below table:**

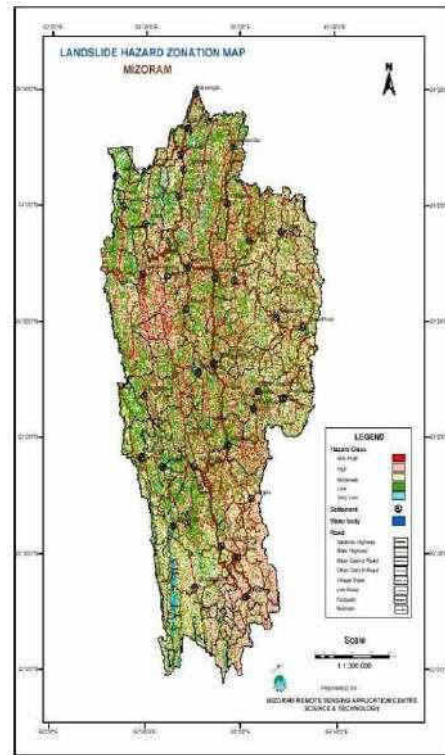
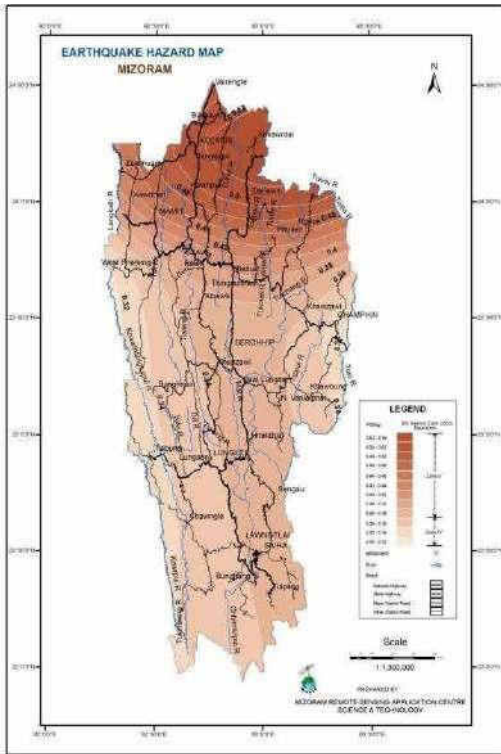
*Table 2-3 Vulnerability of Study area*

<b>Earthquake Vulnerability</b>	<b>Landslide and Erosion Vulnerability</b>	<b>Cyclone and Wind Vulnerability</b>	<b>Flood Vulnerability</b>	<b>Fire Vulnerability</b>
<p>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 Mammit 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 Fig 2.6 . Associated vulnerability is studied in detailed for the TL</p>	<p>Mizoram, being a hilly terrain is 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</p>	<p>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</p>	<p>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</p>	<p>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:</p> <ul style="list-style-type: none"> <li>• Use of sub-standard electrical fittings.</li> <li>• Lack of routine check-up of over-utilized electrical items.</li> <li>• Lack of trained electricians for wiring of homes.</li> <li>• Faulty electrical wirings of home.</li> <li>• A combination of the</li> </ul>



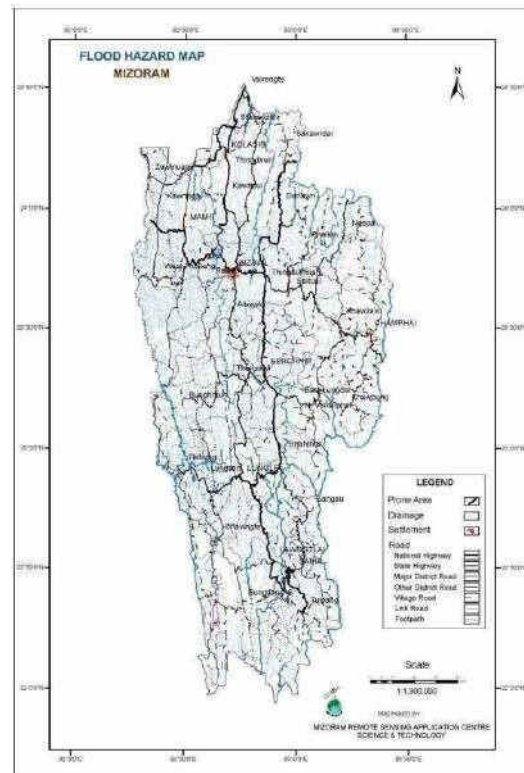
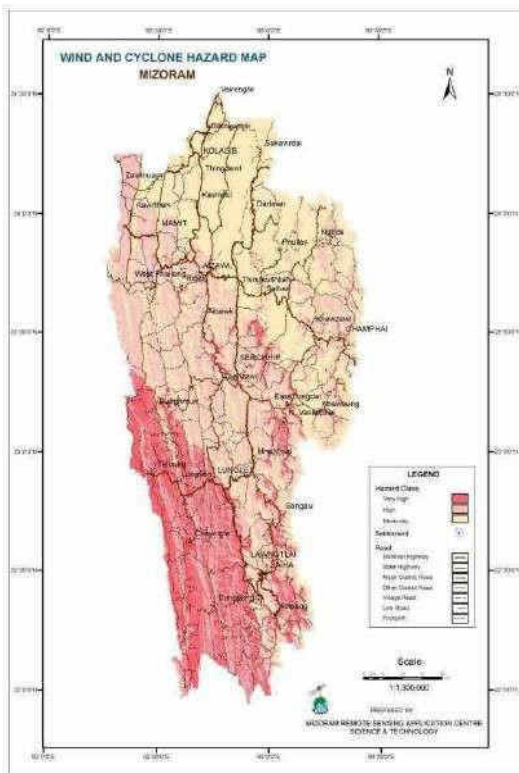
<p>alignment of the project is discussed in the Section 4.3 and Chapter 5 impact mitigations are evaluated.</p>	<p>many factors that make an area vulnerable to landslides, both induced by human activities as well as inherent natural composition of the soil. However, in most cases the former factor is a contributing factor, especially in areas where development activities are higher and drainage facilities are neglected.</p>	<p>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 Fig 2.6.</p>	<p>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. <b>Please refer</b> Fig 2.6. Flood vulnerability is studied in detailed for each alignment of the project TL and DL and same are discussed in the <b>Section 4.3</b>. 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.</p>	<p>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 areas to forest fires.</p>
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Seismic Hazard Map of Mizoram

Landslide Hazard Map of Mizoram



Wind and Cyclone Hazard Map of Mizoram

Flood Hazard Map of Mizoram

Figure 2-6 Vulnerability *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 same has been described in ensuing paragraphs.

### 2.7.1. Forest Cover inside and outside Recorded Forest Area (Green Wash)

The State has reported extent of recorded forest area (RFA) 5,641 sq km which is 26.76% of its geographical area. The reserved and unclassified forests are 79.47% and 20.53 % of the recorded forest area in the State respectively. Due to non-availability of digitized boundary of recorded forest areas from the State, the updated Green Wash from Sol top sheets which is 20,662.83 sq km has been used as proxy to the RFA boundary and the analysis of forest cover inside and outside this area is given below in **Table 2.4**.

**Table 2-4 Forest Area Classification – Mizoram State**

Geographical Area (GA) Sq. Km.	Recorded Forest Area (RFA) Sq. Km.				Total RFA Sq. Km. in 2019	% of GA
	RF	% RF	UCF	% UCF		
21081	4483	92.7	1158	7.3	5641	27

RF: Reserved Forest (RF), Protected Forest (PF), Unclassified Forests (UCF)

**Table 2-5 Forest Canopy Cover – Mizoram State**

Geographical Area (GA) Sq. Km	Forest Cover in Sq. Km. 2019						Total Area Sq. Km 2019	% of GA
	VDF	%VDF	MDF	%MDF	OF	%OF		
21081	157.05	0.87	5801	32.0	12047.71	67.13	18006	85.41

**Table 2-6 Forest Area Classification – Mizoram State**

Area Sq. Km.	Forest Cover inside the Recorded Forest Area (or Green Wash)			Forest Cover inside the Recorded Forest Area (or Green Wash)				
	VDF	MDF	OF	Total	VDF	MDF	OF	Total
Area Sq. Km.	156	5708	11872	17736	1	39	176	270
Area (%)	0.88	32.18	66.94	100.00	0.37	34.39	65.24	100.00

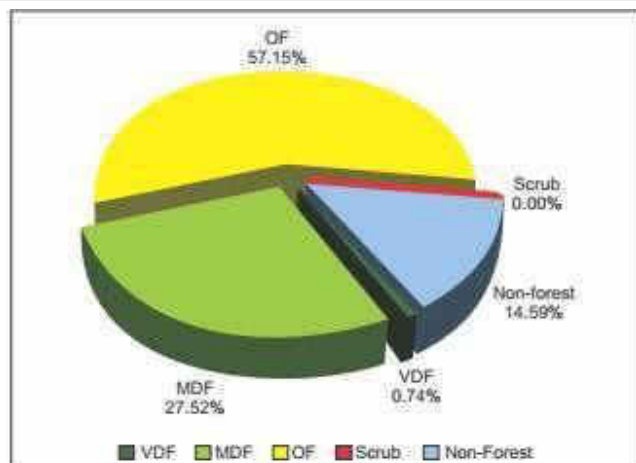


Figure 2-8 Forest Cover of Mizoram State

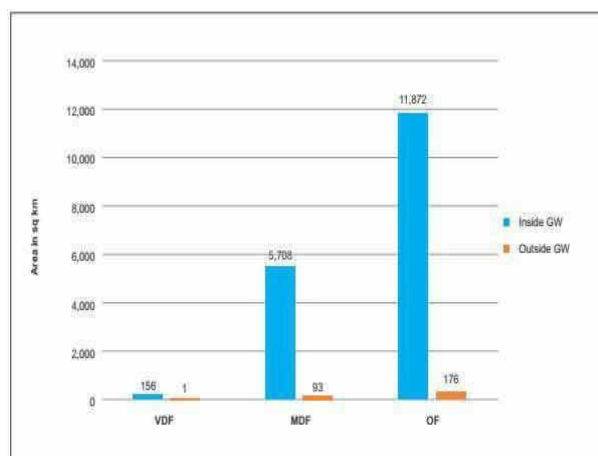


Figure 2-7 Forest Cover Inside and Outside RFA

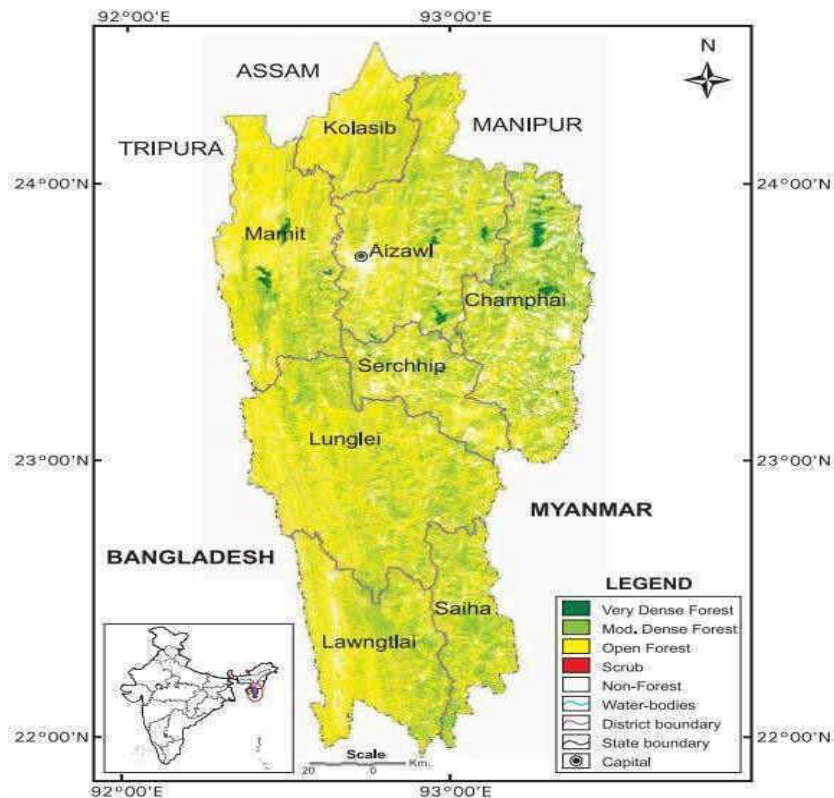


Figure 2-9 Forest Map of Mizoram State<sup>21</sup>

### 2.7.2. Forest Types

Forest Type Maps of 2011 have been refined in the recently completed exercise by FSI. State has been endowed with a wide variety of forest types on account of its unique geographic location and wide range of physiographic terrain. Mizoram has 6 forest types as per the Champion & Seth classification (1968). Percentage area under different forest types of

Mizoram as per the Champion & Seth classification (1968) and latest details of FSI are presented in the following **Table 2.7**.

Table 2-7 Details of forests in Mizoram

Sr. No.	Types of forest	% of Forest Cover
1	2B/2S1 Pioneer Euphorbiaceous Scrub	0.44
2	2B/C2 Cachar Tropical Semi-Evergreen Forest	30.70
3	2/2S1 Secondary Moist Bamboo Brakes	37.42
4	3C/C3b East Himalayan Moist Mixed Deciduous Forest	30.79
5	8B/C1 East Himalayan Subtropical Wet Hill Forest	0.04
6	9/C2 Assam Subtropical Pine Forests	0.61

### 2.7.3. Study Area Baseline Data Collection

The study area Lunglei and Lawngtlai is 6478 sq km, which is 35 % of the project districts geographical area. Please refer **Table 2.8**. The proposed transmission and distribution lines shall pass through Lunglei & Lawngtlai district having forest cover of 91.29 % & 92.40 % respectively. However, by adopting careful route selection technique, forest area involvements along routes of all transmission and distribution lines under the subjectscheme have been completely avoided thereby minimizing ecological disturbance. **Please refer Annexure -3** for Alternative alignment Analysis

**Table 2-8 Forest Cover – Lungeli & Lawngtlai**

District	2019 Assessment Forest area Sq. Km					
	Geographical area of Project District Sq. Km	VDF	MDF	OF	Total	% Total of District GA
Lungeli	4538	1	1186	2954	4141	91.29
Lawngtlai	2556	0	705	1632	2741	91.40
<b>Total</b>	<b>7094</b>	<b>1</b>	<b>1891</b>	<b>4586</b>	<b>6478</b>	<b>91.32</b>

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 2.9**.

**Table 2-9 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	Lungsen - Chawngte 132 kV S/C line (charged at 33 KV) – <b>20.087 km</b>	AP 12, 13, 16A, 17, 24, 24/1, 25, 26, 27, 28, 2, 8A, 30, 32/0, 33/0, 37/0, 37/1, 37A/0, 3 8/0, 43A/0, 43B/0, 44, 45/0, 46/0, 47, 4 8/0, 49/0, 49A, 50/0, 51/0, 52A, 54A, 5 6/0, 57/0, 60/0, 60A, 61/0, 62/0	10 km	50%
2	Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV) – <b>25.15 km</b>	AP-6, 8, 9, 11, 12, 13, 15/0, 16/0, 16A /0, 17/0, 21/0, 24C/0, 26/0, 26A /0, 27/0, 28/0, 28A/0, 37A/0, 57 /0, 59C/0, 61/0, 62A/0, 64A/0, 6 5/0, 67/0, 72/0, 72A/0, 73/0, 73 A/0, 74/0, 75/0, 76/0, 77/0, 77A /0, 78/0, 78A/0	9.18 km	36.52%



Figure 2-10 Forest Classification Map, Lunglei District<sup>29</sup>

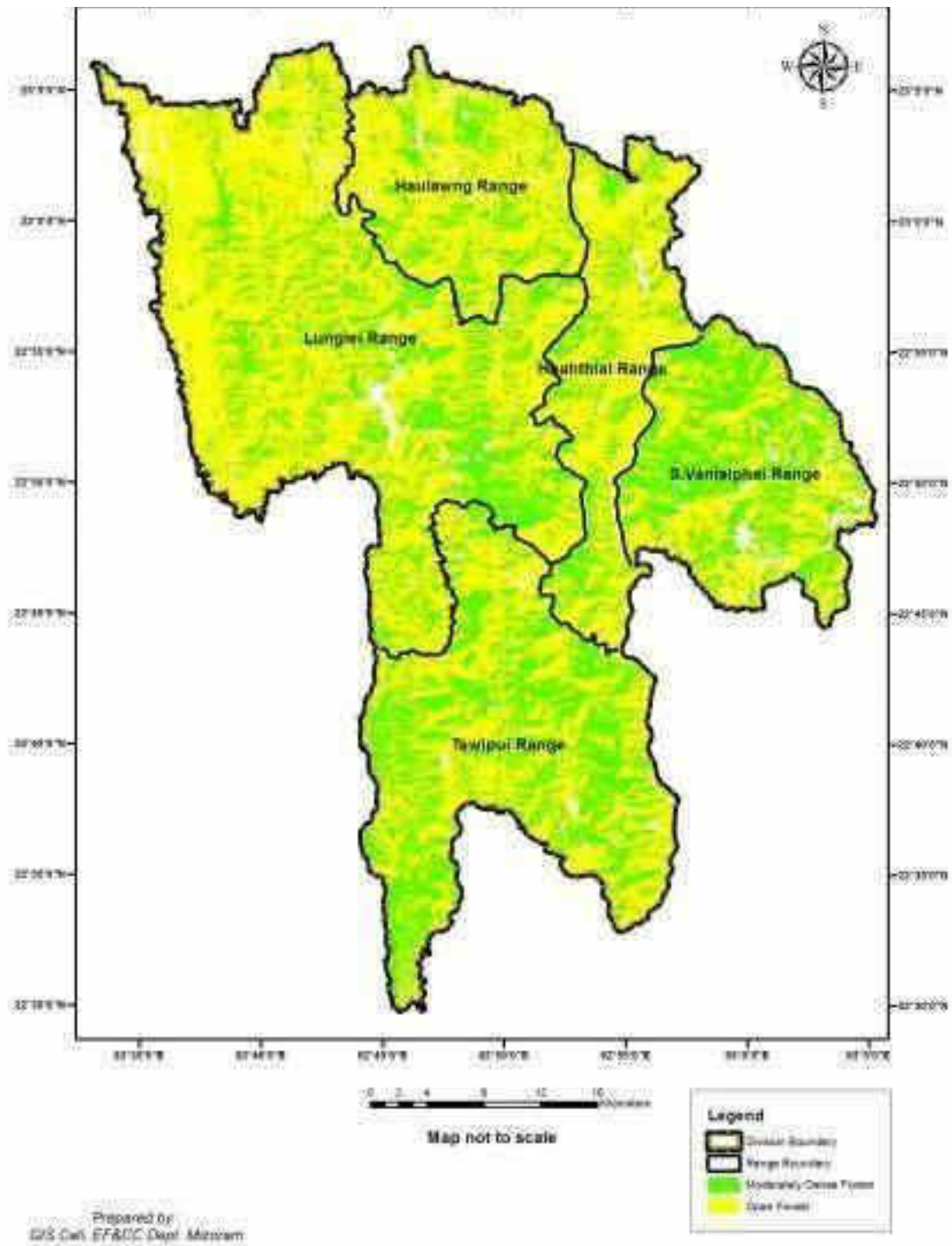
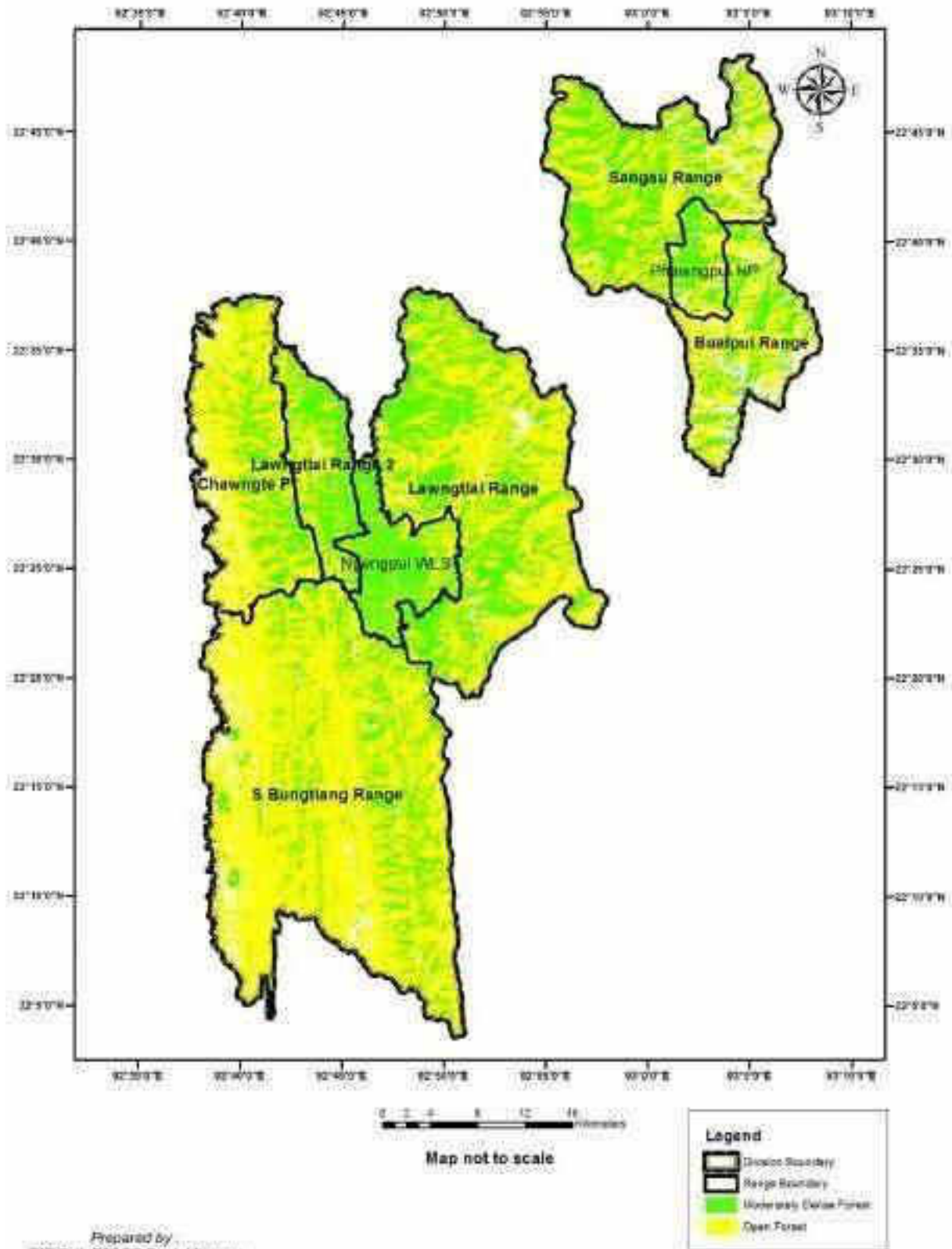




Figure 2-11 Forest Classification Map, Lawngtlai District



### 2.8.3.1. PA with respect to project districts:

The proposed TLs/DLs and S/S are not passing through/located in any protected area like NP, WLS, IBAs, conservation reserves, community reserves and biosphere reserves, etc., as all such areas have been completely avoided through meticulous route alignment analysis and careful substation site selection.

Four protected areas are located in Lunglei and Lawngtlai districts. However, the proposed transmission and distribution lines don't pass through any protected area like national parks, sanctuaries, elephant reserves/corridors and biosphere reserve etc. and are sited at sufficient distance from these protected areas through careful route selection. The nearest Protected Area i.e. Ngengpui Wildlife Sanctuary is located at a distance of minimum 1.9 Km from Chawngte - S. Bungtlang 132 kV S/C transmission line route alignment. The alignment is routed parallel to under construction Chawngte - S. Bungtlang road under Bank funded scheme of MSRP-II. Hence, there seems to be no rationale for shifting transmission line route alignment which has already been chosen carefully avoiding habitation along the existing road and sanctuary.

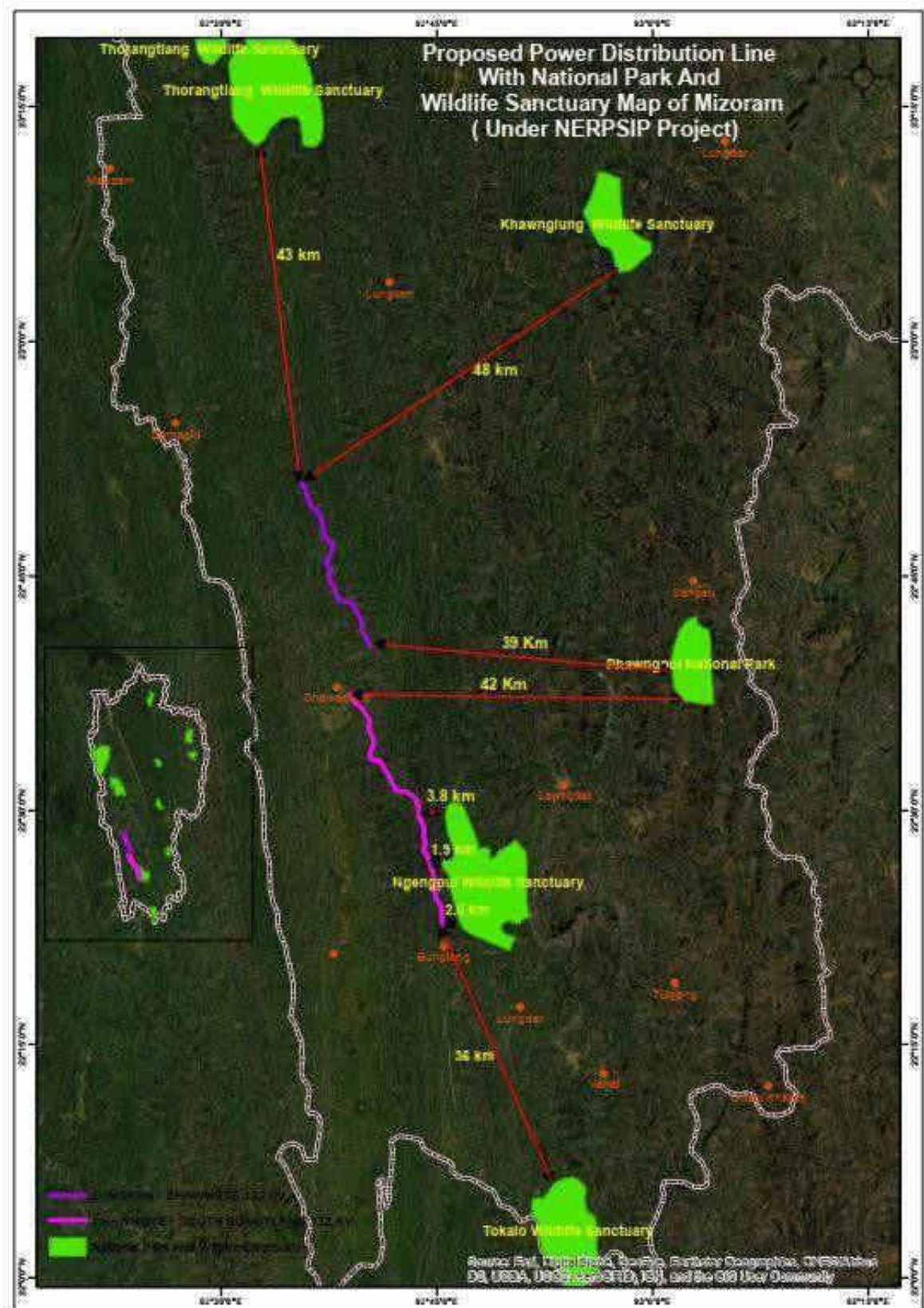
The consolidated Map of PA with respect to FEAR 1 Project is depicted as **Fig 2.12**. No ecologically sensitive areas are getting adversely impacted due to project interventions because of TL and DL. Please Refer **Fig 2.13**. For sustainable development, it is important to understand social and economic 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 2-14 Map 2-23: FEAR 1 – Subprojects and PAs





## 2.8. Socio Economic Environment

### 2.8.1. Economic Development

In Lawngtlai district one-third of the total inhabitants of rely entirely on agriculture, which is mostly based on traditional method of shifting cultivation. Only a small fraction of urban population is involved in permanent employment, such as state government service, bank and schools, and few engaged in small-scale business. The economic status of the district is in fact the lowest among the districts in Mizoram.

Most of the indigenous local inhabitants of Lunglei district depends on agriculture and earn their livelihood from growing crops. The cash crops of coffee and rubber help the district to earn its revenue. The farmers of the district mostly practice the traditional method of shifting cultivation, which is popularly referred to as jhum. Rice is the principal crop in the agricultural economy. Cottage industries produce hand loomed cloth, furniture, agricultural equipment, woven textiles, and bamboo and cane work.

### 2.8.2. Demography

The detail analysis of Population Census 2011 published by Govt. of India for Mizoram state reveal that population of Mizoram has increased by 23.48% in this decade compared (2001-2011) to past decade (1991-2001). The density of Mizoram state in the current decade is 130 per sq. mile Mizoram is a State of India with population of Approximate 10.97 Lakhs. The population of Mizoram state is 1,097,206. The density of Mizoram state is 52 persons per sq km. The details are as below;

**Table 2-10 Demography details of Mizoram**

Particulars	Details
Number of Households	222853
Population	1097206
<b>Number of HH</b>	222079
Male Population	555339 (50.61%)
Female Population	541867 (49.39%)
Children Population	168531
Area	21081 km <sup>2</sup>
Population density/km <sup>2</sup>	52.11
Sex-ratio	976
Literacy	91.33%
Male Literacy	89.27%
Female Literacy	75.6%
Scheduled Tribes (ST) %	95.04%
Scheduled Caste (SC) %	0.11%
Main Workers numbers	4,15,030
Marginal Workers Numbers	71,675
Non-Workers	610501
Total Workers	4,86,705
% of total workers to total population	44.36%
Cultivators	2,29,603
Agricultural Labourers	41,787
Workers in household industry	7,852
Other Workers	2,07,463

### 2.9.3.1. Demography – Project Districts

Population of the districts Lunglei and Lawngtlai in Mizoram from where the Project Lines are passing and S/S are planned as per 2011 census are as shown in **Table No. 2.11 through Table 2.13.**

**Table 2-11 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	Lunglei	32853	82891	78537	161428	92.04	85.49	88.86	947	36	125	53	178	0.1177	180	76353	153533	95.11
2	Lawngtlai	22899	60599	57295	117,894	74.12	57.12	65.88	945	46	105	41	146	0.1257	044	55310	112354	95.30

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

**Table 2-12 Occupational Pattern of Project Districts**

SR	Name	Total Workers				Main Workers				Marginal Workers				Non-Worker			
		Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%
1	Lunglei	46230	32062	78292	48.5	40961	21052	92013	38.42	5269	11010	16279	10.08	36661	46475	83136	51.5
2	Lawngtlai	28517	17049	45566	38.65	25757	12325	38082	32.3	2760	4724	7484	6.34	32082	40246	72328	61.35

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 2-13 Main Worker Profile of Project Districts**

Sr No.	District	Main Workers	Cultivators				Agricultural Labor				Household Industry Worker				Other Workers			
			Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%	Male	Female	Total	%
1	Lunglei	62013	24752	20687	45439	58	5493	5169	10662	13.62	465	348	813	10.04	15520	5858	21378	27.31
2	Lawngtlai	38082	17118	12071	29189	64.06	1728	1425	3153	6.92	286	327	613	1.35	9385	3226	12611	27.28

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

## 2.9. Baseline Description of the Subproject areas

The baseline data around the sub-project sites is broadly in conformity with the data of the project district, i.e., Lunglei and Lawngtlai. However, the topography encountered around the TL route alignment and S/S is almost hilly and slopy terrain. Leg extension is used to minimize or avoid benching or revetment and to provide great stability in cases where tower/pole locations are on hill terrain and positioning of tower on hill top is not possible. All of the S/S are designed and built using international sustainable technology and earthquake-resistant architecture.

All 2 TLs lines are passing through moderately dissected Structural Hills. The rock type is mostly shale stone with conglomerate of sandstone and pebble bed. A major portion of the TL passes through Forest Plantation (Segun), open forest, Bamboo Forest and grazing land. The TLs route do not involve notified forest land and hence do not require the forest clearance under Forest (Conservation) Act, 1980. Besides all protected areas 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 of agricultural land, private plantation and government land. The total length of the project TLs is 45.237 km and total number of 174 towers are being/to be erected for all proposed 2 TLs. However, during the detailed and check survey further optimization of route by IA through careful route selection has reduced the line length substantially without involvement of any environmentally and socially sensitive areas. As a result, the environmental and social footprints have been reduced further as envisaged in IEAR. **The details are discussed in Chapter 4.** Due impact assessment and mitigation measures are implemented as per prescribed EMP and following ESPPF prepared by PEDM. **The details are discussed in Chapter 5.**

It has been observed that most of these S/S lands were secured by PEDM since long back. As these substation locations are easily accessible with existing metal roads construction of new approach road is not required. The details of requirement of approach road along with google map photos of substations depicting status of approach have been placed at **Table 2.14**. However, it is to submit that in few cases i.e., 33/11kV South Bungtlang S/S - 200m, 33/11kV Lungsen S/S - 100m, only strengthening / up gradation 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.

Table 2-14 **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 <b>Lungsen</b>	0.88	The proposed land is located adjacent to Lungsen Lunglei road via Chhumkhum. Approx. 4.5 Km from Lungsen town. <i>Co-ordinates: 22°50'19.32"N, 92°36'5.76"E</i>	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.	Location is just adjacent to Lungsen Lunglei road. However, 50-100 meter approach may be required.	Govt land already in possession with PEDM
2	Augmentation of 132/33 kV substation at <b>Lunglei</b>	NA	Existing Lunglei S/S. <i>Co-ordinates: 22°55'05.6"N, 92°46'56.6"E</i>	NA	NA	Govt. land and already in possession of PEDM.
3	33/11 kV (New) substation at <b>South Bungtlang</b>	2.97	The proposed land is located appx. 70 meter away towards valley side in the western side of the existing Chwangte	The land use surrounding the proposed substation site is mostly jhum cultivated land having	Location is approx. 70 metre way from the existing road. Existing	Govt. land and already in possession of PEDM.



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Sr. No	Name of SS	Area Acres	Location	Surrounding	Accessibility	Land Status
			- S. Bungtlang road on the periphery of the S. Bungtlang town. <i>Co-ordinates:</i> 22°19'42.56"N, 92°45'57.35"E	medium dense tree cover owned by individual/Community. Sparse habitation is found on the Southern part of the proposed plot.	access to the propose site is already available but its strengthening may be required.	

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

Regular environmental monitoring is being carried out at S/S locations during Construction activity. It is being observed that during construction activity dust emission is not envisaged as water sprinkling activity is regularly carried out at construction site which has nullified the impact of dust emission in the area. Construction activity is carried out in the confined space and locations are far from nearby habitations. Due to hilly terrain most of the materials are being transported manually through head load thus minimizing the use of vehicles/machineries. Thus, Noise impacts are not envisaged. However, the baseline environmental monitoring for water and noise environment at various locations of subproject construction sites are being carried out as regular activity as part of EMP during construction phase by construction contractors. All the analysis results are found within prescribed 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* invasive species are recorded in the study area i.e., transects studied along the TL and S/S. Some 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. The detailed vegetation assessment is discussed in **Section 2.7.3** and list of vegetation recorded during field survey is depicted in **Appendix A under Heading B**.

MoEFCC, GoM has issued notification Dated 9<sup>th</sup> 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 numbers of trees likely to be affected due to construction of 65.985 km of 132kV line is approx. 10,900 out of which 10,050 trees are in private area and 850 trees are in Govt. area. Additionally, 500 nos. private bamboo trees are likely to be affected. The major species to be affected are Teak (*Tectona grandis*), Sal (*Shorea robusta*), Pine (*Pinus khasiana*), Champa (*Magnolia champaca*), Gulmohar (*Delonix regia*), Gamari (Gmelina arborea), Needlewood (*Skima wallichii*), Bamboo (*Bambusa vulgaris*) etc. However, tree felling will be limited below 3 mts of each conductor and pruning/pollarding will be done in remaining TL corridor to maintain electrical safety clearance. Accordingly, the actual tree felling will be minimum and all care shall be taken by IA to comply as per the MoEF guidelines for transmission lines dated May, 2015



### 3.0 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 42<sup>nd</sup> 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- Lawngtlai 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 1-0-15 Environmental Provisions

Sr. No.	Acts, Notification & Policies	Relevance	Applicability to the project	Status of compliance
1.1	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	Not Applicable- Since no forest area is involved in any of the line routes or S/S location. forest clearance under FC Act 1980 is not applicable in instant case	-
	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 no PA / WLS is involved in the subprojects NBWL clearance under WL Protection act 1972 is not applicable in instant case.	--
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. Applicability mostly during operations phase	Complied with: Though applicable as tis 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 <sup>th</sup> 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
(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 therewith.	Not applicable as the project does not involve any biosphere reserves	

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	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),	Applicable The route has been selected in such a way that it has minimum obstructions under its alignment & majority of the	Clear felling of trees will be limited to below 3 mts of each conductors and in remaining part of corridor only looping/pruning of trees are being carried out to minimize loss of vegetation as per MoEFC C guidelines and CEA's Electric Safety Rules 2010
	Court Order Dated 12.5.2001 in Writ Petition (C) No. 202/95) is hereby published for general information.	Kothal (Arrocarpus jntegrifolia), all species of Bamboo, Leteku, Paniol and Madhunam.	trees have been trimmed. Only such trees are felled which create hindrance to electrical safety after due compliance of applicable tree felling provisions. It was tried to retain the trees on site. Only grass growth on the S/S plot was cleared during land development prior to construction.	
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	Not Applicable as there is no forest land involvement	--



**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.	Applicable	NOC's taken by sites
1.2	The Right to fair compensation and transparency in land acquisition, rehabilitation & resettlement act,	Act ensures appropriate identification of the affected families/ households, fair compensation and rehabilitation of title holder 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	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 compensation 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: PEDM has already been vested with powers of telegraph authority by Power & Electricity Dept. of Govt. of Mizoram vide Gazette Notification dated 17.06.2016 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 and State of Mizoram notification on RoW land compensation dated 01.07.2016

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 therewith or incidental thereto	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 meters measuring from the center 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) Khawthlangtuipui; (o) Mat; (p) Tuichang (Lunglei District); (q) Tuichang ; (r) Tuipui; (s) Tiau.	No such activity reported from such site. Adequate measures taken during survey stage.	--



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**Table 3-3: World Bank Operational Policy**

Sr. No.	Acts, Notification & compliance Policies	Relevance	Applicability to the project	Status of
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 under taken 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 don't involve natural habitats such as biodiversity area, forest area, protected area etc. Hence not 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	Not Applicable- Since no forest area is involved in any of the line routes or S/S location. forest clearance under FC Act 1980 is not applicable in instant case	--
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	Applicable provisions of EHS guidelines have been followed during the implementation of the project	Complied with: EHS guidelines are being followed during project implementation.



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		contains the performance levels & measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs.		
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.	Not required. However, NoC of from village councils (Head man, Gram Burrah) and land owners being obtained for areas part of compliance to sixth schedule provisions.
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	Applicable.	Complied. Guiding principles and recommendations are considered during labour appointment through construction contractor



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how to approach temporary labor in flux within the environmental and social assessment process.



### 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 1<sup>st</sup> December 2014.
- PEDM has been conferred with powers of telegraph authority under section 164 of Electricity Act by Power & Electricity Dept. of Govt. of Mizoram vide Gazette Notification dated 17.06.2016
- 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 2 districts 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.

## 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/DLs does not involve any human rehabilitation
- Any monument of cultural or historical importance is not affected by the route of the TL/DL.
- The proposed route of TL/DL does not create any threat to the survival of any community with special reference to Tribal Community.
- The proposed route of TL/DL 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 line has been selected from three (3) different alignments as described in IEAR. Please refer **Annexure 3**. Earlier, the nearest Protected Area i.e., Ngengpui Wildlife Sanctuary is located at a distance of 0.6 Km from Chawngte - S. Bungtlang 132 kV S/C transmission line route alignment. Both the TLs earlier were passing through rich vegetation and forest cover. Three Alignments alternatives were studied with the help Google Maps and walkover survey to arrive at most optimum route for detailed survey. 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.

#### 4.2.2 Evaluation of Alternative Route Alignment for Proposed Distribution Lines

Since the proposed distribution line i.e., 33 KV line from proposed 132/33 KV Lungsen to existing 33/11 KV Lungsen connects two substations in close vicinity and having line length of 5 km, hence no alternative have been studied for the subject line as there are no environment or social issues involved including forest area that require such studies.

#### 4.2.3 Evaluation of Location for Proposed Substations

For sub-station, 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	
<b>A. Transmission Line Network</b>				
1	Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)	35.03 km	20.087 km	Further optimization of route during detailed survey/ ground truthing through meticulous realignment along existing road as far as possible
2	Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)	40.54 km	25.15 km	
<b>B. Substations</b>				
1.	Establishment of 2 x 12.5 MVA, 132/33 kV new substation at Lungsen	Unchanged. PEDM Own Land		
2.	Augmentation of Lunglei substation by replacing existing 2x12.5 MVA, 132/33 KV transformer with 2 x 25 MVA 132/33 KV transformer	Unchanged. PEDM Own Land		
3.	Establishment of 33/11 kV new substation at South Bungtlang	Unchanged. PEDM Own Land		

### 4.3. Features and Satellite Images of T&D Lines

#### 4.3.1. Transmission Lines (TLs)

##### 4.3.1.1. Feature Details of Final Route Alignment of Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)

Lungsen - Chawngte 132 kV S/C line (charged at 33 KV) covers 20.087 km distance. Total 75 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 modestly dissected



Structurally hills. Rock type comprises conglomerate of sandstone and pebble bed. Major part of the TL passes through segun forest plantation (18%), grazing land (15.32%), Open Forest (40%) and Bamboo Forest (16%). The selected line does not cross any National Highway, Railway and Power line. The TL route do not involve notified RF land which do not necessitated forest clearance under Forest (Conservation) Act, 1980. Besides all protected areas like NP, WLS and designated elephant passage have been completely avoided. During the electric line survey and GIS mapping, it was discovered that the project region is landslide-prone, and the project TL is passing through an area with little or no flood vulnerability. The project site's hazards include earthquakes, windstorms, and high landslides.

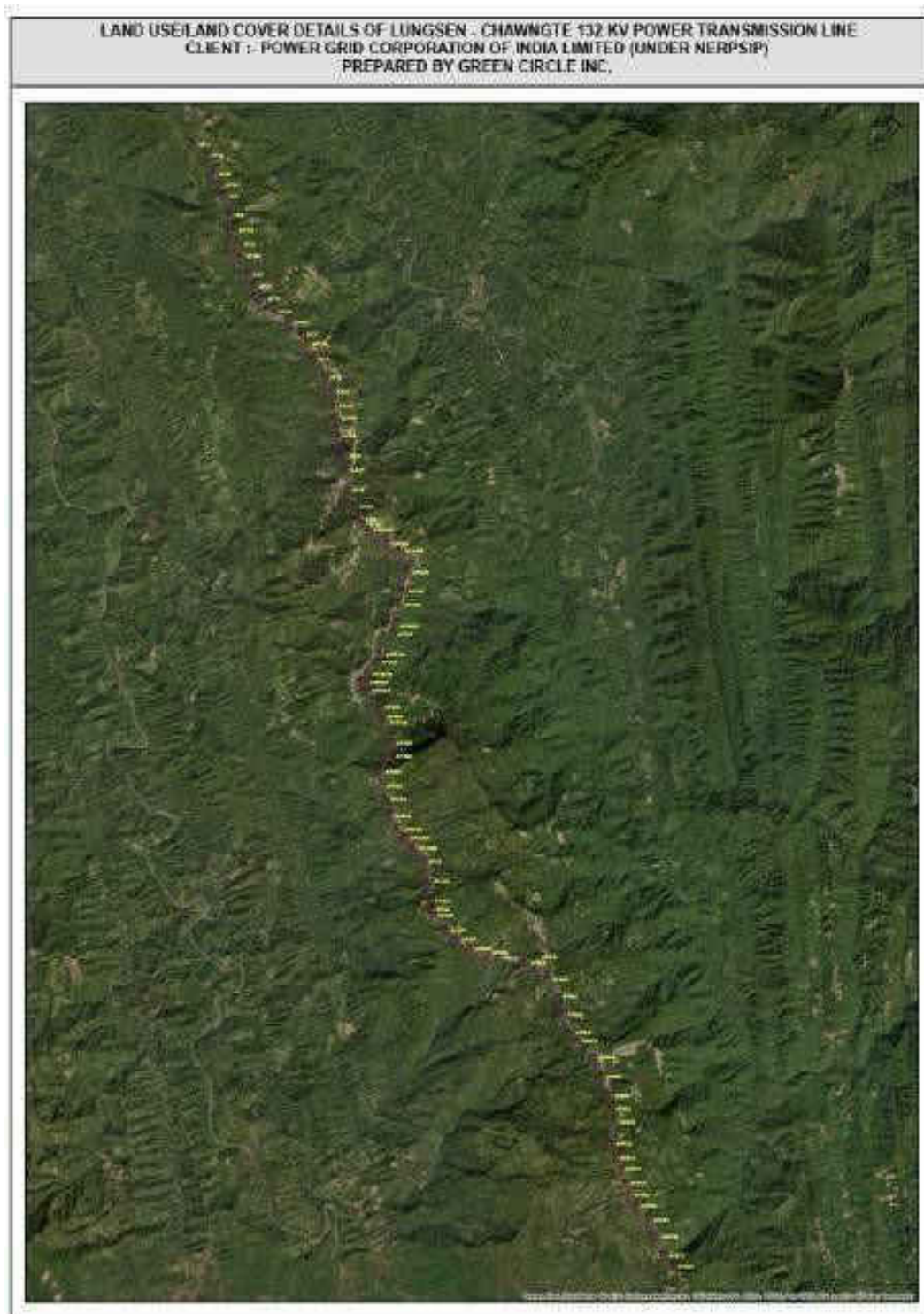
As per detailed surveys and GIS imagery data ROW is crossing water bodies such as drain & nala. However, No transmission tower (TT) is planned in water body. Transmission Tower constructed well above the ground level at required elevation will help to keep the people and animals away from EMF contact. 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 Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)  
Electric Line Feature Details 27m ROW*

<b>Feature Class Details</b>	<b>Area in Ha.</b>	<b>% of Area</b>
Bamboo Forest	9.90	16.06%
Barren /Waste Land	3.16	5.12%
Cart Track	0.27	0.44%
Drain/Nala	0.43	0.70%
Forest Plantation (Segun)	11.11	18.01%
Grazing Land	9.45	15.32%
Open Forest	24.52	39.77%
Play Ground	0.29	0.46%
Road	1.59	2.57%
Vacant Land	0.95	1.53%
<b>Total</b>	<b>61.65 Ha</b>	<b>100%</b>

Figure 4-1 **Map 4-1: Google Earth Alignment Map for Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)**



\*Blue Color: State line crossing



Switchyard of 132/33 kV Lungsen S/S



Switchyard of 132/33 kV Lunglei S/s



Extension foundation – 132kV Lungsen-Chawgte T/L



Switchyard of 132/33 kV Lunglei Extn. S/S



#### 4.3.1.2. Feature Details of Final Route Alignment of Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)

Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV) covers 25.15 km distance. Total 99 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 moderately dissected structurally hills. Rock type comprises conglomerate of sandstone and pebble bed.

Major part of the TL passes through segun forest plantation (7.44%), barren waste land (28%), Open Forest (37%) and Bamboo Forest (17%). The selected line does not cross any National Highway, Railway and Power line. The TL route do not involve notified RF land which do not necessitated forest clearance under Forest (Conservation) Act, 1980. Besides all protected areas 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 or nil 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.

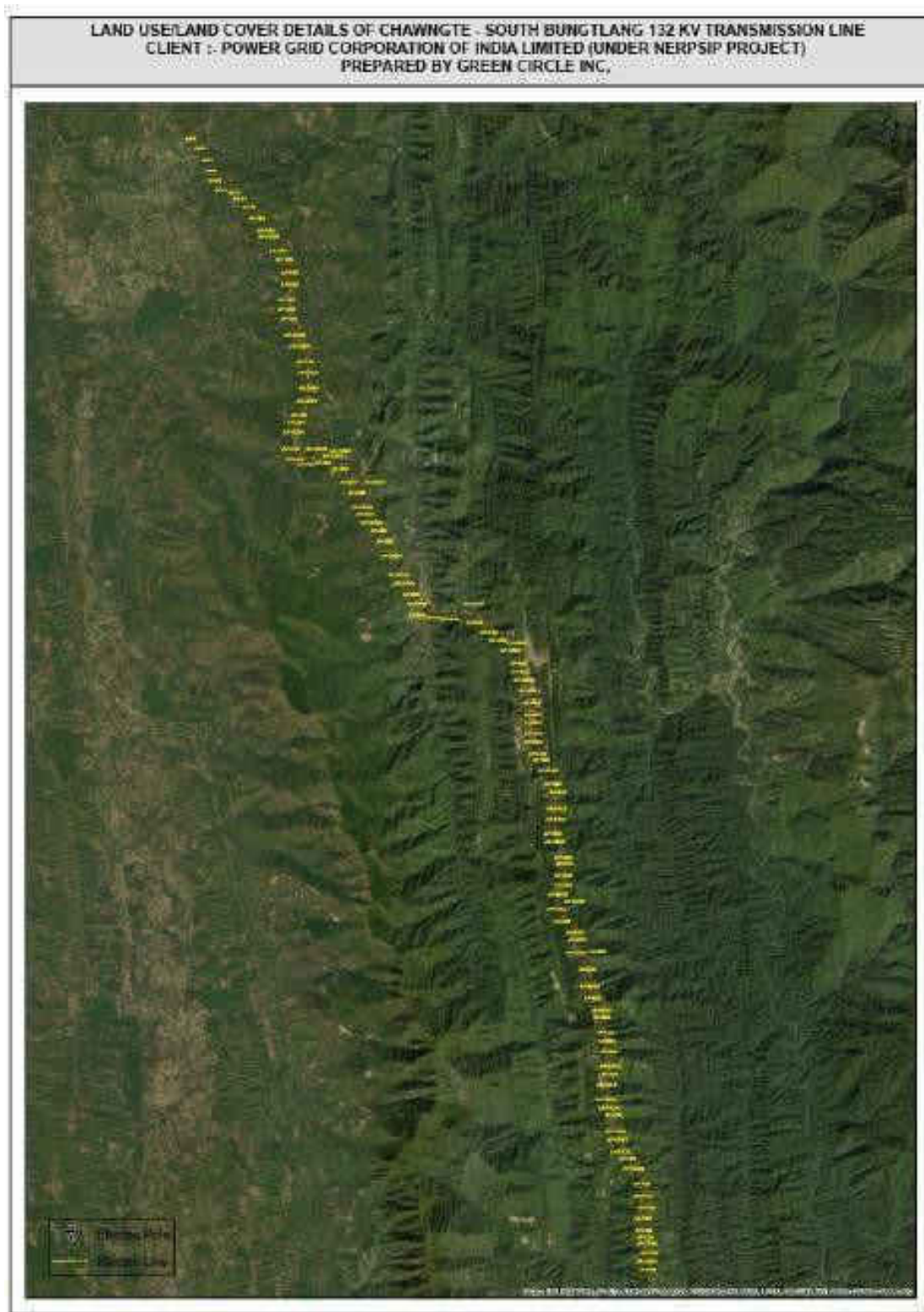
GIS route survey map and TL feature details are provided in **Annexure A2 & B2**. The major feature details are depicted in **Table 4.3**. The Google earth image of TL is provided in the **Map 4.2**.

Table 4-3 Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)

##### Electric Line Feature Details-27m ROW

Feature Class Details	Area in Ha.	% of Area
Agriculture Land	4.32	4.94%
Bamboo Forest	14.83	16.95%
Barren/Waste Land	24.63	28.16%
Cart Track	0.05	0.06%
Drain/Nala	0.25	0.28%
Forest Plantation(Segun)	6.51	7.44%
Open Forest	32.00	36.58%
Open Hilly Forest	1.76	2.01%
Pond/Lake	0.05	0.06%
River	0.20	0.23%
Road	2.38	2.72%
Vacant Land	0.50	0.57%
<b>Total</b>	<b>87.47 Ha</b>	<b>100%</b>

Figure 4-2 Map 4-2: Google Earth Alignment Map for Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)



\*Blue Color Indicate: State/National line crossing





132 kV Chawngte – S.Bungflang TL



Wall under construction at 33/11 kV South Bungflang S/S



33/11 kV South Bungflang S/S

## 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 and 1 augmentation is under execution. In general requirement of land area for S/S varies from 0.3 acres (for 33 kV) to 10 acres depending upon voltage levels and no. of bays. 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. 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.

The project is being implemented in the tribal areas of Lawngtlai district governed by two separate district councils i.e. Lai Autonomous District Council (LADC) and the Chakma Autonomous District Council (CADC) with their headquarters at Lawngtlai and Kamalanagar respectively in accordance with the provisions of the Sixth Schedule of the Constitution of India. It may be noted that all social issues shall be dealt separately in accordance with the provisions of Social Management Framework<sup>3</sup> (SMF, A-C) placed in the ESPPF of PEDM.

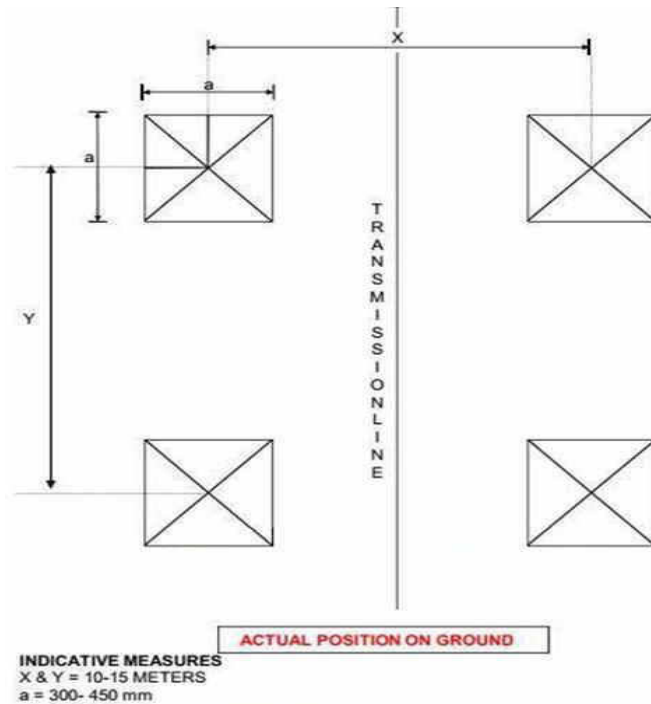


Figure 5-1 Typical Plan of Transmission Line Tower Footings Showing Actual Ground Position and Extent of Impact

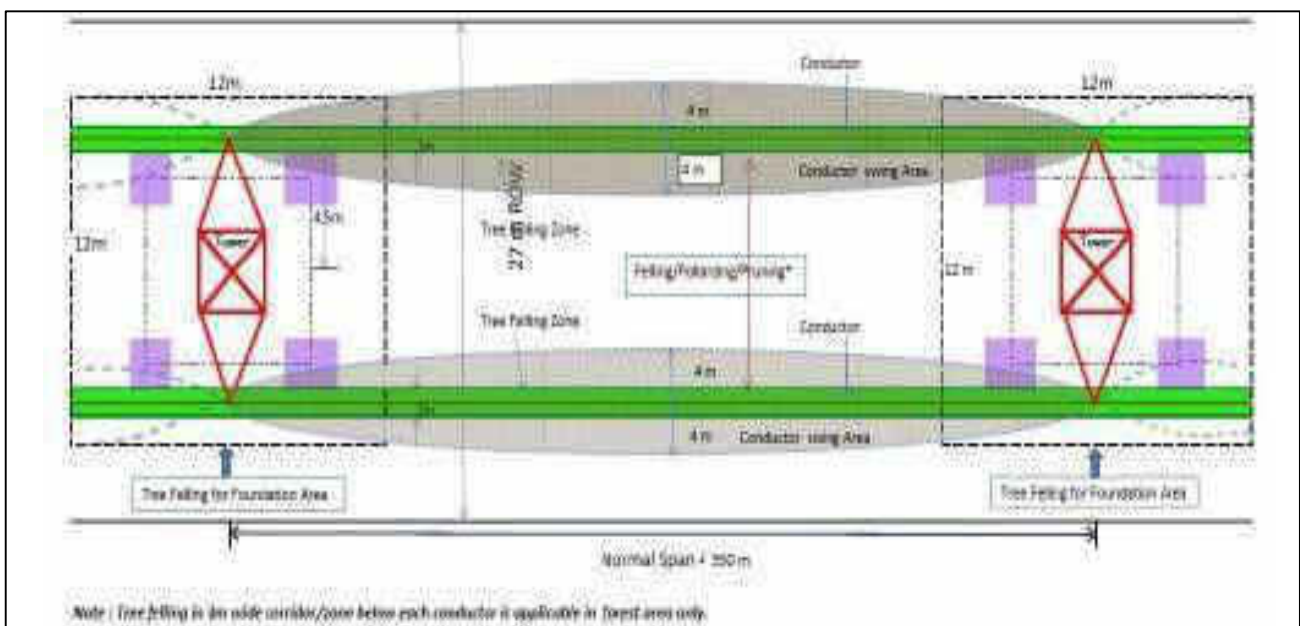


Figure 5-2 : Schematic Diagram for Indicating Area of Influence/Impact for 132 KV D/C TL



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 terrain, on agricultural land and in the area of vegetation is placed as **Figure 5.3**, depicts the base of 33 kV DL (Single & H pole).



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

### 5.2.2. Project Impact

Based on the project details and the baseline environmental status, potential impacts due to the construction/ bay extension of sub-stations and along the final route of T&D lines have been assessed.

#### 5.2.2.1. Impact of Transmission & Distribution Lines

As per existing law i.e., MoP Guidelines Dated 5<sup>th</sup> 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.

#### 5.2.2.2. Landuse within Corridor (Right of Way)

Total land occupied by T&D lines ROW is 149.15 Ha. The major land use occupied by T&D lines is open hill forest (58.28 Ha), Segun Forest plantation (18 Ha), Waste Land (28 Ha) etc.

#### 5.2.2.3. 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 132/33 kV S/S Lungsen and 33/11 kV South Bungtlang. 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.

#### 5.2.2.4. Impact of tower base and pole 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 m of land.

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 (please refer **Figure 4.2**). Due diligence confirms that land is either agricultural or barren, and current land use is not altered and resumed after construction.

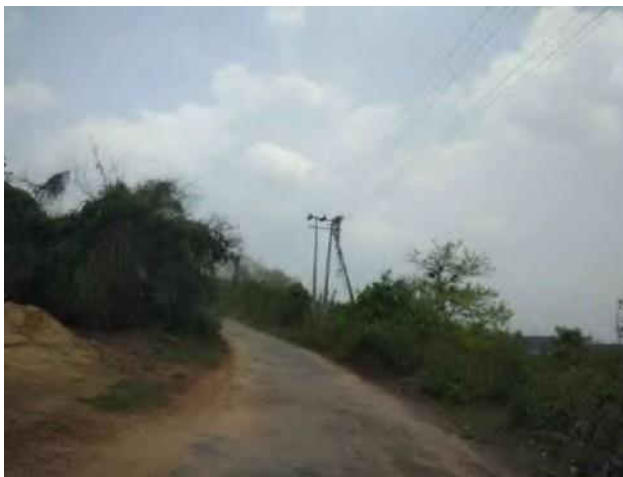
As already explained, the impact of TL is restricted to 4 legs of the tower and agriculture can continue after construction activity is over. The average land area required for erection of one 132 kV T/L tower is approx. 0.25 sq m. Based on above, total land loss estimated for construction 45.24 km of 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 5<sup>th</sup> October 2015 for Payment of Compensation for TL.



Figure 5-4 33 kV Lines (Single & H Pole) Depicting Base Area Impact



Route of Lines





### 5.2.2.5. Impact on Crop area / Tree Crops and Groves

As possible as construction at the time of crop season is avoided, temporary loss of crops, agriculture land & Private plantation land are consider for estimation. All the efforts were made to reduce the damages to the crops and to minimize the impacts whatsoever. Reason for schedules the construction activities in post harvested periods, temporary damages occurred for that compensation paid to affected person as per entitlement matrix. And 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. Compiled and analyzed to study the extent and nature of impact damaged crop area compensation also paid with actual cultivator ata market rate.



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.

### 5.2.2.6. Impact on Trees in Forest Area

As trees are a huge component within any ecosystem, the movement of trees will impact the effects of global climate changes. As far as possible construction of line activities avoided at time of fruit bearing season. And as we discussed in the earlier sections in the instant case, no tree cutting in Forest area is envisaged in TL sections. The total tree likely to be affected details in nonforest area are In Lungsen - Chawngte 132kV S/C - 5250 trees in Pvt Area, 250 trees in government area, In Chawngte - S. Bungtlang 132kV S/C - 4800 Pvt Area, 600 in Government Area.

**Table 5-2 Type and Land Use within RoW of T&D Lines**

Type and Land Use in ROW	Distribution Lines		Total
	Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)	Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)	
ROW Width (m)	27.00	27.00	
Brick Road	1.59	2.38	<b>3.97</b>
Agriculture land		<b>4.32</b>	<b>4.32</b>
Vacant Land	0.95	0.5	<b>1.45</b>
Play Ground	0.29		<b>0.29</b>
Pond /Lake		0.05	<b>0.05</b>

	<b>FEAR for T&amp;D subprojects in Lunglei &amp; Lawngtlai District under NERPSIP in Mizoram</b>		
Car Track	0.27	0.05	<b>0.32</b>
Forest Plantation Segun	11.11	6.51	<b>17.62</b>
Grazing Land	9.45		<b>9.45</b>
River		0.20	<b>0.20</b>
Waste Land	3.16	24.63	<b>27.79</b>
Drain /Nala	0.43	0.25	<b>0.68</b>
Hill Open Forest	24.52	33.76	<b>58.28</b>
Bamboo Forest	<b>9.9</b>	14.83	<b>24.73</b>

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

Sr. No.	Transmission Line Network	Length As Per Scanned Tower Schedule (km)	Total Poles as per Scanned Tower Schedule	Criteria	Pole Base Area Sq. mt.
1	Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)	20.087	75	0.25	18.75
2	Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)	25.15	99	0.25	24.75
<b>Total B</b>		<b>45.237</b>	<b>174</b>		<b>43.5</b>

**Table 5-4 Loss of Crop Area in TL Sections**

T&D Lines	Width Considered for estimation of loss of crops	Agriculture land Area in Ha	Tree Plantation Area in Ha	Tree Crops and Groves Area in Ha	Total Area Considered damage survey in Ha
<b>Transmission Lines</b>					
Lungsen - Chawngte 132 kV S/C line (charged at 33 KV)	<b>20</b>	-	-	-	-
Chawngte-S. Bungtlang 132 kV S/C line via S. Diltlang (Charged at 33 KV)		4.32	-	-	4.32

#### 5.2.2.7. Details on Affected Persons

It is estimated that total 2614 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).

#### 5.2.2.8. 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.

### 5.2.2.9. Impact Due to Construction of New Substation 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 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.

### 5.2.2.10. 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 nonegative impact on indigenous people because of this project. Local people are cooperating project related authorities.

### 5.2.3. 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 4.7**.



Table 5-5 Summary of Impacts

Sr. No.	Parameters	Extent of Impact
1.	Total Line Length	Transmission line: 45.237 km
2.	Total No. of Towers	TL Towers: 174
3.	Terrain	Hilly Almost 100 % of lines are passing through hilly area. Similarly, all S/S are being 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	No Forest
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	No rare/endangered fauna habitat found in project area. Some vulnerable species viz. <i>Hoolock hoolock</i> , <i>Trachypithecus pileatus</i> and <i>Macaca arctiodes</i> were found in the in the study area. The near Threatened species is White Cheeked Partridge, Ashy-headed green pigeon and Great hornbill are also recorded as per Conservation Status IUCN (2020.1)
7.	Total enumerated	In Lungsen - Chawngte 132kV S/C - 5250 trees in Pvt Area, 250 trees in government area, In Chawngte – S. Bungtlang 132kV S/C - 4800 Pvt Area, 600 in Government Area.  However, actual felling will be minimum as clear felling is only limited to 3mt below each conductor for unhindered passage and in remaining corridor looping/pruning will be done to maintain electrical safety clearance. In case of distribution lines, there will be hardly any tree felling requirement as looping of branches would suffice the unhindered passage of lines.
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	No protected areas involved in TL and DL
11.	Notified Wet land traversed	None
12.	Soil erodibility	NA
13.	Historical / Cultural monuments	None
14.	Relocation of villagers	None
15.	Affected Structures	NA
16.	Total Affected People	NA
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 of crop is observed during construction time. However, the same are being compensated as p.er norms.



21.	Loss/ Hindrance to Public Utilities	Negligible, restricted to construction phase only.
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#### 5.2.4. 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, TLs pass through agriculture fields, 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, DLs are primarily intended to provide power supply to populated area which boosts the economic status as well as land price of the area, thus, outweighing possible negative impacts, if any. Since the proposed distribution line i.e. 33 KV line from proposed 132/33 KV Lungsen to existing 33/11 KV Lungsen connects two substations in close vicinity and having line length of 5 km, hence no alternative have been studied for the subject line as there are no environment or social issues involved including forest area that require such studies.

#### 5.2.5. 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.

#### 5.2.6. Encroachment into precious ecological areas

**During TL and DL planning** all precautions have been taken right from planning stage to avoid routing of line through forest and PA like NPs/WLS. In route selection, involvement of some forest area is avoided completely. Moreover, protected areas like wildlife sanctuary, national parks, biosphere reserves etc. have been avoided completely. However, reference in EMP is maintained to address the issues in case of any eventuality / chance found condition. In the instant scheme one of the lines i.e., Chawngte - S. Bungtlang 132 kV S/C line which was earlier passing at 0.6km from Ngengpui WLS has been realigned at a distance of 1.9 km from the boundary to avoid any impact on wildlife.

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 (refer clause- 24)**.

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. 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.

#### 5.2.7. Lines into other valuable lands

Total land occupied by T&D lines ROW is 149.15 Ha. The major land use occupied by T&D lines is open hill forest (58.28 Ha), Segun forest plantation (18 Ha), Waste Land (28 Ha) etc. Details of land use are provided in Table 4.4.

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 132/33 kV TL is enclosed as **Annexure 10**. The land rates and compensation estimates are also depicted in **Annexure 10**. The sample case of compensation payment including notice for crop/tree compensation and damage assessment is provided in **Annexure 11**.

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. 414.62 lakhs** have been made in the cost estimate to meet these expenses. Refer **Annexure 12**.

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.

#### 5.2.8. Interference with other utilities and traffic

The main approach road for accessing the construction sites is through existing Lungsen-Chawngte & Chawngte-S.Bungtlang state road which are now being upgraded under scheme MSRP-II funded by World Bank as the proposed lines are running parallel and substation sites are situated just adjacent to it. It has been observed that volume on these inter connected 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 transmission & distribution line 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 transmission lines on the one hand, and railways, civil aviation and defence installations on the other. Therefore, the instant project do not expect any steep rise in volume of traffic due to mobilization and vehicle movements during construction and maintenance period. 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.

#### 5.2.9. Interference with drainage pattern

As the TL is constructed aerially and the blockage of ground surface is limited to area of tower footings, which is very small, there is little possibility of affecting drainage pattern. Moreover, the transmission lines proposed under the subject don't not involve any tower to be placed in river beds for river crossing. Therefore, there won't be any impact on river ecology and on aquatic flora & fauna. Drainage channels along or inside substations are being trained and connected to main or existing drainage to avoid any erosion due to uncontrolled flow of water.

##### 5.2.7.1. 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 (refer clause - 5 & 12)** 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.

##### 5.2.7.2. 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 proposed S/S are given in the **Annexure 13**.

### 5.3. Environmental Problems Due to Design

#### 5.3.1. 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 cleanupequmment. 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.



Switchyard of 132/33 kV Lungsen S/S



Switchyard of 132/33 kV Lunglei S/s



Drainage pattern



### 5.3.2. 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 (refer clause - 15, 23 & 51). 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 Fire fighting system are given in **Annexure 14**.

### 5.3.3. Erosion hazards due to inadequate provision for resurfacing of exposed area

During construction, installing and maintaining suitable erosion controls to reduce top soil run-off and disturbances to natural regions. However, all the soil excavated for pole footings and 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/ and tower/pole foundations. Hence, possibility of erosion of exposed area due to construction activity is negligible. Avoiding areas where impacts might occur by altering access routes to minimize compaction, soil mixing, rutting, or damage to drainage systems;

### 5.3.4. Soil erosion and contamination

Soil erosion is the removal of material from the surface soil, which is the part of the soil having an abundance of nutrients and organic matter vital to plant growth. During construction period clearing, excavation and other construction activities could increase soil erosion. Construction vehicles and equipment could cause soil compaction, particularly in soils with characteristics inherently susceptible to compaction. Around the towers in sloping areas or any other locations impacted by the project's implementation, earth retaining structures with essential drainage facilities will be created. To prevent soil erosion and sedimentation, the loose soil should be covered with plants as much as possible once the towers are built. Revetment walls will also be built wherever necessary to safeguard the tower footing, depending on the site conditions.

Tower footings will be located at stable locations, and site preparation will ensure that sediments are not mobilized. Once the tower footing foundations are poured, sediments will be placed back against the footing, and the site re-vegetated (low elevation species), to reduce the erosion risk;

It has been observed that soil excavated for tower/pole 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/EP 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.

### 5.3.5. Environmental aesthetics

Since spacing between each TT in case of 132 kV D/C TL is approx. 300 meters and between each EP in case of 33/11 kV DL is approximately 100 meters. 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 TLs to buffer visual effect in these areas. In addition, towers may be painted grey or green to merge with the background.

### 5.3.6. 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. Transformers with maximum noise emitting level of 75 dB and DG set with proper enclosures are 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. Further, 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 all the substations that reduce the sound level appreciably.

### 5.3.7. Blockage of Wildlife passage

The proposed TLs don't pass through any protected area and no migration paths of wildlife like elephant corridor exist near to subproject project locations hence possibility of any disturbance to wild life is not anticipated. In the instant scheme portion of 132 KV D/C CHAWNGTE - SOUTH BUNGTLANG 132 KV line is passing at a distance of 1.9 km from the boundary of Ngengpui WLS will not cause any adverse impact on wildlife. The necessary provisions of bird guard/ anti-perch device presented in **Annexure 15**.

## 5.4. Environmental Problems during Construction Phase

### 5.4.1. Uncontrolled silt runoff

During construction, maximum 108 m<sup>3</sup> from each tower foundation and 7500m<sup>3</sup> 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.

It has been observed that most of these S/S lands were secured by PEDM since long back. As these substation locations are easily accessible with existing metal roads construction of new approach road is not required. It has been observed that most of these S/S lands were secured by PEDM since long back. As these substation locations are easily accessible with existing metal roads construction of new approach road is not required. However, it is to submit that in few cases i.e., 33/11kV South Bungtlang S/S - 200m, 33/11kV Lungsen S/S - 100m, only 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. 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.

#### **5.4.2. Nuisance to nearby properties**

At the time of site selection, care is taken to keep the TL, DL and Sub stations separate from the regulations. Temporally noise & other activities can create ambient Noise due to traffic & heavy vehicle movement for transportation of personnel, machineries & Materials. As result, it is not expected that construction activities will normally be undertaken during lean times to avoid the minimizing the impact. 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 temporary and limited to the boundaries of existing S/S only and do not intend to impact on nearby habitat / property and health and safety of neighboring community.

Act 2003. Hence, any adverse impact arising during the construction of these S/S are

#### 5.4.3. 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.

#### 5.4.4. 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. 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.

#### 5.4.5. Noise generation from construction activities

Generally, machineries and vehicular movements generate noise during construction activities. There are limited use of vehicle/ heavy machineries for transportation & construction activities. Manual activities & hilly terrain incremental noise level will be low. 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 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.

#### 5.4.6. Inadequate resurfacing for erosion control

Since, the towers for the proposed T&D lines are to be constructed in plain area as well as 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 & 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.

ction. 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. Also Refer Annexure 13 for Drawing.**

**Table 5-6 Erosion Control / Slope Protection Work**

Description	Location
Retaining Wall	132/33kV Lungsen, 33/11kV S. Bungtlang Aug. of 132/33 kV Lunglei
Stone Pitching / Stabilizing / Bioengineering	132/33kV Lungsen, Aug. of 132/33 kV Lunglei
Boundary Wall	All 132/33kV S/s
	All 33/11kV S/s
Unequal Leg Extension	132 kV Lungsen Chawngte 132 kV Chawngte S.Bungtlang

#### **5.4.7. 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.

#### **5.4.8. 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 sample Agreement pertaining to the same in **Annexure - 16 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



FEAR for T&D subprojects in Lunglei & Lawngtlai  
District under NERPSIP in Mizoram



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- 17**).

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-17**.

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 / check lists 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-18**. 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 19 as a sample.**

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. 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 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 5-5 Precautions Taken by the Contractor for Health and Safety of Workers**





**Disinfection at the residence of workers & use of sanitizers by workers**



**Covid-19 measures taken at the worksites for workers health and safety**





Figure Fehler! Kein Text mit angegebener Formatvorlage im Dokument.-6 Safety Training at site



## 5.5. Environmental Problems Resulting from Operation

### 5.5.1 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 TLs do not pass directly over any residential properties and as such 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.

## 5.6. Critical Environmental Review Criteria

### 5.6.1. 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. For distribution line loss of land is insignificant due to erection of pole. And mainly T/L & D/L not passing through any forest area therefore losing of natural resources is negligible.

### 5.6.2. 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.

### 5.6.3. Endangering of species

As described earlier, no endangered species of flora and fauna habitat exist in the subprojects area is getting affected thus there is no possibility of endangering/ causing extinction of any species.

### 5.6.4. Promoting undesirable rural-to urban migration

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

## 5.7. 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.

During the Public consultation the details of line and its importance were explained to the villagers by the officials of PEDM and POWERGRID. The consultation was arranged in interactive way and queries about routing of line avoiding heavily populated area/houses, RoW width for tree cutting crop/tree & tower footing compensation, engagement of local people in construction activity etc., were replied. The initiative 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 A**.

**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.

**5.8. 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 5.5**

Table 5-7 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
<b>Pre-construction</b>								
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	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.



Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			requirements of the Government				
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, grave yard, 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	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.

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	Tower/pole location and overhead/ underground line alignment selection (distance to nearest dwellings or social institutions)	Consultation with local authorities/ autonomous councils and land owners – once	IA	Part of detailed tower/pole site and overhead/ underground alignment survey and design	Transmission(132kV ) and Distribution (33kV) lines are routed either edge of agriculture land or side of the road ensuring that it does not obstruct and create any public nuisance
			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 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 - once			
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 <b>RFCT LARR Act, 2013</b> (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 fresh land Acquisition in the project. Hence no cases of R&R. Other compensation as per existing rules.

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	No forest and WLS land is involved in the subprojects
			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
8	Line 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	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.

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report	
			hoods etc7., if applicable						
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	No forest and WLS land is involved in the subprojects. However, minimum tree cutting is done. The shrubby vegetation is retained as it is. Tree cutting is undertaken in non-forest area only even it is unavoidable to maintain electrical safety clearance,	
			Minimize the need by using existing towers, tall towers and RoW, wherever Possible						
			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				No forest and WLS land is involved in the subprojects
			Consultation with autonomous councils wherever required	Permission/ NOC from autonomous councils	Consultation with autonomous councils- once during			Not applicable.	





FEAR for T&D subprojects in Lunglei & Lawngtlai District under NERPSIP in Mizoram



Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
10	Lines through farmland	Loss of agricultural production/ change cropping pattern in	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 alignment survey and design	Foundations cast during lean period to avoid damage to the crops during harvesting. However, in certain case damage is unavoidable and same is compensated as per norms.
			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. Land compensation for tower footing corridor is being paid to affected farmers /land owners as per provisions of RoW compensation guidelines adopted by State of Mizoram notification dated 01.05.19
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	IA	Part of detailed equipment design	Complied, Appropriately located. No noise anticipated
12	Interference with drainage patterns/ irrigation channels	Flooding hazards/ loss of agricultural production	Appropriate sitting of towers to avoid channel interference	Tower/pole location and overhead/ underground line alignment selection (distance to nearest flood zone)	Consultation with local authorities and design engineers	IA	Part of detailed alignment survey and design	No substation or towers are located in the natural drainage or irrigation channels. All the towers & Poles & 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 & fuel storage system,	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

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Sched	Compliance Report
			Provision of firefighting equipment to be located close to transformers					Complied, the fire extinguishers are placed at strategic locations.
<b>Construction</b>								
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 to avoid disturbance of field crops (within one month of Harvest wherever possible).	Timing of start of construction	Crop disturbance – Post harvest as soon as possible but before next crop – once per site	IA (Contractor through provisions)	Construction	Foundation being planned in lean period or avoided 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	Turning off plant not in use.	Construction equipment-estimated noise	Complaints received by local	IA (Contractor through	Construction period	Complied, Anti-vibration pad are used.

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
		wear and tear		emissions and operating schedules	authorities – every 2 weeks			
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	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 awareness among locals	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
		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	No heavy traffic flow anticipated due to the construction activities. Most of the activities are done manually with limited used of heavy machinery due to hilly terrain.
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	Vegetation marking	Clearance	IA (Contractor)	Construction period	Included in contract

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			to be removed prior to clearance, and strict control on clearing activities to ensure minimal clearance.	and clearance control (area in m2)	strictly limited to target vegetation – every 2 weeks	through contract provisions)		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 deforestation	Trees that can survive pruning to comply should be pruned instead of cleared.	Species-specific tree retention as approved by statutory authorities	Presence of target species in RoW following vegetation clearance - once per site	IA (Contractor through contract provisions)	Construction period	Route selection and alignment is done with 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	IA (Contractor through contract provisions)	Construction period	The felled trees are disposed out to local authorities.
24	Wood/vegetation	Loss of vegetation	Construction workers prohibited from	Illegal wood /vegetation	Complaints by local people or	IA (Contractor through contract	Construction period	No Wood/ vegetation harvesting is allowed in



Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
	harvesting	And deforestation	harvesting wood in the project area during their employment, (apart from locally employed staff continuing current legal activities)	harvesting (area in m2, number of incidents reported)	other evidence of illegal harvesting – every 2 weeks	provisions)		substation and line area.
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 requested by landowners	Soil disposal locations and volume (m3)	Acceptable soil disposal sites – every 2 weeks	IA (Contractor through contract provisions)	Construction period	Most excavated earth is used for refilling. The top/ fertile soil is kept separately for resurfacing and other earth is used for refilling.
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	Seasonal start and finish of major earthworks (pH,	Timing of major disturbance activities –	IA (Contractor through contract	Construction period	No such water pollution activities are carried out. Proper sewerage

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			(i.e. substation land forming) not undertaken during the monsoon season	BOD /COD, Suspended solids, others)	prior to start of construction activities			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 cover left undisturbed	Ground disturbance during vegetation clearance (area, m2)	Amount of ground disturbance – every 2 weeks	IA (Contractor through contract provisions)	Construction period	No trees are cut for site clearance. Some trees were trimmed
				Statutory approvals	Statutory approvals for tree clearances – once for each site	IA (Contractor through contract provisions)	Construction period	No trees are cut for site clearance. Some trees were trimmed
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 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

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
								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-
31	Provision of facilities for construction workers	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Amenities for Workforce facilities	Presence of proper sanitation, water supply and waste disposal facilities once each new facility	IA (Contractor through contract provisions)	Construction period	Construction workers are provided all the 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	Status of existing facilities				No irrigation facilities are affected or blocked.

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			working condition Protect /preserve topsoil and reinstate after construction completed	Status of facilities (earthwork in m3)				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.
			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) and Horticulture dept. (for fruit bearing tree)				
34	Uncontrolled erosion/silt runoff	Soil loss, downstream siltation	Need for access tracks minimized, use of existing roads. Regeneration of vegetation to stabilize works areas on completion (where applicable) Avoidance of excavation in wet season Water courses protected from	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	All necessary measured Under taken during construction. Regeneration/ cultivation is allowed in the complete RoW and even in the area below tower after completion of construction activities. It is ensured by the site In-charge that no excavation is carried out during monsoon /rainy season. The selected route does not come in the



Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			siltation through use of bunds and sediment ponds					drainage.
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 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 paid for loss of production, if any.	Implementation of Tree/Crop Compensation (amount paid)	Consultation with affected parties – once in a quarter	IA	Prior to construction	Complied Tree Crop 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.

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
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. Complied. No incident of accident/injury reported All health and safety plan are in place and monitored regularly
			Contract provisions specifying minimum requirements					
			Construction camps Contractor to prepare and implement of health and safety plan. Contractor to arrange for health and safety training sessions					
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	Compliance report related to environmental aspects for the	Submission of duly completed compliance report for each			All provisions are compiled and monitored regularly by Site

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			contractual environmental mitigation measures.	contract	contract – once			
<b>Operation &amp; Maintenance</b>								
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	Designed as per guidelines of ICNIRP and ACGIH and checked by CPRI and M/s PTI, USA
42	Line through identified bird flyways, migratory path	Injury/ mortality to birds, bats etc due to collision and electrocution	Avoidance of established/ identified migration path (Birds & Bats). Provision of flight diverter/ reflectors, elevated perches, insulating jumper loops, obstructive perch deterrents, raptor hoods etc., if applicable	Regular monitoring for any incident of injury/mortality	No. of incidents- once every month	PEDM	Part of detailed site selection and alignment survey /design and Operation	Complied, Bird guards are being provided in towers.
43	Equipment Submerged under flood	Contamination of receptors (Land, water)	Equipment installed above the high flood level (HFL) by raisin the foundation pads.	Substation design to account for HFL	Base height as per flood design – once	PEDM	During operations	The area is not prone to flood, but necessary care is taken by the authorities to avoid such situations
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	Substation bunding (Oil sump) (“as-built” diagrams)	Bunding (Oil sump) capacity and permeability - once	PEDM	During operations	Oil sump of sufficient capacity (200% by volume of oil tank in transformer) is provided for every transformer.

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
			100% of the capacity of oil in transformers and associated reserve tanks.					Secondary containment is provided
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 new technologies to reduce leakage	Leakage and gas density/level	Continuous monitoring	PEDM	During Operations	Being Complied.
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	Being Complied. In design and operation standards of safety procedure followed.
			Safety awareness rising for staff.	Training/awareness programs and mock drills	Number of programs and percent of staff / workers covered – once each year			Proper safety training to all workers and primary safety kits/PPEs are provided in every site.
			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			Regular mock drills on fire and other occupational hazards are organized. Fire emergency is displayed at all substation in English and local language.



Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
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	Electric shock emergency response plan is displayed at all substations with periodic training in local language.
			Security fences around substations	Maintenance of fences	Report on maintenance – every 2 weeks			Security fences around substations are provided
			Barriers to prevent climbing on/ dismantling of towers	Maintenance of barriers				Barriers to prevent climbing on/ dismantling of towers provided
			Appropriate warning signs on facilities	Maintenance of warning signs				Appropriate warning signs on facilities provided
			Electricity safety awareness raising in project areas	Training /awareness programs and mock drills for all concerned parties	Number of programs and percent of total persons covered – once each year			Training /awareness programs and mock drills for all concerned parties are conducted periodically in local language.
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.	Training/awareness programs and mock drills for all relevant staff	Number of programs and percent of staff covered – once each year	PEDM	Operation	Training and educating the staffs with pictorial signage's.
			Preparation and training in the use of O&M manuals and standard operating practices					
49	Inadequate periodic	Diminished ecological	Staff to receive training in environmental	Training/awareness programs and mock	Number of programs and	PEDM	Operation	Periodical environmental

Clause No.	Project Activity /Stage	Potential Impact	Proposed Mitigation Measures	Parameter to be Monitored	Measurement & Frequency	Institutional Responsibility	Implementation Schedule	Compliance Report
	Environmental monitoring.	& social values.	monitoring of Project operations & maintenance activities.	drills for all relevant staff	percent of staff covered – once each year			monitoring is planned.
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	Provisions for collection and storage is adequate.
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	Designed as per guidelines of ICNIRP and ACGIH and checked by CPRI and M/s PTI, USA.
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	All necessary measured undertaken during operation.
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	Being Complied. Appropriately located. No noise anticipated

## 5.9. Conclusions

The construction of the proposed Transmission line will have impacts on the biophysical and the social environment. This EIA investigated and assessed these impacts as a result of project actions. The majority of the potential impacts associated with the proposed project are anticipated to be restricted to the construction phase, and are thus of a short-term nature. These construction impacts can largely be minimized through the compilation and implementation of a site specific EMP, which should form part of the construction contractors contract. Therefore, no significant impacts are anticipated as a result of the construction of the proposed Transmission line.

It is clear from the above description that the area is rich in natural forest resources. Through careful route selection following the principle of avoidance, ecologically sensitive areas like NP / WLS have been avoided completely, but complete avoidance of forest could not be achieved due to terrain limitations. Infrastructural constraints are very real and pose a limiting factor on the development of the area. The above facts, while on the one hand, underline the need for implementation of the subject scheme for overall development of the area and on another hand suggest that a detailed EIA may not be necessary as per the provisions of existing regulations.

T&D line routes and S/S locations 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 of 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 the overall power supply situation but also improve reliability, quality, security and enhancement of power supply in the Mizoram state. From the above description, 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 have 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.

All the potentially negative impacts identified for the proposed Transmission line corridor and substation site can potentially be mitigated through controls in the construction phases in order to reduce their severity and significance to acceptable levels. In addition, a number of potentially positive impacts have been highlighted which will result in benefits to the region.

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 the commissioning of the project. Local people also benefited through the project related employment that was being generated. The following observations are drawn from the observations made through site visits.

- The Project staff of the implementing agency should be well versed in the contents of the IEAR in order to ensure proper compliance by the contractors in terms of health and safety implementation.
- In terms of implementing health and safety plan, there is good collaboration between IA officers and contractors.
- During the construction phase, the implementing agency needs to ensure that contractor follows the strict compliance of the contract provisions/EMP particularly, in terms of workers health and safety.
- Site demarcation and protection to prevent accidents and runoff of excavated soil from construction sites where work has been halted for various reasons.
- 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. More environmental professionals should be deployed to provide effective environmental monitoring and reporting system.
- Regular health checkup of labours and other working staff to be carried out. However, the labour registration record should be well maintained and closely monitored.
- Training and awareness about 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.
- Overall, the commissioning of the project tend to augment the power distribution and availability in the region, which will help area/region economic activity and development.





## 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 redesigned 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 (EMP) including monitoring plan for all possible environmental and social impact and its proper management has been drawn (**Table- 5.5**) 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-12**. 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	Nil
2	Tree & Crop damage Compensation	380.35
3	Land Compensation for Tower Footing	34.27
4	Implementation Monitoring & Audit	18.05
	<b>Total</b>	<b>432.67</b>

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.

#### **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 20**. 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 20)**.

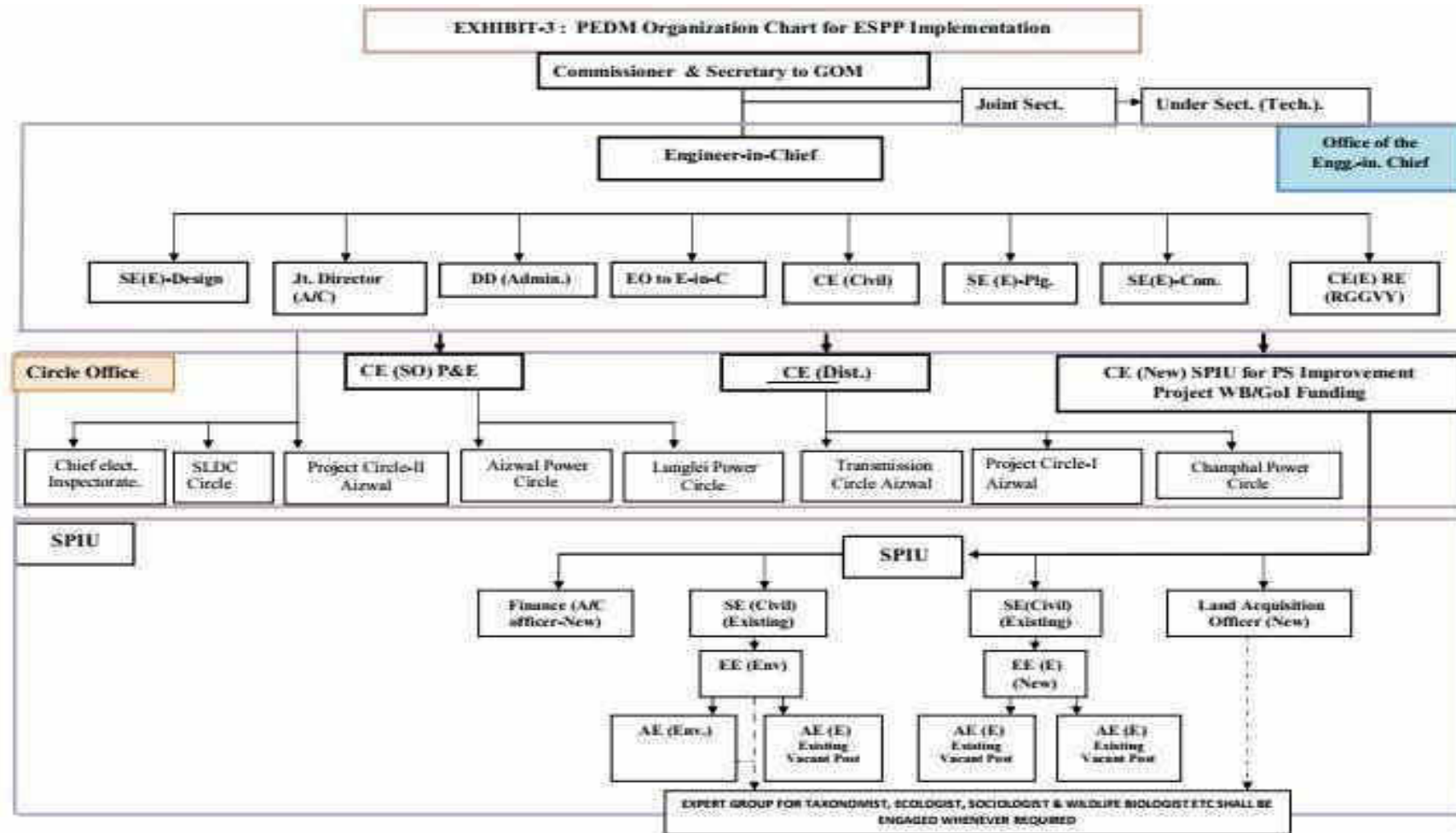


Figure 6-1: Implementation Arrangement for E&S Management by PEDM



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 avoided as far as possible:** Eco sensitive zones avoided totally in TL and DL. River / water ecosystem was not harmed because of pile foundation. Due care is taken to avoid pollution of 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

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# **Annexure**



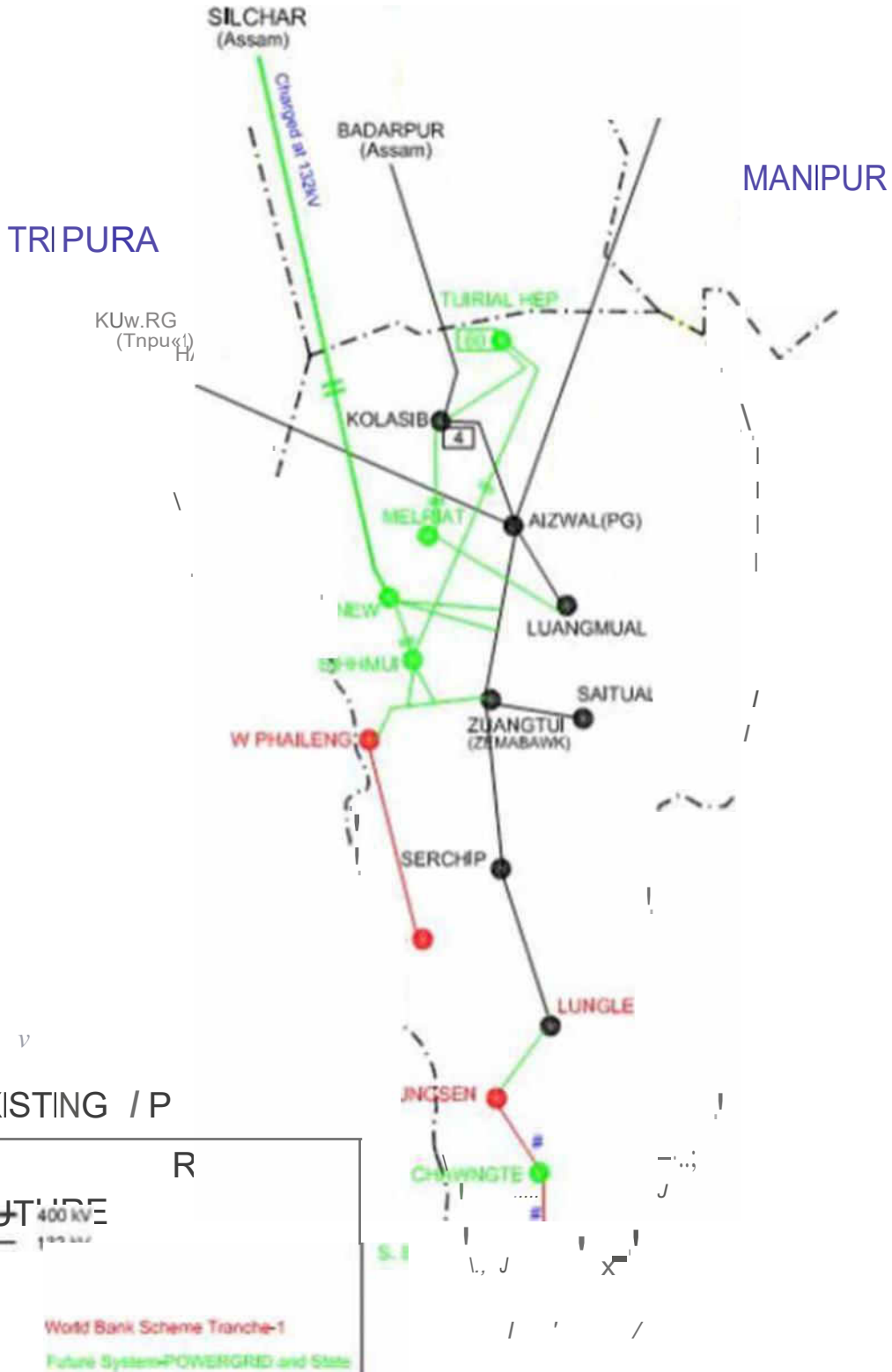
FEAR for T&D subprojects in Mammit District  
under NERPSIP in Mizoram



# **Annexure 1**

## **Power Map of Mizoram State**

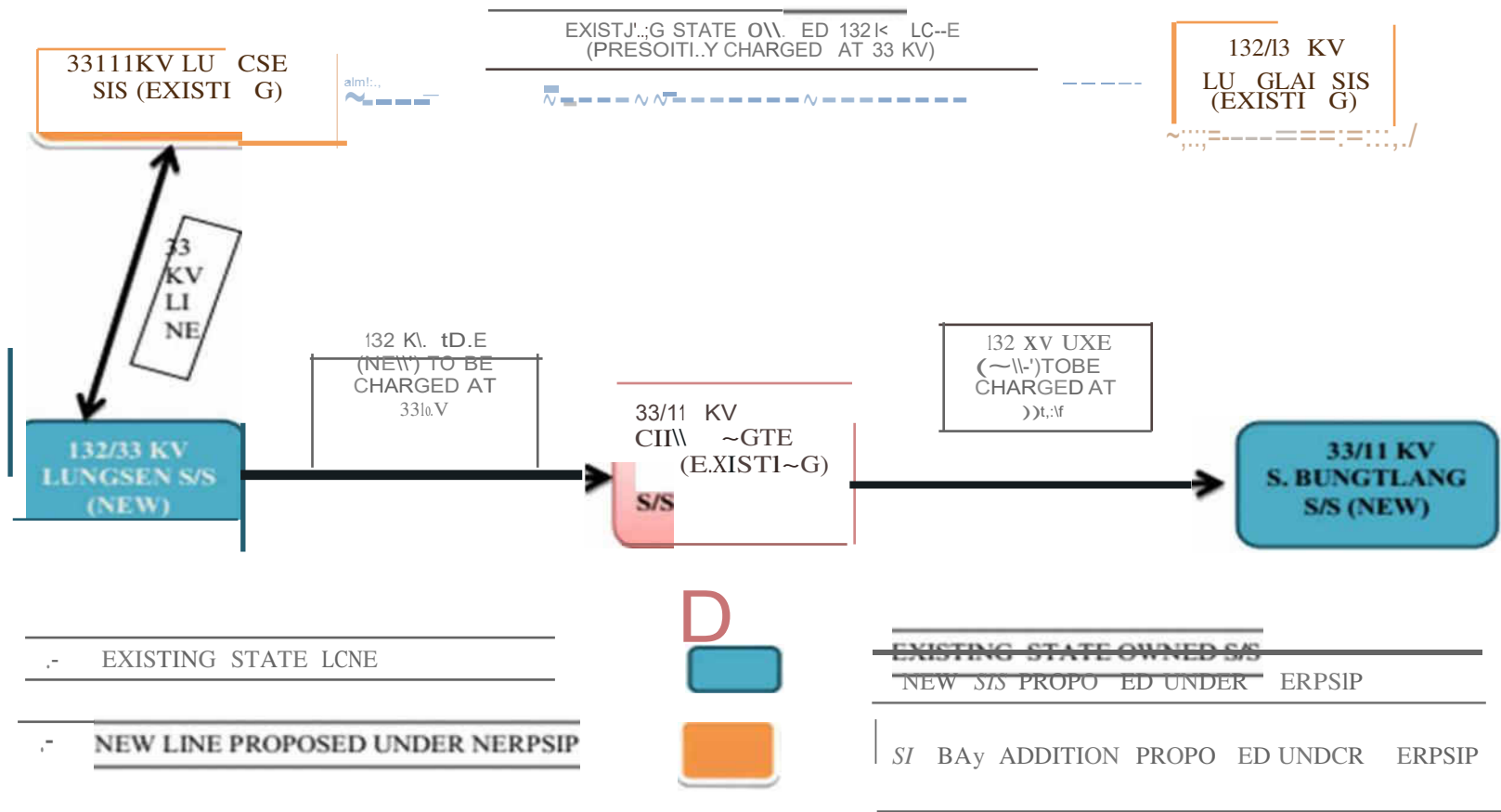
## World Bank Funded Scheme : Mizoram (Future)





**Annexure 2**  
**Schematic Map of Projects Covered in FEAR II**

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

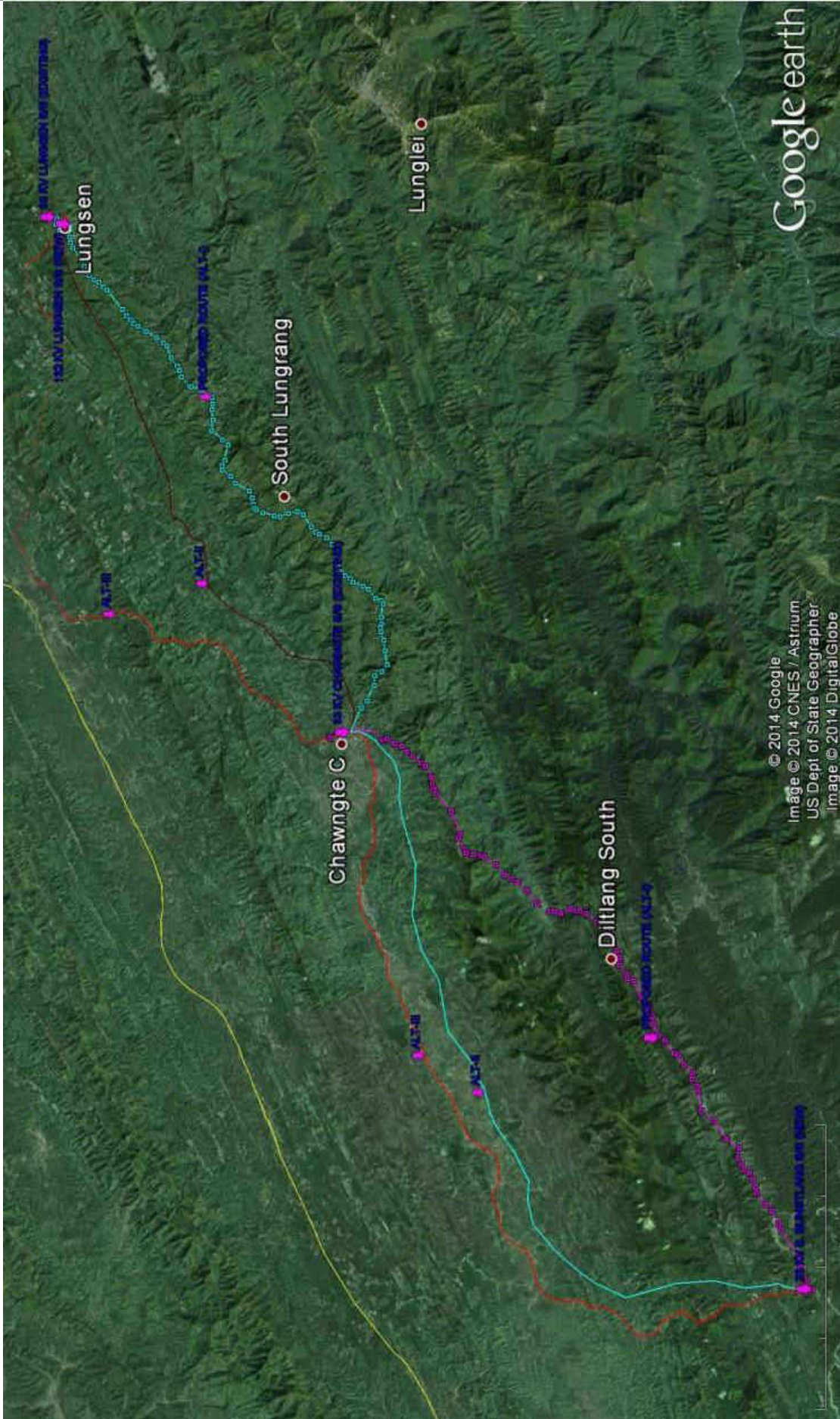


## **Annexure 3**

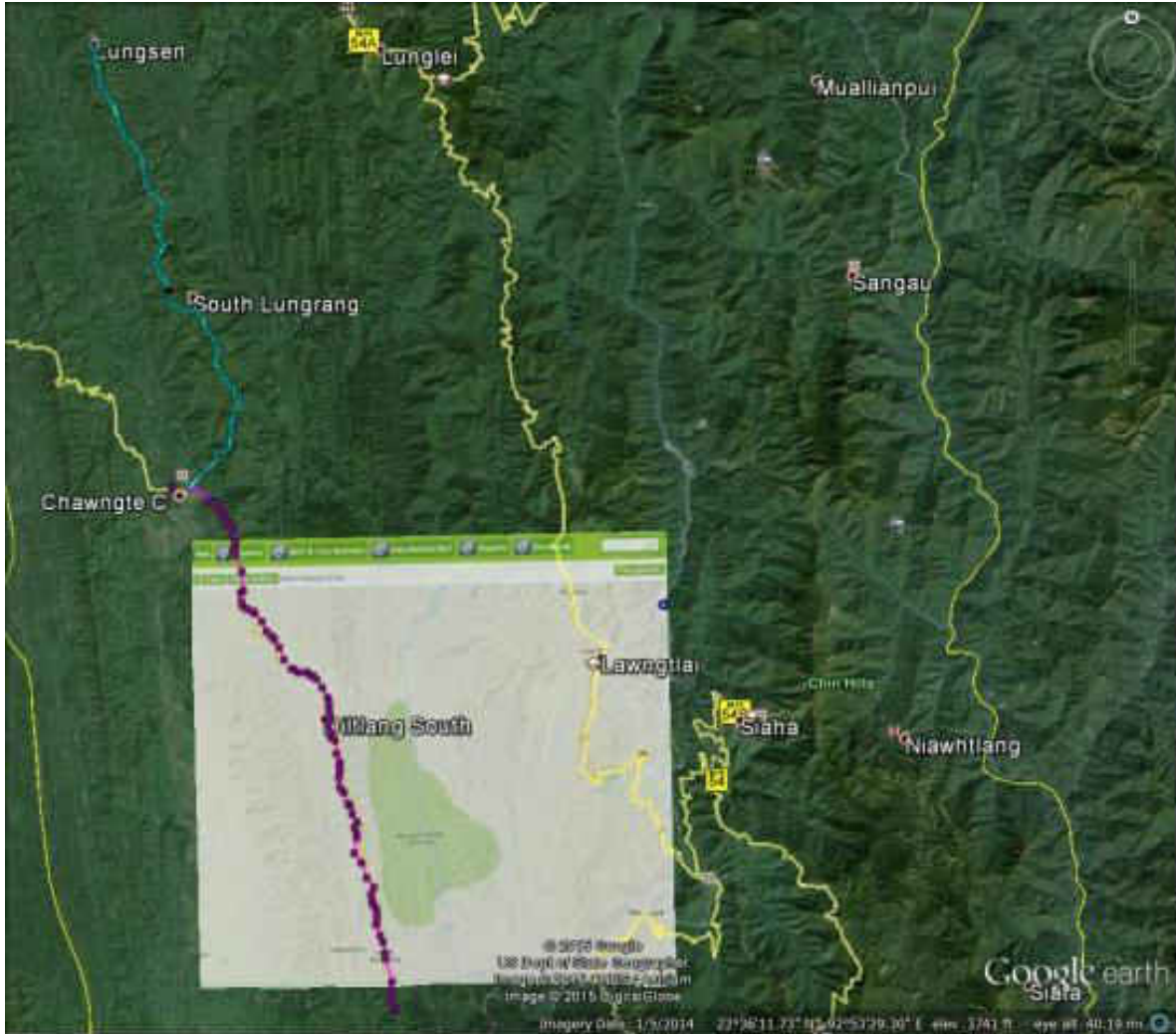
### **Alternative Analysis for 132 kV S/C (on D/C tower)**











From the comparative analysis of three alternative routes, it is evident that Alternative- I is not only shorter in length than alternative II & III but also involve less tree felling as it passes mostly through Jhum cultivated areas with low density tree cover area. Furthermore, Alternative- I is easily accessible due to its proximity to existing corridor of Lungsen-Chawngte road which is now being upgraded under scheme MSRP-II funded by World Bank. Hence, Alternative - I is considered as the most optimized route and recommended for detailed survey

From the comparative analysis of three alternative routes, it is evident that Alternative- I is not only shorter in length than alternative II & III but also involve less tree felling as it passes mostly through Jhum cultivated areas with low density tree cover area. Moreover, protected areas have been completely avoided and Ngengpui Wildlife Sanctuary is at a distance of around 0.6 km. Furthermore, Alternative- I is easily accessible due to its proximity to existing corridor of Chawngte- S. Bungtlang roads which is now being upgraded under scheme MSRP-II funded by World Bank. Hence, Alternative - I is considered as the most optimized route and recommended for detailed survey



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 4**

### **Forest NOC Obtained**

GOVERNMENT OF MIZORAM  
OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FOREST  
ENVIRONMENT, FORESTS & CLIMATE CHANGE DEPARTMENT  
MIZORAM :: AIZAWL

No.B.22014/44/2014-FC/PCCF /31

Dated Aizawl the] rd Sept, 2020

NO OBJECTION CERTIFICATE

This is to certify that the Environment, Forest & Climate Change Department, Government of Mizoram does not have any objection to carry out construction of 132 KV Chawngte - S. Bungtlang Transmission Line in Lawngtlai District since the area falls outside Reserve Forest/Department plantation as per the field verification report received from DCCF, Lai Autonomous District Council vide No. B. 13016/1/2018-LADC/HFD dated 25.08.2020 with condition that no forest vegetation should be damaged during operation and along the proposed line.

1/

(LIANDAWLA)

Principal Chief Conservator of Forest  
& Nodal Officer (FCA)

Memo No.B.22014/44/2014-FC/PCCF/J'f

Dated Aizawl the 3rd Sept, 2020

Copy to

1. Conservator of Forest (SC), Lunglei, Mizoram for information.
  2. District Council Conservator of Forest, Lai Autonomous District Council for information.
  3. District Council Conservator of Forest, Chakma Autonomous District Council for information.
  4. Divisional Forest Officer, Tlabung Forest Division for information.
  5. Deputy Conservator of Forest (WL), Lawngtlai i/c Ngengpui Wild Life Sanctuary for information and record.
- TY General Manager: NERPSIP, Powergrid Corporation of India Ltd,  
Tulvamt, Aizawl - 796009, Email: n.erpsip.mizoram@powergrid.co.in for  
information.

Principal **Cu.** of Forest  
& Nodal Officer (FCA)



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 5**

# **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 9<sup>th</sup> 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 variagata	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. 1674  
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 9<sup>th</sup> 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.

2/8/17  
(LALREMRUATI)

Under Secretary to the Govt. of Mizoram  
Environment, Forests & Climate Change Department  
Ph : (0389) 2300337 (O)



# The Mizoram Gazette

Published by Authority

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VOL - XLVI Aizawl, Friday 18.8.2017 Sravana 27, S.E. 1939, Issue No. 33

## 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, dt. 8<sup>th</sup> August, 2017. In pursuance of Government Notification No. A.3501/7/2014-P&AR(CSW) dt. 18.8.2017 and in the interest of public service, the Chairman, Mizoram Public Service Commission is pleased to extend the deputation period of Pu Laltimawzla 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. Lalrlnklma  
Joint Secretary,  
Mizoram Public Service Commission,  
Aizawl.

No.G.12011/1/2007-PWD(E)(Vol-I), dt. 14<sup>th</sup> 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. Hmingthanzam, 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

- 9 -

R-33/2017

No. F. 22015/1/2012-HM, the 11<sup>th</sup> 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 Benigal 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. 25<sup>th</sup> November, 2016 allowing self sponsorship of non-Tribal Trade License 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 Fanal,**  
Commissioner & Secretary to the Govt. of Mizoram,  
Home Department.

No. B. 11020/42/2015-FST, the 9<sup>th</sup> 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.B-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.

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5	Bauhinia pupurea	Butterfly tree/Vaufavang
6	Bauhinia variagata	Mountain Ebony/Vaube
7	Callicarpa arborea	Hnahkiah
8	Callicarpa racemosus	Telsur/Vawmbal
9	Erythrina subumbrans	Dadap/Fartuah-hing-neito
10	Erythrina variegata	Coral tree/Fartuah
11	Eucalyptus species	Nawalhthing
12	Grevillea robusta	Silver oak
13	Helicia excels	Sialhina
14	Hevea brasiliensis	Para-rubber/Theiret
15	Hibiscus macrophyllus	Vaiza



R-33/2017

16	Lannea coromandelica
17	Mangifera indica
18	Melia azadirachta
19	Parkia roxburghii
20	Sterculia urens
21	Trema orientalis

Wings  
Aard  
Meem  
Zawngtal  
Khaukhu  
Charcoal tree

Lalram Thanga,  
Principal Secretary to the Govt. of Mizoram,  
Environment, Forest & Climate Change Department.

No. A.11015/1/09-HMF, the 16<sup>th</sup> 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 14<sup>th</sup> 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

Lalrinliana 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 27<sup>th</sup> 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 Khojorsury 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 Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 6**

# **MoP Guidelines Dated 5<sup>th</sup> OCT.'15 for Payment of Compensation for Transmission Line**

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(ii) Compensation toward diminution of value in the right of Way (RoW) Corridor to be fixed by the State/ Corporation/ Municipality/ different "Places of States, subject to a maximum of 15% of land value as determined by the Circle rate/ Government Act rates:

(iii) In areas where land owners have been offered alternate mode of compensation by concerned Corporation/ Municipality under Transfer Development Rights (TDR) policy of State, the concerned Utility shall deposit compensation amount as per (i) & (ii) above with the concerned Corporation/ Municipality/ Local Body, or the State Government.

(iii) 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 prescribed below:

3. Necessary action may kindly be taken accordingly. These would 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. 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,

**L. S. Jaisankar**  
Secretary

Joint Secretary, (Transmission)  
Tete- 011-2371 9389

Copy along with enclosure forwarded to the following:

1. Secretaries of Government of India: (Infrastructure) [Ministry of Power] (MoEF - As per attached list)
2. Prime Minister's Office (Kindly inform Mr. M. S. Prasad, Secretary to PM)
3. Technical Director, NIC, Ministry of Power With the request to post on the website of Ministry of Power.

Copy to PS to Hon'ble MoS (Power) (Secretary (Power) JAS (SNS) / Ks (B-P): All Joint Secretaries/EAs, all Directors/OSSs, Ministry of Power.



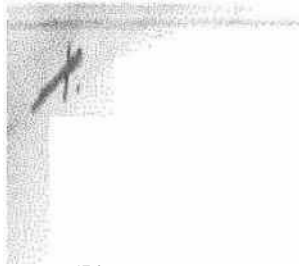


FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 7**

**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.***



GOVERNMENT OF MIZORAM

ENGINEER-IN-CHIEF: POWER & ELECTRICITY DEPARTMENT  
MIZORAM: AIZAWL

/SPCU/21

Dated Aizawl, the 21<sup>st</sup> February, 2019

J.i.

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 or 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) 112 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 SIC transmission line (45 km)
- 4) 33 kV line from Lungsen (existing 33 kV station) to new Lungsen (upcoming 132 kV SIS 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. Jn/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 C, 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 are available 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 litigation, it is proposed to compensate for the trees and crops damaged based on the approved 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 NCRPSTP 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 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.L.T.A. JING )  
Chief Engineer (RE)  
CLT Chief Engineer-in-Chief, P&E Deptt.



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 8**

**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 17<sup>th</sup> 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 17<sup>th</sup> 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, Lunglei 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 1<sup>st</sup> 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 1<sup>st</sup> 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.

( THANCHUNGUNGI )  
Under Secretary to the Govt. of Mizoram  
Power & Electricity Department



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



## **Annexure 9**

### **POWERGRID modalities for payment of compensation for NERSIP Project in Mizoram State**

GOVERNMENT OF MIZORAM  
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT  
MIZORAM: AIZAWL.

WB-6/2018-EC(PC)/SPCU/36

Dated Aizawl, the 17<sup>th</sup> May, 2019

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 reference 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 17<sup>th</sup> 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 1<sup>st</sup> 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
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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.

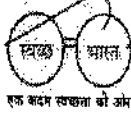
Sd/- B. LALHMINGTHANGA  
Secretary to the Govt. of Mizoram  
Power & Electricity Department

**Memo No.D.11028/8/2017-P&E : Dated Aizawl, the 1<sup>st</sup> 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

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 Hut 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**

(एनईआरपीएसईपी)

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पावर ग्रिड कार्पोरेशन ऑफ इंडिया लिमिटेड  
एनईआरपीएसईपी, मिजोरम



Ref: NERPSIP/ALZAWL/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-Talukdar, 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.

NERPSIP

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(एनईआरपीएसआईपी)




**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

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 4<sup>th</sup> 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 5<sup>th</sup> 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)/SPCW/21 dated Aizawl, 7<sup>th</sup> 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/GM	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/332

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 Tonzi- 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, revetment 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	<p>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.</p> <p>TEA: Tea bush compensation as per prevailing rate of concerned Tea authority / Government.</p> <p>FRUIT BEARING TREE: Rate of Horticulture deptt shall be used for calculation of compensation.</p> <p>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.</p> <p>LAND: Certified Circle rate/ Guideline value/ Stamp Act rates collected from Office of District Magistrate.</p> <p>HUT: Assessment of compensation for huts from concerned State Public Works Department and certified from Revenue Authority / Administration</p>
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	<p>Note sheet with document ID to be submitted to the approving authority as per POWERGRID Delegation of Power, Section I, Clause no 25.</p> <p>Note should have Assessment sheet, Notices, Bank details duly verified from Original pass book as well as Budget status for the concern transmission system.</p>

NERPSIP

(एनईआरपीएसईपी)

Page 6 of 7



एक जल संचयन की ओर

**पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड  
एनईआरपीएसईपी, मिजोरम**

पावरग्रिड

Ref: NERPSIP/AIZAWL/MIZORAM/ROW/COMP/37-2

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 <sup>th</sup> 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)

Deputy General Manager  
NERPSIP, West PhailengGM/NERPSIP/AIZAWL/MIZORAM

GM (ESMD) may please review for kind approval

ED/NERPSIP.

GM (ESMD)/NERPSIP/Guwahati**NERPSIP**

Page 7 of 7

**(एनईआरपीएसईपी)**



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 10**

**Details of Landowners for Land Compensation  
132kV D/c TL  
Land Compensation Estimates for Mizoram under  
NERSIP  
Land Rates in Mizoram**



पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड  
(भारत सरकार का उद्यम)  
**POWER GRID CORPORATION OF INDIA LIMITED**  
(A Government of India Enterprise)



NERPSIP Mizoram, Tuivarnit, B.P.O.-Tanhril, Aizawl-796009  
Mail : nerpsip.mizoram@powergrid.co.in, Contact No. : 9449599072

Ref: NERPSIP/Aizawl/F-102/2019/292

Date: 17.01.2019

To  
The Deputy Commissioner,  
Lunglei District  
Lunglei, Mizoram

Dear Sir,

**Sub: - Land rates for paying compensation to the land owners while constructing 132 KV S/C Lungsan - Chawngte Power transmission line in the district of Lunglei-Reg.**

Power Grid Corporation of India Ltd. on behalf of Mizoram Govt. is executing 132 KV Lungsan - Chawngte Power transmission line under NERPSIP (North Eastern Region Power System Improvement Project), Mizoram and after constructing the transmission line will be handed over to P&E Dept. Mizoram. The project is jointly funded by Govt. of India and World Bank.

Govt. of India has released a circular Dtd 15.10.2015 regarding modalities/guidelines for compensation for affected landowners during transmission line construction (copy enclosed as Annexure-I). As per the above referred circular, fair compensation towards diminishing land value of the tower base area (Between four legs of tower area) shall be paid as per the rates decided by the revenue department in addition to the crop and tree damages to the land owners (no land acquisition is involved in the process and land ownership will continue with the land owners).

Based on the above, we are in the process of preparing approximate cost estimate towards compensation on land diminishing value for the tower area (Between 04 legs of tower) for the said transmission line to arrive at the revised cost estimate for including in the overall project cost pertaining to NERPSIP, Mizoram. The transmission line route is passing through the villages namely **Lungsan, W. Rotlang, Chhunkhum, Kauchhuah, Rangte, Lalnutui, South Lungrang, Rualalung and Chawngte.**

Considering the above, it is requested to your good office to kindly issue us the rates for the land at the above mentioned area to ascertain the approximate cost under this head for further submission to our corporate office. The line route details tower wise are enclosed as Annexure-II here with for your kind reference please.

Requested to convey directions to the concerned in this regard.

Thanking you sir,

Yours Faith fully

  
C.Gopi

GM/NERPSIP/AIZAWL

ANNEXURE - I

No.3/7/2015-Trans  
Government of India  
Ministry of Power  
Shram Shakti Bhawan  
Rafi Marg, New Delhi - 110001

Dated, 15<sup>th</sup> 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 18 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:-

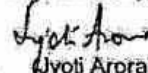
- (i) Compensation @ 85% of land value as determined by District Magistrate or any other authority based on Circle rate/ Guideline value/ Stamp Act rates for tower base area (between four legs) impacted severely due to installation of tower/pylon structure;

-/-



- (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

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.

(Signature of vehicle owner)

1. Copies of log sheet in original  
2. HSD Memo & Engine Oil Memo

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 Lungslen to Chawngle	30.985	118	200	23600	5.83	404858	2360522
3	132 kV S/C Chawngle - South Bungliang	35.000	121	200	24200	5.98	404858	2421051
4	132 kV S/C Lunglei - Lungslen Interconnection	0.556	5	200	1000	0.25	404858	101215
<b>Total Estimated Compensation(Rs)</b>								<b>5801616</b>

\* 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.

  
 डी. वी. राव / E.V. Rao  
 मुख्य महानिदेशक / DGM  
 पावरग्रिड (POWERGRID)  
 एन.ई.आर.पी.एल.आई.के.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.	Rate as per 2011 (in Rs.)	Revised Rates w.e.f.	Rate as per 2011 (in Rs.)	Revised Rates w.e.f.	Rate (in Sq.m) as per 2006	Revised Rate (in Hectare) w.e.f.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Grade - I	0.10	0.50	1.00	2.00	400.00	450.00	8.00	10,00,000.00
Grade - II	0.10	0.30	0.60	1.00	260.00	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

  
 (NAME)  
 SUPERVISOR  
 Land Revenue & Settlement  
 Mizoram



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 11**

### **Sample Copy Tree/ Crop Compensation Notices**



Book No: 102 Formal 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**

Serial No : Mizoram/WP-MP/..... **003** Dated... 26/08/19

To,

Shri/Smt. Lalzamlava s/w Chaukungsa Village Pakzung Vengthar  
Tahsil West Phaileng District Mamit 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 at 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 Bamboo	- 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 Veng</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 Veng	- 70cm	8m	84	Jungle tree	- 120cm	10m	85	Jungle tree	- 50cm	5m		
Tree No	Name	Girth	Height																						
1	Jungle tree	- 50cm	5m																						
3	Thlan Veng	- 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 Ron Roeyyi (wife)  
Sign of Witness I Vangri & Vanlal-paka  
Sign of Witness II Lallawmruah

**VERIFICATION BY REVENUE AUTHORITY**

Certified that land under Khasra/Dag/ Patta no - 6 of Village Pakzung Vengthar Tahsil West Phaileng  
District Mamit State Mizoram belongs to Shri/Smt. Lalzamlava Son/Wife of Chaukungsa  
He / She is sole / Shared owner of the above mentioned land/ property. Crop/tree(s)

Signature of POWERGRID  
SANM K'D/ENGINEER  
NERPSIP/MARPARA

Seal & Signature of Circle Officer/ Revenue Authority

3  
3

ASSESSMENT OF CROP DAMAGE/COMPENSATION IN CONNECTION WITH CONSTRUCTION OF Power Grid, MAMIT DISTRICT  
 Name of Land Owner: Ms. LAIZANLOVA Father's Name: CHUANKUNGA Address: PURZING VENGTHAR  
 Location: Purzing Vengthar (162-0) Group No. TR/12/10-13

Sl No	Name of Plants/Crops/Trees	SEEDLINGS				WELL ESTABLISHED YOUNG PLANTS						FRUIT BEARING STAGE			TOTAL
		Upto 45 cms		Above 45 cms		Below 1.5 mtrs		Above 1.50 mtrs							
		Nos	Rate	Nos	Rate	Amount	Nos	Rate	Nos	Rate	Amount	Nos	Rate	Amount	
1.	Banana										26	500/-	13000	13000	10.
2.	Bamboo										62	100/-	6200	6200	10.
													Total Rs. 19200/-		

Assessment hi ka pawm a, ka sign hman n.

*Laizanova*  
Signature of  
Land/Property holder

Assessed by:  
*[Signature]*  
Land Revenue & Settlement  
Mamit District

*[Signature]*  
Signature with seal  
Power Grid Representative

*[Signature]*  
16/12/19  
District Collector  
Mamit District

सानु के डी / Sanu K D  
अभिष्ठा/Abhishta  
पावरग्रिड/Power Grid  
एन ई आर पी सी अर्गनाइजेशन  
NERPSIP, 2, 2nd Floor

District Collector  
Mamit District, Mamit



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 12**

# **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

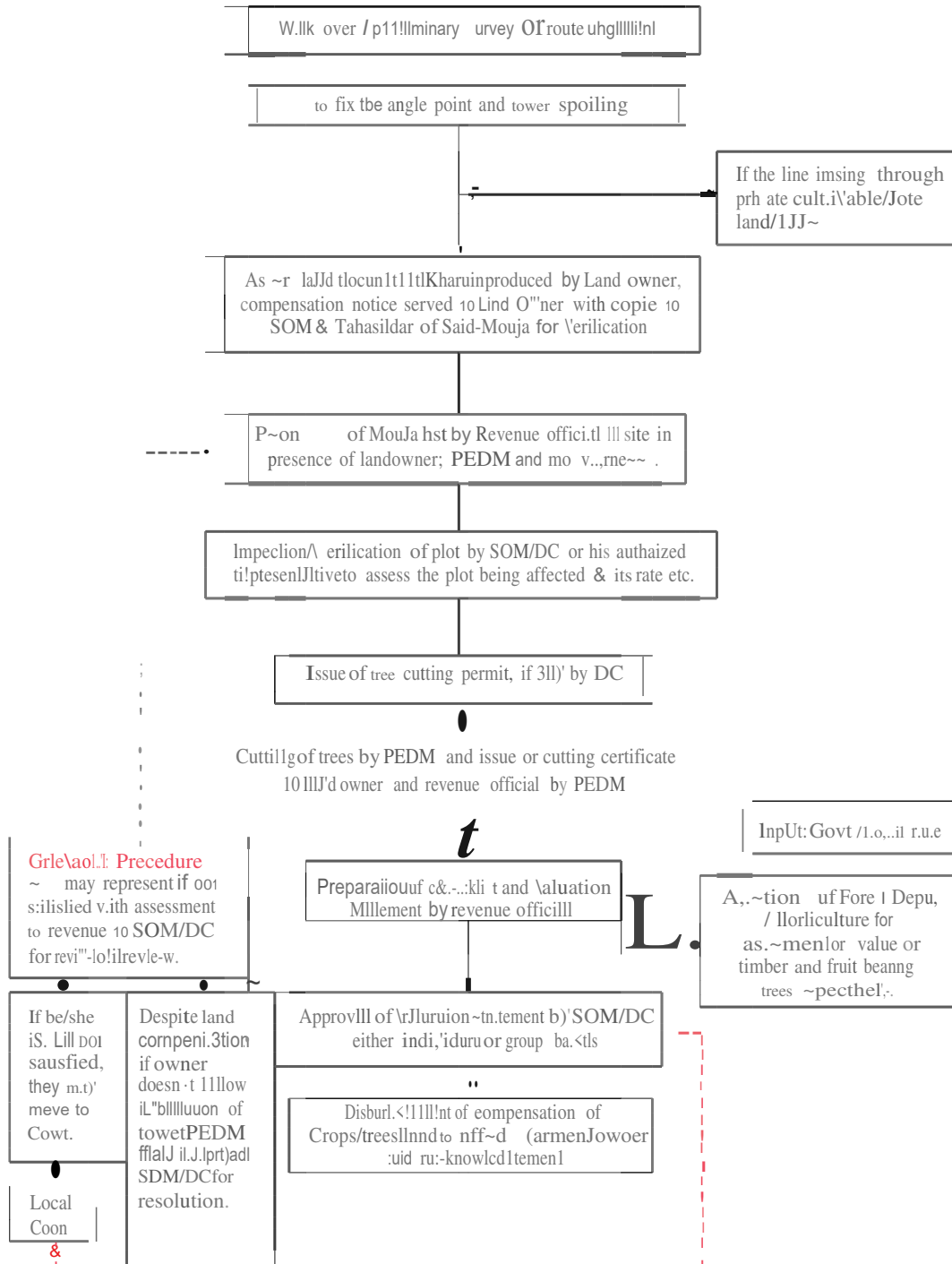
list is prepared for the identified trees and crops inevitably damaged during the course of the construction. For assessing the true value of timber yielding trees help of forest officials is taken and for fruit bearing trees help of Horticulture department is taken. The Mouja list shall contain the 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	-	75.57 km.
Total 132 kV tower locations	-	252 approx.
 <b>A. Compensation</b>		
1. Forest	-	Nil
2. Crop & Trees		
- Transmission Line length in Private /Revenue land – 75.57 km		
- Crop/tree compensation for 132 kV line- (75.57 x 5,00,000/-)	=	Rs. 377.85 lakhs
- Distribution Line length in Private /Revenue land – 5.0 km		
- Crop/tree compensation for 33 kV line - (5 x 50,000)	=	Rs. 2.50 lakhs
3. Land compensation for 132 kV tower footing- (252 towers x 13,600)		= Rs 34.27 lakhs
<b>Sub Total of A (1+2+3)</b>	-	<b>Rs 414.62 lakhs</b>
 <b>B. Implementation Monitoring &amp; Audit</b>		
i) Man-power involved for EMP implementation & Monitoring in entire route of transmission & distribution line (Rs.10, 000/-x 80.57Km)		= Rs. 8.05 lakhs
ii) Independent Audit (LS) if needed		= Rs. 10.00 lakhs
<b>Sub Total of B(i+ ii)</b>	-	<b>Rs. 18.05 lakhs</b>
<b>Grand Total (A+B)</b>		<b>= Rs. 432.67 lakhs</b>



FEAR for T&D subprojects in Lunglei and Lawgtlai  
District under NERPSIP in Mizoram



### **Annexure 13**

**GA Layout / Drawings of RRM Wall / Pretension Wall / Boundary  
Wall**



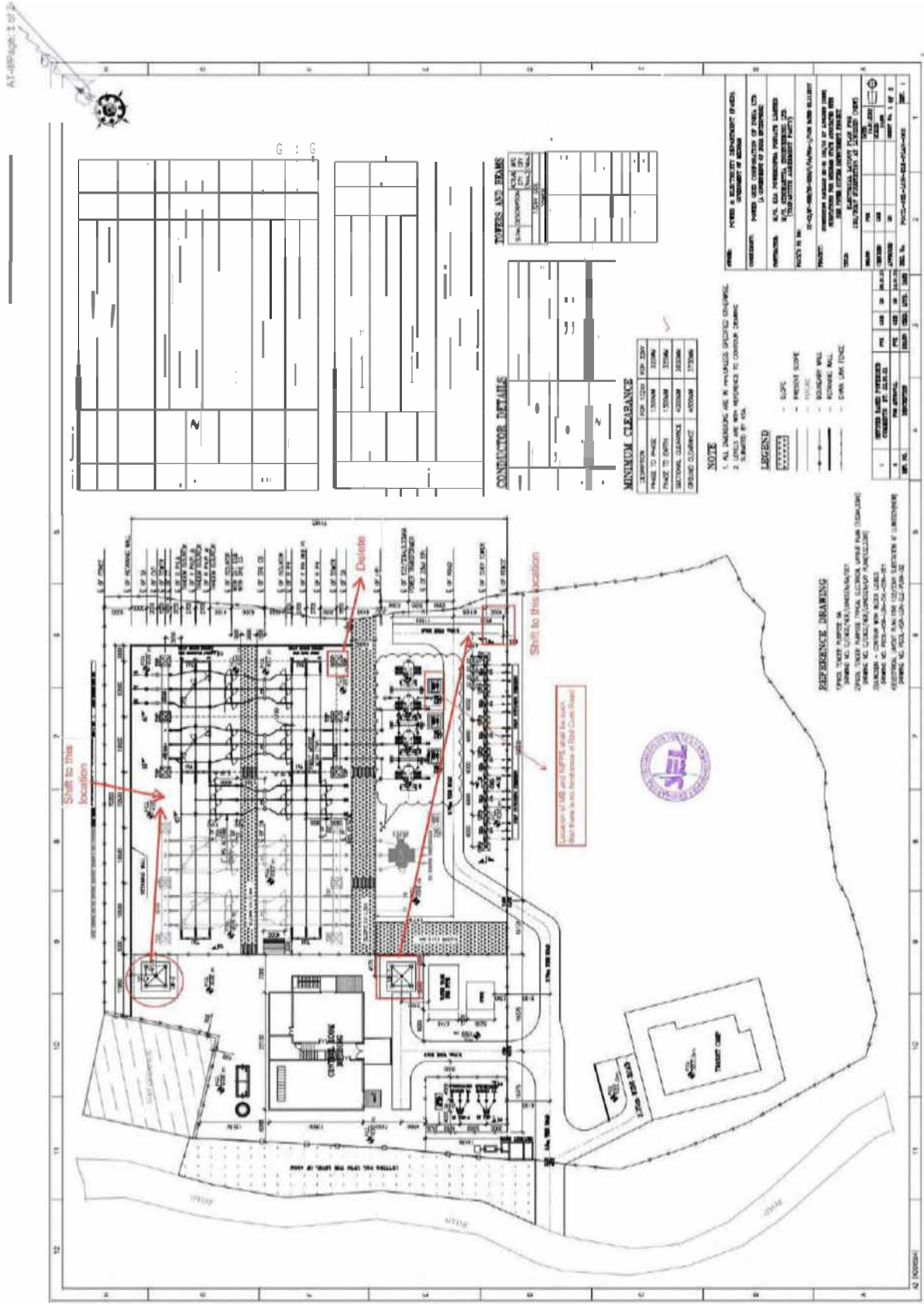






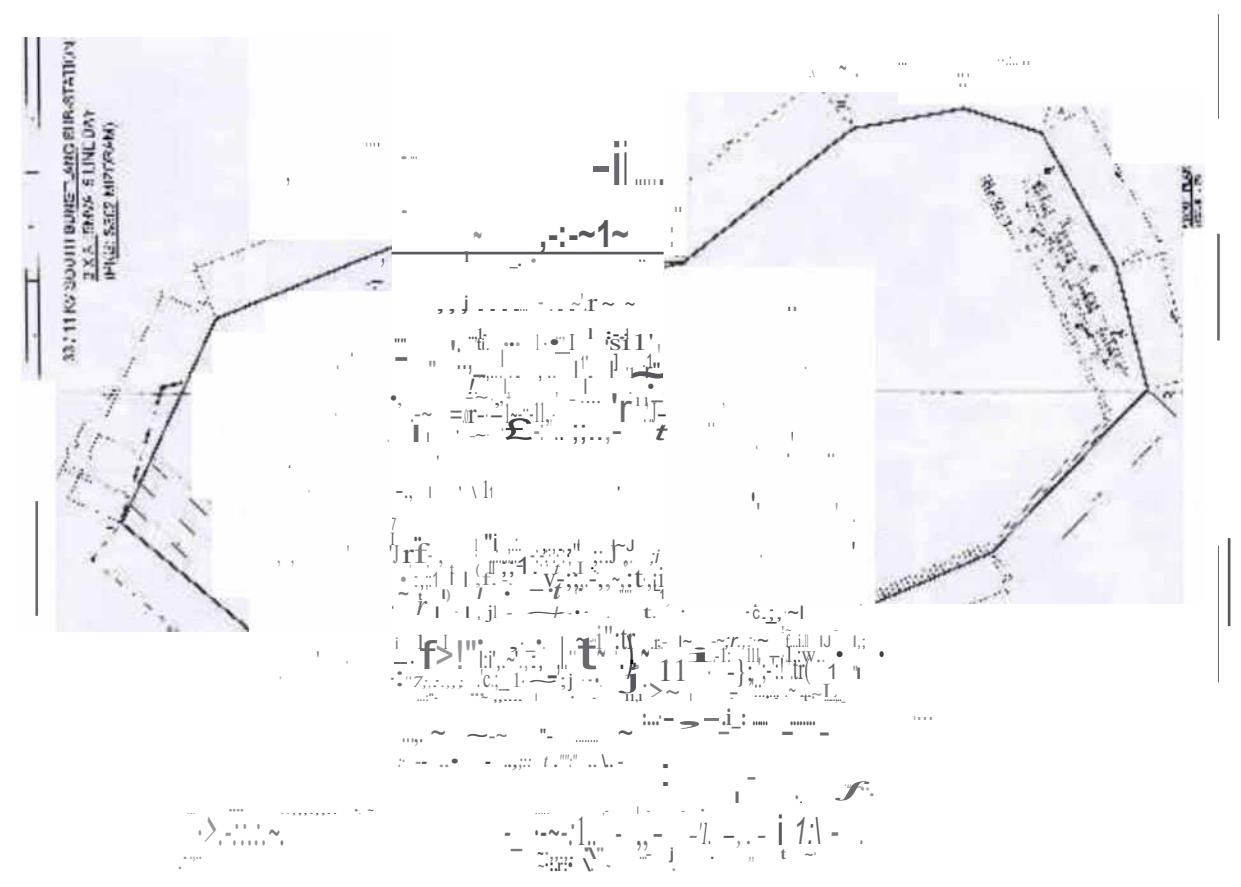
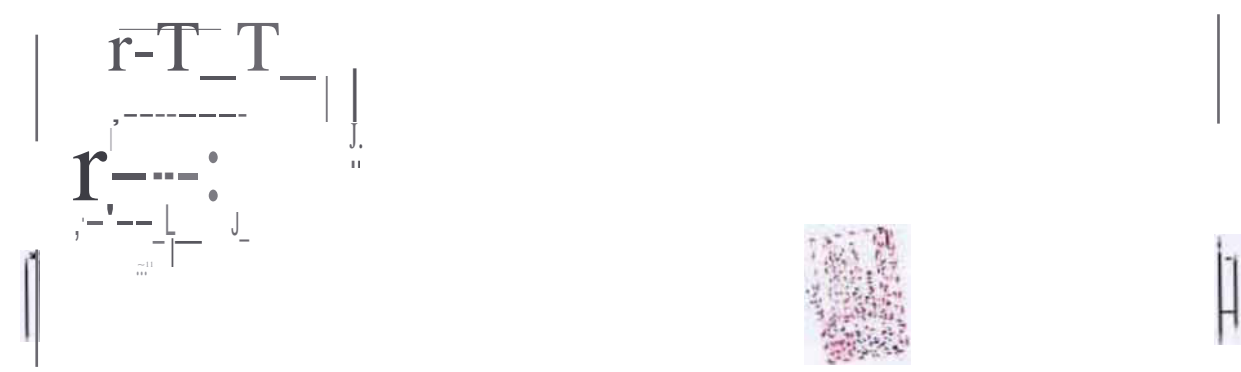
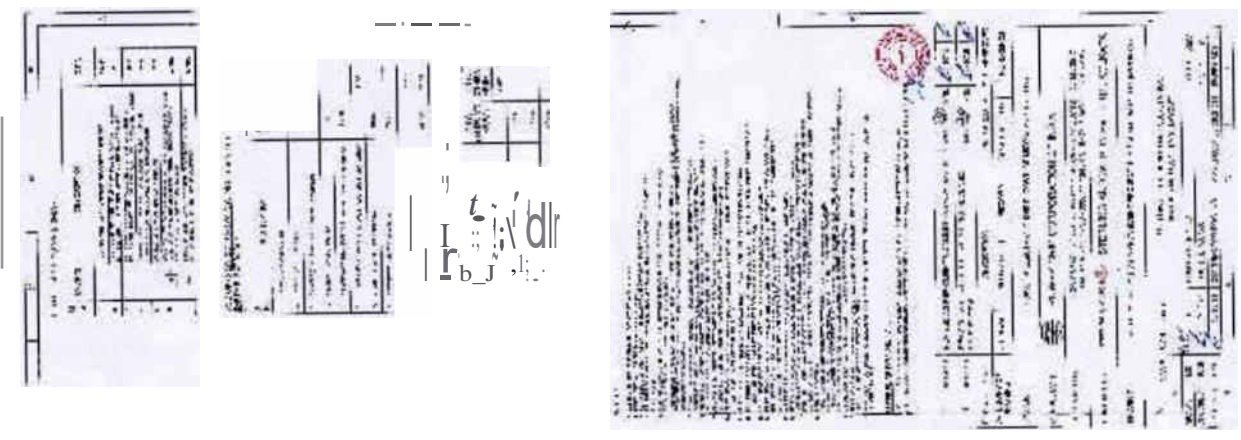


Lungsen S/S Layout





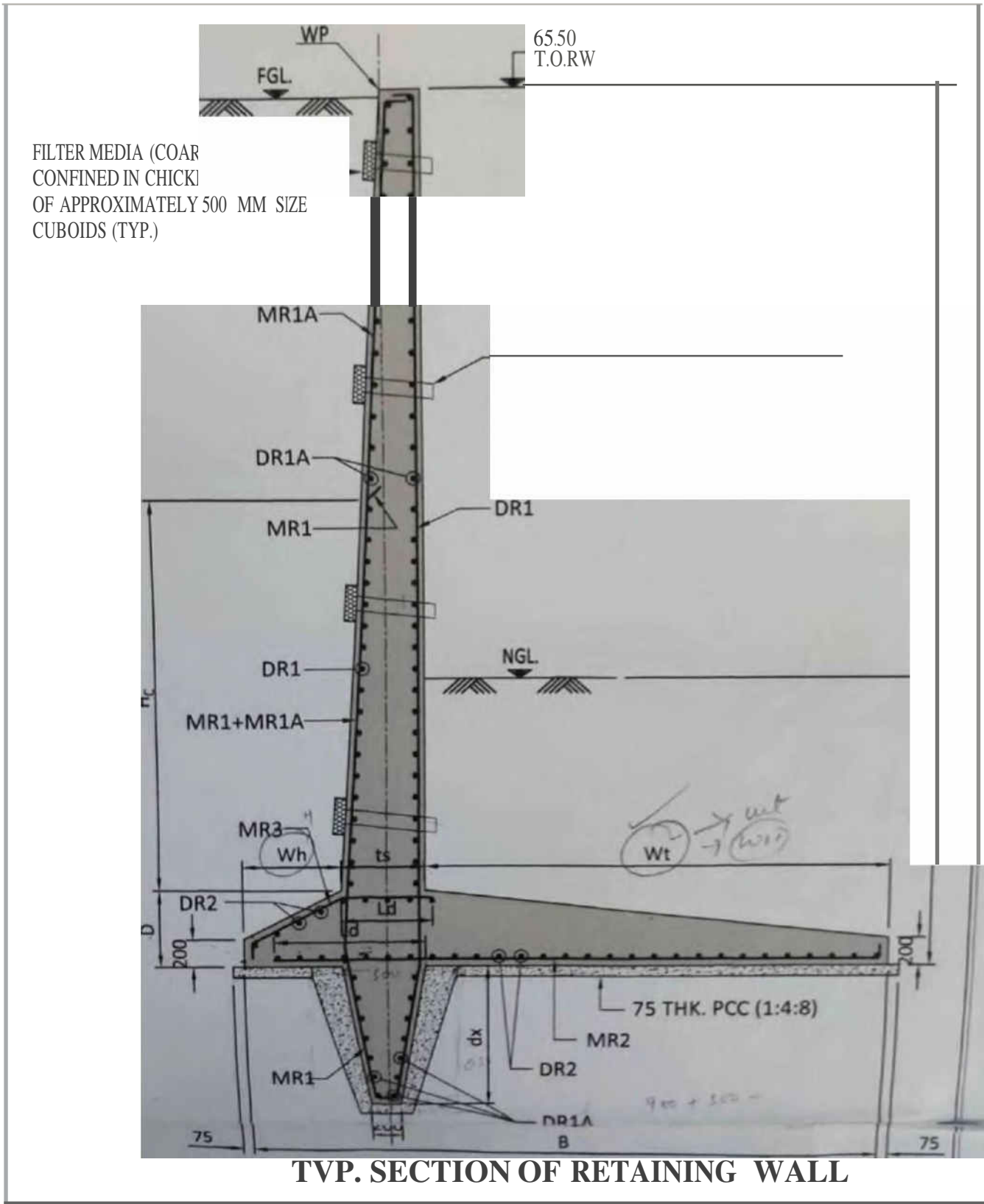
South Bungtlang 33/11 kV S/S



		
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**Drawing of Retention Wall (Standard)**





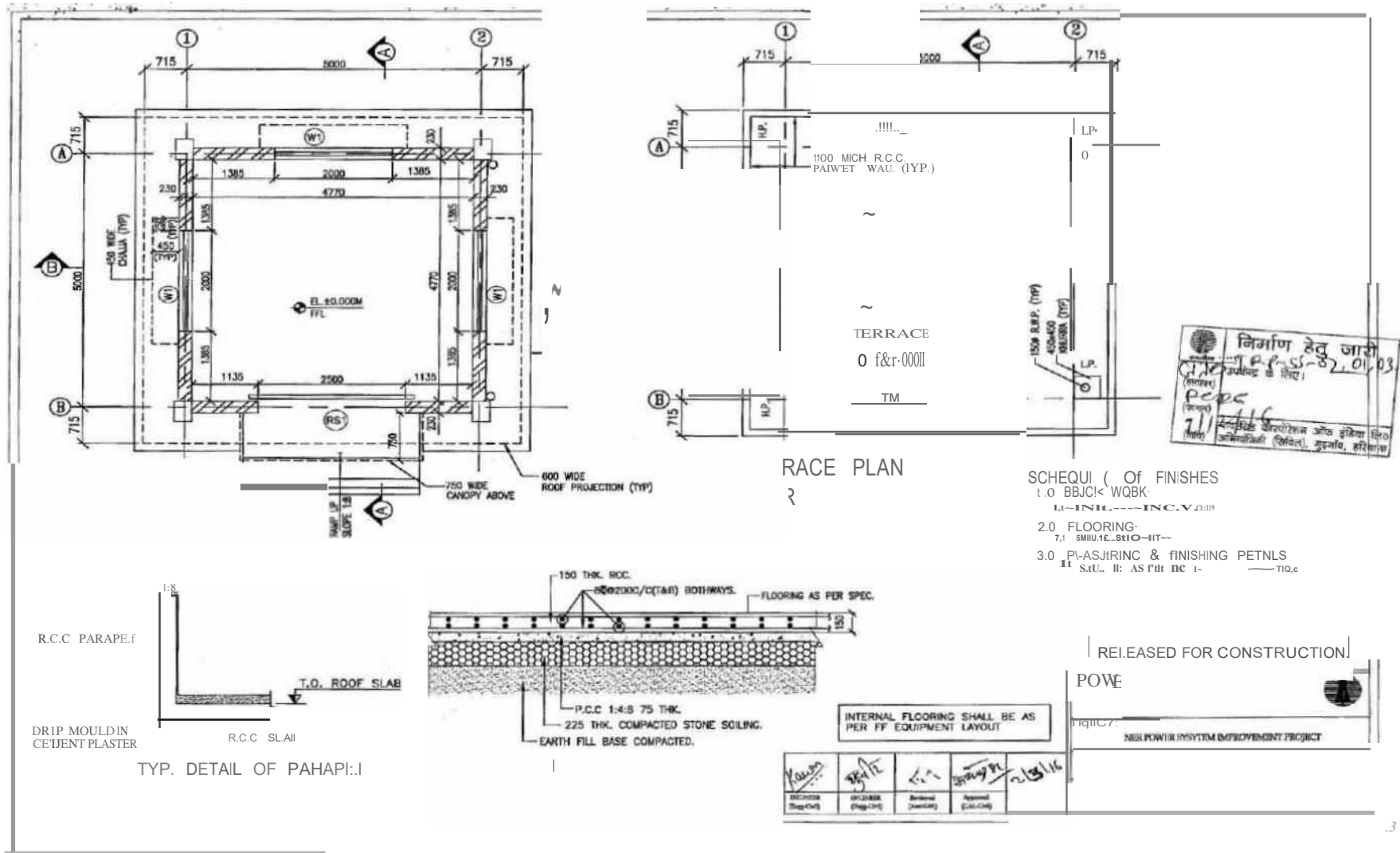


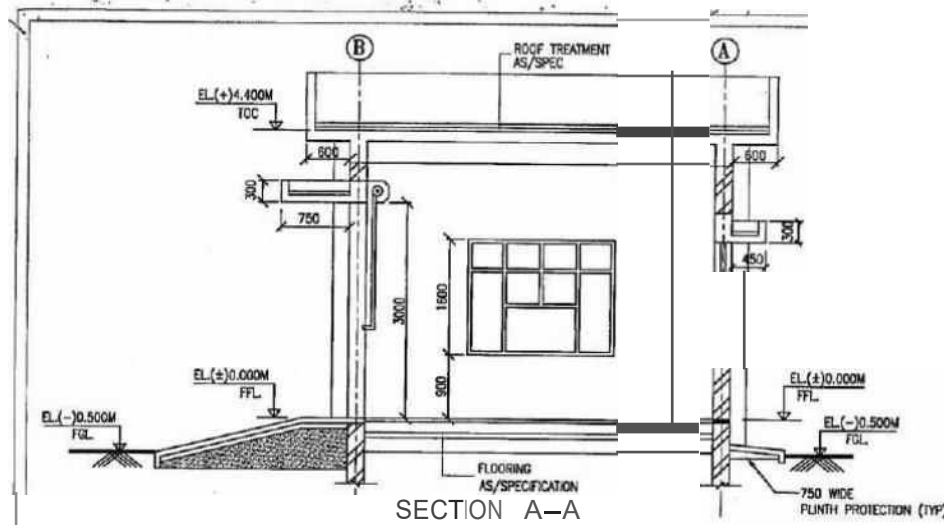
FEAR for T&D subprojects in Lunglei and Lawngtlai  
District under NERPSIP in Mizoram



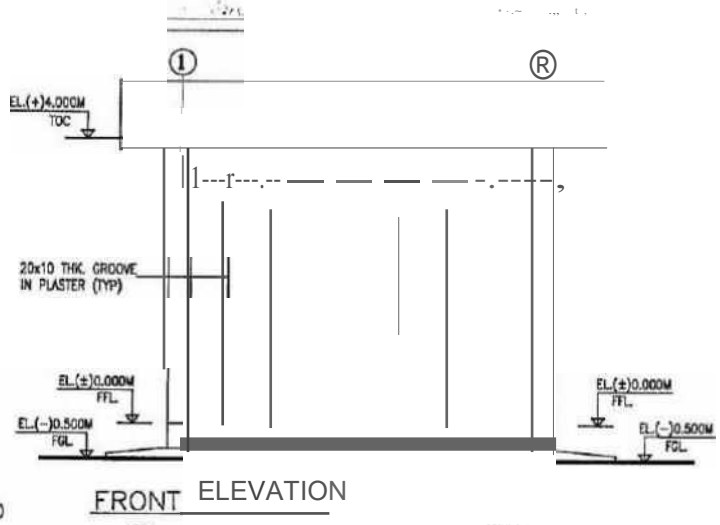
## **Annexure 14**

### **Fire Fighting System**

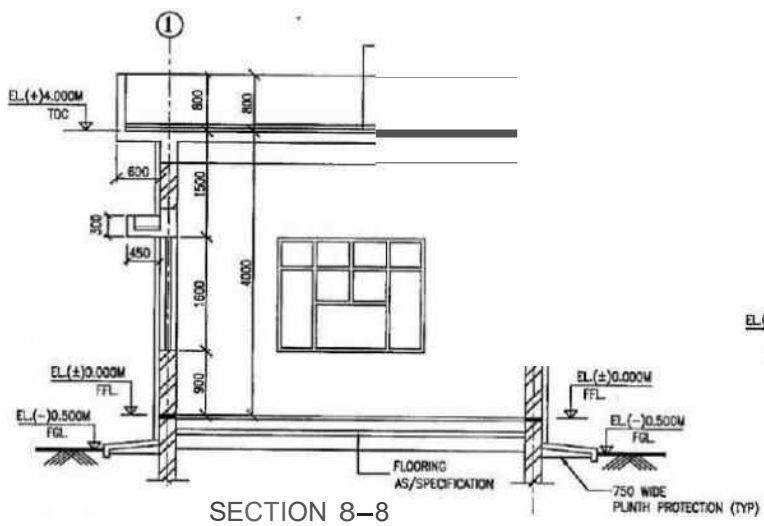




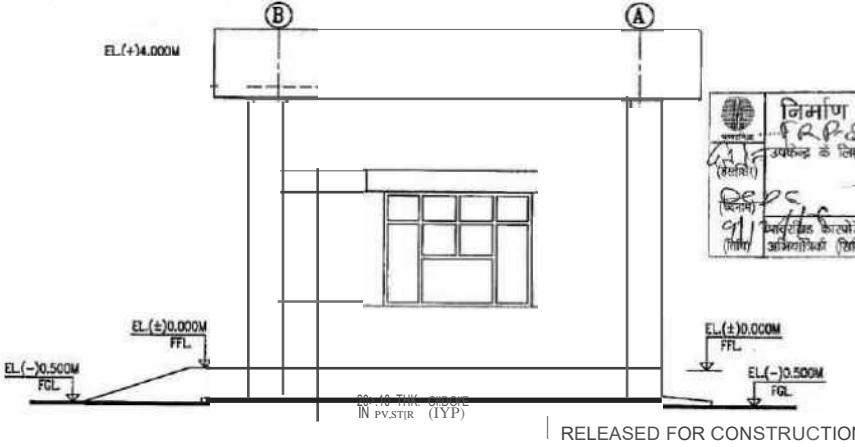
SECTION A-A



FRONT ELEVATION



SECTION 8-8



FRONT ELEVATION

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 21/01/2016  
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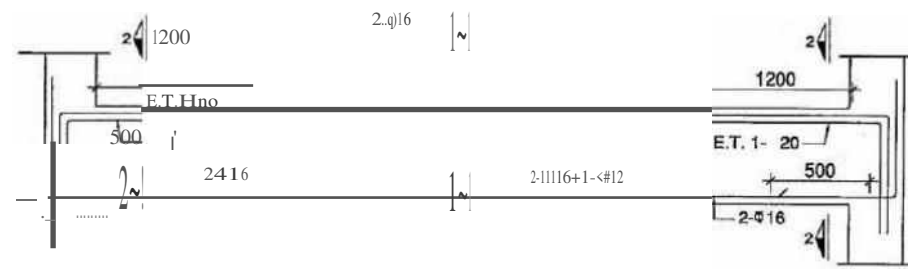
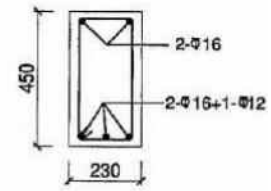
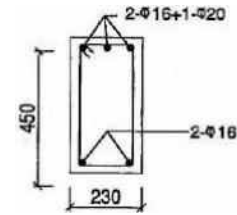
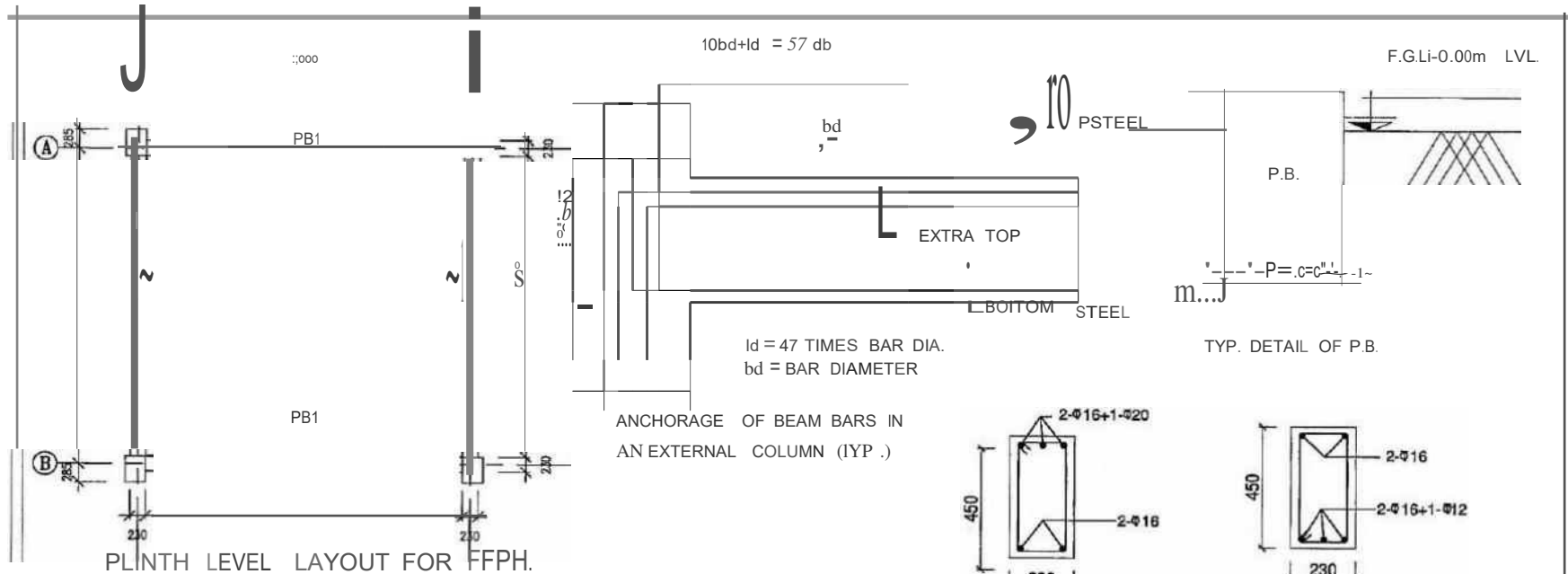
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PROJECT:		NER POWER SYSTEM IMPROVEMENT PROJECT	
TITLE:		FIRE CONTROL HOUSE ARCH. PLANS, ELEVATIONS, SECTIONS	
DRAWING NO:		C/2822/NER/STD/FR/1/01	
Rev. 0	Rev. 0	Rev. 0	Rev. 0
DATE	DATE	DATE	DATE







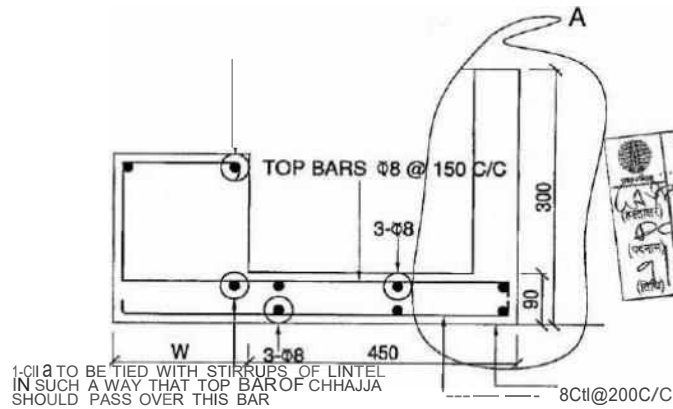


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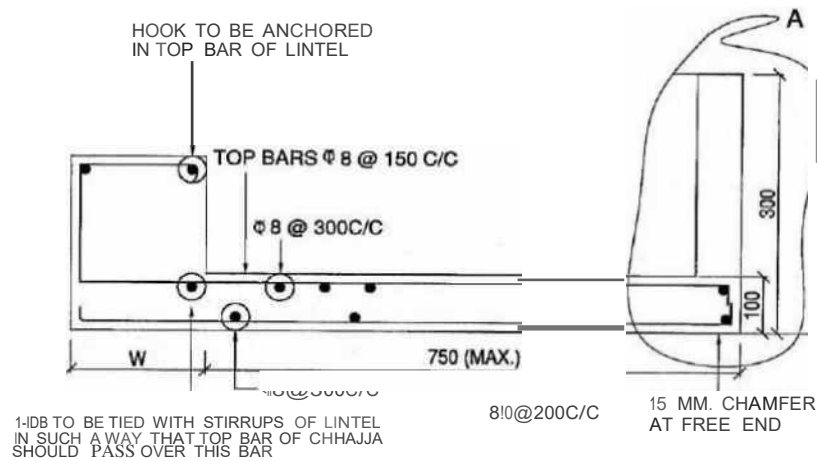
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राज्य निर्माण विभाग  
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Green Circle Inc.

NER POWER SYSTEM IMPROVEMENT PROJECT				
NO. 20388 (Page 004)	DESIGNED (Page 01)	REVIEWED (Page 02)	APPROVED (Page 03)	DATE 21/3/16
TITLE FIRE CONTROL HOUSE, PLINTH BEAM DETAILS				Rev. 0
DRAWING NO: C/ENGG/NBR/STD/FFPH/02				Rev. 2 of 3

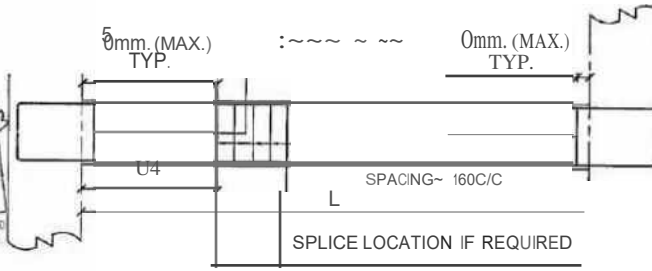


TYPICAL CHHAJJA DETAIL UP TO 450mm PROJECTION

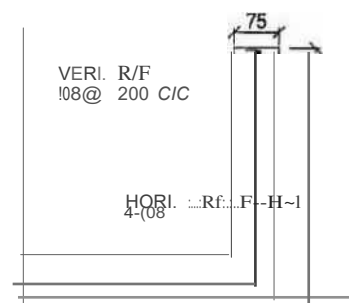


TYPICAL CHHAJJA DETAIL UP TO 750mm PROJECTION

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TYP. SECTION FOR LINTEL



DETAIL A



DETAIL OF PARAPET

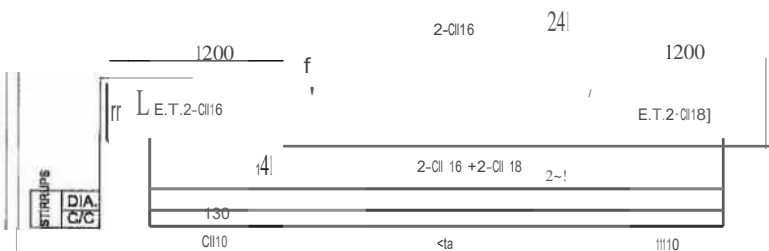
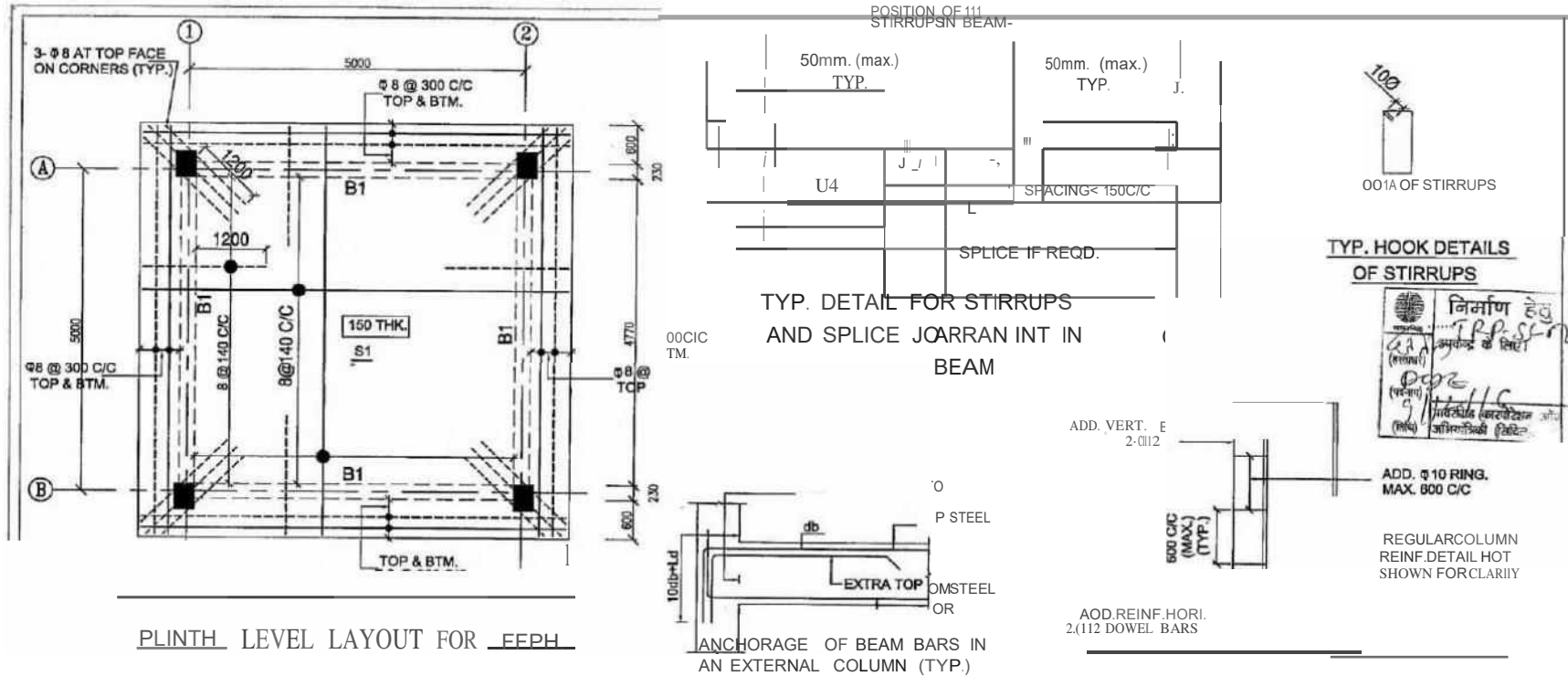
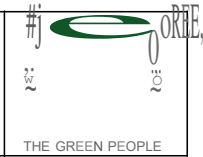
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Author	Checked	Revised	Approved	Date
				2/13/16

NER POWER SYSTEM IMPROVEMENT PROJECT	
TITLE: FIRE CONTROL HOUSE, LINTEL DETAILS	
DRAWING NO.:	Rev. 0
C/ENGG/NER/STP/PP/1/000	Sh. 3 of 5



FEAR for T&D subprojects in Lunglei and Lawngtlai District under NERPSIP in Mizoram



81 - 230X450 DEEP

Green Circle Inc.

DESIGNER (Prep. C/W)	PREPARED (Prep. C/W)	REVIEWED (Asst. C/W)	APPROVED (Asst. C/W)	DATE 2/3/16
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NER POWER SYSTEM IMPROVEMENT PROJECT	
TITLE:	FIRE CONTROL HOUSE, ROOF DETAILS
DRAWING NO.:	C/ENGG/NER/STD/FEPPH/02





**FEAR for T&D subprojects in Lunglei and Lawngtlai District under NERPSIP in Mizoram**



**GENERAL NOTES:-**

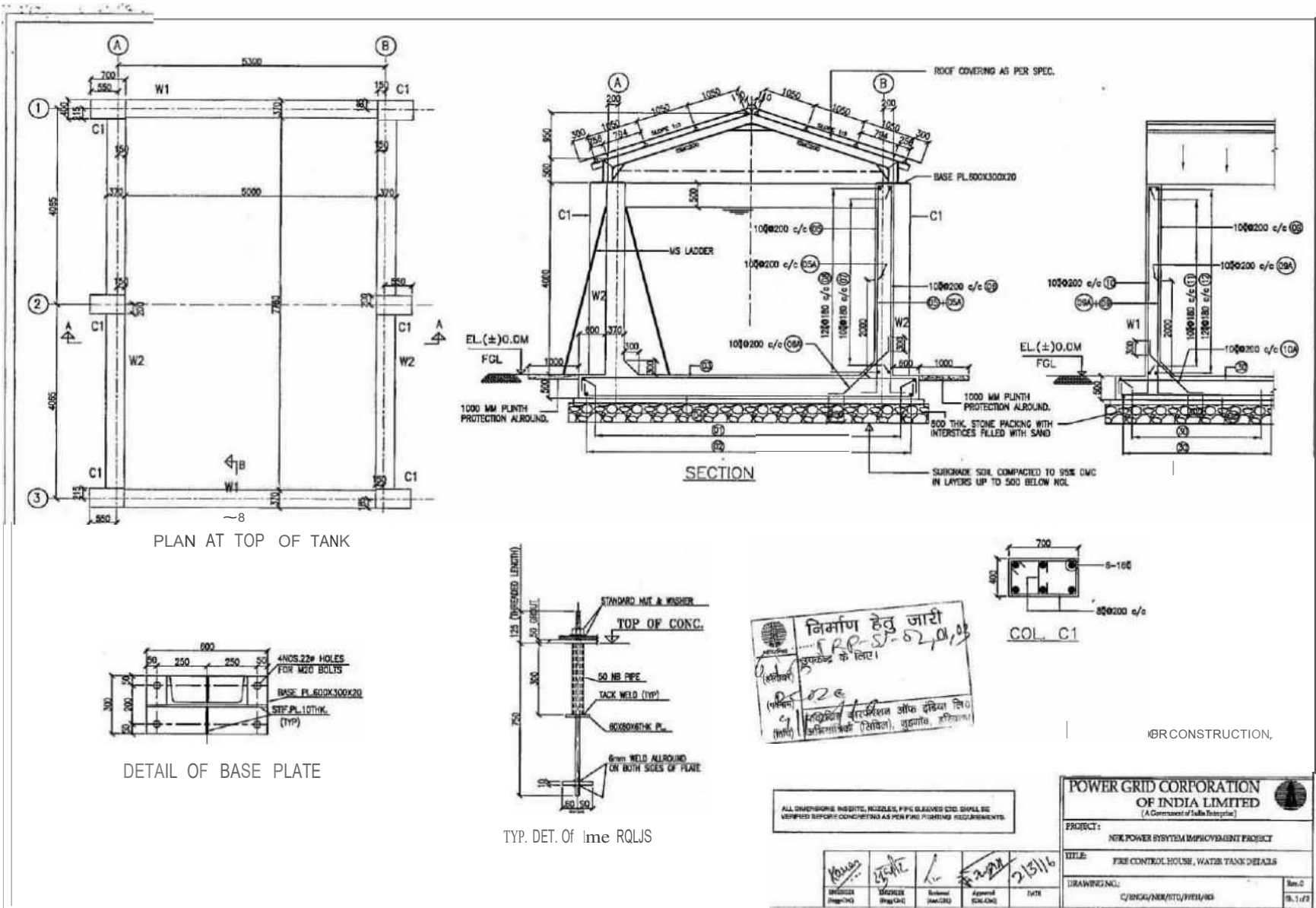
- (1) ALL DIMENSIONS ARE IN MM AND LEVEL IN METERS.
- (2) DO NOT SCALE THE DRAWING. FOLLOW WRITTEN DIMENSIONS ONLY
- (3) UNLESS OTHERWISE NOTED ALL R.C.C. SHALL BE OF GRADE M20.
- (4) ALL LEAN CONCRETE SHALL BE 1:4:8 (1 CEMENT, 4 COARSE SAND, 8 GRADED STONE AGGREGATE 40 MM NOMINAL SIZE). A SLIDING LAYER 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 APPLIED 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) PURLINS SHALL BE MANUFACTURED AFTER EXACT MEASUREMENT AT SITE
- (15) COLOUR SCHEME MATCHING WITH OTHER 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.

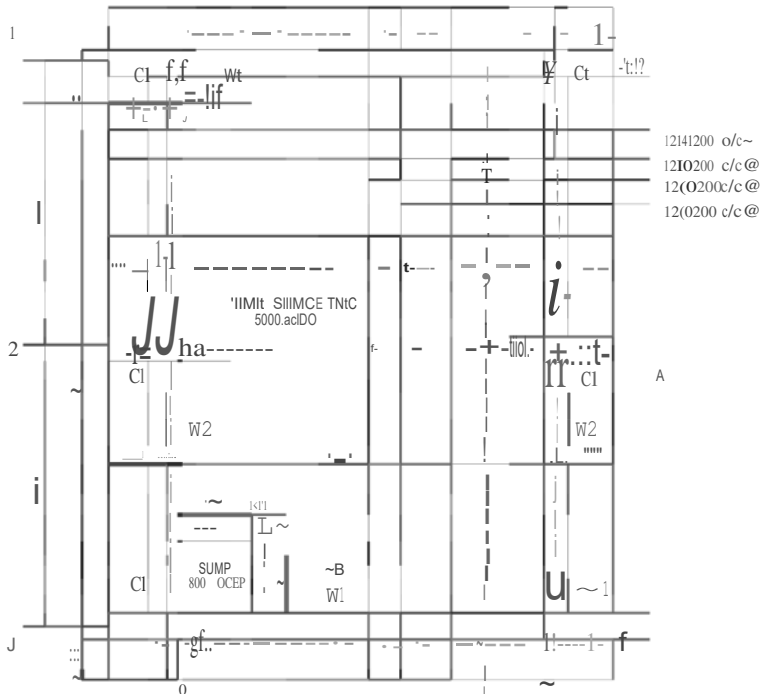
**Green Circle Inc.**

<p align="center"><b>POWER GRID CORPORATION OF INDIA LIMITED</b> (A Government of India Enterprise)</p>				
PROJECT: NER POWER SYSTEM IMPROVEMENT PROJECT				
TITLE: FIRE CONTROL HOUSE, GENERAL NOTES				
DRAWING NO: C/ENGG/NER/STG/HTM/02				REV: 0
				SH. 9 of 9

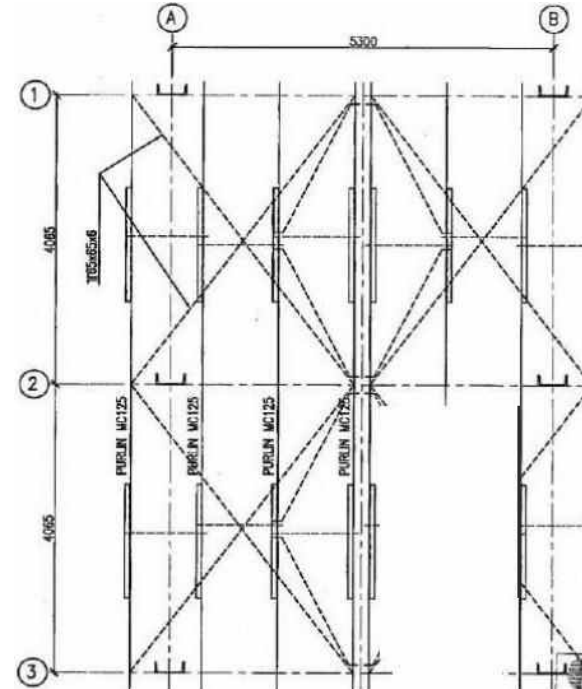
  

 DESIGNER (Engg. Civil)	 CHECKER (Engg. Civil)	 APPROVED (Engrg. Civil)	 DATE 21/01/23
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G.A. & REINF. DETAIL AT BOTIOM OF TANK



निर्माण हेतु जारी  
 (PP-82/1/03)  
 2/18/16

1. ALL C/ENSIO-SME IN MM & LEVELS ARE IN METRES.
2. FLOOR CEILING SHALL ONLY SHOWN ON FLOOR PLAN.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE DRAWING NO. CIENG-25.
4. UNLESS OTHERWISE NOTED ALL R.C.C. SHALL BE OF GRADE IS-25.
5. ALL REINFORCEMENT SHALL BE OF GRADE Fe 500 CONFORMING TO IS. 1786-1985.
6. CLEAR COVER TO REINFORCEMENT SHALL BE AS UNDER:-  
 FLOORING - COUJMN - 50mm WAU -

7. STANDARD V HOOKS SHALL BE PROVIDED AT THE ENDS OF ALL BARS.
8. LARGER DEVELOPMENT LENGTH FOR MAIN REINFORCEMENT BARS AS PER IS: 458-2000 SHALL BE 50d - 1A OF BAR
9. LAP SHALL BE STAGGED AND AVOIDED AT THE SECTIONS OF MAX. BENDING MOMENT.
10. ALL JOINTS SHALL BE PROVIDED WITH P.C.C. 1:1
11. BOTTOM BARS SHALL BE PROVIDED WITH 18mm HOOKS.
12. TOP BARS SHALL BE PROVIDED WITH 18mm HOOKS.
13. ALL CORROSION PREVENTION SHALL BE GIVEN TO ALL STEEL MEMBERS.

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/ENR/NER/SH/FP/1/03
Rev. 0	Sh. 2 of 2

DESIGNED	DRAWN	CHECKED	APPROVED	DATE
K. K.	S. S.	A. A.	2/18/16	2/18/16

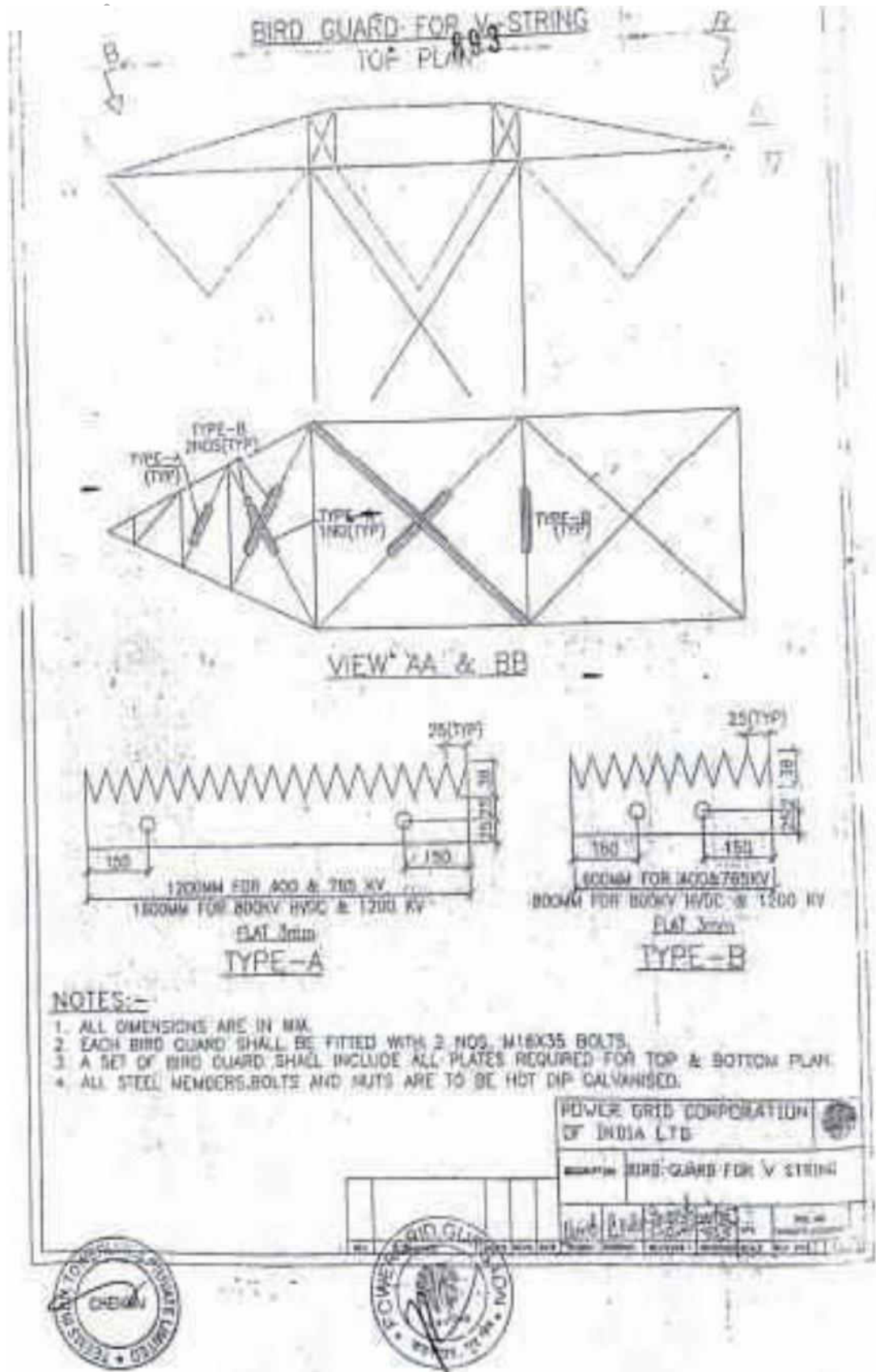


FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 15**

### **Bird Guard and Anti-Perch Device**









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



## **Annexure 17**

### **Safety Plan**

**Issued to M/s Sterling and Wilson Pvt Ltd**

भारतीय गैर न्यायिक

*R. Thangkingliu*  
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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.

C , THAT the Contractor has prepared minimum manpower deployment plan, activity wise as stated above, which is enclosed at Annexure - 18 (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

*Sanjeev*

*Dubey*

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 an 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







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 - SA (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



copy of organization structure of the Contractor in regard to safety. The list is enclosed at Annexure - SB (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 unsafe 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:

*Sanita* *Dubey*

a.	Upon 1st Fatal Accident due to negligence by the Contractor	Rs. 50,00,000/-
b.	Upon 2 <sup>nd</sup> Fatal Accident due to negligence by the Contractor	Rs. 75,00,000/-
c.	Upon 3 <sup>rd</sup> Fatal Accident due to negligence by the Contractor	Rs. 1,00,00,000/-
d.	Re-occurrence of Fatal Accident even after 3 <sup>rd</sup> 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, d, as applicable

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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 requirements 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

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  
Mis. Sterling And Wilson Pvt. Ltd.  
Signature ~

V.K. Dubey

Name constructionM~nager  
Sterling Wilson Pvt.ltd Address:  
31 G. N. Block, Benfish IT Building  
3ra Floor, Sector - V, Salt Lake City,  
Kolkata -700 091  
Authorised representative

Common Seal



Signature { ~ ~

Name: FA, TE-...H S£) — AcN

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.

*Sanjiv* *Dubey*



S.N.	Details of Enc-rosure	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 • IB (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 (-tJ) 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"> <li>1. Industrial Safety Helmet to ail workmen at site. (EN 397 / IS 2925) with chin strap and back stay arrangement.</li> <li>2. Safety shoes without steel toe to all ground level workers and canvas shoes for workers working on tower.</li> <li>3. Rubber Gum Boot to workers working in rainy season. Concreting job.</li> <li>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.</li> <li>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 )</li> </ol>	Yes	

*Handwritten signature*

*Handwritten signature: Dubey*

6. Retractable type fall arrestor (EN360:2002) for ascending / descending on suspension insulator string etc.
  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.
  8. Electrical Resistance hand gloves to Workers for handling \_ electrical equipment / Electrical-connections. IS: 4770.
  9. Dust masks to workers handling cement as per requirement.
  10. Face shield for welder and Grinders. IS: 1179/IS:2553
  11. Other PPEs, if any, as per requirement etc.
- 
- |    |   |      |
|----|---|------|
| 5  | Annexure- 4 (SP)<br>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)<br>List of Qualified safety Officer (s) along with their contact details.   | Yes, |
| 7  | Annexure- SB (SP)<br>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)<br>Copy of Safety Policy/ Safety Document of the contractor's company.   | Yes  |
| 9  | Annexure- 7 (SP)<br>'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)<br>Safety Audit Check Lists  | Yes  |
| 11 | Annexure - 9 (SP)<br>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  |

*Sanjeev*

*Dubey*

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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
ffif	Bu1fcfmg and other construction workers (Regulation of employment & conditions of Services act and Central act 1996) and Welfare Cess Act 1996 with rules.	Yes
iii iv)	Workmen Compensation Act 1923 and Rules.	Yes
v)	Pubhc Insurance L1abil1t1es Act 1991 and Rules	Yes
vi)	Indian Explosive Act 1948 and Rules	NA
vii)	Inman Petroleum Act 1934 and Rules	NA
yjijj	License under the contract Labour (Regulation & Abolition) Act 1970 and Rules.	Yes
~	Ina,an Electricity Rule 1956 and amendments it any, from Time to Time.	Yes
A	Tne Environment (Protection) act 1986 and Rules.	Yes
xi)	Child Labour (Prohibition & Regulation) Act 1986	Yes
Jii)	National Building code of India 2005 (NBC 2005)	NA
xiii)	Ind1an Standards for construction of Low/ Medium/ High/ Extra High voltage Transmission Line.	Yes
xiv)	Any other statutory requirement (s)	NO

13. Annexure - 106 (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
lii)	Any Other Insurance policies	No

*Sanjiv*                      *Dubey*



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 17**

### **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, 3<sup>RD</sup> FLOOR, SECTOR-V, SALT LAKE CITY  
KOLKATA-700091  
E-mail [vinay.dubey@sterlingwilson.com](mailto: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  
Assst. Labour Commissioner (Central)

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
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**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, 3<sup>RD</sup> 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 Bungtiang (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. Commissioner (Central)  
Silchar & Registration/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 Licensing 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

Asst. Labour Commissioner (Central)  
Shillong & Registering/Licensing Officer  
Under C.L. (RAA) Act, 1970

Powergrid  
Mizoram



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 18**

### **Checklist for Safety Plan**



OHECX UST FOR SEIFETY Pn..M

S. IN.	Details of Enclosure	Stat9s of Su:hmis5iolili of inki:rmatioiill 1'.fmments.	Remarks
1.	<p><b>Annexure - 1A (SP)</b></p> <p>Safe ficiili ~rocedure for each actMty ie.. foundation works including cr,lii !Neris... ~oo.. :smnging (as .JJ:Pf,caoh:l], ies:'ting ~ c:omJilllS!iOOlllQ. disposal ca rrrnl?im at W / sto:re eta to be lexec:utEd at s, e.</p>	Yes/No	
	<p>AEIDP!!!.me-1 B t:S?  </p> <p>im2111~,er ~ em plan, aoomJ WISE! :foom:tiloo w!Yk.s inchJdir:~ Giid WCil'ts. awtm. s :!Jing (as a ~ble], ~ng ~ ~ sming. disposal of rratetials ai siu? J' 5tt!lE: etc.</p>	Yes/No	
3..	<p>Aflllll!Jl:Brre - 2 ~P)</p> <p>Lisl 6 Uftmg Mamnes i~. Crane. tim~ Triffor. Chain Pwlliy Bh:i~ etc.. and IUffillQ Tools .ind liaet:les. Le. D ~rack~, PulF~. oome al00'Q d ~ wire rope slings etc. and all ~1,IS o;; mp'E'S Le_ ~'w rop:es, Pol'i" IN"OFJ:J'BIE Rope etc; Eed for liftii:t; ~ alrng witfl t;es- aarliflca~.</p>	Yes/No	
.ia.	<p><b>Allnexwre - Jit,S,t"~</b></p> <p>List at P'ersional ProtEciive Equi~eni (PFIE). acwit) wise in\$Jding <u>the fcdlaw~</u> along wil:h ~ ce_rtf5"1C'.ate- of each as ~ ~ :</p> <ol style="list-style-type: none"> <li>1 tndu:s&amp;t S:ili:fy He?rnet to - ~ n .at site. ~M 391 / IS 2Q2.5) wrth chin strap and back stay awangement.</li> <li>2.. Sa ~ sh:!E:s li'ffnlMd ste:l toe fa all gmun.d lellet worters .mci camras shoes far wrBei:s ""CrmrIQ on ~ -</li> </ol> <p>J. firu"J!bE.r Gunl Boot to mnerlj "ii"Cding - llii!fl:f:sJ:lgsQft / wfl Cfil?UflQ jab.</p> <ol style="list-style-type: none"> <li>4 Twin lan!f.3rrl Fm! Body SaE&lt;ty harness li'lilh shmck absmt:@r and l~ st!~ an:an ~ t</li> </ol>	Yes/No	

S.N	Details of Enclosure	Status of Submission of information documents	Remarks
	<p>for a w wo ngi at ma.e</p> <p>lilian ilthree mete-rs. Soifefy Harness :should be with aH:ad.nlents of lighl !Weight SUM as of al.1.1i11JiMTI aJCI:4 etc. and having a featured aut0013~ Joclctflil arrangeM'tEAT oi :snap hook 3J'd COOfilil:'! Niittl EN 361 NS J5 21 stand srds,</p> <p>6.. Mool&amp; f a~ 'fCir safety of w;.likers d'wirik{l Utet asoendir,g t d'e5'centding from cmrer / oo mg_ EN 353 -2 {&amp;Jided 1jpe b'.J arnesters.on a fleml e .ailldhIDrage line.}</p> <p>6. Retractable~ fa, arrestor ~E~ 2m} for ascard:119 / descending on suspension fn— or string e'E.</p> <p>7. IPm~ of good quafey cot10n tland gIC'IEIs I :.al'her hand glave:s f01 WOJt.e.15 engaged lilandlin-9 Qf tows psirts or as ~ reQUlframe.m a~ site.</p> <p>8.. fElee1rica1 Rici~ hand ,Jt;wes to worlers for teJ(gJg eJectric:al equipment J Electfical ctW"!!iCIDns~ IS :4170</p> <p>~ ~ t masAs ib wrkeis ltano!ngi ceme:nt as pe</p> <p>10. ~ shi'E!ld r'ror'welder and Glfndel'5- IS · Hili NS' 25~</p> <p>11. Olh:er PPEs. if any. as pElr Jeqf.Jirsnem etc.</p>	<p>Yes/No</p>	
5.	<p>Annexure - 4 (SP)</p> <p>Earthing Equipment / Earthing &lt;ellices with Earthing lrad ronfunnilg to rECs. for enh• eq.iipmems aJE! - (Sn. 1230. 123:5 e-tc.) gang wise far slmgilg ~~icyfas; per req.iirremen•</p>	<p>Yes/No</p>	
6.	<p>Annexure - 5 (SP)</p> <p>List of Qualified Sifety Officer(s) akflg mth their oontact det3iIs</p> <p>1. nneErre- Oeta~ ia""&amp;ploo:te Qpe:ratOf i(ii require:d~ Safet)' otooeir / Saf56/SP) avrsor fur every er~ { !!O'1~Q g3ri~ an, other jE.I"SOO m:immed ~ satecy, 151 oi' ~ tranEd in Fust Aid as wel as il,_rief irrfami&amp;im :about safe , :se-li u b. .the</p>	<p>Yes/No</p>	



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.	<b>Annexure – 6 (SP)</b> Copy of Safety Policy/ Safety Document of the Contractor's company	Yes/No	
9.	<b>Annexure – 7 (SP)</b>  '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.	<b>Annexure – 8 (SP)</b>  Safety Audit Check Lists ( Formats to be enclosed)	Yes/No	
11.	<b>Annexure – 9 (SP)</b>  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.	<b>Annexure – 10A (SP)</b>  Information along with documentary evidences in regard to the Contractor's compliance to various statutory requirements including the following:		
(i)	Electricity Act 2003  <u>[Name of Documentary evidence in support of compliance]</u>	Yes/No	
(ii)	Factories Act 1948	Yes/No	



S.N	Details of Enclosure	Status of Submission of documents	Remarks
	[Name of <i>entc</i> , y e l l m l G e . i i ~ ~ [!f ~ ~ a f l G e]		
~iii)	8«2.,j:ng & a.: ~ toos:'InJDtion ~ (Regulation of ~ i:At and Cood]im-s !li Sti'li~ Ad' and Cai'tra11 A.ct 1~a) and Welfare Cess Ad: 1 gg6 with Rules.  §War:rie of ~ i.mernfail:y e11i1B'.Jc:ie n ~uppoit af ~ 1gf1Gf1	Yes.'Itt	
fN)	Woi:kmen ~ a00ñ/Ja.1Q23 and Rules.  [N'am PEL of, D::lctimer;ita,y 1:l/-il'enGII:' II' ~ of ~ ~ a f l G e]	'l,(es)th	
"""	PlmEc Jn:s.uranee Li:tbiines ;:,..ct l ~ i and Rules-.  [M3mt:- c/f D.xilmenia71J e'liten c:e il ~ at ro•ian~]	Yes.1th	
~#it	Indian Il:(q)KJSNe AcE 1945 i:lld' Rules.  [i'/.;me of ~ Limenta_y evitel!l'~ .ll ~ of ~ ~ anGe].	Yes.!NJ	
(viiij	'ladian l?~ Act 19.. Rures..  {Niime of ~ enta,y e'l i l s l e e . i i ~ ~ [!f ~ ~ a o o e]	y~	
~ijra)	LiDens.e unda" the 00ñl.1raci laboor (Regu~lfon a ~, Ao'!1.970 and Rules.  [~me of Dcc..##'JeJl'ta'ff e'lilenee .ii :s=~ [!f oonçar;iee]	Yes.Jl'rb	
EDr)	maian EJeamc.,V. Rule- l~ .artcl amendmem5. ir	Yes.E'ii	




S.IN.	Details of End	Stms of Submisi~ n o.f.informatioru d~ummts	Remarts
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	[#lime of ~enca,y. ei,mic;ie m ~ ~ it of CO~\-anoel		
,~)	Toe Ert\liortmi.en~ ~PR!(e:too) ArJ: ti00 and Rules_	Yes!NJ	
	[Name of Docwlen~ e~jla:l!Ge .!!! s~af CO~',-anoel)		
,xi1	ChikHaouuri(Pmhibmi I ~la000)A&~ '1Q.B6.	Yes!NJ	
	[!!!;me ot ~ ensi)!; ~"iten-ce .!l ~ GOr.r ar:we]		
(ri)	NatiJflal Buimlg Gode of-tnda 2005 (NIBC 2005)_	YecSJ>J	
	[Hml'le, gf Drxu:meni!ai!f .elli:fertGe m ~of GtHl~Git?]		
{ml	Indian sra:i dard'Si +f<< amstru:li an ot L'111•fMeifum/ HighJ&tra High Voltage Yral!!!:ITQS!:ierl Lii.e	Yes.fli,b	
	[Hml'l-e of Doc.i:meniB,'; eriiel Gte ii S~rJf OO~anr:e]		
{N~	Any amcrstrmf{lr)"requiremail{s) ~I~e- specJ:y]	y~	
	[N;m:ie, of ~[ll'Jeni!a~ ?!J~Ge il S~(Jf oo~c.e]		
13_	AnDPXOrre-!l08 fSfJ		
	Det~ of m51Jf!afCJ! Pol~':es albrq.-lith doou~ntal)!~ ~ by i"iE C<Mitradf.i' far tile, insuran~ .oo-w-erage a-gai~t :ocident Mf a Efflplo~ as~=		

S. N.	Details of Enclosure	Status of Submission of information/ documents	Remarks
(i)	Under Workmen Compensation Act 1923 and Rules  <u>[Name of Documentary evidence in support of insurance taken]</u>	Yes/No	
(ii)	Public Insurance Liabilities Act 1991  <u>[Name of Documentary evidence in support of insurance taken]</u>	Yes/No	
(iii)	Any Other Insurance Policies  <u>[Name of Documentary evidence in support of insurance taken]</u>	Yes/No	

EMPLOYER

**SAMPLE COPY OF FILLED CHECKLIST**

 Safety Check List T1. 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. Bungle lang etc.

LOCATION NO: CLASSIFICATION OF SOIL & TYPE OF TOWER:

NAME OF THE AGENCY: Stirling & Wilson.

SITE ENGINEER / SUPERVISOR OF THE AGENCY: Jaysdeep Harikar

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 conforming 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, Dunglei (S).
	(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, Dunglei (S).	
21	Atleast one vehicle (four wheeler) is available for use in case of emergencies.	NO	

*Jaydeb Nath*  
20/02/2019  
\_\_\_\_\_  
SIGNATURE / NAME / DESIGNATION  
OF ~~POWERGRID~~ REPRESENTATIVE

*Kangkan Ligra*  
20/2/19  
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 Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 19**

**letter issued to M/s Starling and Wilson Pvt Ltd for  
noncompliance of HSE**





FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 20**

### **GRC Details**

GOVERNMENT OF MIZORAM  
OFFICE OF THE ENGINEER-IN-CHIEF: POWER & ELECTRICITY DEPARTMENT  
MIZORAM: AIZA WL

Dated Aizawl, the 7<sup>th</sup> August, 2018

No. WU-3/2014-EC(PC)/SPIU/Pt/94

To,

.. ~y. General. !vjiinager (NERPS!PJ  
POWERGRID CORPORATION OF INDIA LIMIT  
Tuivamit, B.P.O - Tanhril  
Aizawl - 796009

*Chief Eng. (Aizawl)*  
*FE (Env.)*  
*Aizawl*  
*For info*  
*and*  
*8/8*

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)  
Ref: Your Letter NERPSIP/Aizawl/Gricvance/It-102/29, dr, 09.03.2018

Sir,

Enclosed please find herewith the Site Level Grievance Redressal Committee (GRC) for Luugsen and South Bungtlang for favour of your information and necessary action.

Encl: As above.

Yours faithfully,

*/ ) J7/~lia?*  
( f LALRAMLIANA)

L£ngineer-in-Chief

Dated Aizawl, the iii August, 20.18

Memo No. WB-3/20 14-EC(PC)/SPIU/Pt/94

Copy t~:•

The Chief Engineer (System Operatics), for favour of information.

Engineer-in-Chief  
Power & Electricity Department

R;~c: . i ]ft ..  
v~sF~; ~ .. ~~~~" (i~~~~!~:~:~.,,  
m:~: :?SIP  
,V: ~:~

//





Constitution of Site Level Grievance Redressal Committee (GRC)

The site level Grievance Redressal Committee has been constituted w.e.f 24.7.2018 (or the work completion of "132 KV U.P. (S) T. Sub-Station) at Lungsen Power Sub-Division, Mizoram as under.

1) Chairman / Representative from Local Administration

Block Development Officer  
Lungsen Rural Development Circle, Lungsen

2) Member Secretary / Representative from P & E Department, Mizoram


Sub-Divisional Officer,  
Lungsen Power Sub-Division, Lungsen

3) Members

1. VCP or his representative, Lungsen Village Council.
2. VCP or his representative, Lungtar.
3. VCP or his representative, Lungtung Village.
4. VCP or his representative, Hangte Village.
5. VCP or his representative, C.F.10.v.9.e.
6. VCP or his representative, Lafnlu.

4) Members (Reputed Persons from Society)

1. V. Lakemruata, Chairman  
President Young Mizo Association, Lungsen Group.
2. K. Siamliana, Lungsen  
Headmaster (Government) School.

  
Sub-Divisional Officer  
Lungsen Power Sub-Division  
Lungsen

GOVERNMENT OF MIZORAM  
OFFICE OF THE ENGINEER-IN-CHIEF: POWER & ELECTRICITY DEPARTMENT  
MIZORAM: AIZA WL

Dated Aizawl, the 7<sup>th</sup> August, 2018

No. WU-3/2014-EC(PC)/SPIU/Pt/94

To,

.. ~y. General. !vjiinager (NERPS!PJ  
POWERGRID CORPORATION OF INDIA LIMIT  
Tuivamit, B.P.O - Tanhril  
Aizawl - 796009

*Chief Mg (Aizawl)*  
*FE (Env.) Aizawl*  
*For info*  
*and*  
*8/8*

Subject : Constitution of Site Level Grievance Redressal Committee (GRC)  
Ref: Your Letter NERPSIP/Aizawl/Gricvance/It-102/29, dr, 09.03.2018

Sir,

Enclosed please find herewith the Site Level Grievance Redressal Committee (GRC) for Luugsen and South Bungtlang for favour of your information and necessary action.

Encl: As above.

Yours faithfully,

*/ ) J7/~lia?*  
( f LALRAMLIANA)

L£ngineer-in-Chief

Dated Aizawl, the iii August, 20.18

Memo No. WB-3/20 14-EC(PC)/SPIU/Pt/94

Copy t~:•

The Chief Engineer (System Operatics), for favour of information.

Engineer-in-Chief  
Power & Electricity Department

R;~c: . i ]ft ..

~sF~; ~ .. ~~~~" (~~~~!~:~:~,,

~:~: ~:~SIP

,V: ~:~

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CONSTITUTION OF SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GR\_Cj)

A site level Grievance Redressal Committee has been constituted with effect from 23.07.2018 for the work Construction of 1.32kV (on DC Tower) Chawngte South' under Sub-Divisional Office Bungtlang South Power Sul-Division at, under ..

- 1) 2D1ination from P&E Department: Mr. Wram  
Mr. David Chakma. Sub-Divisional Officer Bungtlang South Power  
Sul Division.  
Contact No : 8119 866 052
- 2) Nomination from local administration  
Mr. Daniel Saito. E3100k Develor Department Higi1 School, Bun  
Contact No : 8731 058 236
- 3) Nomination from Village Council: Mr. Frankunqa  
President: Village Council: Bungtlang South.  
Contact No : 9402 188 208
- 4) Nomination from reputed persons from society :-  
Mr. Pu H.C Singkhuma. President YoLJng Lai Higi1 School, Bun  
Contact No. 7627 912 550  
Mr. Pu B. Lalnuankirna. Headmaster Bungtlang South, Higi1 School  
Contact No : 9436 148 357
- 5) Nomination from Autonomous District Council: Mr. JC Nguduaia.  
MDC: Bungtlang South  
Contact No. B131960017



Executive Engineer  
Lawnglai Division  
Lc1wngtla1

Constitution of Site Level Grievance Redressal Committee (GRC)

The site level Grievance Redressal Committee has been constituted w.e.f 24.7.2018 (or the work completion of "132 KV Lungs Power Sub-Division") at Lungs Power Sub-Division, Lungs.

1) Chairman / Representative from Local Administration

Block Development Officer  
Lungs Power Sub-Division, Lungs, Lungs

2) Member Secretary / Representative from P & E Department, Mizoram


Sub-Divisional Officer,  
Lungs Power Sub-Division, Lungs

3) Members

1. VCP or his representative, Lungs Power Sub-Division Council.
2. VCP or his representative, Lungtar.
3. VCP or his representative, Lungs Village.
4. VCP or his representative, Hangte Village.
5. VCP or his representative, Lungs.
6. VCP or his representative, Lungs.

4) Members (Reputed Persons from Society)

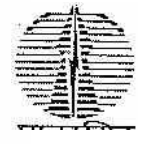
1. V. Lakemruata, Chairman  
President Young Mizo Association, Lungs Group.
2. K. Siamliana, Lungs  
Headsman (Lungs Power Sub-Division)

  
Sub-Divisional Officer  
Lungs Power Sub-Division  
Lungs



Shri. Kangan/FECEM  
 Send an interim reply  
 req. current status mentioning  
 that after 31-12-18, updated  
 status will be sent. Meanwhile first  
 try to organise 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)

pura

CC : ED (NERPSIP)  
 CGM {NERPSIP}

~/ Ref: \_

~/Date: 30.11.2018

~/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 arc required to be provided to the World Bank as belows-

DESCRIPTION	REQUIREMENT	STATUS
Details of public consultation & no. of fernal participants in consultations meetings.	Since, public interaction occurs at every stages of project execution, therefore, data on any kind of informal/formal meeting with community/project..... affected person/village council etc. during route survcy/RoW settlement/ Compensation estimation etc, may be ma be rovided.	For the quarter (Oct,18.to.Dec~ 2018)
Details of grievances received that are months (percentage)	It is mandatory to keep a Grievance register at each project site office for recording any sort of public grievances. The data may be provided on quarterly basis.	For the qu.,rtct (Oct, 18 to Dec, 2018)

ve, it is requested to send the above submission to World Bank thrc

concernec Scites on s Report,

Li,cJ - f:011mnJ-

(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 (Quarterly)	:-

Details of Grievances

No of public grievances received	:-
No of grievances addressed within 2 months of receipt	:-
Reporting period (Quarterly)	:-

Signature of Project Manager





## 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 (011 DC Tower) Location to Chavmgle 'L' under Sub-Divisional Officer, Lungsan Power Sub-Division, Lungsan.

1) Chairman / J.P. from Local Construction :-

Bleck Ovelcoment Officer

Lungse.1 Rur;il Df.;elopmeni Block Lon.osen

2) Member Secretary / Representative from P & E Department :-

Sub-Divisional Officer.

Lungsan Power Sub-Division, lungsan

3) Members

1. VCP or his representative. Lungsan / J. Covncii-I
2. VCP or his representative, Lung;anJ.
3. VCP or his representative. Rui,la/lung ViHage.
4. VCP or his representative, Rangle Viili:ig~.
5. VCP or his representative. Ch;;;n(1:e 'I'.
6. VCP or his representative. **Lalnutu.M~llji.**

4) Members (Reputed Persons from Society)

1. V. Lalremruata, Cthurnkhum  
President Young Mizo Association, Lungsan Group.
2. K. Si8mli;ina. Lung.sen  
Headmaster Gc"emmenl Milk;le Sch;))I- !

/A)J~~-

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/94

Dated Aizawl, the 7<sup>th</sup> August, 2018

To,

✓ The Dy. General Manager (NERPSIP)  
POWERGRID CORPORATION OF INDIA LIMITED  
Tuivamit, B.P.O - Tanhril  
Aizawl - 796009

*Chief Mgr (Aizawl) 9/8/18*  
*FE (Env.) Aizawl*  
*For info and re*  
*8/8/18*

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/Pt/94

Dated Aizawl, the 7<sup>th</sup> August, 2018

Copy to:-

The Chief Engineer (System Operation), for favour of information.

Engineer-in-Chief  
Power & Electricity Department

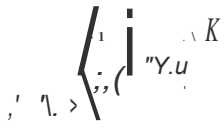
pt No. 174



## CONSTITUTION OF SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GR,<sub>£</sub>)

A site level Grievance Redressal Committee has been constituted on 23/07/2017 for the work Construction of 132kV (on O C Tower) Chawngte S. 13Mgt.1ng South' under Sub-Division. II 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 Dan,el Saito. Block Development Officer Lk110:L11:~;Suu!,1  
(...)rL,JC~30 . 8731 058 236
- 3) Nomination from village representative  
Pu Frankunqa 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 HL,ngllang  
~(U)ll  
Contact No: 7627 912 550  
2; Pu 8. Lalnuankima. Headmaster Bungtlang South High School  
Contact No : 9436 148 357
- 5) Nomination from Lai Autonomous District Council :  
P1, J C Ngurluaia. MOC: Bungtlang South  
Contact No: 8131960017

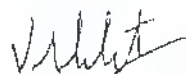


Executive Engineer  
Lawngttai Powci 01v1s1011  
Lawrigtla1

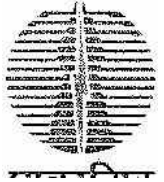
Constitution of Site Level Grievance Redressal Committee (GRC)

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, **Lalnutei 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

C~ w~ cpl '3UJJ) -cf51:Ztn~~faf311Q5 ~f§<|| FcPi~es



# 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-120/2;8

Date: 06.11.2018

To,  
The Engineer-in-chief  
Power & Electricity Department  
New Secretariat Complex  
Aizawl, Mizoram

~/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-J/22 : Dated: 20.08.2018  
3) WB-3/2014-EC(PC)/SPJU/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 .

Thankingyou.....

.. Yours-Sincerely;

Encl: As above

~~~i  
(C.GOPI)  
GM (NERPSIP)  
AIZAWL, MIZORAM

Copy To: For Kind Information:

- 1) Superintending Engineer, P & E Dept. Project Circle-I, Aizawl

o/c





MEMORANDUM FOR THE RECORD

Lungsen Site Office

- 1) D. Talukdar (Dy. General Manager)
- 2) P.B Sharma (Ch. Manager)
- 3) Sujeeet Kumar (Engineer)

S. Bunglelang Site Office

- 1) Talukdar (Dy. General Manager)
- 2) yitam Das (Engineer)

W. Phaileng Site Office

- 1) T.V Rao (Dy. General Manager)
- 2) Pradip Das (Ch. Manager)

8/11/18  
[Signature]

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 11<sup>th</sup> Sept, 2018

To,

~ Gen — ger (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/Grievmcc/F-102/29, dt. 09.03.2018

F) 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,

102-#dh~#/.}  
(L.L.RAMLIANA)  
Engineer-in-Chief  
Dated Aizawl, the 11<sup>th</sup> Sept, 2018

Copy to:-  
No.V.,U-3/2014-EC(I>C)/SPIU/Pt.101

The Chief Engineer (Distribution), for favour of information.

Engineer-In-Chief  
Power & Electricity Department

Receipt No: 214

19/09/18  
POWERGRID-NERPSIP  
AIZAWL/आइजो

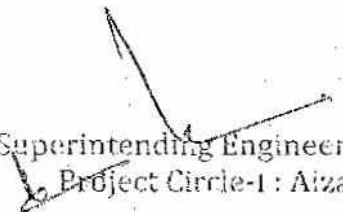


→ I.  $\int_0^1 \frac{1}{x} dx \sim \int_0^1 \frac{1}{x} dx = \ln x \Big|_0^1 = \ln 1 - \lim_{x \rightarrow 0^+} \ln x = 0 - (-\infty) = \infty$





Sd/-  
Executive Engineer, P&E  
Marnit 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 20<sup>th</sup> August, 2018*

No. T-11014/1/2016\_SEPC-I/II: 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 WPhaileng and Marpara respectively
2. Construction of 132kV Single Circuit on Double Circuit Tower line from WPhaileng to Marpara

Necessary Informations shall be conveyed to higher authority through the Executive Engineer, P&E Department, Marnit 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~

- ~) 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
  - ~) Dy.General Manager(NERPSIP), POWERGRID CORPORATION OF INDIA LTD, Tuivamit, BPO - Tanhril. Aizawl for information & necessary action
  - 4) The Executive Engineer, Marnit Power Division, Mamit for information and necessary action. This has reference to his letter vide No.T-13010/1/1~EE(MPD)/31 dt.24.7.2018
- de the persons concerned in this regards.

AIZAWL/NERPSIP  
POWERGRID-NERPSIP  
Receipt No. 180  
Date: 18/08/2018

DGM (NERPSIP)

Sd/- F.Lalrinpuia  
Superintending Engineer, P&E  
Project Circle-I : Aizawl.

**LIST OF VILLAGES REPRESENTATIVE FOR  
SITE LEVEL GRIEVANCE REDRESSAL COMMITTEE (GRC)  
Along with Desi nation & Contact No. (Name)**

| Sl. No. | Name of Village/Department | Member                                                                                     | Designation                                                                      | Contact                                    |
|---------|----------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------|
| 1.      | W.PHAILENG                 | 1) Pu J. S. Lalsangkhima Sailo<br>2) Pu. PC Zarloliana                                     | YMA Secretary<br>VC Treasurer<br>Dampa Group YMA President                       | 873.0907317<br>8131955661<br>9.86222.1048  |
| 2.      | NEW W.PHAILENG             | 1) Pu. Duhsanga<br>2) Pu. H. Lalchungnunga                                                 | YMA President, B. ethlemhem Br.<br>YMA President,<br>New W. Phailen Br.          | 84130052f3~<br>7 629970?..7<br>7 005352803 |
| 3.      | KAWNMAWI/<br>CHHIPPI       | 1) Pu. Sangliana<br>2) Pu. Robuang?<br>3) Pu. Malsawmthanga<br>4) Pu. Lalzawmliani         | YMA Vice President<br>VC Vice President                                          | 9366065365                                 |
| 4.      | LALLEN                     | 1) Pu. Saithansanga<br>2) Pu. Raltawna                                                     | VC President<br>YMA PT Vice President<br>VC Secretary                            | 9366065365                                 |
| 5.      | SAITHAH                    | 1) Pu. Lalrinmawii<br>2) H. Lalmingthariga                                                 | YMA Vice President<br>YMA President                                              | f.8132845046<br>7 005090071                |
| 6.      | PHULDUNGSEI                | 1) Pu. Pachhunga<br>2) Pu. J. I. Rotluangi Sailo<br>3) Pu. Lalha Hana<br>4) Pu. A. Roliana | YMA Vice President<br>YMA President<br>YMA President Chaltui Br.<br>VC President | 7<br>8                                     |
| 7.      | PHULPUI                    | 1) Pu. Alalaka<br>2) Pu. A. Pazawna                                                        | YMA Secretary                                                                    | 9                                          |
| 8.      | PUKZING                    | 1) Pu. Lalrotlinga                                                                         |                                                                                  | 879481                                     |
| 9.      | PHULPUI VENGTHAR           | 1) Pu. Lalnunzira<br>2) Pu. Ratna Kumar                                                    |                                                                                  | 9233<br>6960<br>1585<br>3685               |
| 10.     | HRUIDUK                    | 1) Pu. Lok Ronjon                                                                          |                                                                                  |                                            |
| 11.     | P&E DEPARTMENT             | 1) Er. B. Rothangliana<br>2) Pu. Lallawmawma Chenkual                                      |                                                                                  | 9436150292                                 |
| 12.     | P.G.C.I.                   | 1) Mr. Cfiop!                                                                              |                                                                                  | 9449599072                                 |

Sd/-

Executive Engineer, P&amp;E

Mam. it. Pc. owet. D. i. vision:

Superintending Engineer, P&amp;E

Project Circle-1: Aizawl





NERPSIP Mizoram, Tuivamit, B.P.O. Tanbril, Aizawl 796000

Mail: nerpsip.mizoram@powetgrid.co.in , Contact no. 9449599072

Ref.: NERPSIP/Aizawl/Grievance/F-102./29

~ / Date: 09.03.2018

To,

The Engineer-in-Chief  
Power & Electricity Department  
New Secretariat Complex  
Aizawl, Mizoram

~/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 GR.M 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 P & E Deptt will closely interact with the Site Level GRC on 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, and the 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

End: As above

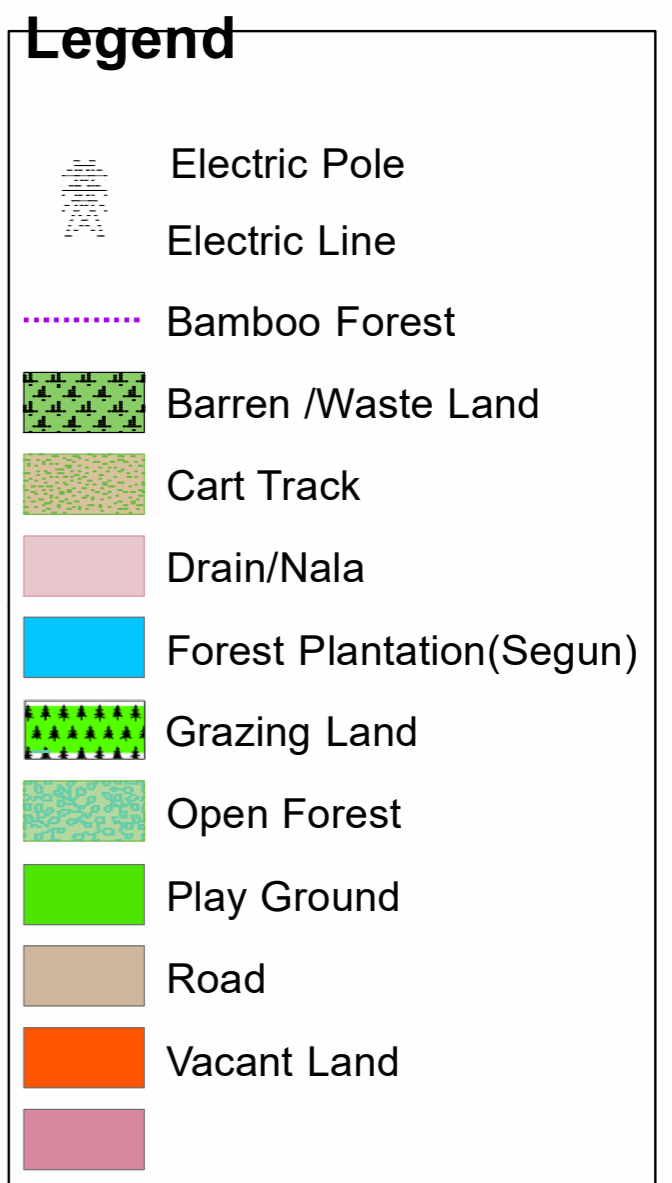
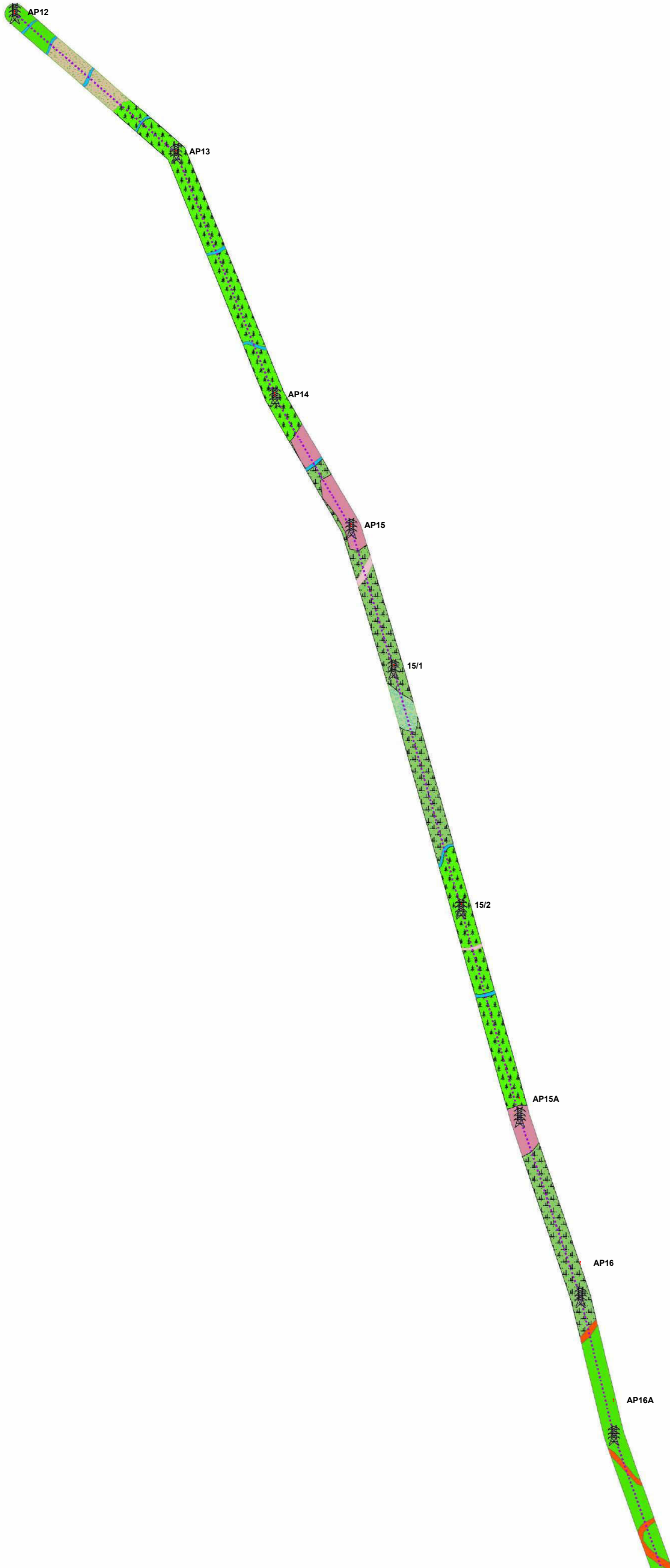
You -fai — ,  
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(C.GOPI) DGM  
(NERPSIP) AIZA WL,  
MCZQRAM

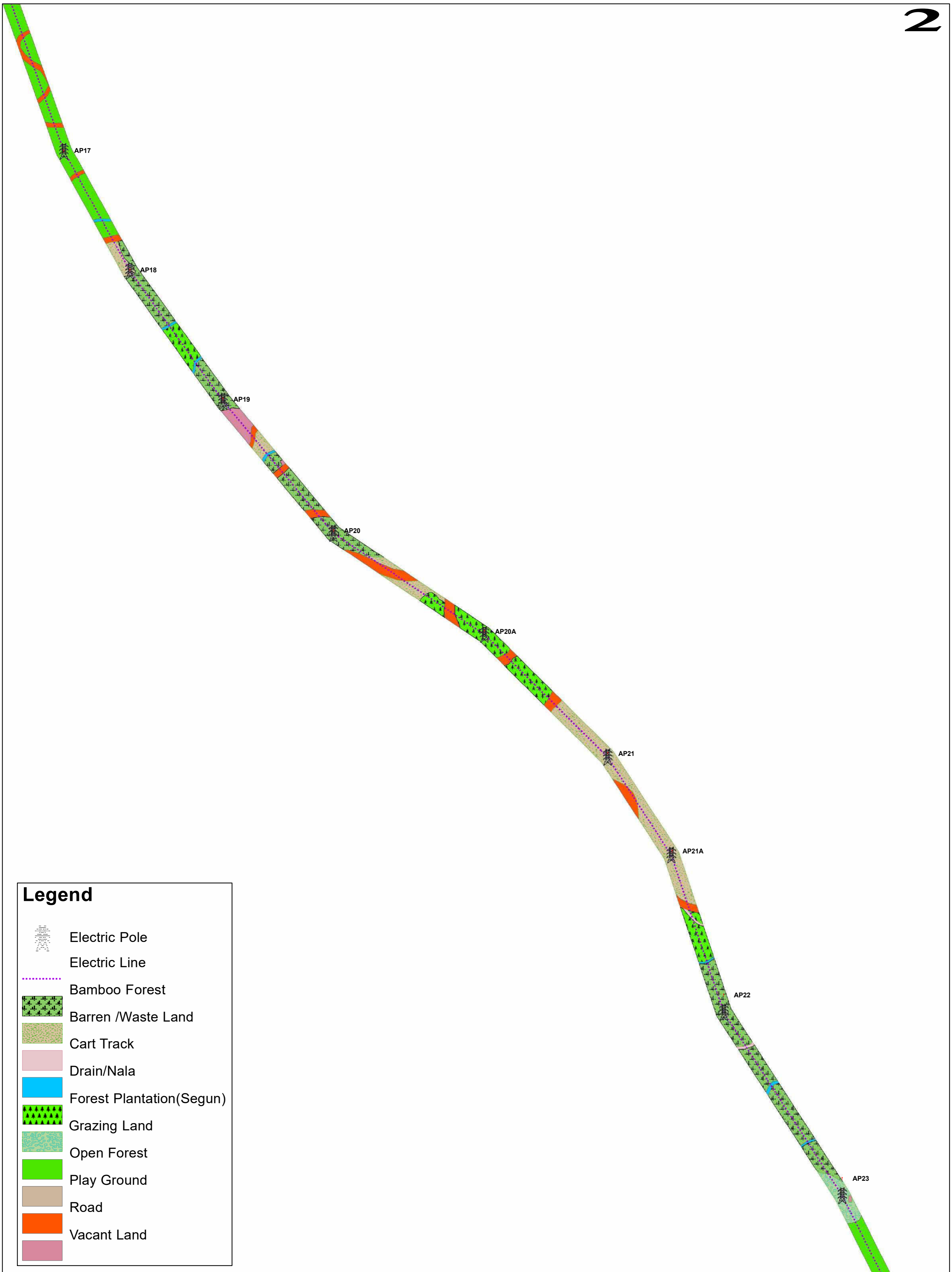
Copy to:

- 1) Secretary, Power & Electricity Department (Mizoram) for kind information.



# **Annexure A and B**



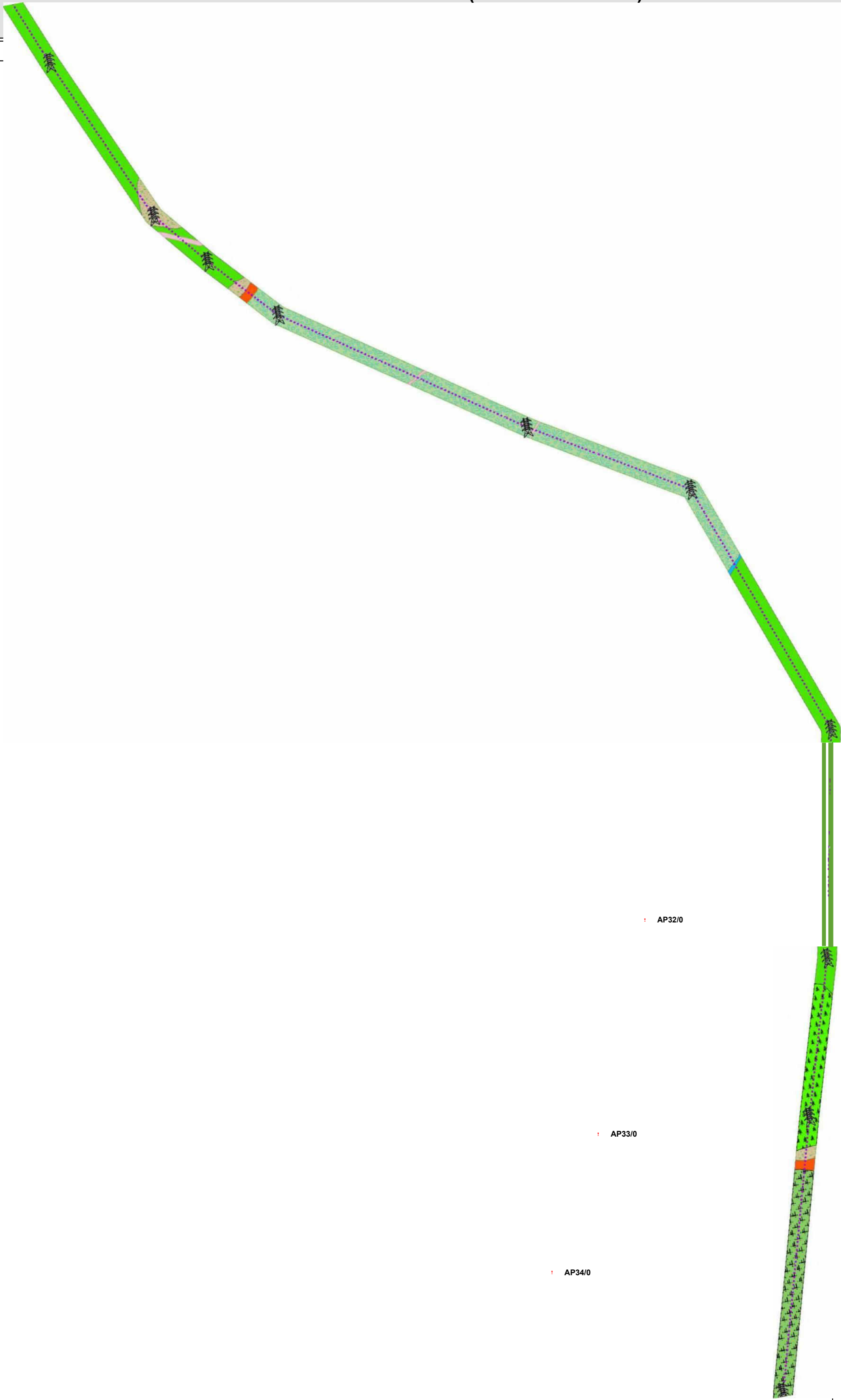


**Legend**



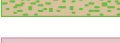
-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land
-  Vacant Land



**LAND USE/LAND COVER DETAILS OF LUNGSEN - CHAWNGTE 132 KV POWER TRANSMISSION LINE  
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)**



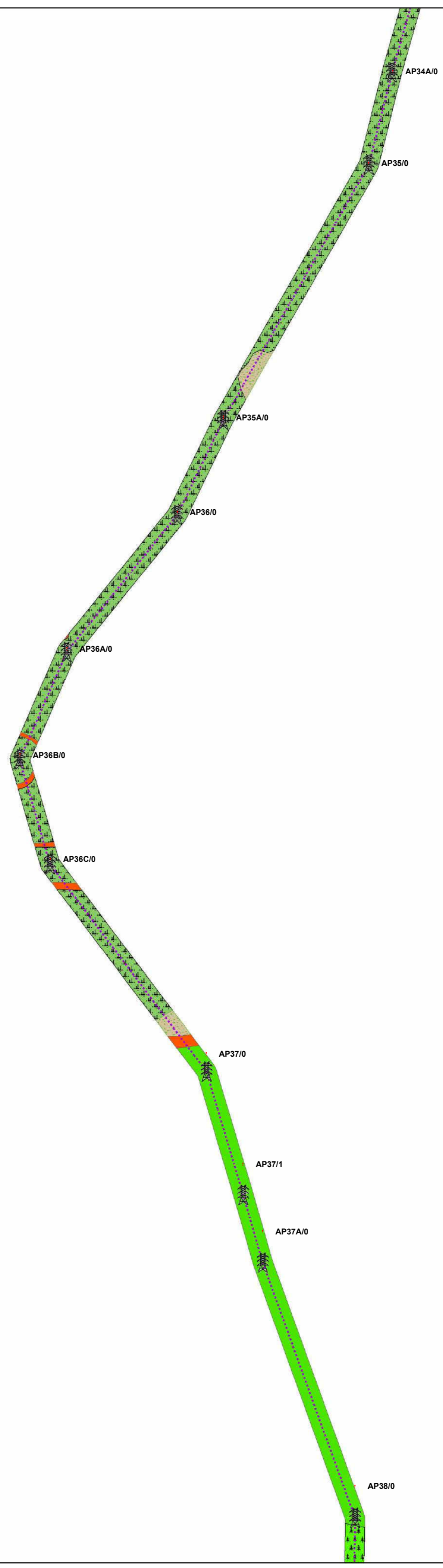
**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land
- 

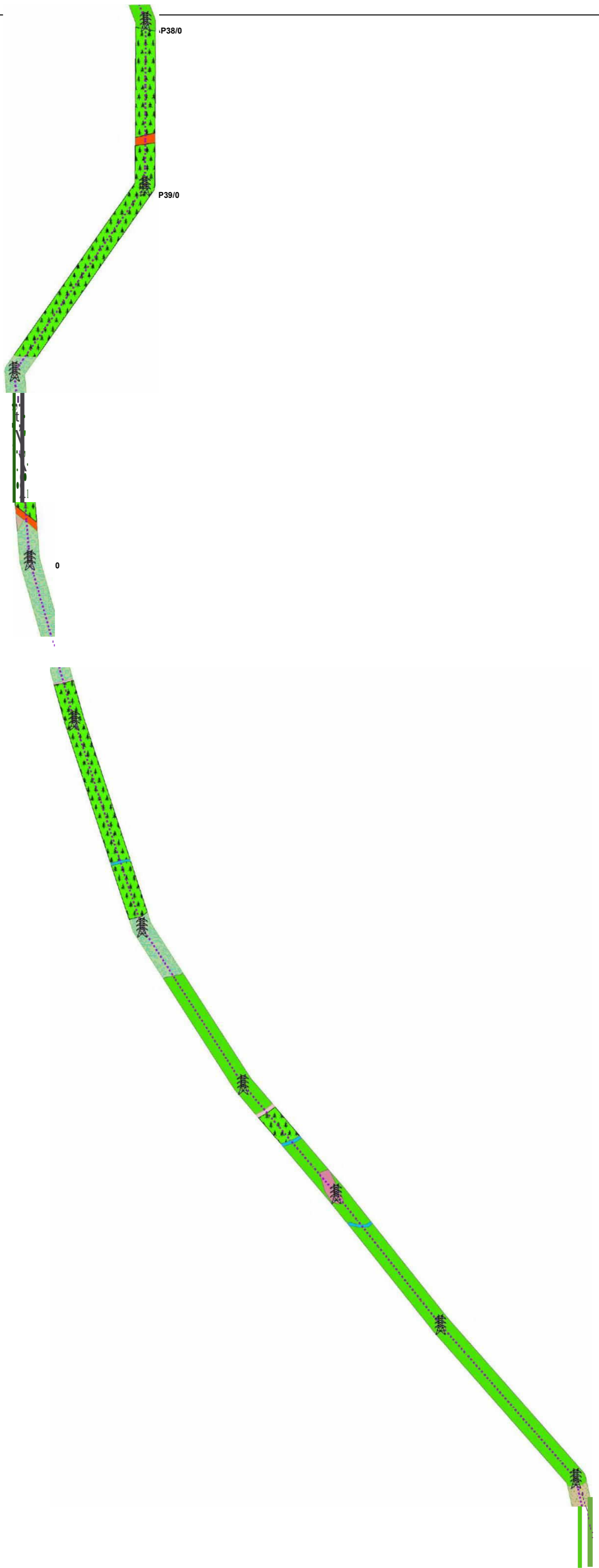


**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land
- 



**LAND USE/LAND COVER DETAILS OF LUNGSEN - CHAWNGTE 132 KV POWER TRANSMISSION LINE**  
**CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)**  
**PREPARED BY GREEN CIRCLE INC,**



**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land

AP44

AP45/0

AP46/0

AP 47

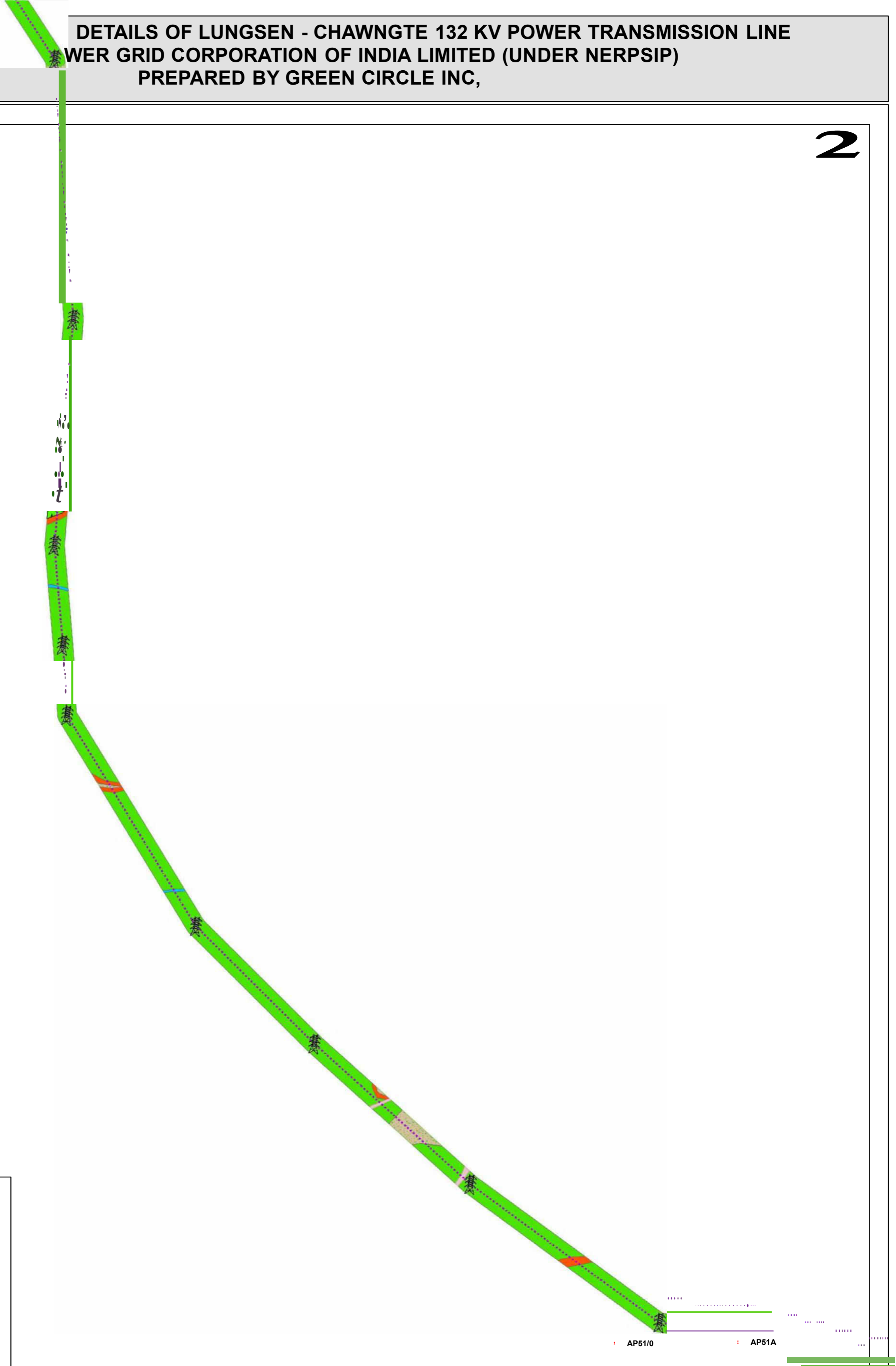
AP48/0

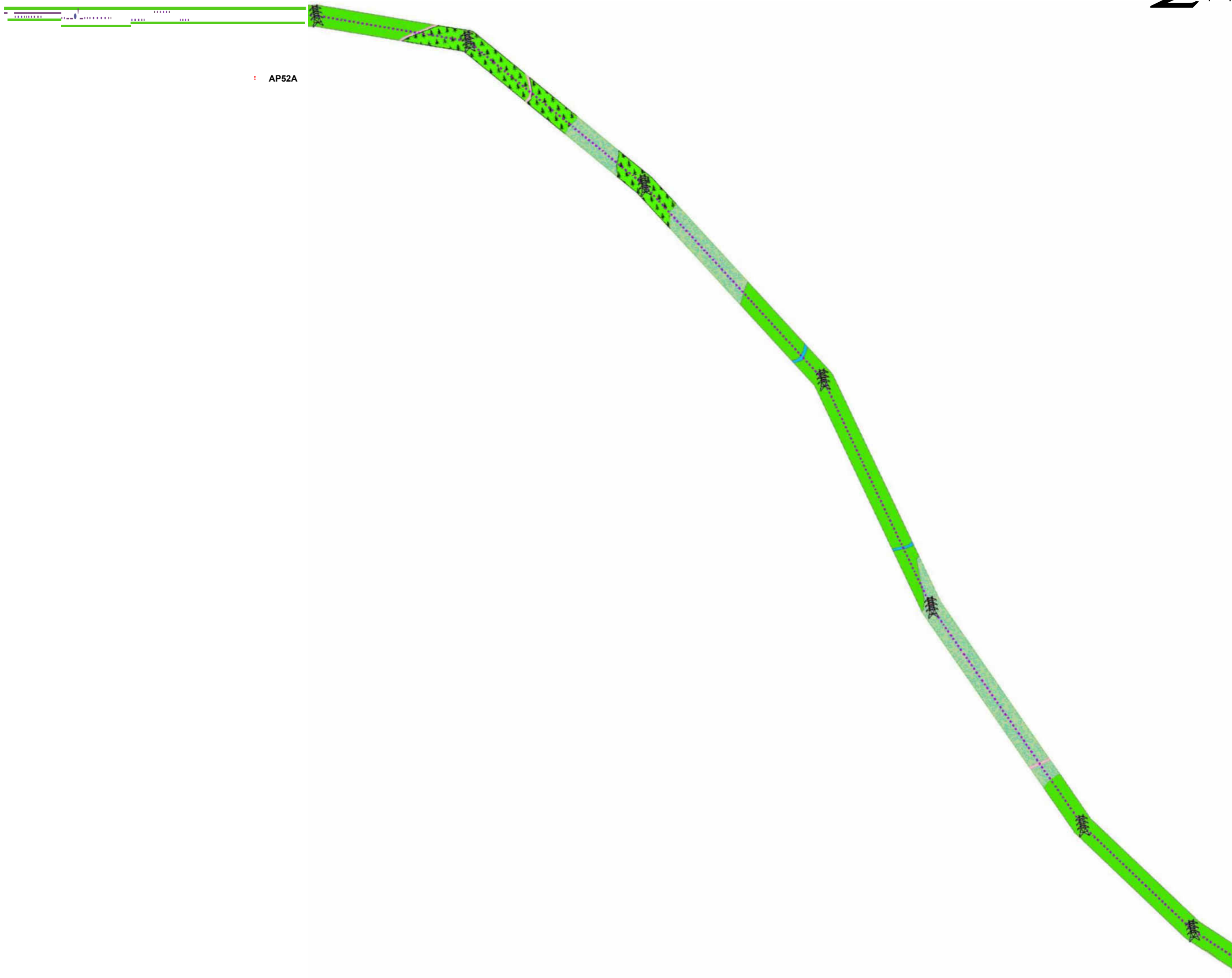
AP51/0

AP51A

**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land
- 



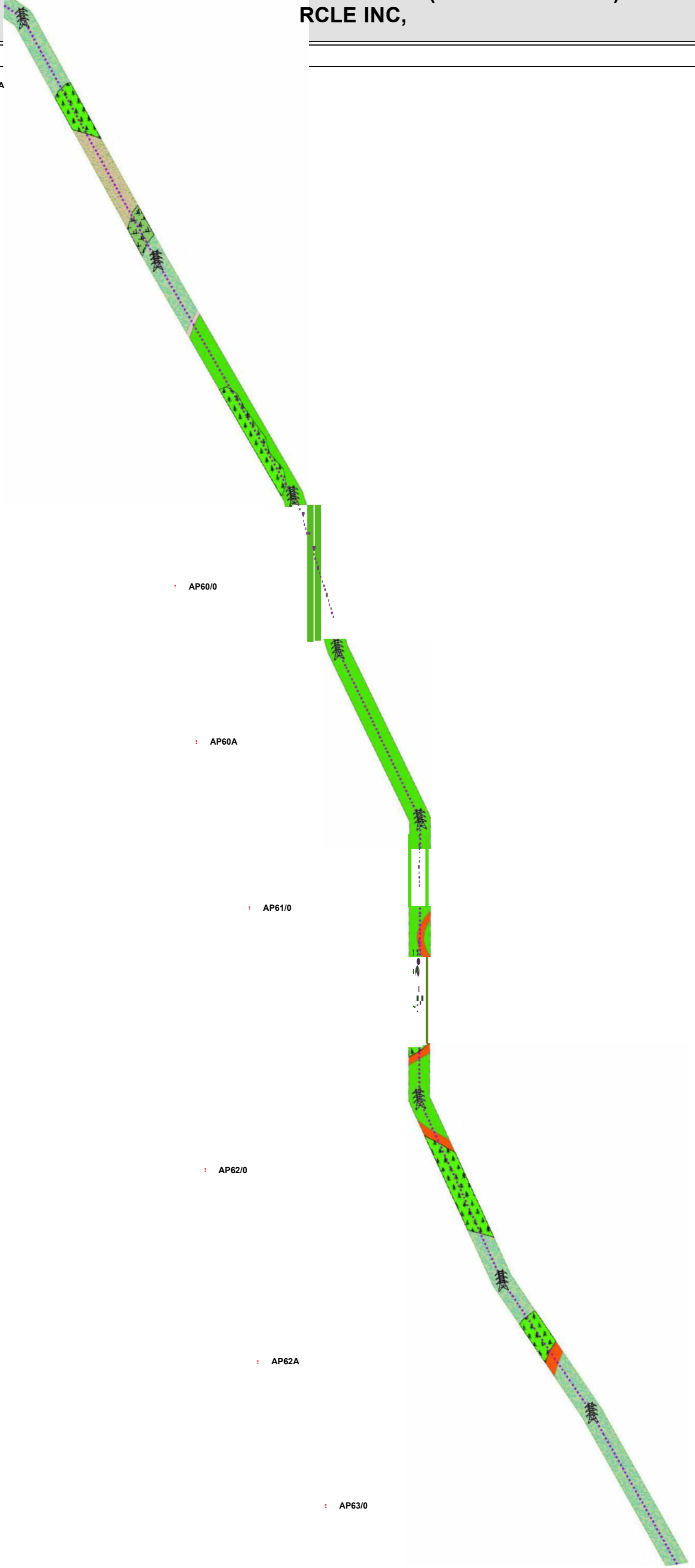


**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land

AP58/0

**LAND USE/LAND COVER DETAILS OF LUNGSEN - CHAWNGTE 132 KV POWER TRANSMISSION LINE**  
**CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)**  
**RCLE INC,**

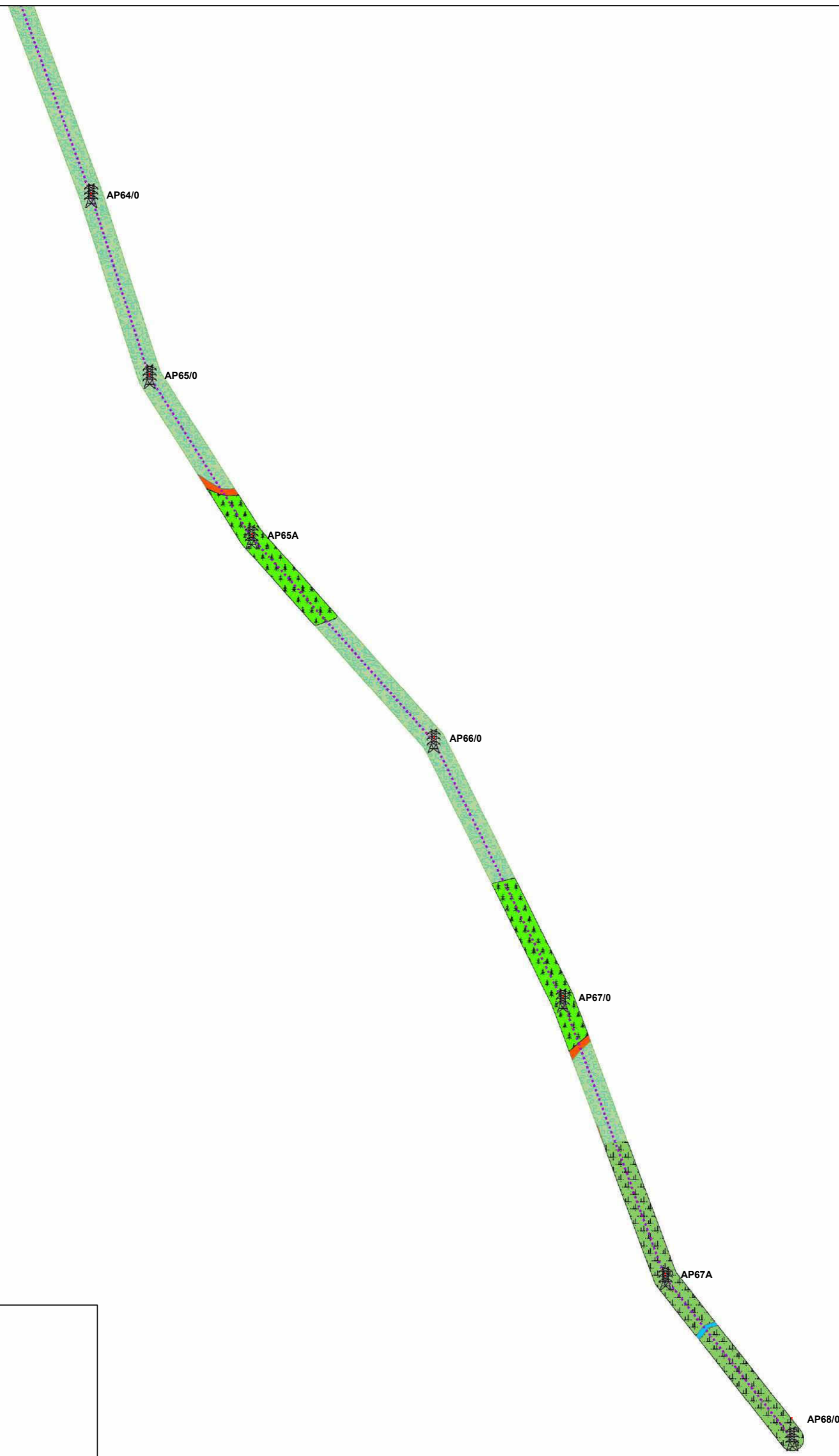


**Legend**

|  |                          |
|--|--------------------------|
|  | Electric Pole            |
|  | Electric Line            |
|  | Bamboo Forest            |
|  | Barren /Waste Land       |
|  | Cart Track               |
|  | Drain/Nala               |
|  | Forest Plantation(Segun) |
|  | Grazing Land             |
|  | Open Forest              |
|  | Play Ground              |
|  | Road                     |
|  | Vacant Land              |



**LAND USE/LAND COVER DETAILS OF LUNGSEN - CHAWNGTE 132 KV POWER TRANSMISSION LINE**  
**CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)**  
**PREPARED BY GREEN CIRCLE INC,**



**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land



**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land



**Legend**

|  |                          |
|--|--------------------------|
|  | Electric Pole            |
|  | Electric Line            |
|  | Agriculture Land         |
|  | Bamboo Forest            |
|  | Barren/Waste Land        |
|  | Cart Track               |
|  | Drain/Nala               |
|  | Forest Plantation(Segun) |
|  | Open Forest              |
|  | Open Hilly Forest        |
|  | Pond/Lake                |
|  | River                    |
|  | Road                     |
|  | Vacant Land              |





! AP-24A/0

! AP-24B/0

! AP-24C/0

! AP-25/0



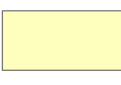
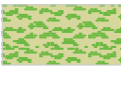







! AP-26/0

! AP-26A/0

Common Seal



**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land
- 



AP-27/0

*Maniben*

AP-28A/0

AP-29/0

AP-29A/0

AP-29B/0

*Dubey*

AP-33B/0

AP-34/0

**Legend**



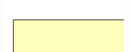








-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land
- 



LAND USE/LAND COVER DETAILS OF CHAWNGTE - SOUTH BUNGLANG 132 KV TRANSMISSION LINE  
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP PROJECT) PREPARED BY  
GREEN CIRCLE INC,



**Leg**



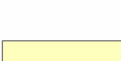




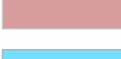







-  Transmission Tower
-  Dotted Line
-  Vacant Land
-  Forest Plantation (Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Cart Track
-  Drain/Nala

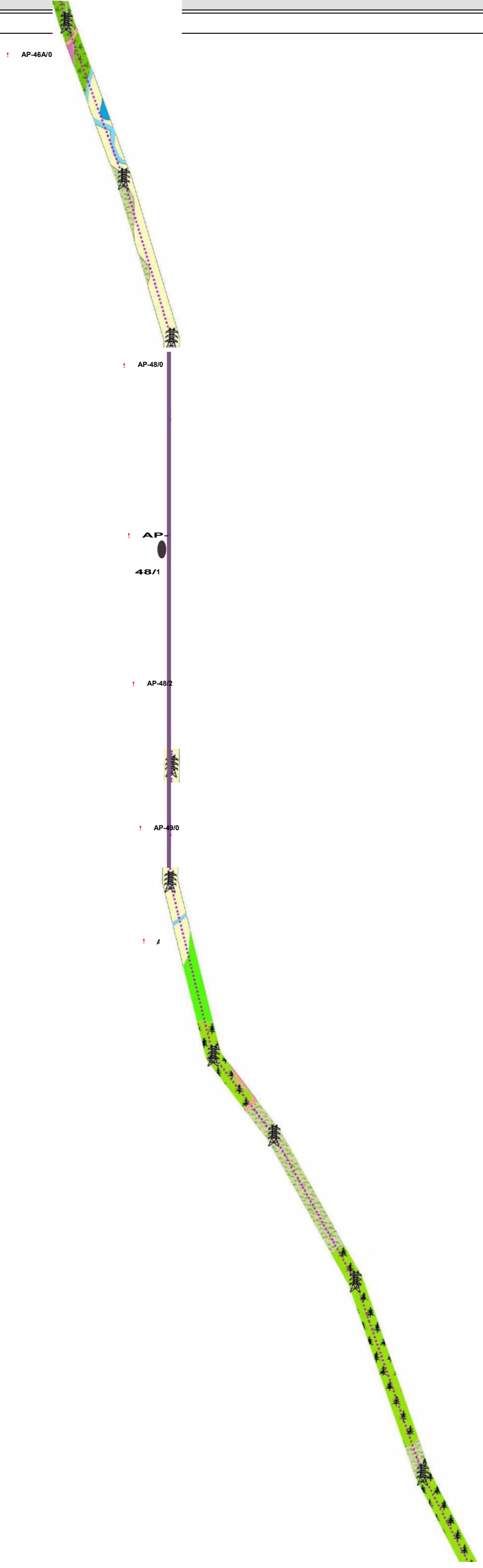
! AP-39/0

! AP-40/0














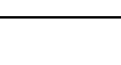


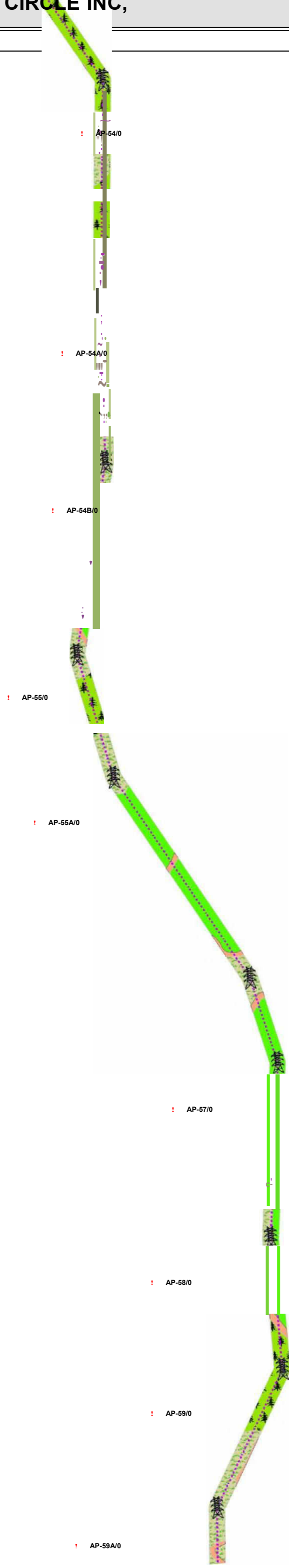
**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land
- 



**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land



**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land



**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land





! AP-65A/0

! AP-66/0

! AP-67/0

! AP-68/0

! AP-69/0

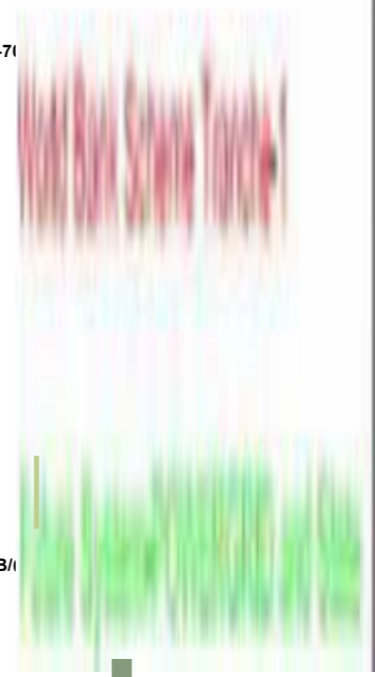
! AP-71

! AP-70B/0

! AP-70C/0

**Legend**

|  |                          |
|--|--------------------------|
|  | Electric Pole            |
|  | Electric Line            |
|  | Agriculture Land         |
|  | Bamboo Forest            |
|  | Barren/Waste Land        |
|  | Cart Track               |
|  | Drain/Nala               |
|  | Forest Plantation(Segun) |
|  | Open Forest              |
|  | Open Hilly Forest        |
|  | Pond/Lake                |
|  | River                    |
|  | Road                     |
|  | Vacant Land              |
|  |                          |



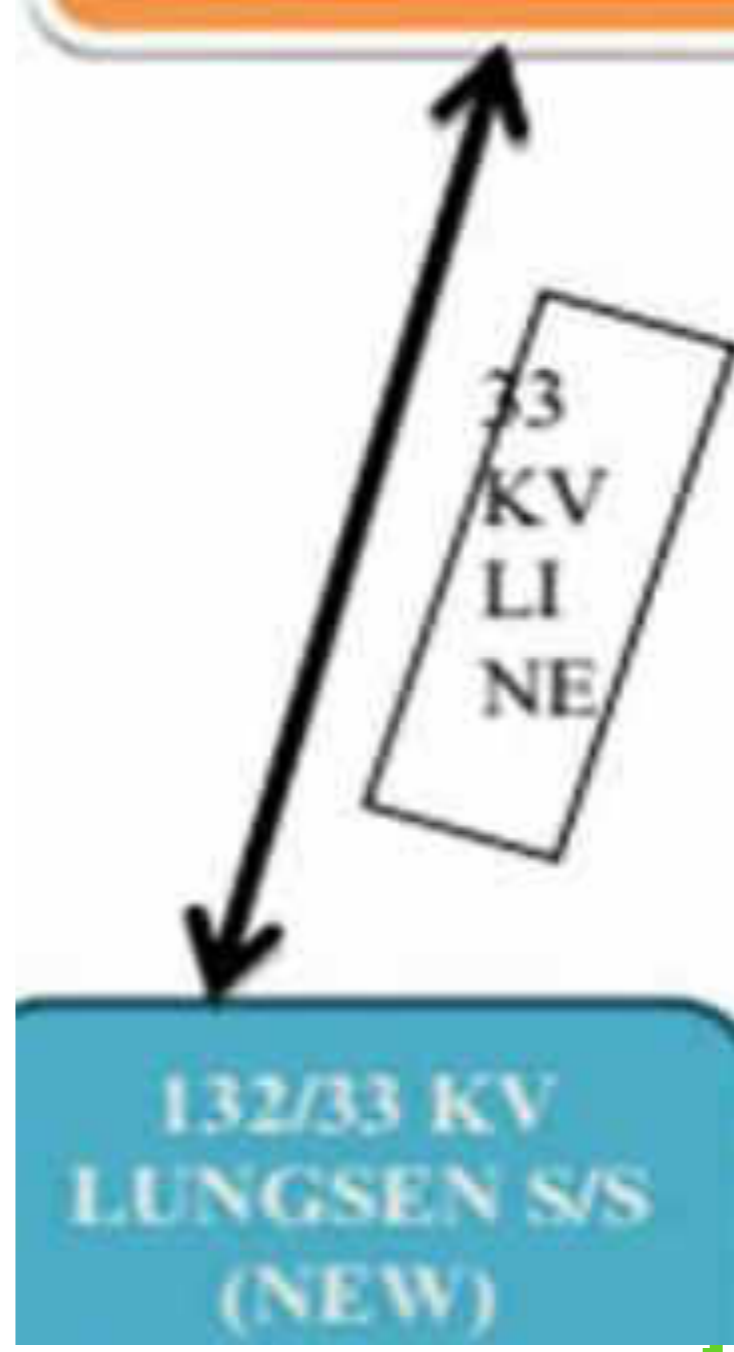


AP-71/0




AP-71A/0

AP-71B/0

AP-71C/0



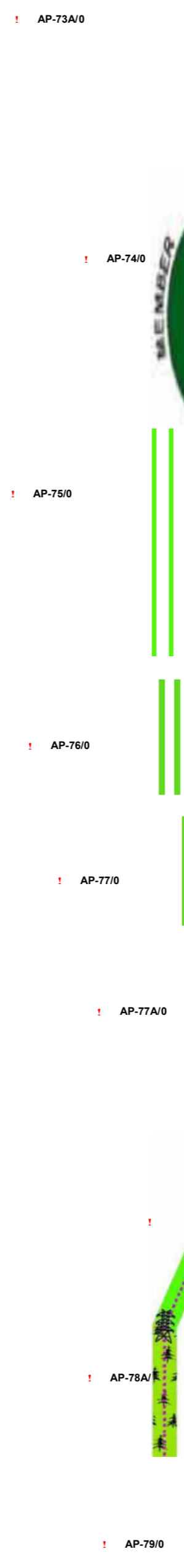
**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land

AP-73/0

AP-74/0

AP-75/0



**Legend**

-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land













# Appendix

# 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<br>Typic Dystrachrepts<br>Fine loamy      |
|           | Associated with: Deep to very deep, well drained, fine loamy soils on steeply sloping ridges with severe erosion hazard                                                                              | Typic Dystrachrepts                                      |
| 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<br>Typic Udorthents<br>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 Dystrachrepts                                      |
| 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<br>Typic Dystrachrepts<br>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<br>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<br>Typic Hapludults<br>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 Dystrachrepts                                     |
| 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<br>Typic Udorthents<br>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 Dystrachrepts<br>Fine Loamy<br>Typic Dystrachrepts |
| 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<br>Typic Dystrachrepts<br>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<br>Fine loamy<br>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<br>Typic Dystrachrepts<br>Fragmental lithic   |
|           | Associated with: shallow, well drained, fragmental soils very steeply sloping parallel ridges, with severe erosion hazard and severe stoniness                                                       | Udorthents<br>Fine loamy<br>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<br>Typic Dystrachrepts<br>Fine loamy          |
|           | Associated with: Deep, well drained, fine loamy soils on moderately sloping side slopes of the hills with moderate erosion hazard                                                                    | Typic Haplumbrepts<br>Coarse loamy<br>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<br>Typic Dystrachrepts<br>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<br>Fine loamy<br>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<br>Typic Dystrachrepts<br>Fine loamy                   |
|           | Associated with: Deep, well drained, fine loamy soils on gently sloping side slopes with moderate erosion hazard                                                          | Typic Dystrachrepts<br>Fine loamy<br>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<br>Typic Udorthents<br>Fine Loamy                |
|           | Associated with: very Deep, well drained, fine loamy soils on moderately sloping hill top with moderate erosion hazard                                                    | Typic Haplumbrepts<br>Fine Loamy<br>Umbric Dystrachrepts    |
| 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<br>Umbric Dystrachrepts<br>Fine loamy        |
|           | Associated with: Deep, well drained, fine loamy soils moderately sloping sides slopes with moderate erosion hazard                                                        | Typic Dystrachrepts                                         |
| 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<br>Typic Udorthents Fine loamy                 |
|           | Associated with: Deep, well drained, fine loamy soils on moderately sloping hill tops with moderate erosion hazard                                                        | Umbric Dystrachrepts<br>Fine loamy<br>Typic Dystrachrepts   |
| 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<br>Typic Dystrachrepts<br>Coarse loamy                 |
|           | Associated with: Deep, somewhat excessively drained, coarse loamy soils on moderately sloping ridge tops with severe erosion hazard                                       | Typic Udorthents<br>Fine Loamy<br>Umbric Dystrachrepts      |
| 15        | Deep, well drained, fine loamy soils on moderately sloping flat topped denudation hills having clay loam surface with moderate erosion hazard                             | Fine loamy<br>Typic Kandiodalts<br>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 Dystrachrepts<br>Fine Loamy<br>Umbric Dystrachrepts   |
| 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<br>Typic Kandiodalts<br>Fine loamy               |
|           | Associated with: Deep, imperfectly drained, fine loamy soils on gently sloping hill top with moderate erosion hazard                                                      | Aquic Dystrachrepts<br>Fine<br>Typic Dystrachrepts          |
| 17        | Deep, well drained, coarse loamy soils on gently sloping low-lying residual hills having sandy loam surface with moderate erosion hazard                                  | Coarse loamy<br>Typic Dystrachrepts<br>Fine loamy           |
|           | Associated with: very Deep, well drained, fine loamy soils on moderately sloping low-lying residual hills with moderate erosion hazard                                    | Typic Hapludults<br>Clay Loamy Skeletal typic Dystrachrepts |

| 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<br>Typic Dystrochrepts<br>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<br>Fine Loamy Aquic<br>Dystrochrepts          |
| 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<br>Typic Dystrochrepts<br>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<br>Coarse loamy Typic<br>Dystrochrepts        |
| 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<br>Typic Dystrochrepts<br>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 Dystrochrepts<br>Fine loamy<br>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<br>Typic Dystrochrepts<br>Fine Loamy Aquic          |
|           | Associated with: deep to very deep, poorly or imperfectly drained, fine loamy soils with slight erosion hazard                                                                   | Dystrochrepts<br>Fine Loamy Oxyaquic<br>Dystrochrepts          |
| 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<br>Typic Dystrochrepts<br>Fine Loamy Oxyaquic       |
|           | Associated with: Deep to very deep, imperfectly drained, fine loamy soils with slight erosion hazard                                                                             | Dystrochrepts<br>Course Loamy<br>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<br>Typic Kandiodalts<br>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 Dystrochrepts<br>Course Loamy<br>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<br>Dystrochrepts                           |
|           | Associated with: very deep, poorly drained, fine loamy soils with slight erosion hazard                                                                                          | Fine Loamy<br>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<br>Typic Kandiodalts<br>Fine loamy                  |
|           | Associated with: very deep, poorly drained, fine loamy soils on gently sloping low mounds with moderate erosion hazard                                                           | Umbric Dystrochrepts<br>Fine Loamy<br>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<br>Typic Dystrochrepts<br>Fine Loamy Aquic                |
|           | Associated with: very deep, imperfectly drained, fine loamy soils on very gently sloping narrow interhall valleys with slight erosion hazard                                     | Dystrochrepts<br>Fine Loamy Typic<br>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<br>Typic Haplumbrepts<br>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<br>Umbric Haplumbrepts<br>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<br>Typic Dystrochrepts<br>Coarse loamy<br>Typic Dystrochrepts<br>Fine loamy<br>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<br>Typic Dystrochrepts<br>Coarse loamy<br>Typic Dystrochrepts<br>Coarse loamy<br>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<br>Typic Dystrochrepts<br>Coarse loamy<br>Typic Dystrochrepts<br>Coarse loamy<br>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<br>Aquic Udorthents<br>Fine loamy<br>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<br>Aeric Dystrochrepts<br>Fine loamy<br>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<br>Aquic Dystrochrepts<br>Coarse loamy<br>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<br>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 Aerice Epiaquepts<br>Fine 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                              | Sandy Over Loamy Typic Epiaquepts                                                                                         |
| 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<br>Aquic Dystrachrepts<br>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<br>Aerice Epiaquepts<br>Fine Loamy Aquic<br>Dystrachrepts<br>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<br>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<br>Fine Loamy<br>Typic Epiaquepts<br>Coarse loamy over Sandy<br>Typic Fluvaquentic<br>Dystrachrepts |
|           | 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<br>Aquic Dystrachrepts<br>Fine Oxyaquic<br>Dystrachrepts<br>Fine<br>Aquic Dystrachrepts                              |
|           | 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<br>Typic Epiaquepts<br>Fine Loamy<br>Aerice 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<br>Typic Haplumbrepts<br>Fine Loamy<br>Pachic Haplumbrepts<br>Fine<br>Typic Dystrachrepts                      |
|           | 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             | Cesalpiniaceae   | Least concern |
| <i>Beilschmedia roxburghiana</i> | Khuang hlang      | Lauraceae        | Not assessed  |
| <i>Betula cylindrostachya</i>    | Hriang- zau       | Betulaceae       | 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>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>Emblca officinalis</i>        | Sun hlu           | Euphorbiaceae    | Not assessed  |
| <i>Erythrina variegata</i>       | Fartuah           | Fabaceae         | Least concern |
| <i>Eurya cerasifolia</i>         | Sihneh            | Theaceae         | Not assessed  |
| <i>Eurya japonica</i>            | Sihneh            | Theaceae         | Not assessed  |
| <i>Ficus auriculata</i>          | Theibal           | Moraceae         | Not assessed  |
| <i>Ficus elastica</i>            | Thialret          | Moraceae         | Not assessed  |

| <b>Name of the Species</b>       | <b>Common Name</b>          | <b>Family</b>          | <b>IUCN Status</b>  |
|----------------------------------|-----------------------------|------------------------|---------------------|
| <i>Ficus hirta</i>               | <i>Sazutheipui</i>          | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Ficus hispida</i>             | <i>Paihtemaian</i>          | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Ficus racemose</i>            | <i>Chhohe</i>               | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Ficus semicordata</i>         | <i>Theipui</i>              | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Gmelina arborea</i>           | <i>Thlanvawng</i>           | <i>Verbenaceae</i>     | <i>Not assessed</i> |
| <i>Gmelina oblongifolia</i>      | <i>Vawngthla</i>            | <i>Verbenaceae</i>     | <i>Not assessed</i> |
| <i>Grewia laevigata</i>          | <i>Varitabelkang</i>        | <i>Tiliaceae</i>       | <i>Not assessed</i> |
| <i>Heteropanax fragrans</i>      | <i>Changkhen</i>            | <i>Araliaceae</i>      | <i>Not assessed</i> |
| <i>Knema linifolia</i>           | <i>Thingthi</i>             | <i>Myristicaceae</i>   | <i>Not assessed</i> |
| <i>Ligustrum robustum</i>        | <i>Chawmzil</i>             | <i>Oleaceae</i>        | <i>Not assessed</i> |
| <i>Macaranga indica</i>          | <i>Hnahkhar</i>             | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Macaranga peltata</i>         | <i>Kharduap</i>             | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Macaranga pustulata</i>       | <i>Hnahkharpa</i>           | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Mallotus paniculatus</i>      | <i>Khar-pa</i>              | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Mangifera indica</i>          | <i>Theihai</i>              | <i>Anacardiaceae</i>   | <i>Not assessed</i> |
| <i>Manihot esculenta</i>         | <i>Pangbal</i>              | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Mesua ferraе</i>              | <i>Herhse</i>               | <i>Guttiferae</i>      | <i>Not assessed</i> |
| <i>Michelia champaca</i>         | <i>Ngiau</i>                | <i>Magnoliaceae</i>    | <i>Not assessed</i> |
| <i>Oroxylum indicum</i>          | <i>Archangkawm</i>          | <i>Bignoniaceae</i>    | <i>Not assessed</i> |
| <i>Parkia timoriana</i>          | <i>Zawngtah</i>             | <i>Mimosaceae</i>      | <i>Not assessed</i> |
| <i>Persea villosa</i>            | <i>Bul bawn</i>             | <i>Lauraceae</i>       | <i>Not assessed</i> |
| <i>Phoebe hainesiana</i>         | <i>Bul-eng</i>              | <i>Lauraceae</i>       | <i>Not assessed</i> |
| <i>Protium serratum</i>          | <i>Bil</i>                  | <i>Burseraceae</i>     | <i>Not assessed</i> |
| <i>Rhus semialata</i>            | <i>Khawm hma</i>            | <i>Anacardiaceae</i>   | <i>Not assessed</i> |
| <i>Sapium baccatum</i>           | <i>Thing vak pui</i>        | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Sapium eugeniaefolium</i>     | <i>Thingvawkpuikungm am</i> | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Saraca asoca</i>              | <i>Mual hawih</i>           | <i>Caesalpiniaceae</i> | <i>Not assessed</i> |
| <i>Schima wallichii</i>          | <i>Khiang</i>               | <i>Theaceae</i>        | <i>Not assessed</i> |
| <i>Securinega virosa</i>         | <i>Sai siak</i>             | <i>Phyllanthaceae</i>  | <i>Not assessed</i> |
| <i>Spondias pinata</i>           | <i>Tawitaw</i>              | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Sterculia alata</i>           | <i>Thing van dawt</i>       | <i>Sterculiaceae</i>   | <i>Not assessed</i> |
| <i>Sterculia urens</i>           | <i>Pang khau</i>            | <i>Sterculiaceae</i>   | <i>Not assessed</i> |
| <i>Sterculia villosa</i>         | <i>Khaupui</i>              | <i>Sterculiaceae</i>   | <i>Not assessed</i> |
| <i>Stereospermum chelonoides</i> | <i>Zihngal</i>              | <i>Bignoniaceae</i>    | <i>Not assessed</i> |
| <i>Syzygium clariflorum</i>      | <i>Pichilimim</i>           | <i>Myrtaceae</i>       | <i>Not assessed</i> |
| <i>Syzygium cumini</i>           | <i>Lenhmui</i>              | <i>Myrtaceae</i>       | <i>Not assessed</i> |
| <i>Tectona grandis</i>           | <i>Tlawr</i>                | <i>Verbenaceae</i>     | <i>Not assessed</i> |
| <i>Terminalia myriocarpa</i>     | <i>Char</i>                 | <i>Combretaceae</i>    | <i>Not assessed</i> |
| <i>Tetrameles nudiflora</i>      | <i>Thingdawl</i>            | <i>Datisceae</i>       | <i>Lower risk</i>   |
| <i>Toona ciliata</i>             | <i>Teipui</i>               | <i>Meliaceae</i>       | <i>Lower risk</i>   |
| <i>Trema orientalis</i>          | <i>Belphuar</i>             | <i>Cannabaceae</i>     | <i>Not assessed</i> |
| <i>Vitex peduncularis</i>        | <i>Thing khawi lu</i>       | <i>Verenaceae</i>      | <i>Not assessed</i> |
| <i>Wendlandia budleioides</i>    | <i>Batling</i>              | <i>Rubiaceae</i>       | <i>Not assessed</i> |

## 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>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>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>Anisochilus pallidus</i>        | Phunglengser             | Lamiaceae       | Not assessed | Herb    |
| <i>Argyrea 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 stipularis</i>         | Hrui-phak-tel            | Euphorbiaceae   | Not assessed | Shrub   |
| <i>Bridelia tomentosa</i>          | Se-be-hliang             | Euphorbiaceae   | Not assessed | Shrub   |
| <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>Clausena excavate</i>           | Arpa-sen-til             | Rutaceae        | Not assessed | Shrub   |
| <i>Clerodendroninfortunatum</i>    | Phui-hnam-chhia          | Verbenaceae     | Not assessed | Shrub   |
| <i>Codariocalyx gyroides</i>       | Hmei-thai-sa-rawh-t      | Fabaceae        | Not assessed | Shrub   |
| <i>Colebrookianaoppositifolia</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>Crassocephalumcrepidioides</i>  | Buar-thau                | Asteraceae      | Not assessed | Herb    |
| <i>Crotalaria micans</i>           | Di-ral                   | Fabaceae        | Not assessed | Shrub   |
| <i>Daemonoropsjenkinsiana</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>Dendrobiumtriangulare</i>       | Se-be-hliang             | Fabaceae        | Not assessed | Shrub   |
| <i>Dioscorea alata</i>             | Ba-chhim                 | Dioscoriaceae   | Not assessed | Climber |
| <i>Dioscorea glabra</i>            | Hra-kai                  | Dioscoriaceae   | Not assessed | Climber |
| <i>Dioscorea hispida</i>           | li-liam                  | Dioscoriaceae   | Not assessed | Climber |
| <i>Dioscorea pentaphylla</i>       | Vawk-pui-ba-hra          | Dioscoriaceae   | 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 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   |

| <b>Name of the Species</b>        | <b>Common</b>       | <b>Family</b>  | <b>IUCN Status</b>  | <b>Remarks</b> |
|-----------------------------------|---------------------|----------------|---------------------|----------------|
| <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>Rhododendronjohnstonanum</i>   | Chhawkhelei-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>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>        | <b>Hmunphiah</b>    | <b>Poaceae</b> | <b>Not assessed</b> | Grass          |

### 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>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>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>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

| Common Name                    | Scientific Name                  | IUCN Status     |
|--------------------------------|----------------------------------|-----------------|
| White cheeked Partridge        | <i>Arborophila atrogularis</i>   | Near Threatened |
| Mountain bamboo Partridge      | <i>Bambusicola fytchii</i>       | Least Concern   |
| Red jungle fowl                | <i>Gallus gallus</i>             | Least Concern   |
| Striated heron                 | <i>Butorides stariata</i>        | Least Concern   |
| Cattle egret                   | <i>Bubulcus ibis</i>             | Least Concern   |
| Mountain hawk eagle            | <i>Nisaetus nipalensis</i>       | Least Concern   |
| Spotted dove                   | <i>Streptopelia chinensis</i>    | Least Concern   |
| Ashy-headed green pigeon       | <i>Treron phayei</i>             | Near Threatened |
| Wedge tailed green pigeon      | <i>Treron sphennurus</i>         | Least Concern   |
| Mountain scops owl             | <i>Otus spilocephalus</i>        | Least Concern   |
| Oriental scops owl             | <i>Otus sunia</i>                | Least Concern   |
| Silver backed Needle tail      | <i>Hirundapus cochinchii</i>     | Least Concern   |
| House swift                    | <i>Apus nipalensis</i>           | Least Concern   |
| Great hornbill                 | <i>Buceros bicornis</i>          | Near Threatened |
| Wreathed hornbill              | <i>Aceros undulatus</i>          | Least Concern   |
| Great barbet                   | <i>Megalaima virens</i>          | Least Concern   |
| Grey capped woodpecker         | <i>Dendrocopos canicapillus</i>  | Least Concern   |
| Rufous woodpecker              | <i>Celeus brachyurus</i>         | Least Concern   |
| Pied falconet                  | <i>Microhierax melanoleucos</i>  | Least Concern   |
| Eurasian kestrel               | <i>Falco tinnunculus</i>         | Least Concern   |
| Large woodshrike               | <i>Tephrodornis gularis</i>      | Least Concern   |
| Short billed minivet           | <i>Pericrocotus brevirostris</i> | Least Concern   |
| Scarlet minivet                | <i>Pericrocotus speciosus</i>    | Least Concern   |
| Grey backed shrike             | <i>Lanius tephonotus</i>         | Least Concern   |
| Black hooded oriole            | <i>Oriolus xanthornus</i>        | Least Concern   |
| Ashy drongo                    | <i>Dicrurus leucophaeus</i>      | Least Concern   |
| Crow billed Drongo             | <i>Dicrurus annectans</i>        | Least Concern   |
| Black naped Monarch            | <i>Hypothymis azurea</i>         | Least Concern   |
| Common green magpie            | <i>Cissa chinensis</i>           | Least Concern   |
| Large billed crow              | <i>Corvus macrorhynchos</i>      | Least Concern   |
| Grey headed canary- Flycatcher | <i>Culicipa ceylonensis</i>      | Least Concern   |
| Black crested bulbul           | <i>Pycnonotus flaviventris</i>   | Least Concern   |
| Red vented bulbul cupwing      | <i>Pycnonotus cafer</i>          | Least Concern   |
| Scaly breasted/pygmy           | <i>Pnoepyga albiventer</i>       | Least Concern   |
| Grey billed Tesia              | <i>Tesia cyaniventer</i>         | Least Concern   |
| Slaty bellied tesia            | <i>Tesia olivea</i>              | Least Concern   |
| Yellow bellied warbler         | <i>Abroscopus superciliaris</i>  | Least Concern   |
| Black faced warbler            | <i>Abroscopus schisticeps</i>    | Least Concern   |
| Yellow brown/Hume's Warbler    | <i>Phylloscopus inornatus</i>    | Least Concern   |
| Eastern crowned leaf warbler   | <i>Phylloscopus trochiloides</i> | Least Concern   |
| Golden spectacled warbler      | <i>Seicurus burkii</i>           | Least Concern   |
| Blyth's reed warbler           | <i>Acrocephalus dumoteum</i>     | Least Concern   |
| Wastern crowned warbler        | <i>Phylloscopus occipitalis</i>  | Least Concern   |
| Thick billed warbler           | <i>Phragmaticola aedon</i>       | Least Concern   |
| Common tailorbird              | <i>Orthotomus sutorius</i>       | Least Concern   |
| Refescent prina                | <i>Prinia rufescens</i>          | Least Concern   |

|                                |                                 |               |
|--------------------------------|---------------------------------|---------------|
| Oriental white eye             | <i>Zosteropus palpebrosus</i>   | Least Concern |
| Pin striped tit Babbler        | <i>Mixornis gularis</i>         | Least Concern |
| Rufous-fronted Babbler         | <i>Cyanordema rufifrons</i>     | Least Concern |
| White browed Scimitar- Babbler | <i>Pomatorhinus schisticeps</i> | Least Concern |
| Siberian rubythroat            | <i>Calliope calliope</i>        | Least Concern |
| Little pied flycatcher         | <i>Ficedula westermanni</i>     | Least Concern |
| Rufous gorgeted flycatcher     | <i>Ficedula strophata</i>       | Least Concern |
| Plain flowerpecker             | <i>Dicaeum minullum</i>         | Least Concern |
| Ruby cheeked sunbird           | <i>Chalcoparis singalensis</i>  | Least Concern |
| Little spiderhunter            | <i>Arachnothera longirostra</i> | Least Concern |
| Streaked spiderhunter          | <i>Arachnothera magna</i>       | Least Concern |
| Grey wagtail                   | <i>Motacilla cinerea</i>        | Least Concern |
| Forest wagtail                 | <i>Dendronanthus indicus</i>    | Least Concern |
| Eurasian tree sparrow          | <i>Passer montanus</i>          | Least Concern |
| Black stork                    | <i>Ciconia nigra</i>            | Least Concern |
| Himalyan bluetail              | <i>Tarsiger cyanurus</i>        | Least Concern |

## 5. Identified Mammals in Sampling Area

| Mammals | Common Name            | Scientific Name              | Vernacular Name | IUCN status    |
|---------|------------------------|------------------------------|-----------------|----------------|
|         | Western Hoolock gibbon | <i>Hoolock hoolock</i>       | Hauhuk          | Endangered     |
|         | Assamese macaque       | <i>Macaca assamensis</i>     | Zo/Khan Zawng   | Not Threatened |
|         | Stump tailed macaque   | <i>Macaca arctiodes</i>      | Zawnghmaisen    | Vulnerable     |
|         | Flying fox             | <i>Pteropus giganteus</i>    | Not known       | Least Concern  |
|         | Rat-headed bat         | <i>Tylonycteris pachypus</i> | Not known       | Least Concern  |
|         | House rat              | <i>Rattus rattus</i>         | Not known       | Least Concern  |
|         | House-mouse            | <i>Mus musculus</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          |
|--------------|----------------|-----------------------------|----------------------|
| <b>Frogs</b> | Bufonidae      | <i>Bufo melanostictus</i>   | <b>Least Concern</b> |
|              | Megophryidae   | <i>Xenophrys parva</i>      | Least Concern        |
|              | Ranidae        | <i>Amolops marmoratus</i>   | Least Concern        |
|              | <b>Ranidae</b> | <b><i>Rana danielli</i></b> | Least Concern        |

## 7. Identified Reptiles in Sampling Area

|         | Family     | Scientific Name              | IUCN Status   |
|---------|------------|------------------------------|---------------|
| Lizards | Agamidae   | <i>Draco sp.</i>             | Least Concern |
|         | Agamidae   | <i>Draco maculatus</i>       | Least Concern |
|         | Agamidae   | <i>Ptyctolaemus gularis</i>  | Not assessed  |
|         | Gekkonidae | <i>Gekko gekko</i>           | Not assessed  |
| Snakes  | Colubridae | <i>Amphiesma xenura</i>      | Not assessed  |
|         |            | <i>Xenochrophis piscator</i> | Not assessed  |
|         | Elapidae   | <i>Bungarus fasciatus</i>    | Least Concern |

## 8. Identified Butterflies in Sampling Area

| Family                          | Scientific Name              | Common Name             | IUCN Status  |
|---------------------------------|------------------------------|-------------------------|--------------|
| <b>Butterflies Papilionidae</b> | <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>Papilio castor</i>        | Common mime             | Not assessed |
|                                 | <i>Papilio nephelus</i>      | Yellow helen            | Not assessed |
|                                 | <i>Byasa dasarada</i>        | Great windmill          | Not assessed |
| <b>Pieridae</b>                 | <i>Catopsilia pyranthe</i>   | Mottled emigrant        | Not assessed |
|                                 | <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>Gandaca harina</i>        | Tree yellow             | Not assessed |
|                                 | <i>Pieris canidia</i>        | Asian cabbage white     | Not assessed |
| <b>Nymphalidae</b>              | <i>Apatura ambica</i>        | Indian purple emperor   | Not assessed |
|                                 | <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>Paranoia aglea</i>        | Glassy tiger            | Not assessed |
| <b>Hesperiidae</b>              | <i>Iton semamura</i>         | Common wight            | Not assessed |
|                                 | <i>Odontoptilum angulata</i> | Chestnut angle          | Not assessed |
|                                 | <i>Hasora vita</i>           | <b>Plain banded awl</b> | Not assessed |



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Appendix B**

### **Public Consultation**



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 hmahlir 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, Lungsen - Chawngte leh Chawngte - S.Bungtlang 132 kV line(charged at 33kV) siam te hi telh an ni a. Heng 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 laiin ruahmanna siam fel vek a ni.

Mizoram state-a North Eastern Power System Improvement Project (NERPSIP) kan hman hian ram leh hnam ngeinghehna 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 & ELECTRICITY DEPARTMENT : GOVT. OF MIZORAM**

Mizoram :: Aizawl : 796 007

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Er. Lianghinglova Pachuau  
Engineer-in-Chief, P & E Deptt.  
Mizoram, Aizawl



Photographs of Public Consultation held at Lungsen on 11<sup>th</sup> Sept.'2014







PUBLIC CONSULTATION MEETING

Venue: LON Cr. S' C,...

Date: 11/09/2014

(14)

ATTENDANCE

| st. No. | Name                                                                                | Signature                                                                             |
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Cont to P/2











Photographs of Public Consultation held at South Bungtlang on 9<sup>th</sup> Sept'2014




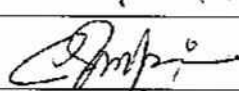


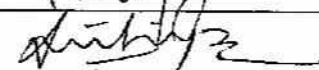
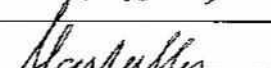
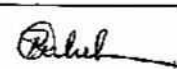
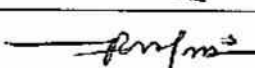
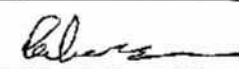
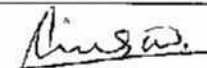
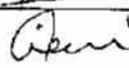








## ATTENDANCE

| Sl.No. | Name             | Signature                                                                             |
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|        | Pi. Tiala xem    | ngari / 9/9/14                                                                        |
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| 4.     | K. Chhandama     | M. Dany                                                                               |
| 5.     | H. Lalumana      |    |
| 6.     | Tazani           | Tazani                                                                                |
| 7.     | C. Saldamphans   |    |
| 8.     | K. Lathmenthanga |    |
| 9.     | Kalbiakhua       |   |
| 10.    | Me. Lalringhela  |  |
| 11     | Lalbiak khums    | Khums                                                                                 |
| 12.    | Vaulalwa         |  |
| 13.    | H. Lalrongika    |  |
| 14.    | H. Lalawmpua     |  |
| 15.    | M. Lalromansa    | M. Lalromansa                                                                         |
|        | J. Lalrimuana    |  |
|        | H. Singkhums     |  |
|        | C. Lalriminghian |  |
|        | Suniansi         |                                                                                       |
| -      | H. Lalromangari  | ngari                                                                                 |

Cont to P/2



**OFFICE OF THE ENGINEER -IN-CHIEF**  
**POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM**  
**MIZORAM: AIZAWL: 796007**

**Minutes / proceedings of Public consultation held on 11<sup>th</sup> September, 2014 at LUNGSEN, Lunglei District, Mizoram under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram**

**Subject** - Construction of 132 KV S/C LUNGSEN ---CHWANGTE Transmission Line and associated 33 KV distribution line (From 132 KV Lungsen (new) S/s to existing 33 KV Lungsen S/s) under the scope of NERPSIP in Lunglei & Longlhai Districts of 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:** - *Young Mizo Association (YMA) Community Hall, Lungsen*

Pu Otto K. Lalchhuanawma, SDO, Power & Electricity Department, Lungsen 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 humalakna thawhpua 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 sawifahin, Mizoram chhunga he project kalphung leh nihdan te sawizauna a han nei a. He 132kV S/C(on D/C Tower) Lungsen -Chwangte Transmission line hi electric line lo awm rawh sare tihchangtlun nana ruahman anih thu te a han sawi chho zel a. Tin, 132 kV Sub-Station,Lungsen siam thar tur atangin 33kV line Lungsen Sub-Station lo awmsa chu thlunzawm ani anga, power semdarhna tihchangtlun nan leh Lungsen 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 crawh chuan, zawngnadawmna felfai tak, dan hnuuia 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 bawh 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.

Lungsen SDO chuan he electric kawng tur hi ruahman chhin phawt anih thu leh nakinah survey kimchang neih anih leh hnu ah he line ina mimal ram a brut 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, Executive Engineer, ungsen 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 Deppt., Lungsen

**OFFICE OF THE ENGINEER –IN-CHIEF**  
**POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM**  
**MIZORAM: AIZAWL: 796007**

**Minutes / proceedings of Public consultation held on 9<sup>th</sup> September,  
2014 at BUNGLANG SOUTH, Lawngtlai District, Mizoram under  
North Eastern Region Power System Improvement Project  
(NERPSIP) in Mizoram**

**Subject -** Construction of 132 KV S/C –CHWANGTE – S. BUNGLANG Transmission Line under the scope of NERPSIP in Longthlai District of 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, Bungtlang, South**

Pu Hamsat Chougloi, SDO, Power & Electricity Department, S. Bungtlang chuan mipui leh hotu liaute, an hun hlu tak seng a 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 thawhpua 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 sawifahin, Mizoram chhunga he project kalphung leh nihdan te sawizauna a han nei a. He 132kV S/C (on D/C Tower) Chwangte – S. Bungtlang Transmission line hi electric line lo awm rawh sate tihchangtlun nana ruahman anih thu te a han sawi chho zel 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 hrilhfahna leh thusawina hun hi a hmang ani.



Mipui lo kalkhawnte chuan zangnadawmna leh line kawng kal dan tur te an zawt chik hle a, in rawnkhawmna te neih leh zel nise an ti a.

S. Bunglang 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, lohrheihloh ah erawh chuan sawrkar dan hnuai ah fel taka zangnadawmna pek an nih tur thu te a hrilh bawka.

Ngun taka sawiho anih hnu ah mipui lo kalkhawnte 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, SDO, S. Bunglang, ungsen 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 Deppt.,  
Bunglang, South

OFFICE OF THE ENGINEER -IN-CHIEF  
POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM  
MIZORAM · AIZAWL; 796007

**Minutes / proceedings of Public consultation held on 11- September, 2014 at LUNGSEN, Lunglai District, Mizoram under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram**

**Subject -** Construction of 132 KV S/C LUNGSEN -CHW ANGTE Transmission Line and associated 33 KV distribution line (From 132 KV Lungsen (new) S/s to existing 33 KV Lungsen S/s) under the scope of NERPSIP in Lunglai & Longthlai Districts of 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: -** *Young Mizo Association (Y.M.A) Community Hall, Lungsen*

The SDO (Electrical.) Lungsen, 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 LUNGSEN to CHWANGTE is proposed to be constructed under the scheme for strengthening the existing transmission network. He also informed that from 132 KV LUNGSEN Sub-station (proposed), a 33 kV distribution line will also be constructed connecting to 33 KV existing LUNGSEN S/s for strengthening of the distribution network and end user connectivity in the Lungsen and adjoining areas. 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) LUNGSEN 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) Lungsen and also assured that all stake holder will be taken into confident during the construction.

-sd-

SDO (Elect) Lungsen

**OFFICE OF THE ENGINEER-IN-CHIEF**  
POWER AND ELECTRICITY DEPARTMENT: GOVJ. OF MIZORAM  
MIZORAM; AIZAWL; 796007

Minutes/ proceedings of Public consultation held on 9<sup>th</sup> September,  
2014 at BUNGTLANG SOUTH, Lawngtlai District, Mizoram under  
North Eastern Region Power System Improvement Project  
(NERPSIP) in Mizoram

Subject- Construction of 132 KV S/C (on D/C Tower)  
CHWANGTE - S. BUNGTLANG Transmission Line under the scope of  
NERPSIP in Longtlai District of 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 enckmd)*

Venue of the Meeting: - Village Community Hall, Bungtlang, South

The SDO (Electrical) South Bungtlang, 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 cooperate 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 DIC Tower) Transmission line connecting CHWANGTE to BUNGTLANG SOUTH is proposed to be constructed under the scheme for strengthening the existing transmission network and to improve the end user connectivity in the Chwangte, Bungtlang and adjoining areas. 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.

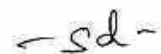
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In this regard, the SDO (Electrical) S. Bungtlang and POWERGRID representative explained that at present only a tentative route is identified for the line. However, a detail survey/check survey will be carried out before construction and accordingly 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) S. Bungtlang and also assured that all stake holder will be taken into confident during the construction.



SDO (Elect)  
Bungtlang, South





FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Appendix C**

### **TOWER SCHEDULE**





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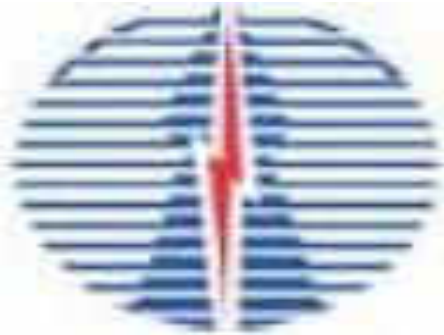
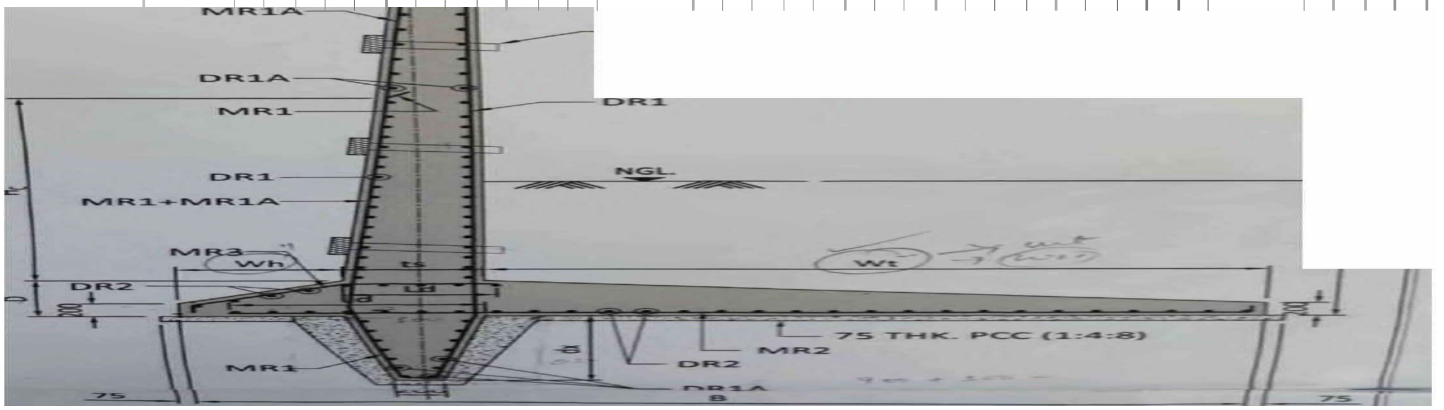






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**पावरग्रिड**  
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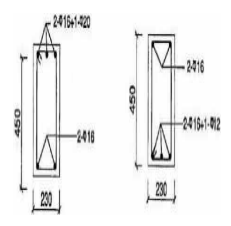
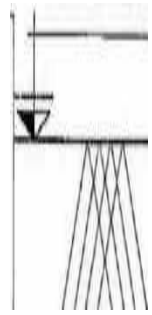
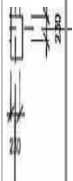
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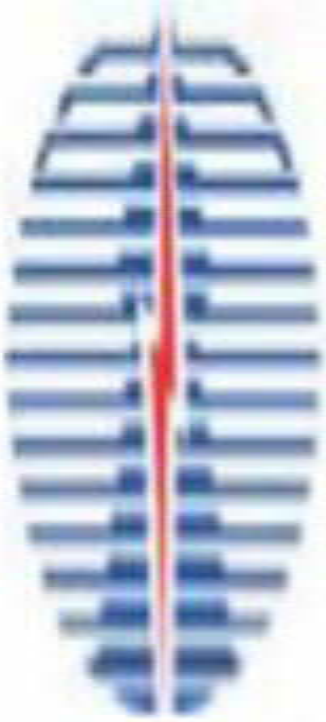
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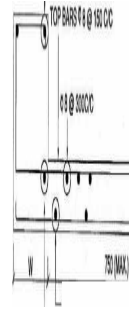


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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|

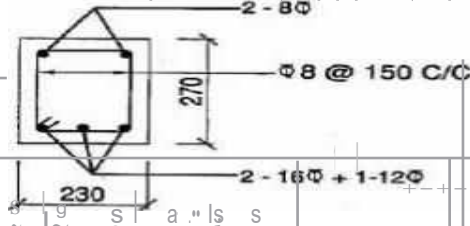




# पावरग्रिड POWERGRID



| Sl. No. | Angle          | Length (m) | Quantity | Weight (kg) |
|---------|----------------|------------|----------|-------------|
| 1       | 00°43'38" (RT) | 310        | 1        | 148         |
| 2       | 06°58'33" (RT) | 258        | 1        | 280         |
| 3       | 19°33'14" (LT) | 103        | 1        | 167         |
| 4       | 00°43'49" (LT) | 124        | 1        | 148         |
| 5       | 17°49'22" (LT) | 302        | 1        | 340         |
| 6       | 04°42'38" (LT) | 250        | 1        | 280         |
| 7       | 10°22'41" (LT) | 421        | 1        | 475         |
| 8       | 02°58'33" (LT) | 329        | 1        | 372         |
| 9       | 38°17'39" (RT) | 221        | 1        | 250         |
| 10      | 30°35'52" (RT) | 387        | 1        | 438         |
| 11      | 06°42'19" (RT) | 143        | 1        | 162         |
| 12      | 01°25'28" (LT) | 148        | 1        | 167         |
| 13      | 02°12'31" (LT) | 148        | 1        | 167         |
| 14      | 44°32'39" (RT) | 148        | 1        | 167         |
| 15      | 00°12'03" (LT) | 148        | 1        | 167         |
| 16      | 15°46'14" (RT) | 148        | 1        | 167         |
| 17      | 14°50'11" (LT) | 148        | 1        | 167         |











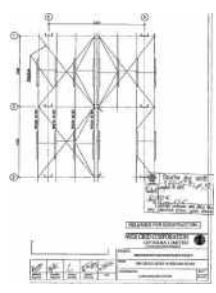






1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|







NAME OF PROJECT SUPPLY OF SERVICES CONTRACT FOR TOWER PACKAGE TWO1 ASSOCIATED WITH NER POWER SYSTEM IMPROVEMENT PROJECT (INTERSTATE MIZORAM)

- CHAWNGTE Tr.Line - TOWER SCHEDULE (AP 8K - GANTRY)

| LINE NO | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | ADJACENT SPAN |         |         | W          | CRUISING DETAILS | UTM CO-ORDINATE |          |
|---------|--------------------|----------|--------------------|---------------|---------|---------|------------|------------------|-----------------|----------|
|         |                    |          |                    | LEFT          | RIGHT   | TOTAL   |            |                  | EASTING         | NORTHING |
| 1       | 12°33'01"LT        |          |                    | 191.000       | 371.000 | 562.000 | -259.859   |                  | 463766          | 252002   |
| 2       | 03°37'33"RT        |          |                    | 371.000       | 207.000 | 578.000 | -111       | 156.389          |                 |          |
| 3       | 18°54'00"LT        |          |                    | 185.000       | 392.000 | 577.000 | -591       | 74.585           |                 |          |
| 4       | 33°49'47"LT        |          |                    | 83.000        | 268.000 | 492.7   | 49.927     | 165.427          |                 |          |
| 5       | 19°46'48"LT        |          |                    | 23.000        | 106.000 | 129.000 | -32.450    | XXX              |                 |          |
| 6       | 14°24'05"LT        |          |                    | 20.000        | 43.000  | 63.000  | SLACK SPAN | XXX              |                 |          |
| 7       | BPMMSS"            |          |                    | YY            | XX      | XX      | SLACK SPAN | XXX              |                 |          |

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| LINE NO | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | ADJACENT SPAN | W       | CRUISING DETAILS | UTM CO-ORDINATE |
|---------|--------------------|----------|--------------------|---------------|---------|------------------|-----------------|
| 1       | 12°33'01"LT        |          |                    | 191.000       | 371.000 | 562.000          | -259.859        |
| 2       | 03°37'33"RT        |          |                    | 371.000       | 207.000 | 578.000          | -111            |
| 3       | 18°54'00"LT        |          |                    | 185.000       | 392.000 | 577.000          | -591            |
| 4       | 33°49'47"LT        |          |                    | 83.000        | 268.000 | 492.7            | 49.927          |
| 5       | 19°46'48"LT        |          |                    | 23.000        | 106.000 | 129.000          | -32.450         |
| 6       | 14°24'05"LT        |          |                    | 20.000        | 43.000  | 63.000           | SLACK SPAN      |
| 7       | BPMMSS"            |          |                    | YY            | XX      | XX               | SLACK SPAN      |



# **Annexure**



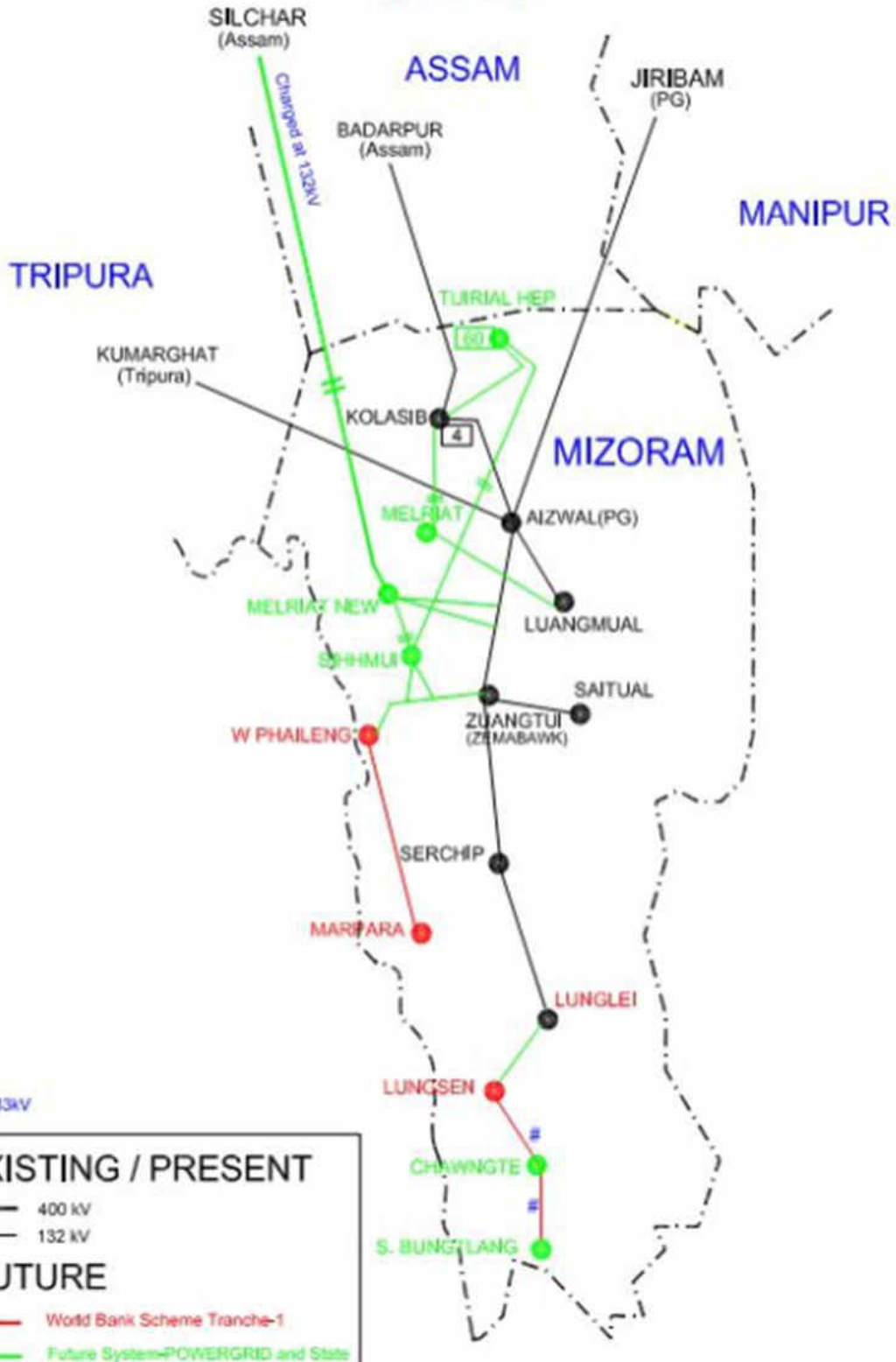
FEAR for T&D subprojects in Mammit District  
under NERPSIP in Mizoram



# Annexure 1

## Power Map of Mizoram State

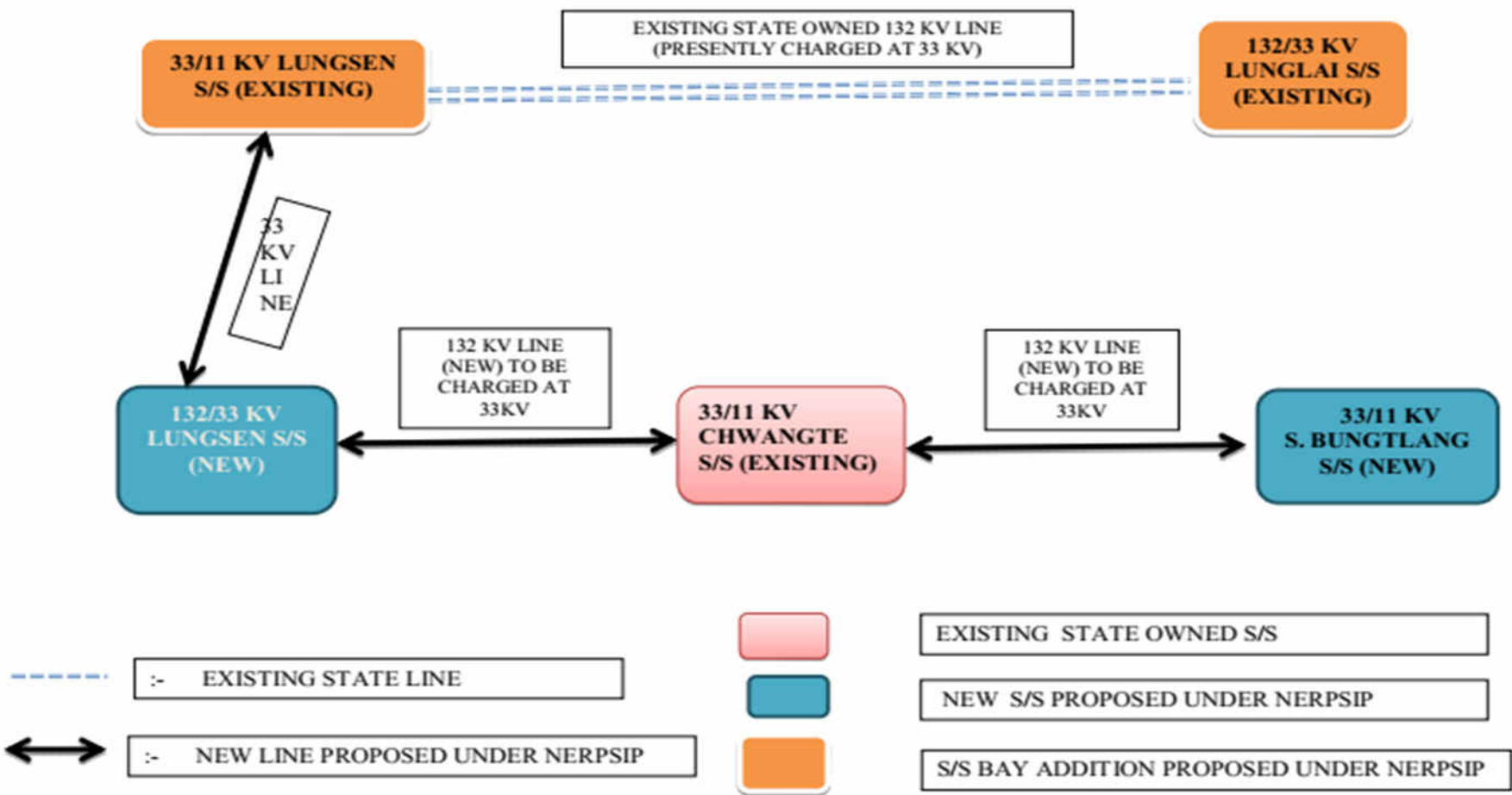
### World Bank Funded Scheme : Mizoram (Future)



**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**

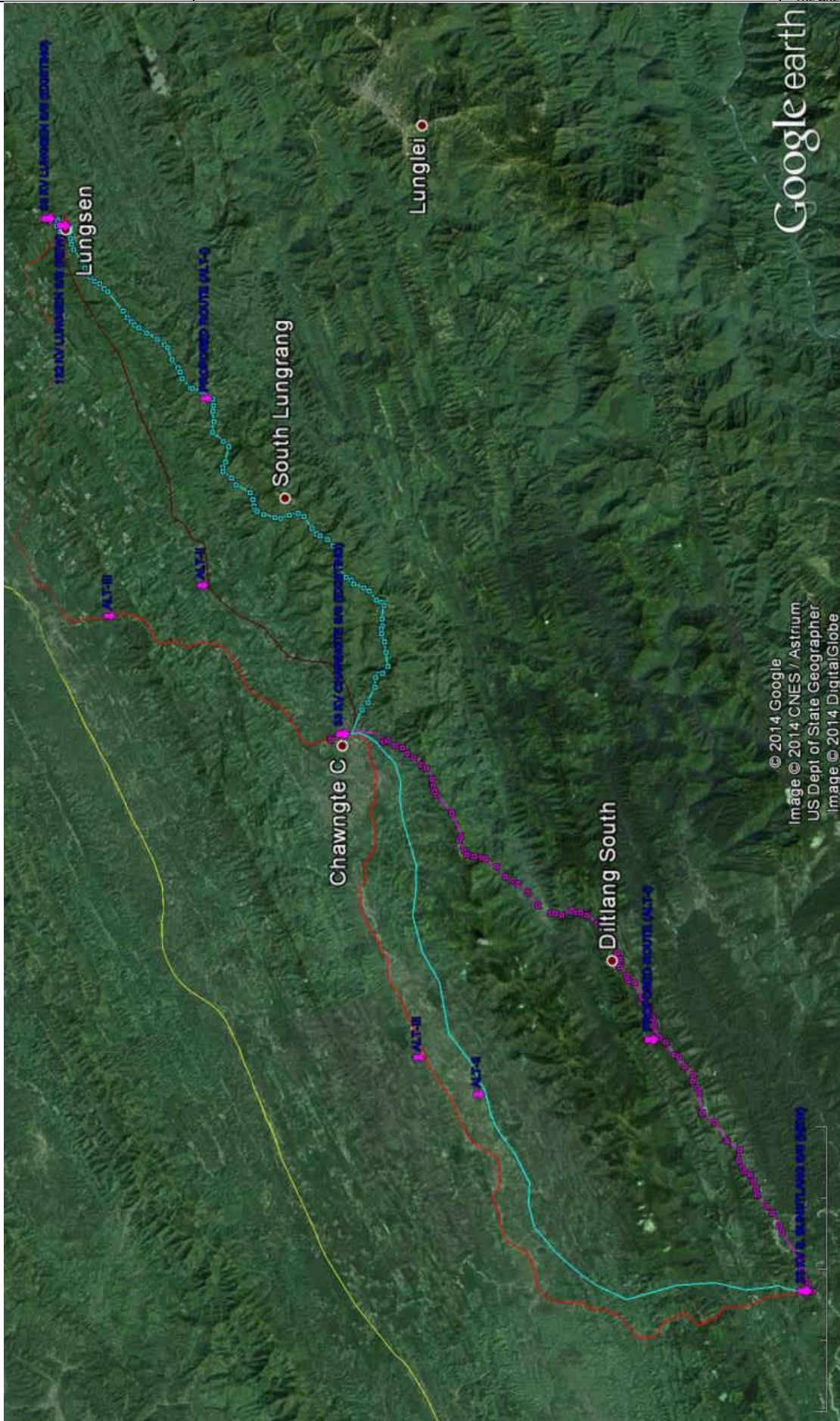


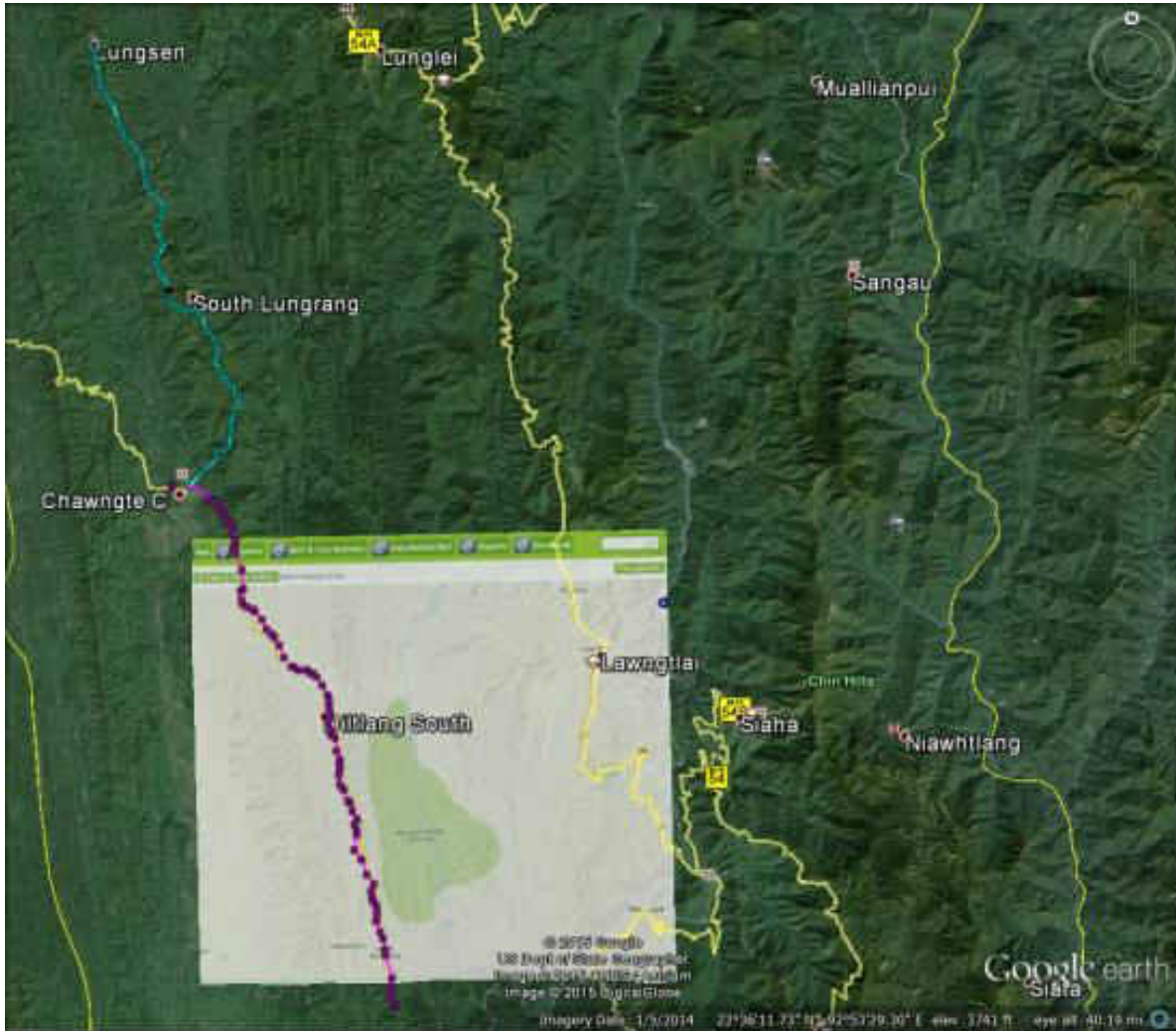
## Annexure 3

### **Alternative Analysis for 132 kV S/C (on D/C tower)**











From the comparative analysis of three alternative routes, it is evident that Alternative- I is not only shorter in length than alternative II & III but also involve less tree felling as it passes mostly through Jhum cultivated areas with low density tree cover area. Furthermore, Alternative- I is easily accessible due to its proximity to existing corridor of Lungsen-Chawngte road which is now being upgraded under scheme MSRP-II funded by World Bank. Hence, Alternative - I is considered as the most optimized route and recommended for detailed survey

From the comparative analysis of three alternative routes, it is evident that Alternative- I is not only shorter in length than alternative II & III but also involve less tree felling as it passes mostly through Jhum cultivated areas with low density tree cover area. Moreover, protected areas have been completely avoided and Ngengpui Wildlife Sanctuary is at a distance of around 0.6 km. Furthermore, Alternative- I is easily accessible due to its proximity to existing corridor of Chawngte- S. Bungtlang roads which is now being upgraded under scheme MSRP-II funded by World Bank. Hence, Alternative - I is considered as the most optimized route and recommended for detailed survey



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## Annexure 4

### Forest NOC Obtained

GOVERNMENT OF MIZORAM  
OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FOREST  
ENVIRONMENT, FORESTS & CLIMATE CHANGE DEPARTMENT  
MIZORAM ::: AIZAWL

No.B.22014/44/2014-FC/PCCF/31

Dated Aizawl the 3<sup>rd</sup> Sept, 2020

NO OBJECTION CERTIFICATE

This is to certify that the Environment, Forest & Climate Change Department, Government of Mizoram does not have any objection to carry out construction of 132 KV Chawngte - S. Bungtlang Transmission Line in Lawngtlai District since the area falls outside Reserve Forest/Department plantation as per the field verification report received from DCCF, Lai Autonomous District Council vide No. B. 13016/1/2018-LADC/efd dated 25.08.2020 with condition that no forest vegetation should be damaged during operation and along the proposed line.


(LIANDAWLA)

Principal Chief Conservator of Forest  
& Nodal Officer (FCA)

Memo No.B.22014/44/2014-FC/PCCF/31  
Copy to

Dated Aizawl the 3<sup>rd</sup> Sept, 2020

1. Conservator of Forest (SC), Lunglei, Mizoram for information.
2. District Council Conservator of Forest, Lai Autonomous District Council for information.
3. District Council Conservator of Forest, Chakma Autonomous District Council for information.
4. Divisional Forest Officer, Tlabung Forest Division for information.
5. Deputy Conservator of Forest (WL), Lawngtlai i/c Ngengpui Wild Life Sanctuary for information and record.
- ✓ 6. General Manager, NERPSIP, Powergrid Corporation of India Ltd, Tuivamit, Aizawl - 796009, Email : [nerpsip.mizoram@powergrid.co.in](mailto:nerpsip.mizoram@powergrid.co.in) for information.

  
Principal Chief Conservator of Forest  
& Nodal Officer (FCA)



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 5**

# **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 (*Aletris 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 9<sup>th</sup> 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     | Albizzia 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  
Copy to:

Dated Aizawl, the 9<sup>th</sup> Aug' 2017

- 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)



# The Mizoram Gazette

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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 8<sup>th</sup> 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 14<sup>th</sup> 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.



- 9 -

R-33/2017

No. F. 22015/1/2012-HM, the 11<sup>th</sup> 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. 25<sup>th</sup> 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 9<sup>th</sup> 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:-

| <u>Sl. No.</u> | <u>Botanical Name</u> | <u>Local name/Common name</u> |
|----------------|-----------------------|-------------------------------|
| 1              | Albizia stipulata     | Vang                          |
| 2              | Alstonia scholaris    | Devil tree/Thuamriat          |
| 3              | Anogeissus acuminata  | Yor/Zairum                    |
| 4              | Baccaurea ramiflora   | Bhooby tree/Pangkai           |
| 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      |

Impresso Tree/Impresso  
Aard Beech  
Neem/Indigo  
Zawngtal  
Khaukhim  
Charcoal tree/Impresso

Lalram Thanga,  
Principal Secretary to the Govt. of Mizoram,  
Environment, Forest & Climate Change Department.

No. A.11015/1/09-HMF, the 16<sup>th</sup> 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 14<sup>th</sup> 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 27<sup>th</sup> 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 Khojorsury 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 Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 6**

# **MoP Guidelines Dated 5<sup>th</sup> 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, 15<sup>th</sup> 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 Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 7**

**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 7<sup>th</sup> 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.



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 8**

**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 17<sup>th</sup> 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 17<sup>th</sup> 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, Lunglei 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 1<sup>st</sup> 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 1<sup>st</sup> 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 Lunglei and Mamit  
District under NERPSIP in Mizoram



## **Annexure 9**

### **POWERGRID modalities for payment of compensation for NERSIP Project in Mizoram State**

GOVERNMENT OF MIZORAM  
OFFICE OF THE ENGINEER-IN-CHIEF : POWER & ELECTRICITY DEPARTMENT  
MIZORAM: AIZAWL.

WB-6/2018-EC(PC)/SPCU/36

Dated Aizawl, the 17<sup>th</sup> 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 reference 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 17<sup>th</sup> 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 1<sup>st</sup> 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 |
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| 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 1<sup>st</sup> 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



DOC Id:- 267514



एक कदम सफलता की ओर

**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.

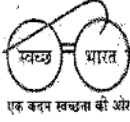
B. To explore the Compensation modality for Mizoram State, Government guidelines, Legal provisions and Prevailing practices for compensation payment in Mizoram as well as POWERGRID requirements for release of payments have been reviewed and summary of the same mentioned as below :-

- 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****(एनईआरपीएसईपी)**

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**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.<br>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.                                                                                                                                                       |

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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

| 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.<br>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.<br>Presence of local Revenue Authority is desirable for immediate verification of ownership and Khasra / Patta /Dag no. of the land.<br>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.<br>Horticulture Dept. having rates mainly for fruit-bearing trees.<br>Non-fruit bearing trees assess through Yield of timber and Rate as per State Forest Dept.<br>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 4<sup>th</sup> 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 5<sup>th</sup> 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, 7<sup>th</sup> 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<br>M   | Full<br>Powers | Land rate by DM/DC based on Circle rate/ Guideline value/ Stamp Act rates.<br>Compensation 100% of land value for area between 04 legs.<br>Deviation in determining land rate from the above required approval of ED before disbursement of Compensation. |
| b                                                                        | Corridor                   | ED/<br>GM   | Full<br>Powers | No corridor payment is proposed by P&E Dept./State Govt., Mizoram                                                                                                                                                                                         |
| c                                                                        | Tree and Crop compensation | AGM/<br>DGM | Full<br>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                                                             |

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**पावर ग्रिड कार्पोरेशन ऑफ इंडिया लिमिटेड  
एनईआरपीएसईपी, मिजोरम**


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**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                                                                                                                                                                                                                                                                                                                                                                                      |

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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.<br>TEA: Tea bush compensation as per prevailing rate of concerned Tea authority / Government.<br>FRUIT BEARING TREE: Rate of Horticulture deptt shall be used for calculation of compensation.<br>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.<br>LAND: Certified Circle rate/ Guideline value/ Stamp Act rates collected from Office of District Magistrate.<br>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.<br>Note should have Assessment sheet, Notices, Bank details duly verified from Original pass book as well as Budget status for the concern transmission system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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(एनईआरपीएसईपी)

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एक कदम सन्तान की ओर

**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 <sup>th</sup> 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

*मिजोरम*  
19/3/19

GM (ESMD)/NERPSIP/Guwahati

**NERPSIP**

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(एनईआरपीएसईपी)



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 10**

### **Details of Landowners for Land Compensation 132kV D/c TL Land Compensation Estimates for Mizoram under NERSIP Land Rates in Mizoram**

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड  
(भारत सरकार का उद्यम)  
**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/F-102/2019/292

Date: 17.01.2019

To  
The Deputy Commissioner,  
Lunglei District  
Lunglei, Mizoram

Dear Sir,

**Sub: - Land rates for paying compensation to the land owners while constructing 132 KV S/C Lungsan – Chawngte Power transmission line in the district of Lunglei-Reg.**

Power Grid Corporation of India Ltd. on behalf of Mizoram Govt. is executing 132 KV Lungsan – Chawngte Power transmission line under NERPSIP (North Eastern Region Power System Improvement Project), Mizoram and after constructing the transmission line will be handed over to P&E Dept. Mizoram. The project is jointly funded by Govt. of India and World Bank.

Govt. of India has released a circular Dtd 15.10.2015 regarding modalities/guidelines for compensation for affected landowners during transmission line construction (copy enclosed as Annexure-I). As per the above referred circular, fair compensation towards diminishing land value of the tower base area (Between four legs of tower area) shall be paid as per the rates decided by the revenue department in addition to the crop and tree damages to the land owners (no land acquisition is involved in the process and land ownership will continue with the land owners).

Based on the above, we are in the process of preparing approximate cost estimate towards compensation on land diminishing value for the tower area ( Between 04 legs of tower) for the said transmission line to arrive at the revised cost estimate for including in the overall project cost pertaining to NERPSIP, Mizoram. The transmission line route is passing through the villages namely **Lungsan, W. Rottang, Chhunkhum, Kauchhuah, Rangte, Lalnutui, South Lungrang, Rualalung and Chawngte.**

Considering the above, it is requested to your good office to kindly issue us the rates for the land at the above mentioned area to ascertain the approximate cost under this head for further submission to our corporate office. The line route details tower wise are enclosed as Annexure-II here with for your kind reference please.

Requested to convey directions to the concerned in this regard.

Thanking you sir,

Yours Faithfully

  
C.Gopi

GM/NERPSIP/AIZAWL



ANNEXURE - I

No.3/7/2015-Trans  
Government of India  
Ministry of Power  
Shram Shakti Bhawan  
Rafi Marg, New Delhi - 110001

Dated, 15<sup>th</sup> 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;

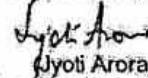
-/-

- (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)

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/EAs/ All Directors/DSs, Ministry of Power.

(Signature of vehicle owner)

1. Copies of log sheet in original  
2. HSD Memo & Engine Oil Memo



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 Lungsen to Chawngtle               | 30.985          | 118           | 200                               | 23600             | 5.83                                 | 404858                      | 2360327                 |
| 3                                       | 132 kV S/C Chawngtle - South Bungtlang        | 35.000          | 121           | 200                               | 24200             | 5.98                                 | 404858                      | 2421051                 |
| 4                                       | 132 kV S/C Lunglei - Lungsen Interconnection  | 0.556           | 5             | 200                               | 1000              | 0.25                                 | 404858                      | 101215                  |
| <b>Total Estimated Compensation(Rs)</b> |                                               |                 |               |                                   |                   |                                      |                             | <b>5801616</b>          |

\* 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  
 ज्य. महाप्रबन्धक / DGM  
 पावरग्रिड / POWERGRID  
 एन.ई.आर.पी.एच.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



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 11**

### **Sample Copy Tree/ Crop Compensation Notices**

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. Lalzamlova s/w/o. Chaukung Village Pakzung Vengthar  
 Tahsil. West Phaileng District Mamit State Mizoram

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<br>Bansboo                                                                                                                                                                                                                                                                                                                                                                                                                       | - 26 Nos.<br>- 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 &amp; Electricity Department ,Mizoram

 Owner's Signature Rox Roeygi (wife)  
 Sign of Witness I Vangro Vanlal-faka  
 Sign of Witness II Lallawmruati
  
 Signature of POWERGRID  
 SANY K-D/ Engineer  
 NERPSIP /Marpara

**VARIFICATION BY REVENUE AUTHORITY**

 Certified that land under Khasra/ Dag/ Patte no Crop/trees VC Pass No-6 of Village Pakzung Vengthar Tahsil West Phaileng  
 District Mamit State Mizoram belongs to Shri/Smt. Lalzamlova Son/Wife of Chaukung  
 He / She is sole / Shared owner of the above mentioned Land/ property. Crop/trees

Seal &amp; 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<br>Nos | Above 45 cms<br>Rate | Amount | Below 1.5 mtrs<br>Nos         | Above 1.50 mtrs<br>Rate | Amount | Nos | Rate | Amount              |      |                   |          |
| 1.           | Banana                     |                    |                      |        |                               |                         |        |     |      | 26                  | 50/- | 1300              | 13000.00 |
| 2.           | Bamboo                     |                    |                      |        |                               |                         |        |     |      | 62                  | 10/- | 620               | 6200.00  |
| <b>Total</b> |                            |                    |                      |        |                               |                         |        |     |      |                     |      | <b>Rs 19200/-</b> |          |


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&D Division

  
 District Collector  
Mamit District  
  
 District Collector  
Mamit District, Mamit



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 12**

# **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 inevitably 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.

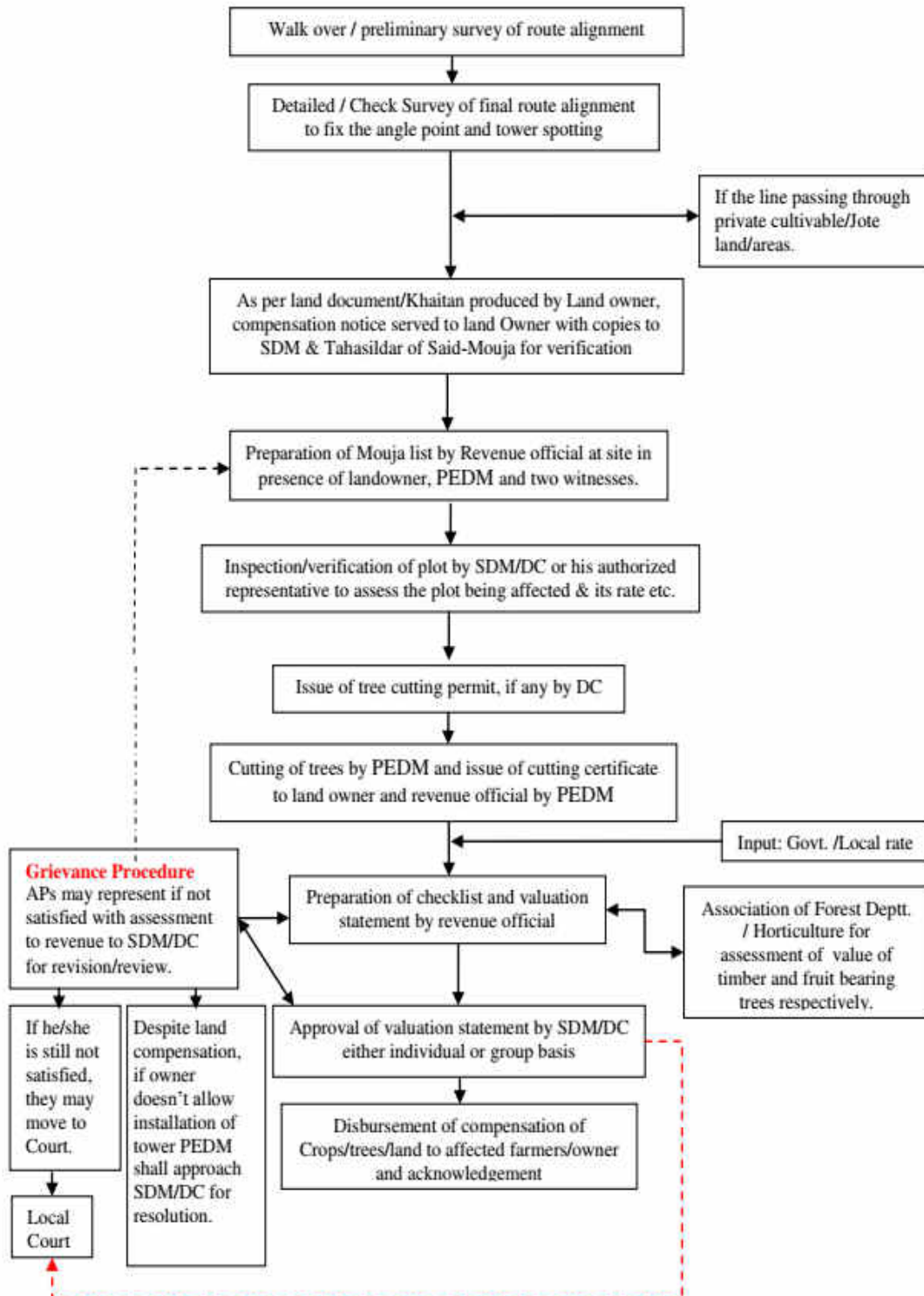
The revenue officer shall further issue a notice of intimation to the concerned landowner and inspect the site to verify the documents related to the proof of ownership and a detailed Mouja

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                                                                                                               | - | 75.57 km.               |
| Total 132 kV tower locations                                                                                                          | - | 252 approx.             |
| <br><b>A. Compensation</b>                                                                                                            |   |                         |
| 1. Forest                                                                                                                             | - | Nil                     |
| 2. Crop & Trees                                                                                                                       |   |                         |
| - Transmission Line length in Private /Revenue land – 75.57 km                                                                        |   |                         |
| - Crop/tree compensation for 132 kV line- (75.57 x 5,00,000/-)                                                                        | = | Rs. 377.85 lakhs        |
| - Distribution Line length in Private /Revenue land – 5.0 km                                                                          |   |                         |
| - Crop/tree compensation for 33 kV line - (5 x 50,000)                                                                                | = | Rs. 2.50 lakhs          |
| 3. Land compensation for 132 kV tower footing- (252 towers x 13,600)                                                                  |   | = Rs 34.27 lakhs        |
| <b>Sub Total of A (1+2+3)</b>                                                                                                         | - | <b>Rs 414.62 lakhs</b>  |
| <br><b>B. Implementation Monitoring &amp; Audit</b>                                                                                   |   |                         |
| i) Man-power involved for EMP implementation & Monitoring in entire route of transmission & distribution line (Rs.10, 000/-x 80.57Km) | = | Rs. 8.05 lakhs          |
| ii) Independent Audit (LS) if needed                                                                                                  | = | Rs. 10.00 lakhs         |
| <b>Sub Total of B(i+ ii)</b>                                                                                                          | - | <b>Rs. 18.05 lakhs</b>  |
| <b>Grand Total (A+B)</b>                                                                                                              | = | <b>Rs. 432.67 lakhs</b> |

### **Annexure 13**

## **GA Layout / Drawings of RRM Wall / Pretension Wall / Boundary Wall**











## Lungsen S/S Layout

CS201446-1000508-SE0089-Electrical-Lay-Plan02/CAT-III/Page: 1 of 2



### BOQ (132KV EQUIPMENT)

| S.NO | SYMBOL | DESCRIPTION                                                               | ACTUAL QTY | BPS QTY |
|------|--------|---------------------------------------------------------------------------|------------|---------|
| 1.   |        | 132KV/33KV TL RATIO (1#) POWER TRANSFORMER                                | 4 SETS     | 0 SETS  |
| 2.   |        | NIPPS SYSTEM                                                              | 3 SETS     | 2 SETS  |
| 3.   |        | ONLINE CIRCUIT BREAKER                                                    | 3 NOS      | 2 NOS   |
| 4.   |        | 33KV/500KVAR SHUNT CAPACITOR (1#)                                         | 6 NOS      | 6 NOS   |
| 5.   |        | 33KV/11KV/0.4KV VOLTAGE TRANSFORMER (1#)                                  | 3 NOS      | 3 NOS   |
| 6.   |        | DOUBLE BREAK ISOLATOR WITH SINGLE SWITCH (SM)                             | 1 NO       | 1 NOS   |
| 7.   |        | DOUBLE BREAK ISOLATOR WITHOUT SINGLE SWITCH (SM)                          | 6 NOS      | 6 NOS   |
| 8.   |        | HORIZONTAL CENTER BREAK ISOLATOR WITHOUT SINGLE SWITCH (SM) (RANDOM TYPE) | 2 NOS      | 2 NOS   |
| 9.   |        | CURRENT TRANSFORMER (1#)                                                  | 09 NOS     | 12 NOS  |
| 10.  |        | SVC CIRCUIT BREAKER (SM)                                                  | 3 NOS      | 4 NOS   |
| 11.  |        | POTENTIAL TRANSFORMER (1#)                                                | 3 NOS      | 3 NOS   |
| 12.  |        | BUS POST INSULATOR (1#)                                                   | 21 NOS     | 30 NOS  |

### BOQ (33KV EQUIPMENT)

| S.NO | SYMBOL | DESCRIPTION                                   | ACTUAL QTY | BPS QTY |
|------|--------|-----------------------------------------------|------------|---------|
| 1.   |        | 33KV/11KV/0.4KV LT TRANSFORMER                | 2 NOS      | 2 NOS   |
| 2.   |        | 33KV/11KV/0.4KV SURGE ARRESTER (1#)           | 18 NOS     | 18 NOS  |
| 3.   |        | DOUBLE BREAK ISOLATOR WITH SINGLE SWITCH (SM) | 6 NOS      | 6 NOS   |
| 4.   |        | BUS POST INSULATOR (1#)                       | 9 NOS      | 18 NOS  |

### BOQ (NEUTRAL FORMATION)

| S.NO | SYMBOL | DESCRIPTION                   | ACTUAL QTY | BPS QTY |
|------|--------|-------------------------------|------------|---------|
| 1.   |        | 33KV BUS POST INSULATOR (1#)  | 14 NOS     | 0 NOS   |
| 2.   |        | 33KV CURRENT TRANSFORMER (1#) | 2 NOS      | 0 NOS   |

### CONDUCTOR DETAILS

| S.NO | DESCRIPTION              | CONDUCTOR TYPE   | CONDUCTOR SIZE | SPAN SIZE | WIND SPEED (kmph) | ICE LOAD (mm) | TEMPERATURE (°C) | WIND DIRECTION |
|------|--------------------------|------------------|----------------|-----------|-------------------|---------------|------------------|----------------|
| 1.   | 110KV BUS INSULATOR      | SINGLE MODE ACSR | 300/30         | 100       | 30                | 10            | 25               | SW             |
| 2.   | 110KV LINE INSULATOR     | SINGLE MODE ACSR | 300/30         | 100       | 30                | 10            | 25               | SW             |
| 3.   | 110KV / 33KV             | SINGLE MODE ACSR | 300/30         | 100       | 30                | 10            | 25               | SW             |
| 4.   | TRANSFORMER HV SIDE      | SINGLE MODE ACSR | 300/30         | 100       | 30                | 10            | 25               | SW             |
| 5.   | TRANSFORMER LV SIDE      | SINGLE MODE ACSR | 300/30         | 100       | 30                | 10            | 25               | SW             |
| 6.   | 33KV TRANSFORMER HV SIDE | SINGLE MODE ACSR | 300/30         | 100       | 30                | 10            | 25               | SW             |
| 7.   | 33KV TRANSFORMER LV SIDE | SINGLE MODE ACSR | 300/30         | 100       | 30                | 10            | 25               | SW             |

### MINIMUM CLEARANCE

| DESCRIPTION         | FOR 132KV FOR 33KV |
|---------------------|--------------------|
| PHASE TO PHASE      | 1300MM / 300MM     |
| PHASE TO EARTH      | 1300MM / 300MM     |
| SECTIONAL CLEARANCE | 4000MM / 3000MM    |
| GROUND CLEARANCE    | 4000MM / 3000MM    |

### NOTE

1. ALL DIMENSIONS ARE IN UNLESS SPECIFIED OTHERWISE.
2. LEVELS ARE WITH REFERENCE TO CONTOUR DRAWING.

### LEGEND

- SLOPE
- PRESENT SCOPE
- EXISTING WALL
- RETAINING WALL
- CHAIN LINK FENCE

### REFERENCE DRAWING

1. TYPICAL TOWER FOR 132KV/33KV
2. TYPICAL TOWER FOR 33KV/11KV/0.4KV
3. LUNGSEN - CONDUIT WITH BLOCK LAYOUT
4. TYPICAL TOWER FOR 11KV/0.4KV
5. TYPICAL TOWER FOR 11KV/0.4KV

### BOQ (WIRE)

| S.NO | DESCRIPTION           | ACTUAL QTY | BPS QTY |
|------|-----------------------|------------|---------|
| 1.   | 110KV/33KV/11KV/0.4KV | 12.00      | 0.00    |
| 2.   | 33KV/11KV/0.4KV       | 2.00       | 0.00    |
| 3.   | 11KV/0.4KV            | 3.00       | 0.00    |
| 4.   | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 5.   | 11KV/0.4KV            | 1.00       | 0.00    |
| 6.   | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 7.   | 11KV/0.4KV            | 1.00       | 0.00    |
| 8.   | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 9.   | 11KV/0.4KV            | 1.00       | 0.00    |
| 10.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 11.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 12.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 13.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 14.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 15.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 16.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 17.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 18.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 19.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 20.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 21.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 22.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 23.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 24.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 25.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 26.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 27.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 28.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 29.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 30.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 31.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 32.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 33.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 34.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 35.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 36.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 37.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 38.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 39.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 40.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 41.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 42.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 43.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 44.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 45.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 46.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 47.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 48.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 49.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 50.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 51.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 52.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 53.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 54.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 55.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 56.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 57.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 58.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 59.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 60.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 61.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 62.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 63.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 64.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 65.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 66.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 67.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 68.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 69.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 70.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 71.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 72.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 73.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 74.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 75.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 76.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 77.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 78.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 79.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 80.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 81.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 82.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 83.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 84.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 85.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 86.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 87.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 88.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 89.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 90.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 91.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 92.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 93.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 94.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 95.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 96.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 97.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 98.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 99.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 100. | 33KV/11KV/0.4KV       | 1.00       | 0.00    |

### APPENDIX

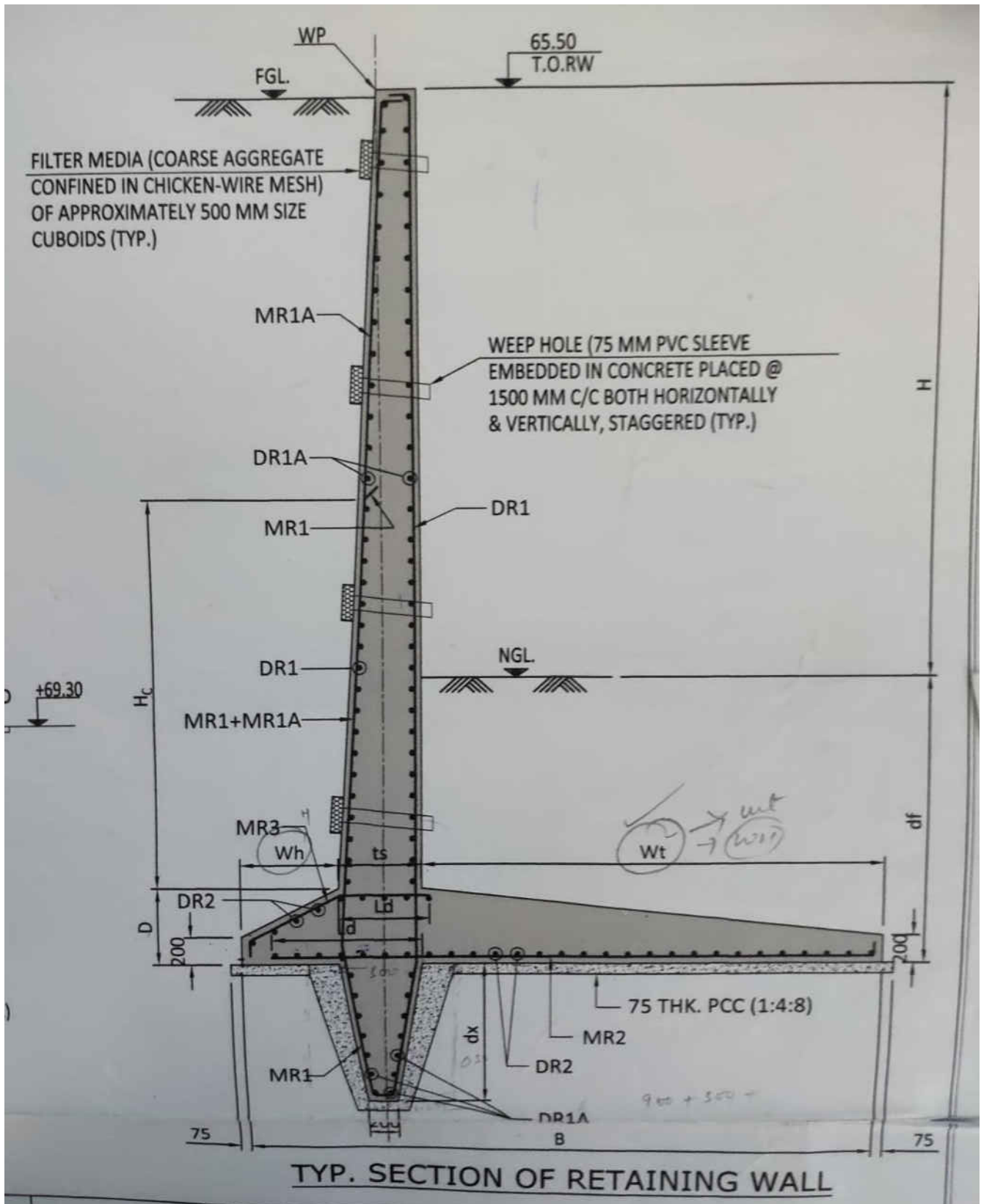
| S.NO | DESCRIPTION           | ACTUAL QTY | BPS QTY |
|------|-----------------------|------------|---------|
| 1.   | 110KV/33KV/11KV/0.4KV | 12.00      | 0.00    |
| 2.   | 33KV/11KV/0.4KV       | 2.00       | 0.00    |
| 3.   | 11KV/0.4KV            | 3.00       | 0.00    |
| 4.   | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 5.   | 11KV/0.4KV            | 1.00       | 0.00    |
| 6.   | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 7.   | 11KV/0.4KV            | 1.00       | 0.00    |
| 8.   | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 9.   | 11KV/0.4KV            | 1.00       | 0.00    |
| 10.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 11.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 12.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 13.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 14.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 15.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 16.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 17.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 18.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 19.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 20.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 21.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 22.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 23.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 24.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 25.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 26.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 27.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 28.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 29.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 30.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 31.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 32.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 33.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 34.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 35.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 36.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 37.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 38.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 39.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 40.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 41.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 42.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 43.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 44.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 45.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 46.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 47.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 48.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 49.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 50.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 51.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 52.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 53.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 54.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 55.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 56.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 57.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 58.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 59.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 60.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 61.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 62.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 63.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 64.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 65.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 66.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 67.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 68.  | 33KV/11KV/0.4KV       | 1.00       | 0.00    |
| 69.  | 11KV/0.4KV            | 1.00       | 0.00    |
| 70.  | 33KV/11KV/0.4KV       | 1.00       |         |







**Drawing of Retention Wall (Standard)**







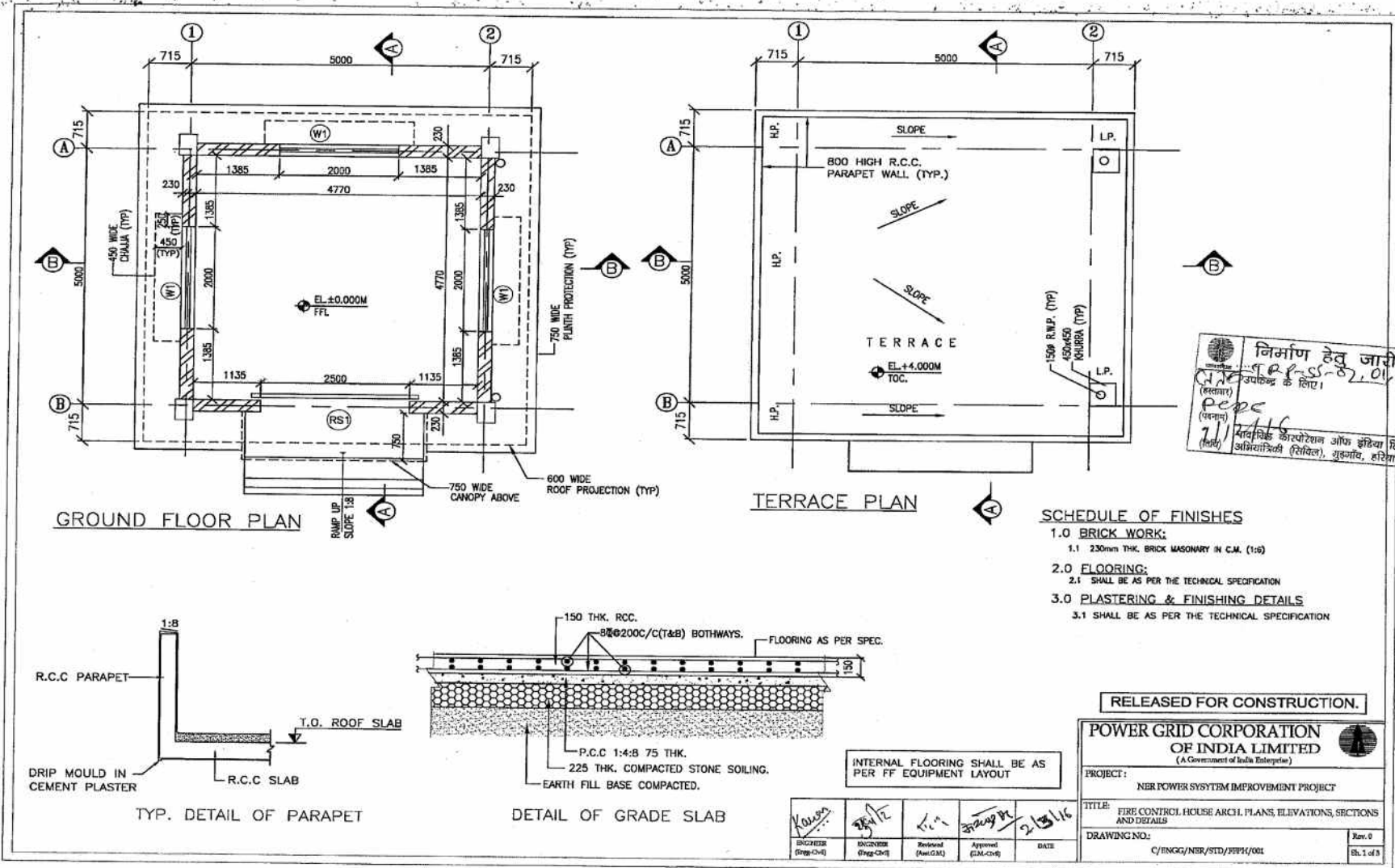


FEAR for T&D subprojects in Lunglei and Lawngtlai  
District under NERPSIP in Mizoram



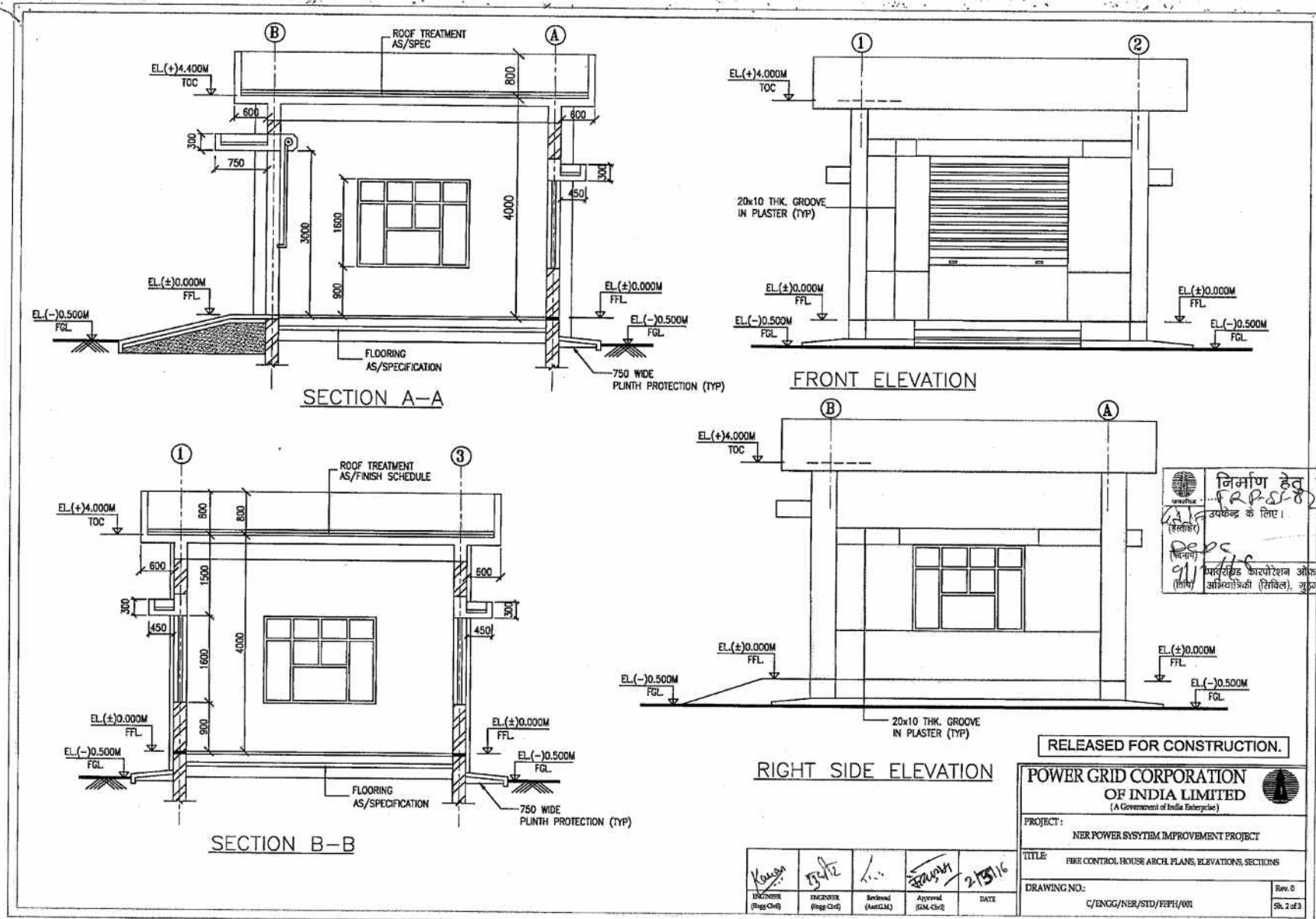
## **Annexure 14**

### **Fire Fighting System**



निर्माण हेतु जारी  
 23/11/16  
 711  
 पर्यटन, कौशल विकास और युवा विकास विभाग  
 अमरावती (महाराष्ट्र), मुंबई, हरियाणा



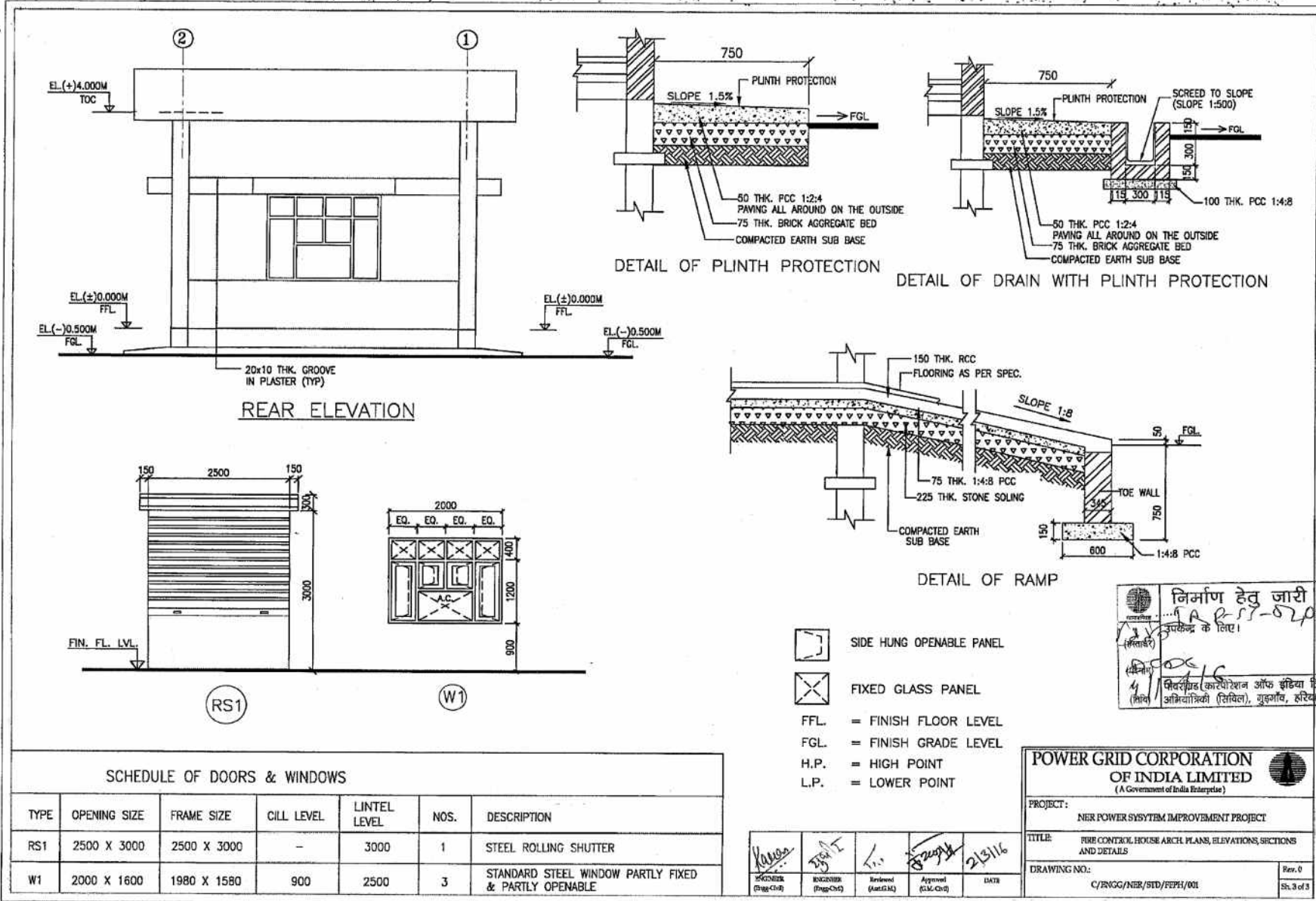


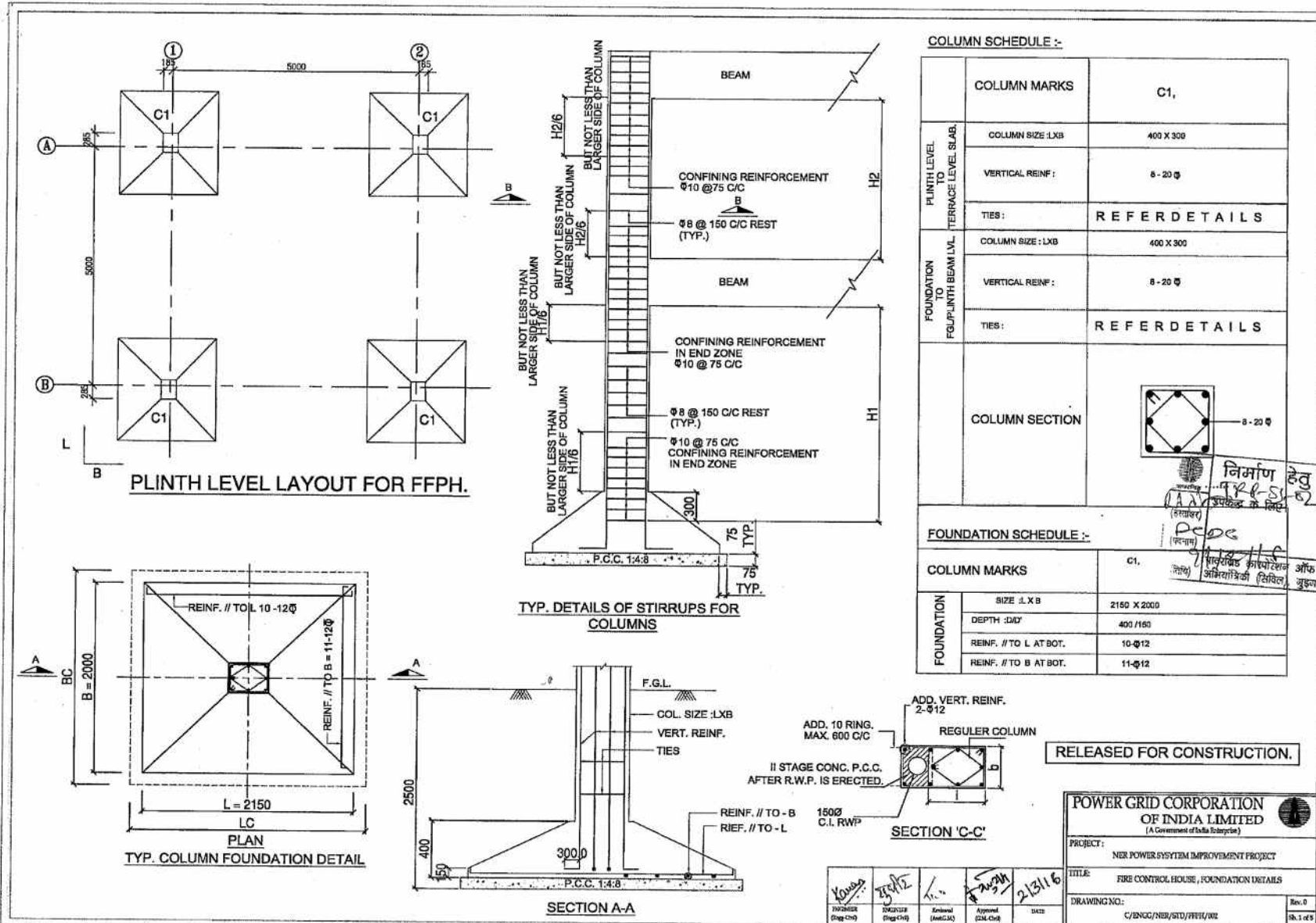
निर्माण हेतु जारी  
FRPSL-87/01/03  
उपकेन्द्र के लिए।  
DRPC  
मिनिंग  
पावरग्रिड कारपोरेशन ऑफ इंडिया लि०  
(लिमिटेड) अमरकोटकी (मिनिंग), बुधवार, हरियाणा

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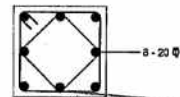
|                                                                                      |                      |
|--------------------------------------------------------------------------------------|----------------------|
| <b>POWER GRID CORPORATION OF INDIA LIMITED</b><br>(A Government of India Enterprise) |                      |
| PROJECT: NER POWER SYSTEM IMPROVEMENT PROJECT                                        |                      |
| TITLE: FIRE CONTROL HOUSE ARCH. PLANS, ELEVATIONS, SECTIONS                          |                      |
| DRAWING NO.: C/ENGG/NER/STD/FEFH/001                                                 | Rev. 0<br>Sh. 2 of 3 |

|                    |                     |                     |                     |               |
|--------------------|---------------------|---------------------|---------------------|---------------|
| DRINKER (Page-Clk) | ENGINEER (Page-Clk) | Reviewed (Aut.G.M.) | Approved (G.M.-Clk) | DATE: 2/15/16 |
|--------------------|---------------------|---------------------|---------------------|---------------|





**COLUMN SCHEDULE :-**

|                                    | COLUMN MARKS           | C1,                                                                                                                 |
|------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------|
| PLINTH LEVEL TO TERRACE LEVEL SLAB | COLUMN SIZE : LXB      | 400 X 300                                                                                                           |
|                                    | VERTICAL REINF :       | 8 - 20 $\Phi$                                                                                                       |
|                                    | TIES :                 | REFER DETAILS                                                                                                       |
| FOUNDATION TO FOUR PLINTH BEAM LVL | COLUMN SIZE : LXB      | 400 X 300                                                                                                           |
|                                    | VERTICAL REINF :       | 8 - 20 $\Phi$                                                                                                       |
|                                    | TIES :                 | REFER DETAILS                                                                                                       |
| COLUMN SECTION                     |                        |  <p>8 - 20 <math>\Phi</math></p> |
| <b>FOUNDATION SCHEDULE :-</b>      |                        |                                                                                                                     |
| COLUMN MARKS                       | C1,                    |                                                                                                                     |
| FOUNDATION                         | SIZE : L X B           | 2150 X 2000                                                                                                         |
|                                    | DEPTH : D/D'           | 400 / 150                                                                                                           |
|                                    | REINF. // TO L AT BOT. | 10- $\Phi$ 12                                                                                                       |
|                                    | REINF. // TO B AT BOT. | 11- $\Phi$ 12                                                                                                       |

निर्माण हेतु जारी  
22/01/03  
PCC  
POWER GRID CORPORATION OF INDIA LIMITED  
अभियंता कार्यालय  
अभियंता कार्यालय  
अभियंता कार्यालय

**POWER GRID CORPORATION OF INDIA LIMITED**  
(A Government of India Enterprise)

PROJECT: NER POWER SYSTEM IMPROVEMENT PROJECT

TITLE: FIRE CONTROL HOUSE, FOUNDATION DETAILS

DRAWING NO.: C/ENGG/NBR/STD/FFPH/WZ

Rev. 0

Sh. 1 of 8

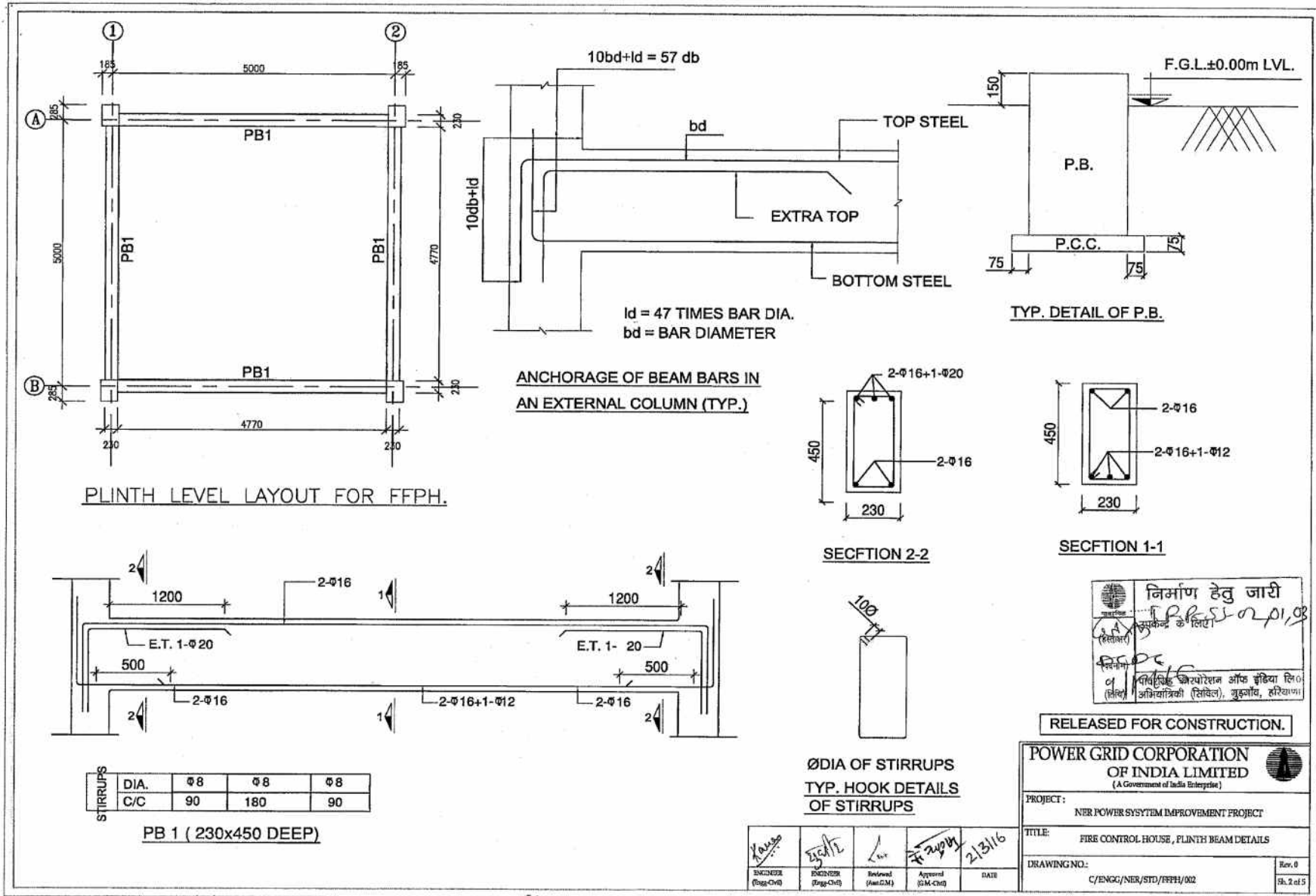
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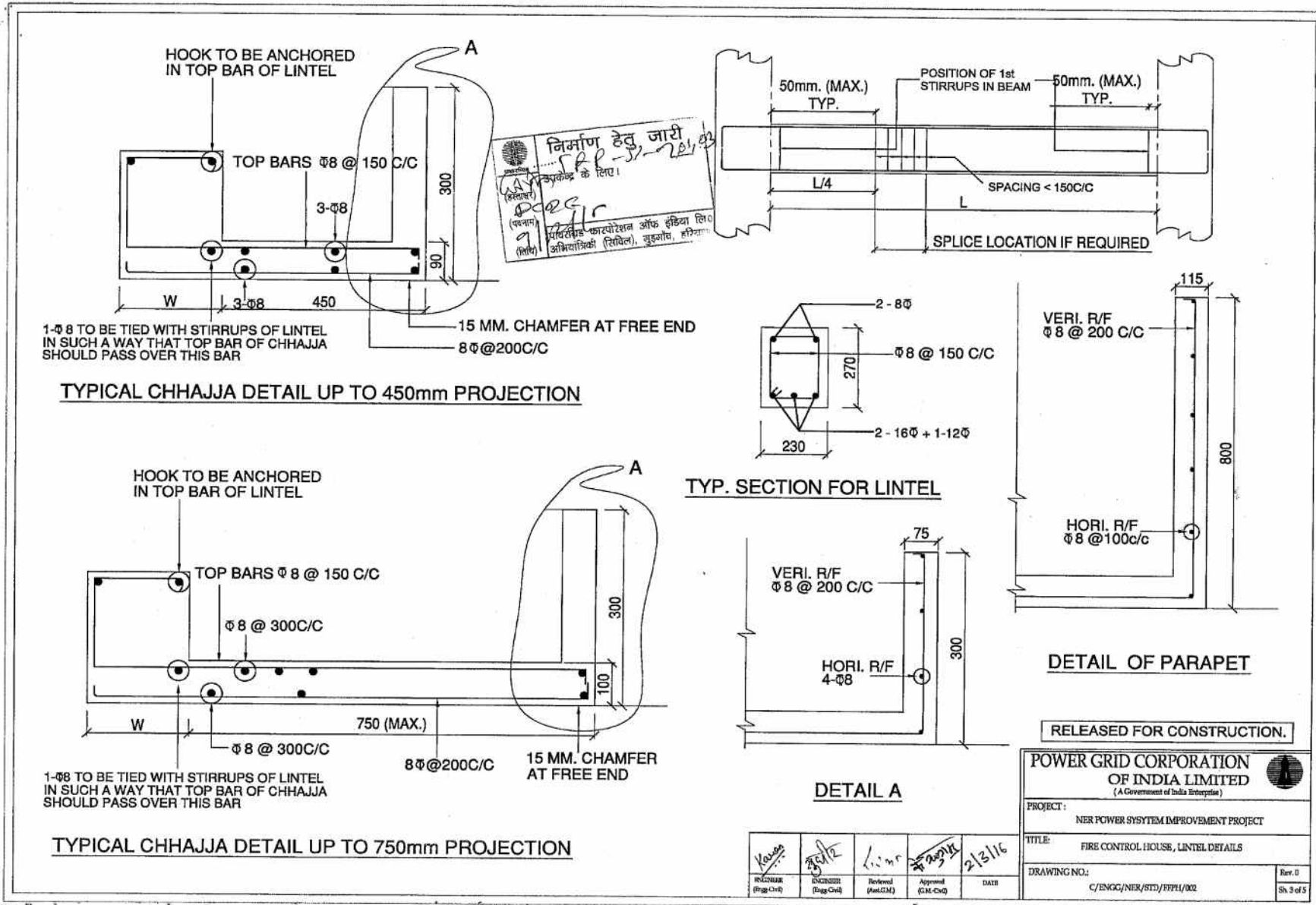
DATE

APPROVED

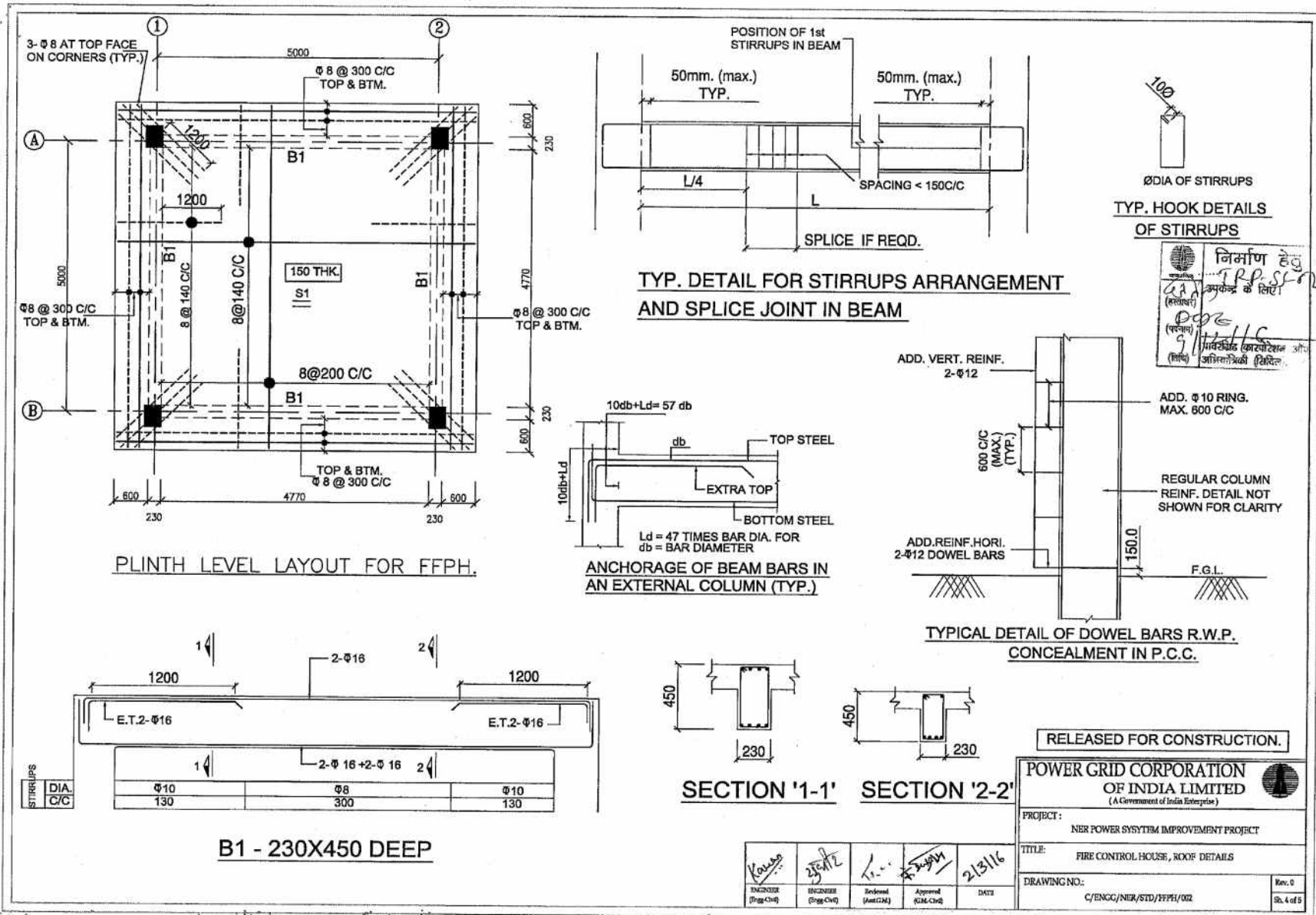
DATE













FEAR for T&D subprojects in Lunglei and Lawngtlai 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.

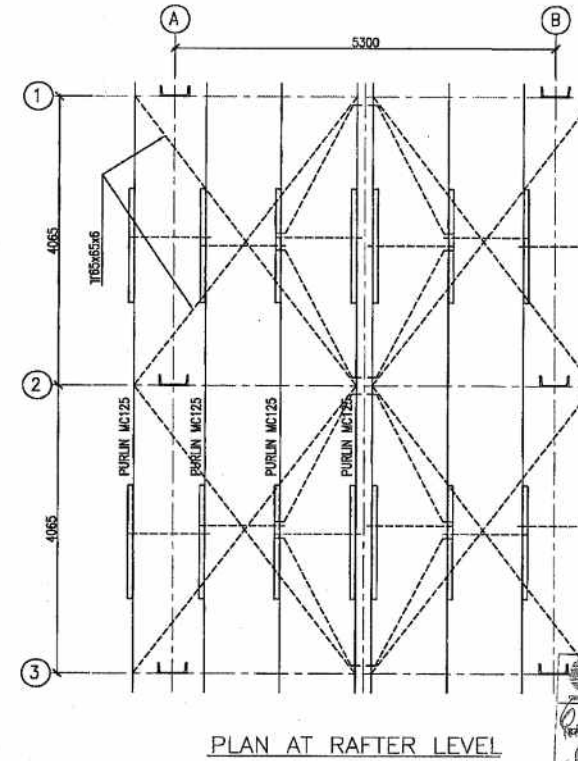
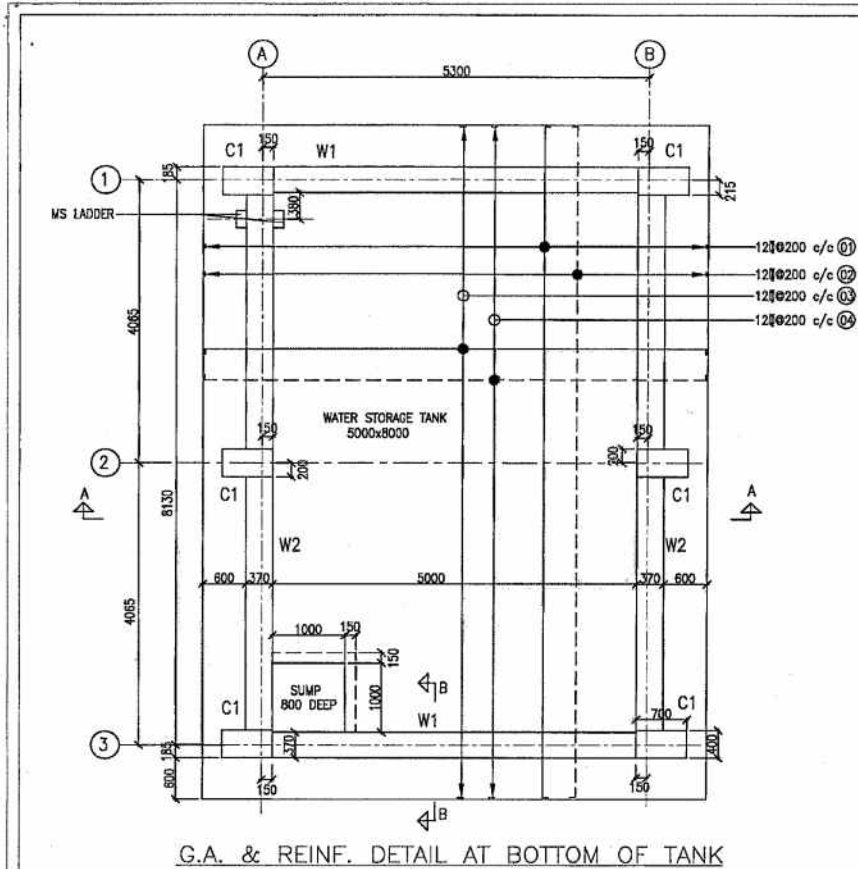
निर्माण हेतु जारी  
 10/01/2013  
 DDC  
 पावरग्रिड कारपोरेशन ऑफ इंडिया लि०  
 अभियांत्रिकी विभाग, गुडगाँव, हरियाणा

|                        |                        |                         |                       |                |
|------------------------|------------------------|-------------------------|-----------------------|----------------|
| DESIGNER<br>(Engg-Chg) | ENGINEER<br>(Engg-Chg) | Reviewed<br>(Asst.Engg) | Approved<br>(S.M-Chg) | DATE<br>2/3/16 |
|------------------------|------------------------|-------------------------|-----------------------|----------------|

|                                                                                  |                      |
|----------------------------------------------------------------------------------|----------------------|
| POWER GRID CORPORATION<br>OF INDIA LIMITED<br>(A Government of India Enterprise) |                      |
| PROJECT:<br>NER POWER SYSTEM IMPROVEMENT PROJECT                                 |                      |
| TITLE:<br>FIRE CONTROL HOUSE, GENERAL NOTES                                      |                      |
| DRAWING NO.:<br>C/ENGG/NER/STD/FFPH/002                                          | Rev. 0<br>Sh. 5 of 5 |



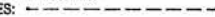





निर्माण हेतु जारी  
[Signature]  
[Date: 02/01/09]  
[Signature]  
[Date: 2/12/16]

**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: 
12. TOP BAR INDICATES: 
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

|                                                                                                                 |                                                                                                                 |                                                                                                                  |                                                                                                                 |                        |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------|
| <br>DESIGNER<br>(Engg-Chk) | <br>ENGINEER<br>(Engg-Chk) | <br>Reviewed<br>(Asst.Engg) | <br>Approved<br>(S.M.-Chk) | DATE<br><b>2/12/16</b> |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------|



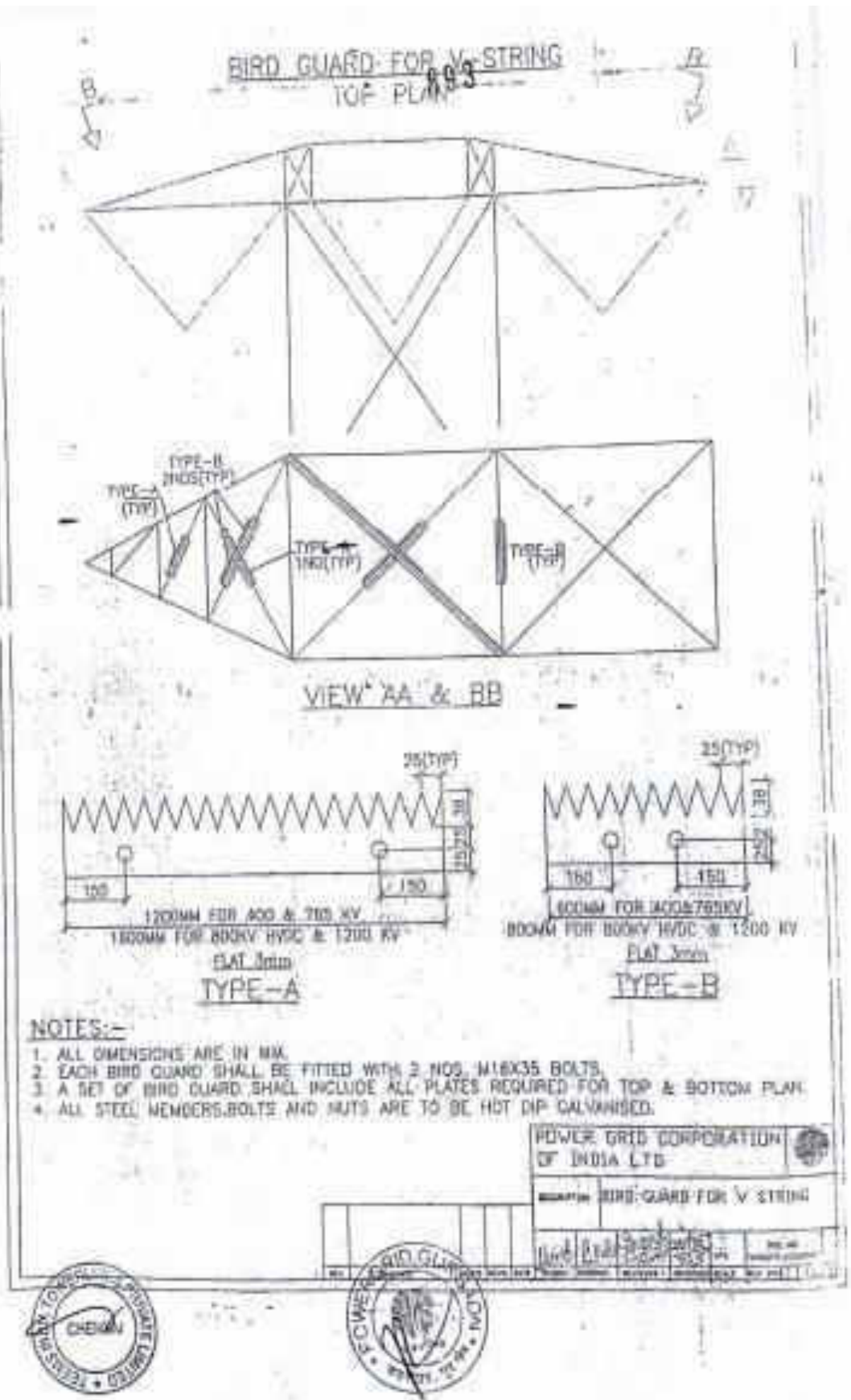
FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram

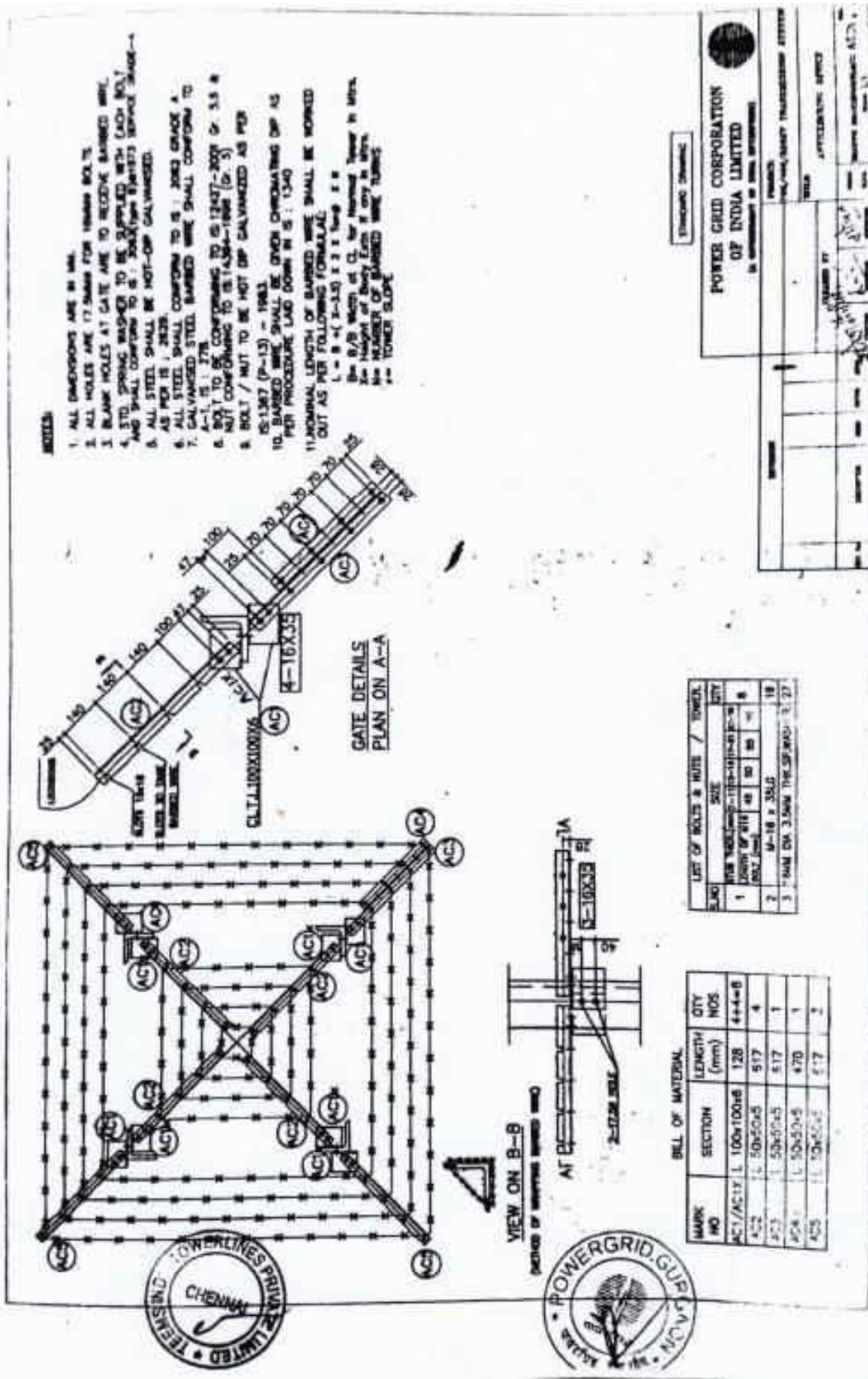


## **Annexure 15**

### **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**





मिजोरम MIZORAM

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### SAFETY PLAN

THIS SAFETY PLAN is made this 21<sup>st</sup> day of February, 2018 by Sterling & Wilson Pvt. Ltd., a company registered under Companies Act, 2013 having its Registered Office at 9<sup>th</sup> 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

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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 <sup>st</sup> Fatal Accident due to negligence by the Contractor                                                        | Rs. 50,00,000/-                                                                       |
| b. | Upon 2 <sup>nd</sup> Fatal Accident due to negligence by the Contractor                                                        | Rs. 75,00,000/-                                                                       |
| c. | Upon 3 <sup>rd</sup> Fatal Accident due to negligence by the Contractor                                                        | Rs. 1,00,00,000/-                                                                     |
| d. | Re-occurrence of Fatal Accident even after 3 <sup>rd</sup> 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**  
**3<sup>rd</sup> 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.

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| S.N. | Details of Enclosure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Status of Submission of information/ documents | Remarks |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------|
| 1.   | Annexure - 1A (SP)<br>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)<br>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)<br>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)<br>List of Personal Protective Equipment (PPE), activity wise including the following along with test certificate of each as applicable:<br>1. Industrial Safety Helmet to ail workmen at site. (EN 397 / IS 2925) with chin strap and back stay arrangement.<br>2. Safety shoes without steel toe to all ground level workers and canvas shoes for workers working on tower.<br>3. Rubber Gum Boot to workers working in rainy season. Concreting job.<br>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.<br>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 ✓                                          |         |

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|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--|
|    | <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)<br>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)<br>List of Qualified safety Officer (s) along with their contact details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Yes ✓ |  |
| 7  | Annexure – 5B (SP)<br>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)<br>Copy of Safety Policy/ Safety Document of the contractor's company.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Yes ✓ |  |
| 9  | Annexure – 7 (SP)<br>'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)<br>Safety Audit Check Lists                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes ✓ |  |
| 11 | Annexure – 9 (SP)<br>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   |  |

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|       |                                                                                                                                                                                       |     |  |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--|
| 12    | Annexure – 10A (SP)<br>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)<br>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 Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 17**

### **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, 3<sup>RD</sup> 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)

Government of India

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<br>(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, 3<sup>RD</sup> 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     | <br>ALC(C)<br>SILCHAR      |
| 08.04.2020      | Rs. 190/-            | 04.04.2021     | <br>R.L.C.(C)<br>DIBRUGARH |
| 22.03.2021      | Rs. 190/-            | 04.04.2022     | <br>ALC(C)<br>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)  
Licenar & Registering/Licensing Officer  
Under C.L. (R&A) Act, 1970

Powergrid  
Mizoram



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 18**

### **Checklist for Safety Plan**

**CHECK LIST FOR SEFETY PLAN**

| S. N. | Details of Enclosure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Status of Submission of information/ documents | Remarks |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------|
| 1.    | <b>Annexure – 1A (SP)</b><br><br>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.    | <b>Annexure – 1B (SP)</b><br><br>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.    | <b>Annexure – 2 (SP)</b><br><br>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.    | <b>Annexure – 3 (SP)</b><br><br>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"> <li>1. Industrial Safety Helmet to all workmen at site. (EN 397 / IS 2825) with chin strap and back stay arrangement.</li> <li>2. Safety shoes without steel toe to all ground level workers and canvas shoes for workers working on tower.</li> <li>3. Rubber Gum Boot to workers working in rainy season / concreting job.</li> <li>4. Twin lanyard Full Body Safety harness with shock absorber and leg strap arrangement</li> </ol> | 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><b>Annexure – 4 (SP)</b></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><b>Annexure – 5A (SP)</b></p> <p>List of Qualified Safety Officer(s) along with their contact details</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Yes/No                                         |         |
| 7.    | <p><b>Annexure – 5B (SP)</b></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.    | <b>Annexure – 6 (SP)</b><br>Copy of Safety Policy/ Safety Document of the Contractor's company                                                                                                                                                                                                                                                                                                                                                                          | Yes/No                                         |         |
| 9.    | <b>Annexure – 7 (SP)</b><br><br>'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.   | <b>Annexure – 8 (SP)</b><br><br>Safety Audit Check Lists ( Formats to be enclosed)                                                                                                                                                                                                                                                                                                                                                                                      | Yes/No                                         |         |
| 11.   | <b>Annexure – 9 (SP)</b><br><br>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.   | <b>Annexure – 10A (SP)</b><br><br>Information along with documentary evidences in regard to the Contractor's compliance to various statutory requirements including the following:                                                                                                                                                                                                                                                                                      |                                                |         |
| (i)   | Electricity Act 2003<br><br><u>[Name of Documentary evidence in support of compliance]</u>                                                                                                                                                                                                                                                                                                                                                                              | 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.<br><br><u>[Name of Documentary evidence in support of compliance]</u>                                                                                                   |                                                |         |
| (x)    | The Environment (Protection) Act 1986 and Rules.<br><br><u>[Name of Documentary evidence in support of compliance]</u>                                                                          | Yes/No                                         |         |
| (xi)   | Child Labour (Prohibition & Regulation) Act 1986.<br><br><u>[Name of Documentary evidence in support of compliance]</u>                                                                         | Yes/No                                         |         |
| (xii)  | National Building Code of India 2005 (NBC 2005).<br><br><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<br><br><u>[Name of Documentary evidence in support of compliance]</u>                              | Yes/No                                         |         |
| (iv)   | Any other statutory requirement(s) [please specify]<br><br><u>[Name of Documentary evidence in support of compliance]</u>                                                                       | Yes/No                                         |         |
| 13.    | <b>Annexure – 10B (SP)</b><br><br>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.<br><br>_____<br><i>[Name of Documentary evidence in support of insurance taken]</i> | Yes/No                                         |         |
| (ii)  | Public Insurance Liabilities Act 1991<br><br>_____<br><i>[Name of Documentary evidence in support of insurance taken]</i>          | Yes/No                                         |         |
| (iii) | Any Other Insurance Policies<br><br>_____<br><i>[Name of Documentary evidence in support of insurance taken]</i>                   | 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. Bungle 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.<br>(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.<br>PTTC, Dunglei (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.)                                                                                   | PTTC, Dunglei (8) |                                                         |
| 21 | Atleast one vehicle (four wheeler) is available for use in case of emergencies.                                                                                             | NO                |                                                         |
|    |                                                                                                                                                                             |                   |                                                         |
|    |                                                                                                                                                                             |                   |                                                         |

*[Signature]*  
20/02/2019  
Soydeb Mawlar  
S. Engor  
SIGNATURE / NAME / DESIGNATION  
OF POWERGRID REPRESENTATIVE

*[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 Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 19**

**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 Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Annexure 20**

### **GRC Details**



**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 7<sup>th</sup> 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*  
*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,

*Mansiana*  
(LALRAMLIANA)  
Engineer-in-Chief

Memo No.WB-3/2014-EC(PC)/SPIU/P1/94  
Copy to:-

Dated Aizawl, the 7<sup>th</sup> August, 2018

The Chief Engineer (System Operation), for favour of information.

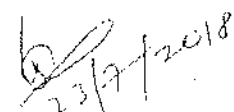
Engineer-in-Chief  
Power & Electricity Department

Received  
174  
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. Lalnuankima, 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) Lungsen to Chawngte 'L' under Sub-Divisional Officer, Lungsen Power Sub-Division, Lungsen as under -

1) Chairman / Representative from Local Administration :-

Block Development Officer  
Lungsen Rural Development Block, Lungsen

2) Member Secretary / Representative from P & E Department : Mizoram :-

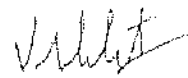
Sub-Divisional Officer,  
Lungsen Power Sub-Division, Lungsen

3) Members :-

1. VCP or his representative, Lungsen 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, Lungsen Group.
2. K. Siamliana, Lungsen  
Headmaster Government Middle School - I

  
Sub-Divisional Officer  
Lungsen Power Sub-Division  
Lungsen

**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 7<sup>th</sup> 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*  
*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,

*Mansiana*  
(LALRAMLIANA)  
Engineer-in-Chief

Memo No.WB-3/2014-EC(PC)/SPIU/P1/94  
Copy to:-

Dated Aizawl, the 7<sup>th</sup> August, 2018

The Chief Engineer (System Operation), for favour of information.

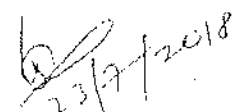
Engineer-in-Chief  
Power & Electricity Department

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 :-

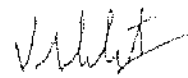
Sub-Divisional Officer,  
Lungsan Power Sub-Division, Lungsan

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

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”**

| <b>Details of public consultation</b>                  |   |
|--------------------------------------------------------|---|
| No. of meetings (formal/informal)                      | - |
| Total no of persons involved                           | - |
| No. of females participated                            | - |
| Reporting period ( <i>Quarterly</i> )                  | - |
| <b>Details of Grievances</b>                           |   |
| No of public grievances received                       | - |
| No of grievances addressed within 2 months of receipt. | - |
| Reporting period ( <i>Quarterly</i> )                  | - |

**Signature of Project Manager**

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 7<sup>th</sup> August, 2018

To,

The Dy. General Manager (NERPSIP)  
POWERGRID CORPORATION OF INDIA LIMITED  
Tuivamit, B.P.O – Tanhril  
Aizawl – 796009

Chief Engr (Aizawl)  
for info  
and re  
office  
& for  
FB (Env.)  
Aizawl

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,

  
(LALRAMLIANA)  
Engineer-in-Chief

Dated Aizawl, the 7<sup>th</sup> August, 2018

Memo No.WB-3/2014-EC(PC)/SPIU/P1/94

Copy to:-

The Chief Engineer (System Operation), for favour of information.

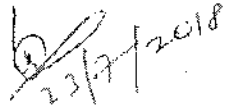
Engineer-in-Chief  
Power & Electricity Department

Receipt No. 174  
प्राप्ति सं : 05.08.2018  
POW. NERPSIP  
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. Liankunga 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 Nguruaata, 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 (or DC Tower) Lungsan to Chawngle '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 :-

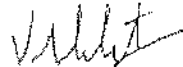
Sub-Divisional Officer,  
Lungsan Power Sub-Division, Lungsan

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, Rangle Village.
5. VCP or his representative, Chawngle 'L'.
6. VCP or his representative, Lalnufui 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/94

Dated Aizawl, the 7<sup>th</sup> 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*  
*8/8/18*

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 Bunglang 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/Pt/94  
Copy to:-

Dated Aizawl, the 7<sup>th</sup> August, 2018

The Chief Engineer (System Operation), for favour of information.

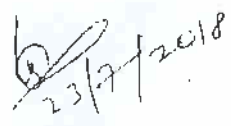
Engineer-in-Chief  
Power & Electricity Department

Receipt No. 174  
प्राप्ति सं : 05.08.2018  
POWER (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:-

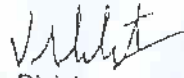
- 1) Nomination from P&E Department ; Mizoram  
Pu. David Chakma, Sub-Divisional Officer : Bungtlang South Power Sub Division.  
Contact No : 8119 866 052
- 2) Nomination from local administration  
**Pu Daniel** Sailo, Block Development Officer : Bungtlang, South  
Contact No . 8731 058 236
- 3) Nomination 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) Lungsen to Chawngte 'L' under Sub-Divisional Officer, Lungsen Power Sub-Division, Lungsen as under :-

- 1) Chairman / Representative from Local Administration :-  
Block Development Officer  
Lungsen Rural Development Block, Lungsen
- 2) Member Secretary / Representative from P & E Department : Mizoram :-  
Sub-Divisional Officer,  
Lungsen Power Sub-Division, Lungsen
- 3) Members :-
  1. VCP or his representative, Lungsen 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, Lalnutui Village.
- 4) Members (Reputed Persons from Society) :-
  1. V. Lalremruata, Chhumkhum  
President Young Mizo Association, Lungsen Group.
  2. K. Siamliana, Lungsen  
Headmaster Government Middle School - I

  
Sub-Divisional Officer  
Lungsen Power Sub-Division  
Lungsen

# 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,



(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<br>132/33 KV Lungsen S/S                                                                                                          | Lungsen Site Office                                                                                 |
| MIZ TW01     | <b>EHV Transmission Lines</b><br>132 kv S.C (on D.C Tower) Lungsen-Chawngte Line<br>132 kv S.C (on D.C Tower) Lunglei-Lungsen Interconnection       | 1) D. Talukdar (Dy. General Manager)<br>2) P. B Sharma (Ch. Manager)<br>3) Sujeeet Kumar (Engineer) |
| MIZ SS02     | <b>DMS Transmission Lines</b><br>33 kv line from 132.33 kvlungsen(new)-Lungsen Line                                                                 |                                                                                                     |
| MIZ TW01     | <b>EHV Transmission Lines</b><br>132 kv S.C (on D.C Tower) Chawngte-S. Bungleiang Line                                                              | <b>S. Bungleiang Site Office</b>                                                                    |
| MIZ SS02     | New 33/11 KV DMS S/S<br>33/11 KV South Bungleiang S/S                                                                                               | 1) D. Talukdar (Dy. General Manager)<br>2) Pritam Das (Engineer)                                    |
| MIZ SS02     | <b>EHV Transmission Lines</b><br>132 kv S.C (on D.C Tower) W.Phaileng-Marpara Line<br>Bay Extension, Capacity Augmentation at existing 33/11 KV S/S | <b>W. Phaileng Site Office</b><br>1) T.V Rao (Dy. General Manager)<br>2) Pradip Das (Ch. Manager)   |
|              | Aug. 33kv West Phaileng S/S- Addition of 2 new 33kv bays<br>New 132/33 KV S/S<br>132/33 KV West Phaileng S/S<br>132/33 KV Marpara S/S               |                                                                                                     |

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 11<sup>th</sup> 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 11<sup>th</sup> 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 20<sup>th</sup> 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 20<sup>th</sup> August, 2018

Copy to:

- 1) The Engineer-in-Chief, P&E Department, for favour of information. This has refrefence 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 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 - Tanhrii, Aizawl for information & necessary action
- 4) The Executive Engineer, Mamit Power Division, Mamit for information and necessary action. This has refrefence 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/<br>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 20<sup>th</sup> 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 20<sup>th</sup> August, 2018.**

Copy to:

- 1) The Engineer-in-Chief, P&E Department, for favour of information. This has refrefence 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 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
- 4) The Executive Engineer, Mamit Power Division, Mamit for information and necessary action. This has refrefence 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.

Receipt No: 180  
Date: 18/08/2018

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. |
|---------|----------------------------|----------------------------|---------------------------------------|-------------|
| 1.      | W.PHAILENG                 | 1) Pu Lalchhuanmawia       | VC President                          | 9378165452  |
|         |                            | 2) Pu Rokima Rokhum        | YMA President                         | 7085626883  |
|         |                            | 3) Pu Ngursangkima Sailo   | YMA Secretary                         | 8730907317  |
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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/<br>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  |
| 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  |
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|         |                            | 2) Pu A.Lalpeka            | YMA Secretary                         |             |
|         |                            | 3) Pu A.Pazawna            |                                       | 9383180094  |
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|         |                            | 2) H.Chanchinmawia         | YMA President                         | 825692628   |
|         |                            | 3) Pu Lalnunhlina          | YMA Secretary                         | 8259932137  |
|         |                            | 4) Pu Lalrotlinga          |                                       | 8794815681  |
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|         |                            | 2) Pi Lalrimawii           | VC Member                             | 9612226960  |
|         |                            | 3) Pu Rinsiana             | YMA President                         | 9862391585  |
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|         |                            | 2) Pu Loki Ronjon          | YC President                          | 9485311668  |
|         |                            | 3) Pu Budo Sash            |                                       | 9485023475  |
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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 7<sup>th</sup> 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 7<sup>th</sup> 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](mailto: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)

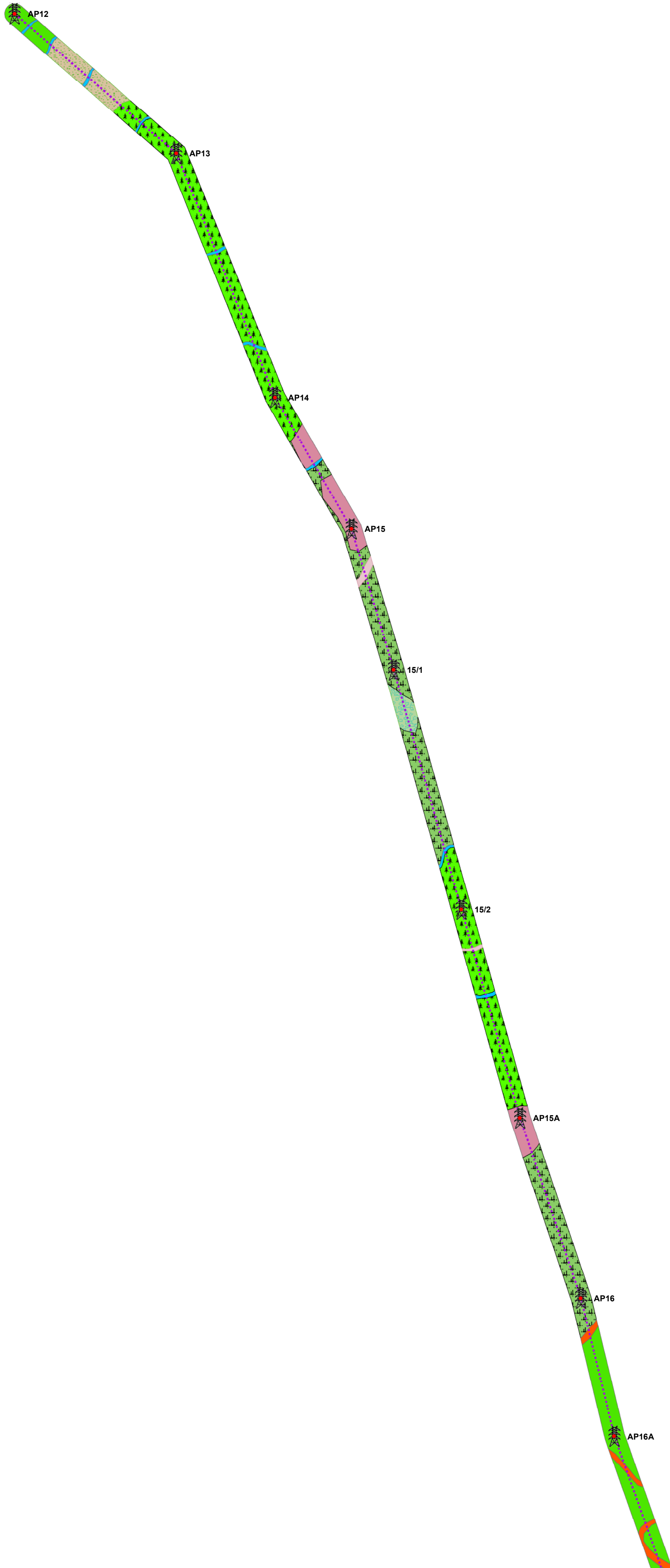
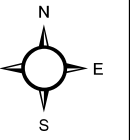
DGM (NERPSIP)  
AIZAWL, MIZORAM

Copy to :

- 1) Secretary, Power & Electricity Department (Mizoram) for kind information.

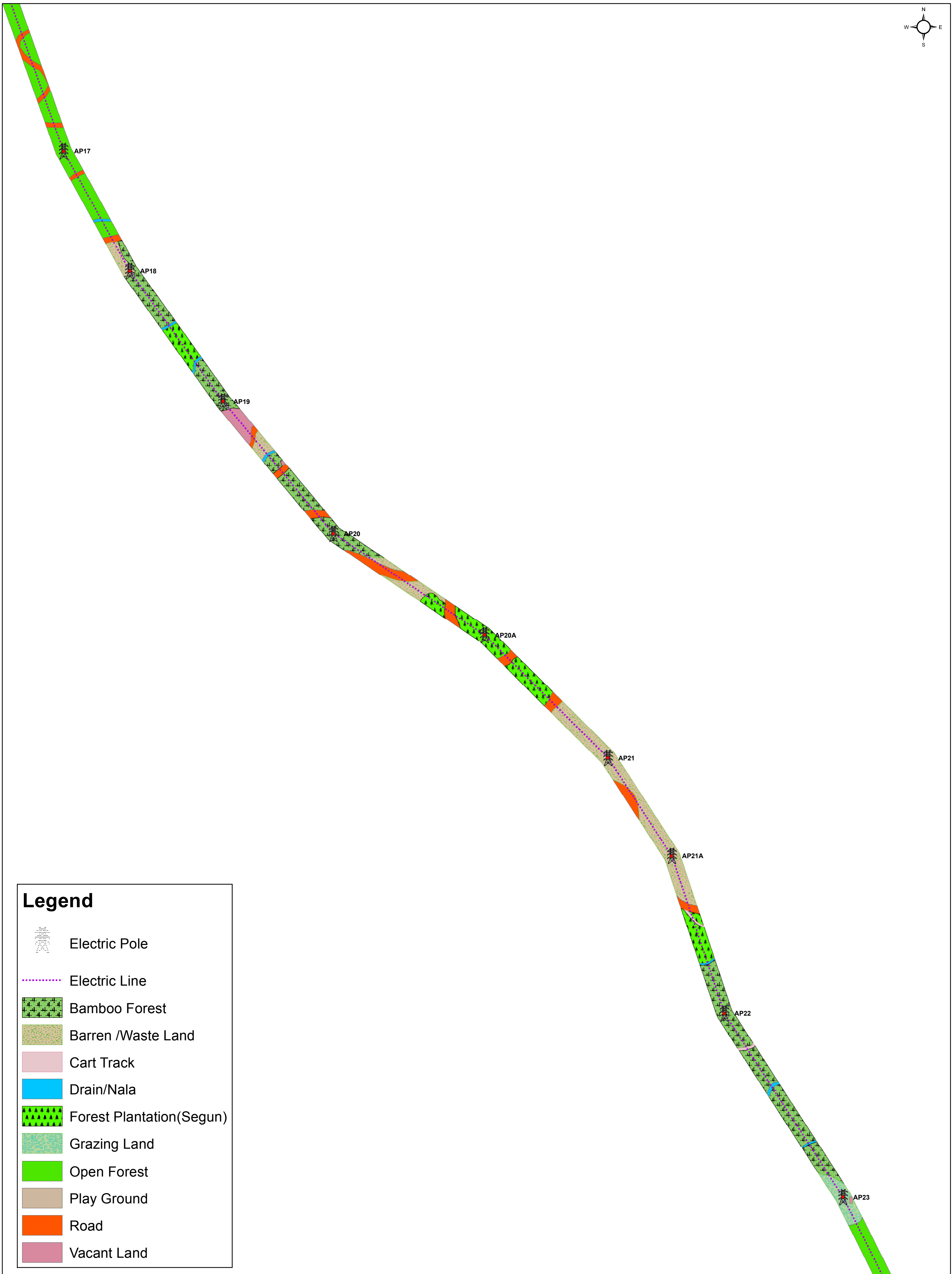
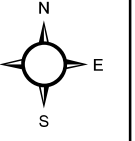
# **Annexure A and B**

**LAND USE/LAND COVER DETAILS OF LUNGSEN - CHAWNGTE 132 KV POWER TRANSMISSION LINE**  
**CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)**  
**PREPARED BY GREEN CIRCLE INC,**






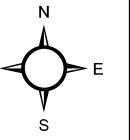
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CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)  
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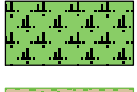



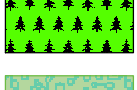




**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land

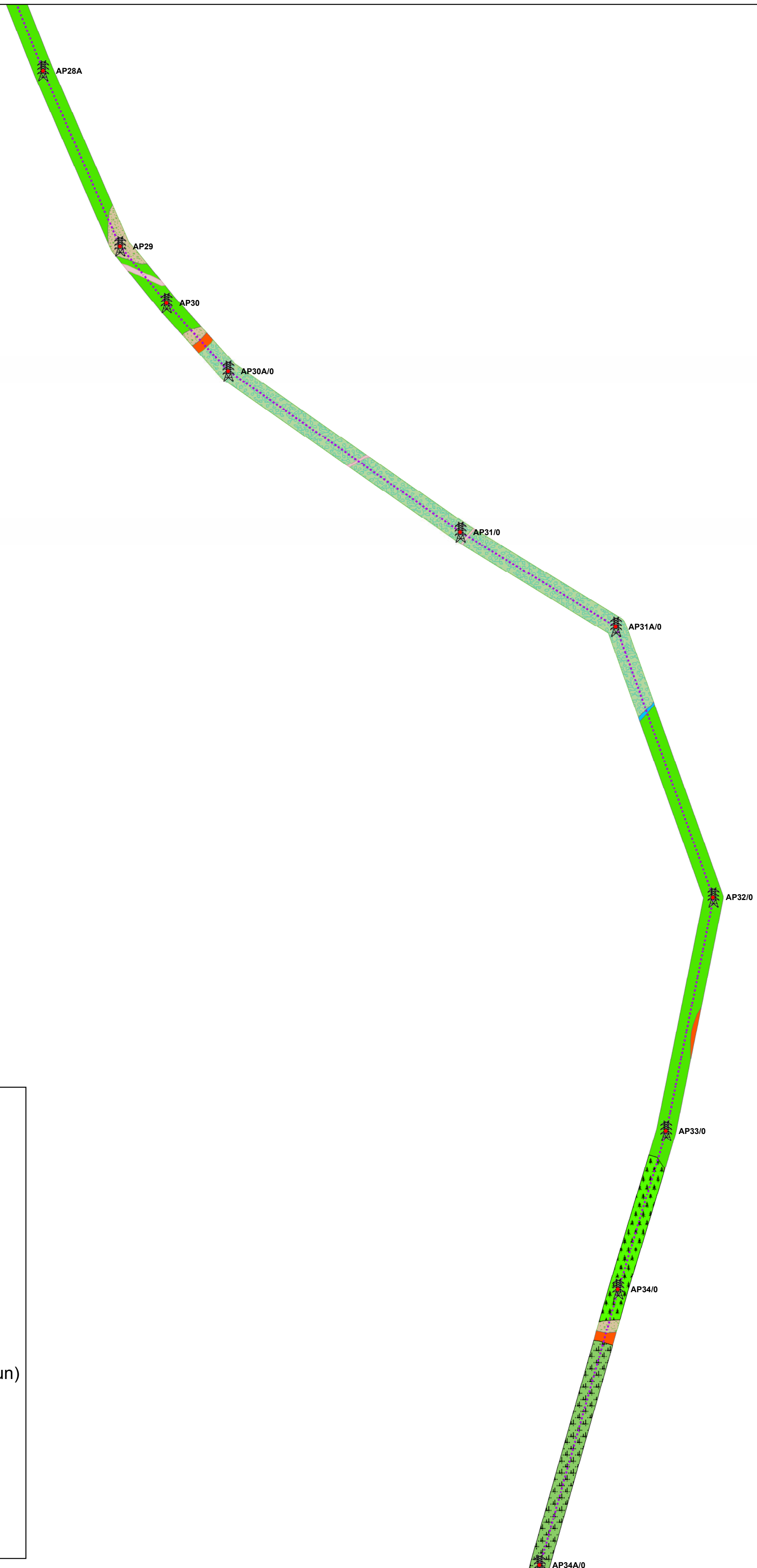
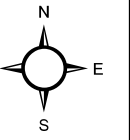
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**PREPARED BY GREEN CIRCLE INC,**




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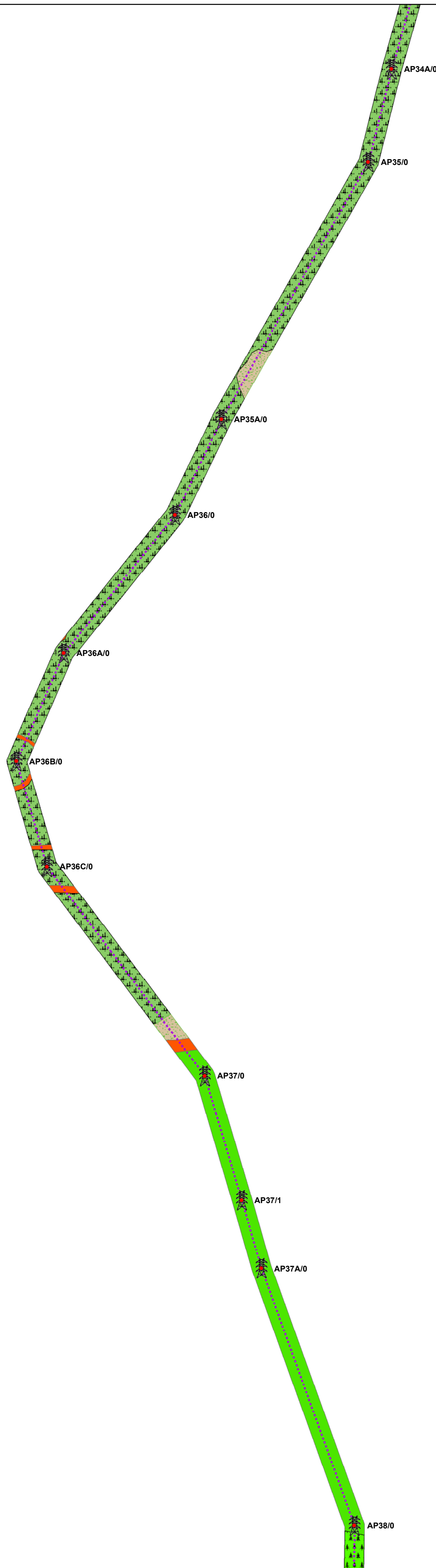
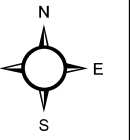
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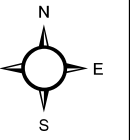
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**Legend**

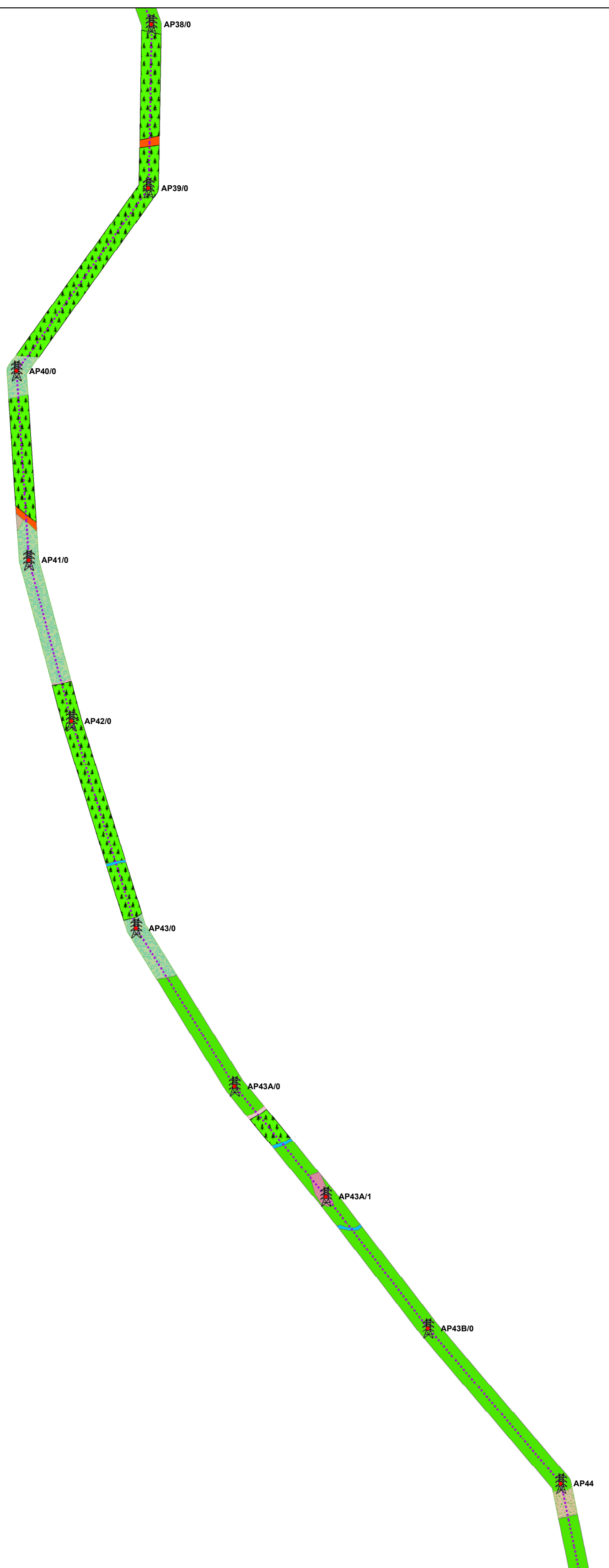
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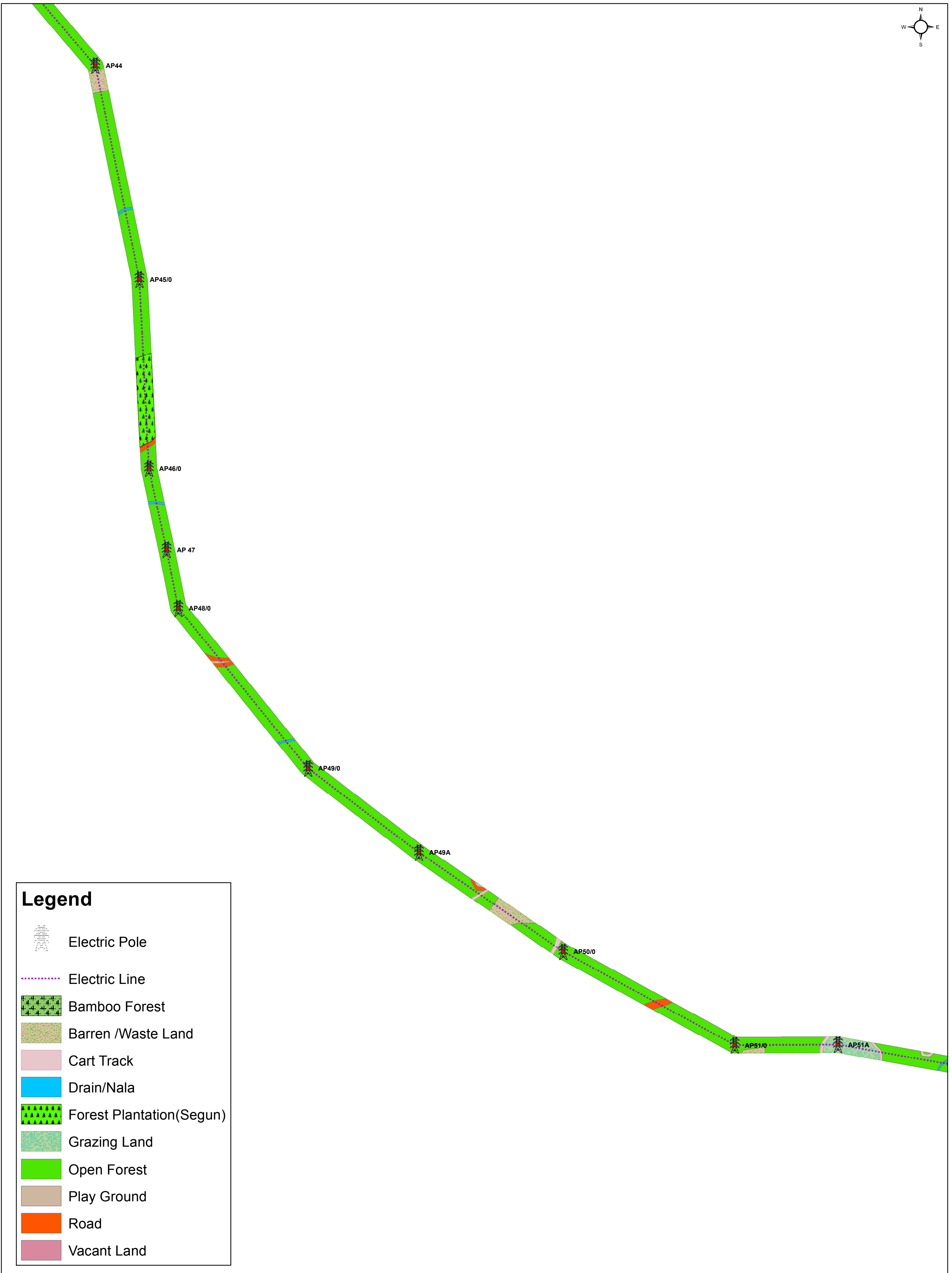
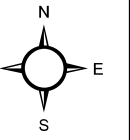
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





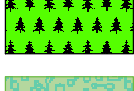








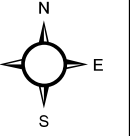
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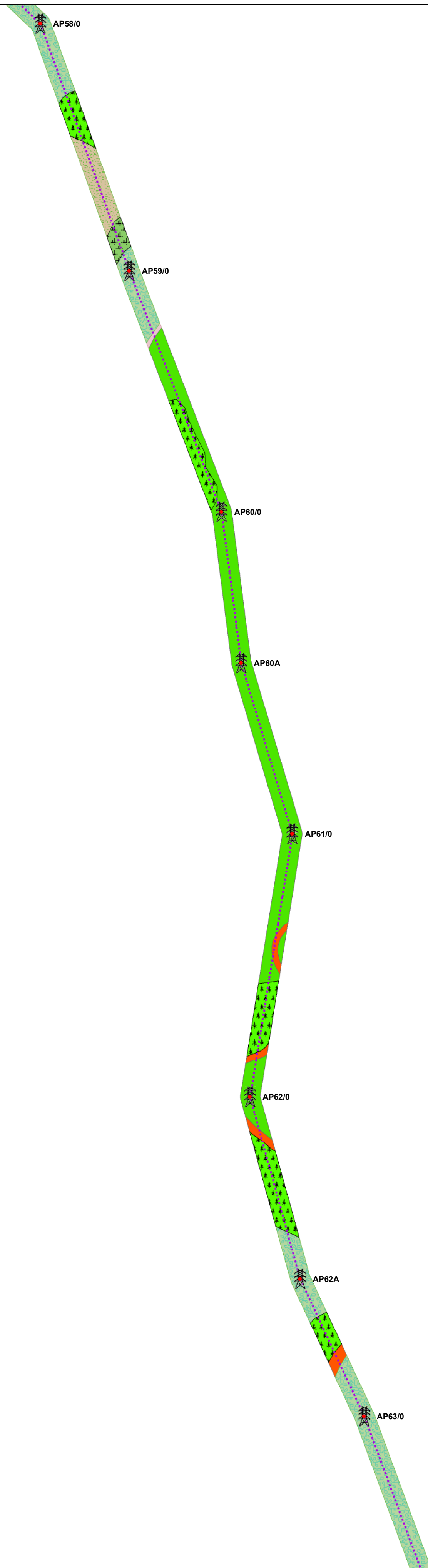
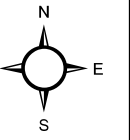
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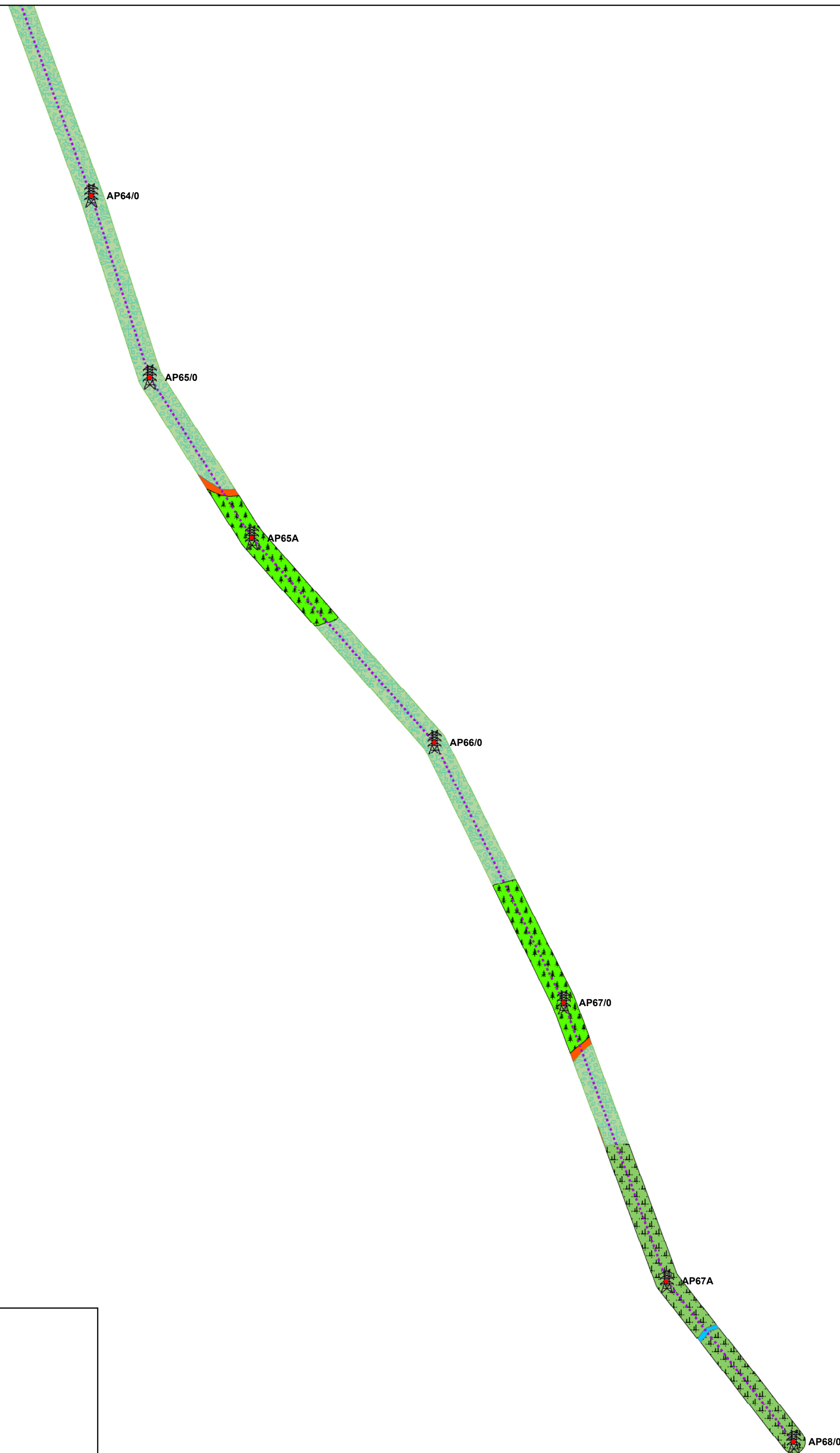
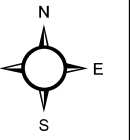
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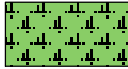








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-  Road
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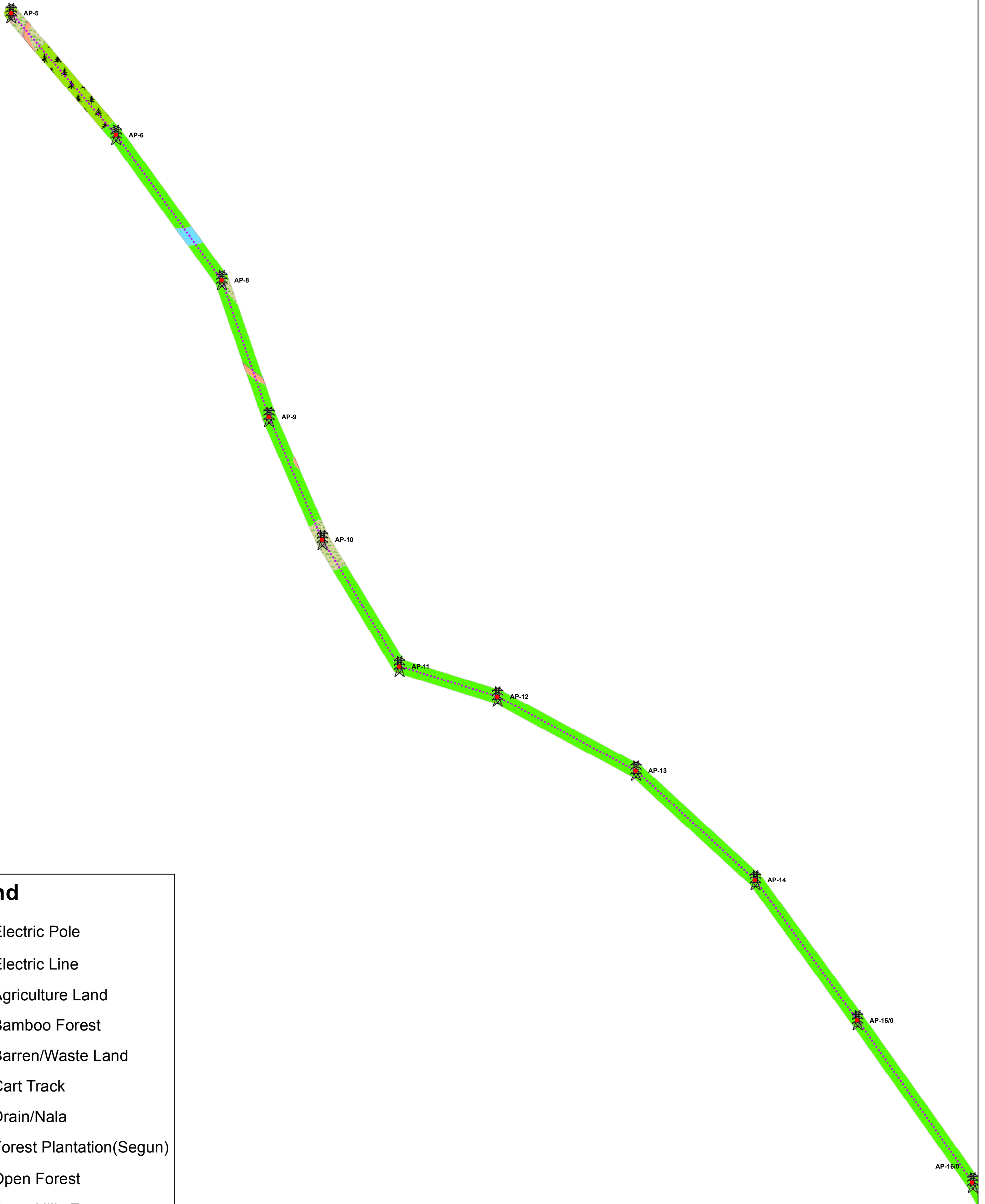
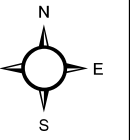
LAND USE/LAND COVER DETAILS OF LUNGSEN - CHAWNGTE 132 KV POWER TRANSMISSION LINE  
CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP)  
PREPARED BY GREEN CIRCLE INC,



**Legend**

-  Electric Pole
-  Electric Line
-  Bamboo Forest
-  Barren /Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation(Segun)
-  Grazing Land
-  Open Forest
-  Play Ground
-  Road
-  Vacant Land

**LAND USE/LAND COVER DETAILS OF CHAWNGTE - SOUTH BUNGTLANG 132 KV TRANSMISSION LINE**  
**CLIENT :- POWER GRID CORPORATION OF INDIA LIMITED (UNDER NERPSIP PROJECT)**  
**PREPARED BY GREEN CIRCLE INC,**

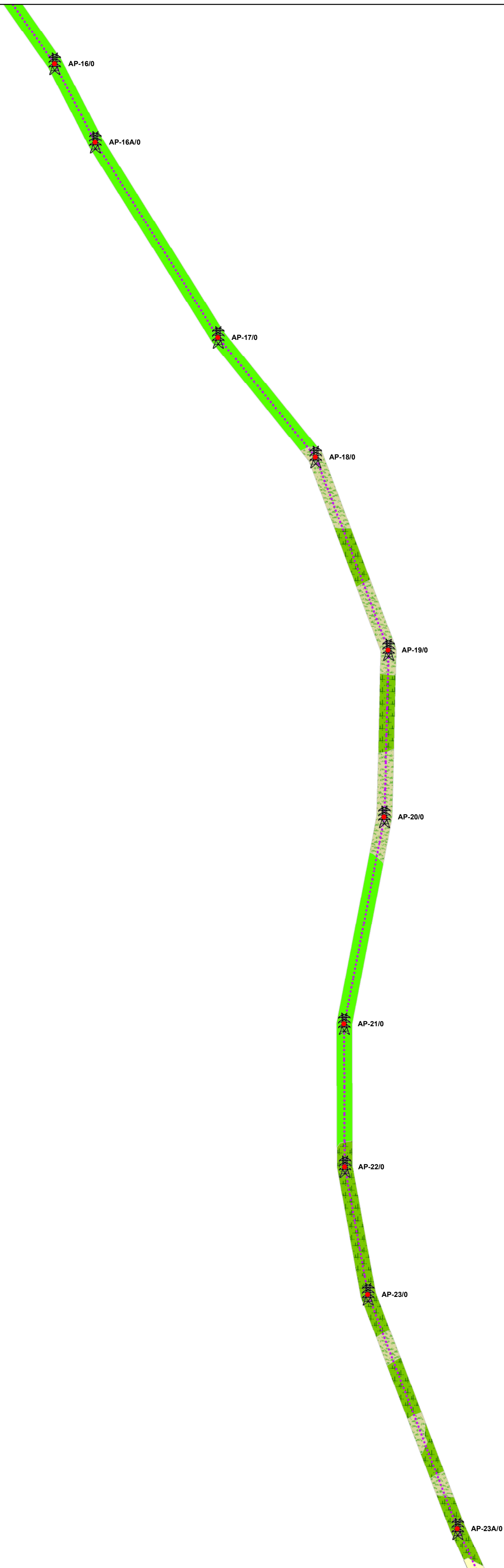
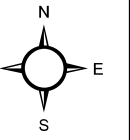


**Legend**















-  Electric Pole
-  Electric Line
-  Agriculture Land
-  Bamboo Forest
-  Barren/Waste Land
-  Cart Track
-  Drain/Nala
-  Forest Plantation (Segun)
-  Open Forest
-  Open Hilly Forest
-  Pond/Lake
-  River
-  Road
-  Vacant Land



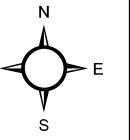
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-  River
-  Road
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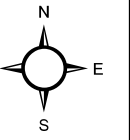


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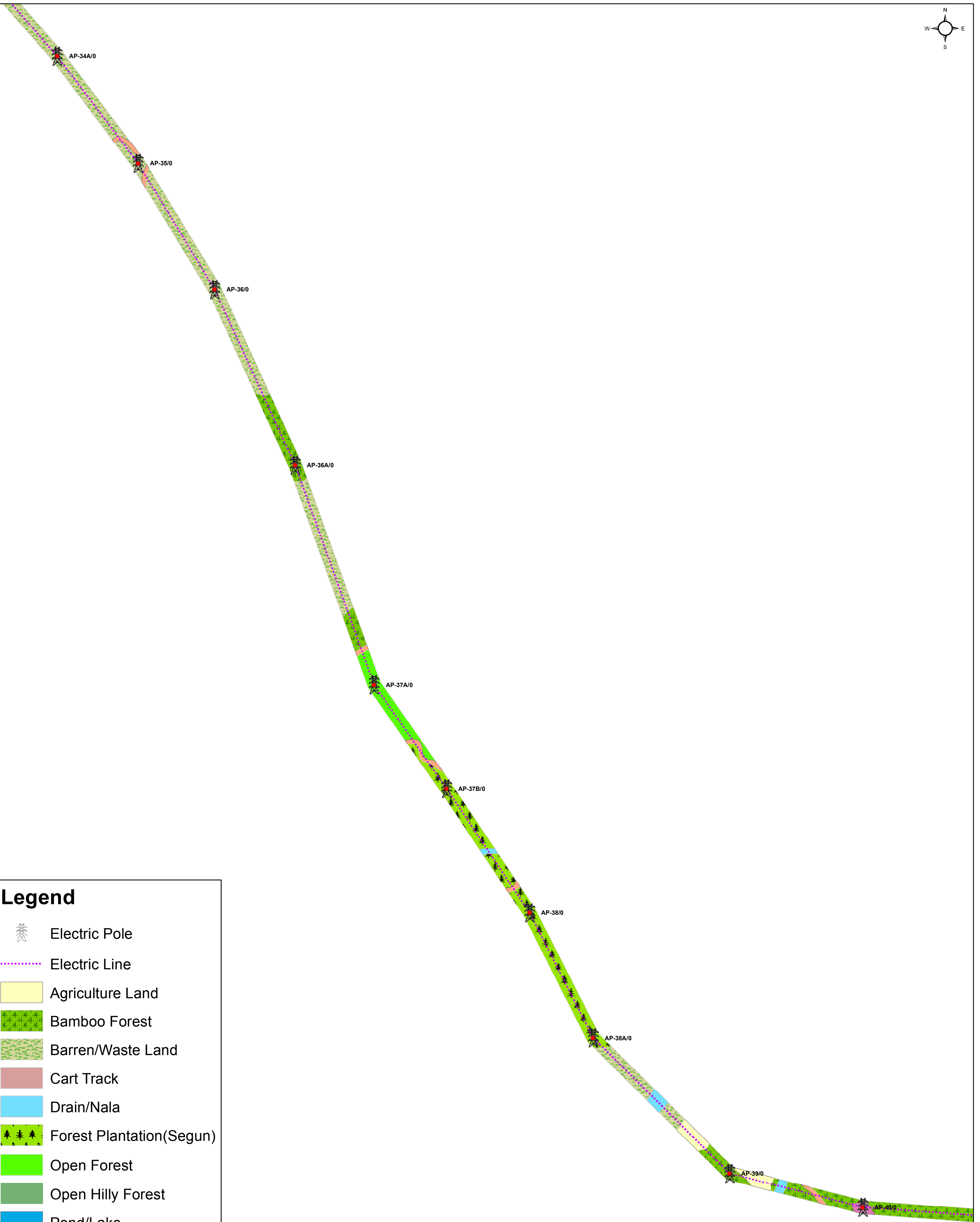
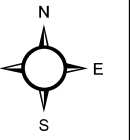
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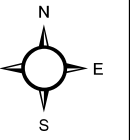
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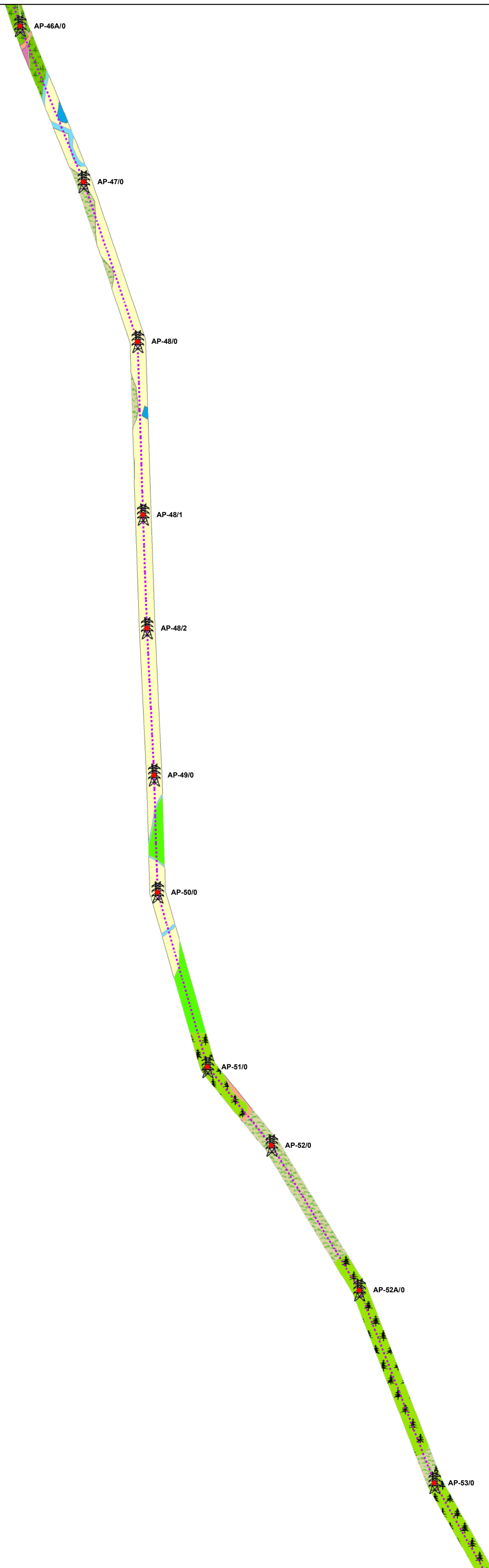
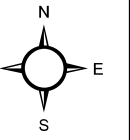


**Legend**














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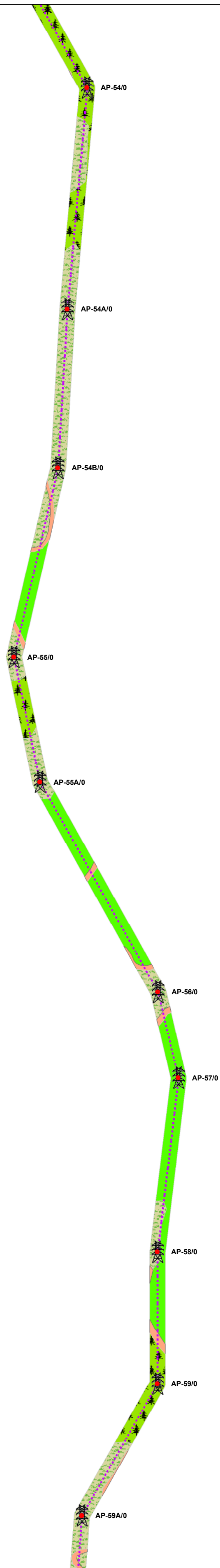
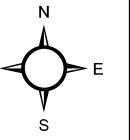
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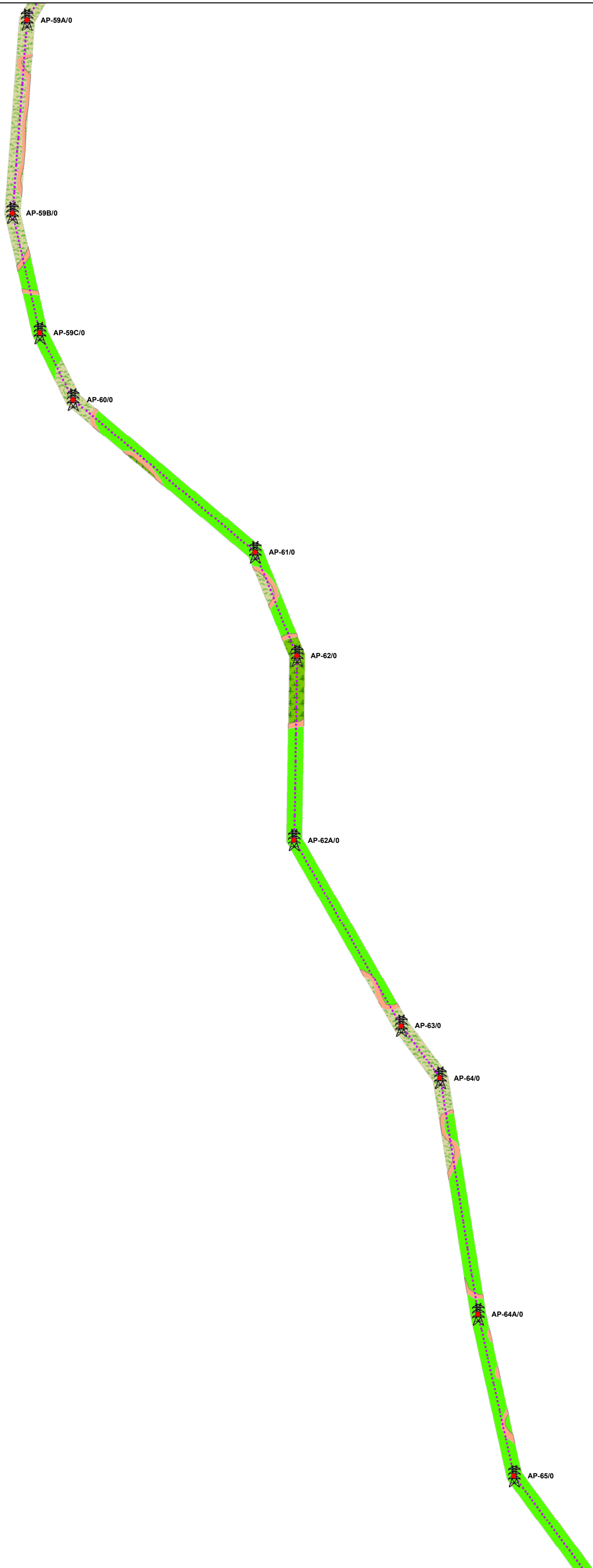
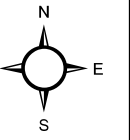
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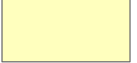











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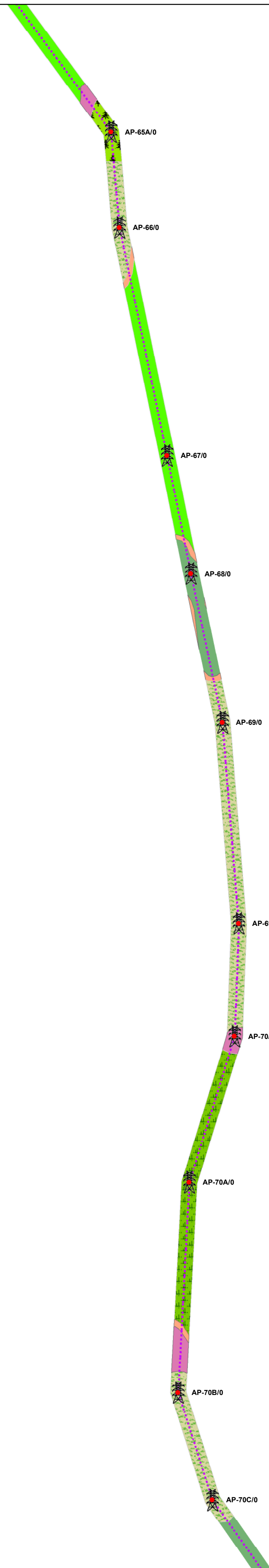
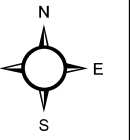
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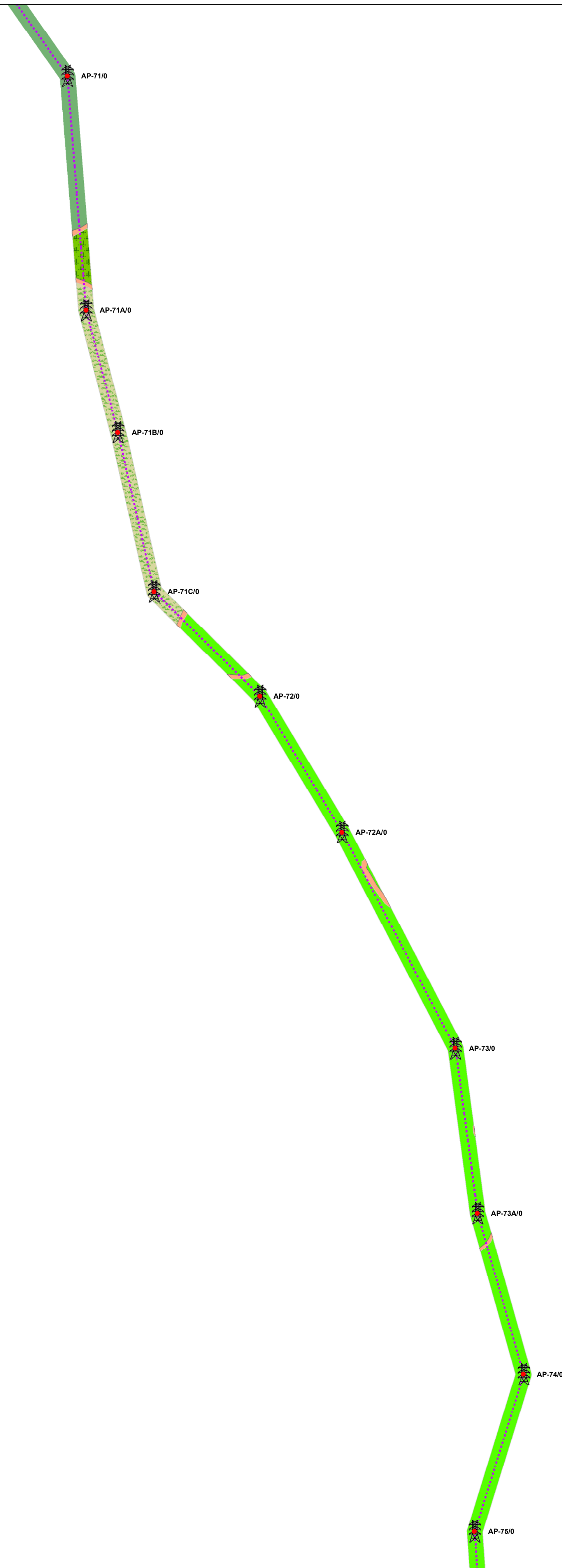
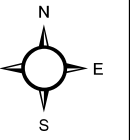
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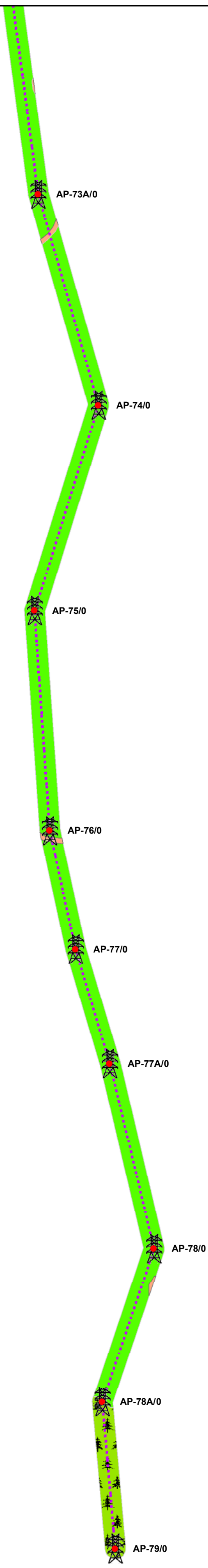
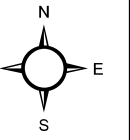


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# Appendix



FEAR for T&D subprojects in Lunglei and  
Lawngtlai 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<br>Typic Dystrochrepts<br>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<br>Typic Udorthents<br>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<br>Typic Dystrochrepts<br>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<br>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<br>Typic Hapludults<br>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<br>Typic Udorthents<br>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<br>Fine Loamy<br>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<br>Typic Dystrochrepts<br>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<br>Fine loamy<br>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<br>Typic Dystrochrepts<br>Fragmental lithic   |
|           | Associated with: shallow, well drained, fragmental soils very steeply sloping parallel ridges, with severe erosion hazard and severe stoniness                                                       | Udorthents<br>Fine loamy<br>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<br>Typic Dystrochrepts<br>Fine loamy          |
|           | Associated with: Deep, well drained, fine loamy soils on moderately sloping side slopes of the hills with moderate erosion hazard                                                                    | Typic Haplumbrepts<br>Coarse loamy<br>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<br>Typic Dystrochrepts<br>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<br>Fine loamy<br>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<br>Typic Dystrochrepts<br>Fine loamy                      |
|           | Associated with: Deep, well drained, fine loamy soils on gently sloping side slopes with moderate erosion hazard                                                          | Typic Dystrochrepts<br>Fine loamy<br>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<br>Typic Udorthents<br>Fine Loamy                   |
|           | Associated with: very Deep, well drained, fine loamy soils on moderately sloping hill top with moderate erosion hazard                                                    | Typic Haplumbrepts<br>Fine Loamy<br>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<br>Umbric Dystrochrepts<br>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<br>Typic Udorthents<br>Fine loamy                 |
|           | Associated with: Deep, well drained, fine loamy soils on moderately sloping hill tops with moderate erosion hazard                                                        | Umbric Dystrochrepts<br>Fine loamy<br>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<br>Typic Dystrochrepts<br>Coarse loamy                    |
|           | Associated with: Deep, somewhat excessively drained, coarse loamy soils on moderately sloping ridge tops with severe erosion hazard                                       | Typic Udorthents<br>Fine Loamy<br>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<br>Typic Kandiuadlts<br>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<br>Fine Loamy<br>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<br>Typic Kandiuadlts<br>Fine loamy                  |
|           | Associated with: Deep, imperfectly drained, fine loamy soils on gently sloping hill top with moderate erosion hazard                                                      | Aquic Dystrochrepts<br>Fine<br>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<br>Typic Dystrochrepts<br>Fine loamy              |
|           | Associated with: very Deep, well drained, fine loamy soils on moderately sloping low-lying residual hills with moderate erosion hazard                                    | Typic Hapludults<br>Clay Loamy Skeletal typic<br>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<br>Typic Dystrachrepts<br>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<br>Fine Loamy Aquic<br>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<br>Typic Dystrachrepts<br>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<br>Coarse loamy Typic<br>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<br>Typic Dystrachrepts<br>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<br>Fine loamy<br>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<br>Typic Dystrachrepts<br>Fine Loamy Aquic          |
|           | Associated with: deep to very deep, poorly or imperfectly drained, fine loamy soils with slight erosion hazard                                                                   | Dystrachrepts<br>Fine Loamy Oxyaquic<br>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<br>Typic Dystrachrepts<br>Fine Loamy Oxyaquic       |
|           | Associated with: Deep to very deep, imperfectly drained, fine loamy soils with slight erosion hazard                                                                             | Dystrachrepts<br>Course Loamy<br>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<br>Typic Kandiodalts<br>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<br>Course Loamy<br>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<br>Dystrachrepts                           |
|           | Associated with: very deep, poorly drained, fine loamy soils with slight erosion hazard                                                                                          | Fine Loamy<br>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<br>Typic Kandiodalts<br>Fine loamy                  |
|           | Associated with: very deep, poorly drained, fine loamy soils on gently sloping low mounds with moderate erosion hazard                                                           | Umbric Dystrachrepts<br>Fine Loamy<br>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<br>Typic Dystrachrepts<br>Fine Loamy Aquic                |
|           | Associated with: very deep, imperfectly drained, fine loamy soils on very gently sloping narrow interhall valleys with slight erosion hazard                                     | Dystrachrepts<br>Fine Loamy Typic<br>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<br>Typic Haplumbrepts<br>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<br>Umbric Haplumbrepts<br>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<br>Typic Dystrochrepts<br>Coarse loamy<br>Typic Dystrochrepts<br>Fine loamy<br>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<br>Typic Dystrochrepts<br>Coarse loamy<br>Typic Dystrochrepts<br>Coarse loamy<br>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<br>Typic Dystrochrepts<br>Coarse loamy<br>Typic Dystrochrepts<br>Coarse loamy<br>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<br>Aquic Udorthents<br>Fine loamy<br>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<br>Aeric Dystrochrepts<br>Fine loamy<br>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<br>Aquic Dystrochrepts<br>Coarse loamy<br>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<br>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<br>Fine Loamy Typic Epiaquepts<br>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<br>Aquic Dystrochrepts<br>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<br>Aeric Epiaquepts<br>Fine Loamy Aquic Dystrochrepts<br>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<br>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<br>Fine Loamy Typic Epiaquepts<br>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<br>Aquic Dystrochrepts<br>Fine Oxyaquic Dystrochrepts<br>Fine<br>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<br>Typic Epiaquepts<br>Fine Loamy<br>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<br>Typic Haplumbrepts<br>Fine Loamy<br>Pachic Haplumbrepts<br>Fine<br>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>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>Callicarpa 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>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>Emblica officinalis</i>       | Sun hlu           | Euphorbiaceae    | Not assessed  |
| <i>Erythrina variegata</i>       | Fartuah           | Fabaceae         | Least concern |
| <i>Eurya cerasifolia</i>         | Sihneh            | Theaceae         | Not assessed  |
| <i>Eurya japonica</i>            | Sihneh            | Theaceae         | Not assessed  |
| <i>Ficus auriculata</i>          | Theibal           | Moraceae         | Not assessed  |
| <i>Ficus elastica</i>            | Thialret          | Moraceae         | Not assessed  |

| <b>Name of the Species</b>       | <b>Common Name</b>          | <b>Family</b>          | <b>IUCN Status</b>  |
|----------------------------------|-----------------------------|------------------------|---------------------|
| <i>Ficus hirta</i>               | <i>Sazutheipui</i>          | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Ficus hispida</i>             | <i>Paihtemaian</i>          | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Ficus racemose</i>            | <i>Chhohe</i>               | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Ficus semicordata</i>         | <i>Theipui</i>              | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Gmelina arborea</i>           | <i>Thlanvawng</i>           | <i>Verbenaceae</i>     | <i>Not assessed</i> |
| <i>Gmelina oblongifolia</i>      | <i>Vawngthla</i>            | <i>Verbenaceae</i>     | <i>Not assessed</i> |
| <i>Grewia laevigata</i>          | <i>Varitabelkang</i>        | <i>Tiliaceae</i>       | <i>Not assessed</i> |
| <i>Heteropanax fragrans</i>      | <i>Changkhen</i>            | <i>Araliaceae</i>      | <i>Not assessed</i> |
| <i>Knema linifolia</i>           | <i>Thingthi</i>             | <i>Myristicaceae</i>   | <i>Not assessed</i> |
| <i>Ligustrum robustum</i>        | <i>Chawmzil</i>             | <i>Oleaceae</i>        | <i>Not assessed</i> |
| <i>Macaranga indica</i>          | <i>Hnahkhar</i>             | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Macaranga peltata</i>         | <i>Kharduap</i>             | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Macaranga pustulata</i>       | <i>Hnahkharpa</i>           | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Mallotus paniculatus</i>      | <i>Khar-pa</i>              | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Mangifera indica</i>          | <i>Theihai</i>              | <i>Anacardiaceae</i>   | <i>Not assessed</i> |
| <i>Manihot esculenta</i>         | <i>Pangbal</i>              | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Mesua ferra</i>               | <i>Herhse</i>               | <i>Guttiferae</i>      | <i>Not assessed</i> |
| <i>Michelia champaca</i>         | <i>Ngiau</i>                | <i>Magnoliaceae</i>    | <i>Not assessed</i> |
| <i>Oroxylum indicum</i>          | <i>Archangkawm</i>          | <i>Bignoniaceae</i>    | <i>Not assessed</i> |
| <i>Parkia timoriana</i>          | <i>Zawngtah</i>             | <i>Mimosaceae</i>      | <i>Not assessed</i> |
| <i>Persea villosa</i>            | <i>Bul bawn</i>             | <i>Lauraceae</i>       | <i>Not assessed</i> |
| <i>Phoebe hainesiana</i>         | <i>Bul-eng</i>              | <i>Lauraceae</i>       | <i>Not assessed</i> |
| <i>Protium serratum</i>          | <i>Bil</i>                  | <i>Burseraceae</i>     | <i>Not assessed</i> |
| <i>Rhus semialata</i>            | <i>Khawm hma</i>            | <i>Anacardiaceae</i>   | <i>Not assessed</i> |
| <i>Sapium baccatum</i>           | <i>Thing vak pui</i>        | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Sapium eugeniaefolium</i>     | <i>Thingvawkpuikungm am</i> | <i>Euphorbiaceae</i>   | <i>Not assessed</i> |
| <i>Saraca asoca</i>              | <i>Mual hawih</i>           | <i>Caesalpiniaceae</i> | <i>Not assessed</i> |
| <i>Schima wallichii</i>          | <i>Khiang</i>               | <i>Theaceae</i>        | <i>Not assessed</i> |
| <i>Securinega virosa</i>         | <i>Sai siak</i>             | <i>Phyllanthaceae</i>  | <i>Not assessed</i> |
| <i>Spondias pinata</i>           | <i>Tawitaw</i>              | <i>Moraceae</i>        | <i>Not assessed</i> |
| <i>Sterculia alata</i>           | <i>Thing van dawt</i>       | <i>Sterculiaceae</i>   | <i>Not assessed</i> |
| <i>Sterculia urens</i>           | <i>Pang khau</i>            | <i>Sterculiaceae</i>   | <i>Not assessed</i> |
| <i>Sterculia villosa</i>         | <i>Khaupui</i>              | <i>Sterculiaceae</i>   | <i>Not assessed</i> |
| <i>Stereospermum chelonoides</i> | <i>Zihngal</i>              | <i>Bignoniaceae</i>    | <i>Not assessed</i> |
| <i>Syzygium clariflorum</i>      | <i>Pichilimim</i>           | <i>Myrtaceae</i>       | <i>Not assessed</i> |
| <i>Syzygium cumini</i>           | <i>Lenhmui</i>              | <i>Myrtaceae</i>       | <i>Not assessed</i> |
| <i>Tectona grandis</i>           | <i>Tlawr</i>                | <i>Verbenaceae</i>     | <i>Not assessed</i> |
| <i>Terminalia myriocarpa</i>     | <i>Char</i>                 | <i>Combretaceae</i>    | <i>Not assessed</i> |
| <i>Tetrameles nudiflora</i>      | <i>Thingdawl</i>            | <i>Datisceae</i>       | <i>Lower risk</i>   |
| <i>Toona ciliata</i>             | <i>Teipui</i>               | <i>Meliaceae</i>       | <i>Lower risk</i>   |
| <i>Trema orientalis</i>          | <i>Belphuar</i>             | <i>Cannabaceae</i>     | <i>Not assessed</i> |
| <i>Vitex peduncularis</i>        | <i>Thing khawi lu</i>       | <i>Verenaceae</i>      | <i>Not assessed</i> |
| <i>Wendlandia budleoides</i>     | <i>Batling</i>              | <i>Rubiaceae</i>       | <i>Not assessed</i> |



## 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>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>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>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 stipularis</i>         | Hrui-phak-tel            | Euphorbiaceae   | Not assessed | Shrub   |
| <i>Bridelia tomentosa</i>          | Se-be-hliang             | Euphorbiaceae   | Not assessed | Shrub   |
| <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>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>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>Dioscorea alata</i>             | Ba-chhim                 | Dioscoriaceae   | Not assessed | Climber |
| <i>Dioscorea glabra</i>            | Hra-kai                  | Dioscoriaceae   | Not assessed | Climber |
| <i>Dioscorea hispida</i>           | li-liam                  | Dioscoriaceae   | Not assessed | Climber |
| <i>Dioscorea pentaphylla</i>       | Vawk-pui-ba-hra          | Dioscoriaceae   | 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 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   |

| <b>Name of the Species</b>        | <b>Common</b>       | <b>Family</b>  | <b>IUCN Status</b>  | <b>Remarks</b> |
|-----------------------------------|---------------------|----------------|---------------------|----------------|
| <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>Rhododendronjohnstonianum</i>  | Chhawkhle-i-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>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>        | <b>Hmunphiah</b>    | <b>Poaceae</b> | <b>Not assessed</b> | Grass          |

### 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>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>Dendrocalamusdampaensis</i>  | Dampa mau      | Poaceae        | Not assessed | Bamboo    |
| <i>Dendrocalamushamiltonii</i>  | Phulrua        | Poaceae        | Not assessed | Bamboo    |
| <i>Dendrocalamuslongispatus</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>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

| Common Name                    | Scientific Name                  | IUCN Status     |
|--------------------------------|----------------------------------|-----------------|
| White cheeked Partridge        | <i>Arborophila atrogularis</i>   | Near Threatened |
| Mountain bamboo Partridge      | <i>Bambusicola fytchii</i>       | Least Concern   |
| Red jungle fowl                | <i>Gallus gallus</i>             | Least Concern   |
| Striated heron                 | <i>Butorides stariata</i>        | Least Concern   |
| Cattle egret                   | <i>Bubulcus ibis</i>             | Least Concern   |
| Mountain hawk eagle            | <i>Nisaetus nipalensis</i>       | Least Concern   |
| Spotted dove                   | <i>Streptopelia chinensis</i>    | Least Concern   |
| Ashy-headed green pigeon       | <i>Treron phayei</i>             | Near Threatened |
| Wedge tailed green pigeon      | <i>Treron sphennurus</i>         | Least Concern   |
| Mountain scops owl             | <i>Otus spilocephalus</i>        | Least Concern   |
| Oriental scops owl             | <i>Otus sunia</i>                | Least Concern   |
| Silver backed Needle tail      | <i>Hirundapus cochinchii</i>     | Least Concern   |
| House swift                    | <i>Apus nipalensis</i>           | Least Concern   |
| Great hornbill                 | <i>Buceros bicornis</i>          | Near Threatened |
| Wreathed hornbill              | <i>Aceros undulatus</i>          | Least Concern   |
| Great barbet                   | <i>Megalaima virens</i>          | Least Concern   |
| Grey capped woodpecker         | <i>Dendrocopos canicapillus</i>  | Least Concern   |
| Rufous woodpecker              | <i>Celeus brachyurus</i>         | Least Concern   |
| Pied falconet                  | <i>Microhierax melanoleucos</i>  | Least Concern   |
| Eurasian kestrel               | <i>Falco tinnunculus</i>         | Least Concern   |
| Large woodshrike               | <i>Tephrodornis gularis</i>      | Least Concern   |
| Short billed minivet           | <i>Pericrocotus brevirostris</i> | Least Concern   |
| Scarlet minivet                | <i>Pericrocotus speciosus</i>    | Least Concern   |
| Grey backed shrike             | <i>Lanius tephonotus</i>         | Least Concern   |
| Black hooded oriole            | <i>Oriolus xanthornus</i>        | Least Concern   |
| Ashy drongo                    | <i>Dicrurus leucophaeus</i>      | Least Concern   |
| Crow billed Drongo             | <i>Dicrurus annectans</i>        | Least Concern   |
| Black naped Monarch            | <i>Hypothymis azurea</i>         | Least Concern   |
| Common green magpie            | <i>Cissa chinensis</i>           | Least Concern   |
| Large billed crow              | <i>Corvus macrorhynchos</i>      | Least Concern   |
| Grey headed canary- Flycatcher | <i>Culicipa ceylonensis</i>      | Least Concern   |
| Black crested bulbul           | <i>Pycnonotus flaviventris</i>   | Least Concern   |
| Red vented bulbul cupwing      | <i>Pycnonotus cafer</i>          | Least Concern   |
| Scaly breasted/pygmy           | <i>Pnoepyga albiventer</i>       | Least Concern   |
| Grey billed Tesia              | <i>Tesia cyaniventer</i>         | Least Concern   |
| Slaty bellied tesia            | <i>Tesia olivea</i>              | Least Concern   |
| Yellow bellied warbler         | <i>Abroscopus superciliaris</i>  | Least Concern   |
| Black faced warbler            | <i>Abroscopus schisisticeps</i>  | Least Concern   |
| Yellow brown/Hume's Warbler    | <i>Phylloscopus inornatus</i>    | Least Concern   |
| Eastern crowned leaf warbler   | <i>Phylloscopus trochiloides</i> | Least Concern   |
| Golden spectacled warbler      | <i>Seicurus burkii</i>           | Least Concern   |
| Blyth's reed warbler           | <i>Acrocephalus dumoteum</i>     | Least Concern   |
| Wastern crowned warbler        | <i>Phylloscopus occipitalis</i>  | Least Concern   |
| Thick billed warbler           | <i>Phragmaticola aedon</i>       | Least Concern   |
| Common tailorbird              | <i>Orthotomus sutorius</i>       | Least Concern   |
| Refescent prina                | <i>Prinia rufescens</i>          | Least Concern   |

|                                |                                 |               |
|--------------------------------|---------------------------------|---------------|
| Oriental white eye             | <i>Zosteropus palpebrosus</i>   | Least Concern |
| Pin striped tit Babbler        | <i>Mixornis gularis</i>         | Least Concern |
| Rufous-fronted Babbler         | <i>Cyanordema rufifrons</i>     | Least Concern |
| White browed Scimitar- Babbler | <i>Pomatorhinus schisticeps</i> | Least Concern |
| Siberian rubythroat            | <i>Calliope calliope</i>        | Least Concern |
| Little pied flycatcher         | <i>Ficedula westermanni</i>     | Least Concern |
| Rufous gorgeted flycatcher     | <i>Ficedula strophciata</i>     | Least Concern |
| Plain flowerpecker             | <i>Dicaeum minullum</i>         | Least Concern |
| Ruby cheeked sunbird           | <i>Chalcoparis singalensis</i>  | Least Concern |
| Little spiderhunter            | <i>Arachnothera longirostra</i> | Least Concern |
| Streaked spiderhunter          | <i>Arachnothera magna</i>       | Least Concern |
| Grey wagtail                   | <i>Motacilla cinerea</i>        | Least Concern |
| Forest wagtail                 | <i>Dendronanthus indicus</i>    | Least Concern |
| Eurasian tree sparrow          | <i>Passer montanus</i>          | Least Concern |
| Black stork                    | <i>Ciconia nigra</i>            | Least Concern |
| Himalyan bluetail              | <i>Tarsiger cyanurus</i>        | Least Concern |



## 5. Identified Mammals in Sampling Area

|                | Common Name            | Scientific Name              | Vernacular Name | IUCN status    |
|----------------|------------------------|------------------------------|-----------------|----------------|
| <b>Mammals</b> | Western Hoolock gibbon | <i>Hoolock hoolock</i>       | Hauhuk          | Endangered     |
|                | Assamese macaque       | <i>Macaca assamensis</i>     | Zo/Khan Zawng   | Not Threatened |
|                | Stump tailed macaque   | <i>Macaca arctiodes</i>      | Zawnghmaisen    | Vulnerable     |
|                | Flying fox             | <i>Pteropus giganteus</i>    | Not known       | Least Concern  |
|                | Rat-headed bat         | <i>Tylonycteris pachypus</i> | Not known       | Least Concern  |
|                | House rat              | <i>Rattus rattus</i>         | Not known       | Least Concern  |
|                | House-mouse            | <i>Mus musculus</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          |
|--------------|----------------|-----------------------------|----------------------|
| <b>Frogs</b> | Bufonidae      | <i>Bufo melanostictus</i>   | <b>Least Concern</b> |
|              | Megophryidae   | <i>Xenophrys parva</i>      | Least Concern        |
|              | Ranidae        | <i>Amolops marmoratus</i>   | Least Concern        |
|              | <b>Ranidae</b> | <b><i>Rana danielli</i></b> | 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  |
| Snakes  | Gekkonidae | <i>Gekko gekko</i>           | Not assessed  |
|         | Colubridae | <i>Amphiesma xenura</i>      | Not assessed  |
|         |            | <i>Xenochrophis piscator</i> | Not assessed  |
|         | Elapidae   | <i>Bungarus fasciatus</i>    | Least Concern |

## 8. Identified Butterflies in Sampling Area

| Family                          | Scientific Name              | Common Name             | IUCN Status  |
|---------------------------------|------------------------------|-------------------------|--------------|
| <b>Butterflies Papilionidae</b> | <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>Papilio castor</i>        | Common mime             | Not assessed |
|                                 | <i>Papilio nephelus</i>      | Yellow helen            | Not assessed |
|                                 | <i>Byasa dasarada</i>        | Great windmill          | Not assessed |
| <b>Pieridae</b>                 | <i>Catopsilia pyranthe</i>   | Mottled emigrant        | Not assessed |
|                                 | <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>Gandaca harina</i>        | Tree yellow             | Not assessed |
|                                 | <i>Pieris canidia</i>        | Asian cabbage white     | Not assessed |
| <b>Nymphalidae</b>              | <i>Apatura ambica</i>        | Indian purple emperor   | Not assessed |
|                                 | <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>Paranoia aglea</i>        | Glassy tiger            | Not assessed |
| <b>Hesperiidae</b>              | <i>Iton semamura</i>         | Common wight            | Not assessed |
|                                 | <i>Odontoptilum angulata</i> | Chestnut angle          | Not assessed |
|                                 | <i>Hasora vita</i>           | <b>Plain banded awl</b> | Not assessed |



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## **Appendix B**

# **Public Consultation**

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, Lungsan - Chawngte leh Chawngte - S.Bungtlang 132 kV line(charged at 33kV) siam te hi telh an ni a. Heng 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 laiin 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. Liannghinglova Pachuau  
Engineer-in-Chief, P & E Deptt.  
Mizoram, Aizawl



**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 :-

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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, Lungsen - Chawngte 132 kV line(charged at 33kV) 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 laiin 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



**Photographs of Public Consultation held at Lungsen on 11<sup>th</sup> Sept.'2014**







PUBLIC CONSULATION MEETING

14

Venue: LUNGSEN

Date: 11/09/2014

ATTENDANCE

| Sl. No. | Name             | Signature      |
|---------|------------------|----------------|
| 1.      | Ramchannawia     | Ram            |
| 2.      | Sai Ziko         | Sai            |
| 3.      | K.P. Khammanawia | K.P.           |
| 4.      | H. Katsang       | H. Katsang     |
| 5.      | Laithanpui       | Laithanpui     |
| 6.      | Lal Rukh gurek   | Lal Rukh       |
| 7.      | R. Lalinthara    | R. Lalinthara  |
| 8.      | Ashwar Rai       | Ashwar         |
| 9.      | Chalrohua.       | Chalrohua      |
| 10.     | Kalkiakmani      | Kalkiakmani    |
| 11.     | Tharppui         | Tharppui       |
| 12.     | Lalduhsonga      | Lalduhsonga    |
| 13.     | Rajon Kumar      | Rajon Kumar    |
| 14.     | Ajay Heenon      | Ajay Heenon    |
| 15.     | M. Lawm Zuela.   | M. Lawm Zuela  |
| 16.     | Hmingha          | Hmingha        |
| 17.     | R. Rabinawng     | R. Rabinawng   |
| 18.     | B. Lalrinnawng   | B. Lalrinnawng |
| 19.     | A Lzanda         | A Lzanda       |
| 20.     | E.VL Ruete.      | E.VL Ruete     |
| 21.     | C. Thuanmaia     | C. Thuanmaia   |

Cont to P/2









**Photographs of Public Consultation held at South Bungtlang on 9<sup>th</sup> Sept'2014**





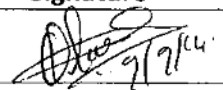
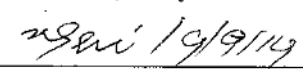

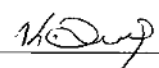

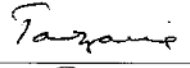

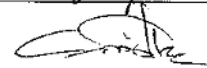

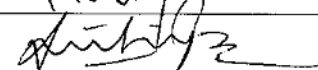
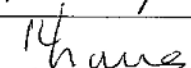
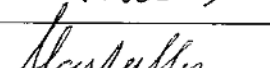
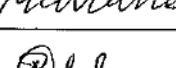
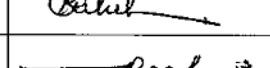
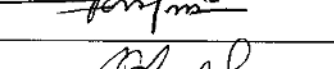
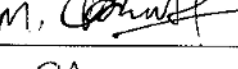
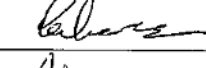
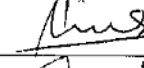
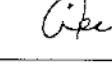
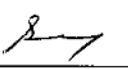


**PUBLIC CONSULATION MEETING**

1/2

**Venue:** S. Buntlap  
**Date:** 09/09/2014

ATTENDANCE

| Sl. No. | Name             | Signature                                                                             |
|---------|------------------|---------------------------------------------------------------------------------------|
| 1.      | N. Lallanpuri    |    |
| 2.      | Pi. Tialnogeni   |    |
| 3.      | Bu. N. Kingkhums |    |
| 4.      | K. Chhandama     |    |
| 5.      | H. Lalwama       |    |
| 6.      | Tazani           |    |
| 7.      | C. Saldamplings  |    |
| 8.      | K. Lalmanthanga  |    |
| 9.      | Kalbiatchua      |   |
| 10.     | Me. Lalninghela  |  |
| 11.     | Lalbiak Khums    |  |
| 12.     | Vaulalwa         |  |
| 13.     | H.T. Lalngjika   |  |
| 14.     | Hc. Lalawmpua    |   |
| 15.     | M. Lalromansa    |  |
| 16.     | J. Lalsumma      |  |
| 17.     | Hc. Singkhums    |  |
| 18.     | C. Lalminghian   |  |
| 19.     | Sunangzi         |  |
| 20.     | H. Lalwongpuri   |  |

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**OFFICE OF THE ENGINEER –IN-CHIEF**  
**POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM**  
**MIZORAM : AIZAWL : 796007**

**Minutes / proceedings of Public consultation held on 11<sup>th</sup> September, 2014 at LUNGSEN, Lunglai District, Mizoram under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram**

**Subject -** Construction of 132 KV S/C LUNGSEN ---CHWANGTE Transmission Line and associated 33 KV distribution line (From 132 KV Lungsen (new) S/s to existing 33 KV Lungsen S/s) under the scope of NERPSIP in Lunglai & Longthlai Districts of 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: - Young Mizo Association (YMA) Community Hall, Lungsen**

Pu Otto K. Lalchhuanawma, SDO, Power & Electricity Department, Lungsen 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 thawhpua 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 sawifahin, Mizoram chhunga he project kalphung leh nihdan te sawizauna a han nei a. He 132kV S/C(on D/C Tower) Lungsen –Chwangte 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,Lungsen siam thar tur atangin 33kV line Lungsen Sub-Station lo awmsa chu thlunzawm ani anga, power semdarhna tihchangtlun nan leh Lungsen 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 hnuai tihfel turin he project ah hian ruahmanna siam ani tih te mipui a han hrilh hria a, mipuite chu he project hlawhtlinna tura theitawp 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 hrihfiahna 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.

Lungsen SDO chuan he electric 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 hrih 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 hrih 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, Executive Engineer, ungsen 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 Deppt., Lungsen

**OFFICE OF THE ENGINEER –IN-CHIEF**  
**POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM**  
**MIZORAM : AIZAWL : 796007**

**Minutes / proceedings of Public consultation held on 9<sup>th</sup> September,  
2014 at BUNGTLANG SOUTH, Lawngtlai District, Mizoram under  
North Eastern Region Power System Improvement Project  
(NERPSIP) in Mizoram**

**Subject -** Construction of 132 KV S/C ---CHWANGTE – S. BUNGTLANG Transmission Line under the scope of NERPSIP in Longthlai District of 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, Bungtlang, South**

Pu Hamsat Chougloi, SDO, Power & Electricity Department, S. Bungtlang 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 thawhpua 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 sawifahin, Mizoram chhunga he project kalphung leh nihdan te sawizauna a han nei a. He 132kV S/C (on D/C Tower) Chwangte – S. Bungtlang Transmission line hi electric line lo awm tawh sate tihchangtlun nana ruahman anih thu te a han sawi chho zel 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 awin anih crawh 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 hrilhfahna leh thusawina hun hi a hunang ani.

Mipui lo kalkhawnte chuan zangnadawmna leh line kawng kal dan tur te an zawt chik hle a, in rawnkhawmna te neih leh zel nise an ti a.

S. Bunglang 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 brut 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 bawka.

Ngun taka sawiho anih hnu ah mipui lo kalkhawnte chuan he line leh sub-station siam tur te hi mipuite leh sawrkar hamthatna tur leh hmasawmna tur ani tih lungual takin an pawma. Amaherawhchu, thlai, thing leh mau leh bungrua te tichhe lo thei ber tura kalpui nise an duh ani.

Tichuan, SDO, S. Bunglang, ungsen 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 Deppt.,  
Bunglang, South

**OFFICE OF THE ENGINEER –IN-CHIEF**  
**POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM**  
**MIZORAM : AIZAWL : 796007**

**Minutes / proceedings of Public consultation held on 11<sup>th</sup> September, 2014 at LUNGSEN, Lunglai District, Mizoram under North Eastern Region Power System Improvement Project (NERPSIP) in Mizoram**

**Subject -** Construction of 132 KV S/C LUNGSEN ---CHWANGTE Transmission Line and associated 33 KV distribution line (From 132 KV Lungsen (new) S/s to existing 33 KV Lungsen S/s) under the scope of NERPSIP in Lunglai & Longthlai Districts of 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: - *Young Mizo Association (YMA) Community Hall, Lungsen***

The SDO (Electrical.) Lungsen, 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 LUNGSEN to CHWANGTE is proposed to be constructed under the scheme for strengthening the existing transmission network. He also informed that from 132 KV LUNGSEN Sub-station (proposed), a 33 kV distribution line will also be constructed connecting to 33 KV existing LUNGSEN S/s for strengthening of the distribution network and end user connectivity in the Lungsen and adjoining areas. 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) LUNGSEN 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) Lungsen and also assured that all stake holder will be taken into confident during the construction.

-sd-

SDO (Elect) Lungsen

**OFFICE OF THE ENGINEER –IN-CHIEF**  
**POWER AND ELECTRICITY DEPARTMENT: GOVT. OF MIZORAM**  
**MIZORAM : AIZAWL : 796007**

**Minutes / proceedings of Public consultation held on 9<sup>th</sup> September,  
2014 at BUNGTLANG SOUTH, Lawngtlai District, Mizoram under  
North Eastern Region Power System Improvement Project  
(NERPSIP) in Mizoram**

**Subject -** Construction of 132 KV S/C (on D/C Tower) CHWANGTE – S. BUNGTLANG Transmission Line under the scope of NERPSIP in Longthlai District of 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, Bungtlang, South**

The SDO (Electrical.) South Bungtlang, 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 CHWANGTE to BUNGTLANG SOUTH is proposed to be constructed under the scheme for strengthening the existing transmission network and to improve the end user connectivity in the Chwangte, Bungtlang and adjoining areas. 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.

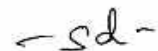
Since most of the public attending the meeting belong to Mizo Community, therefore Shri H. Sailo has explained the details of the above speech in Mizo language.

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) S. Bungtlang 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) S. Bungtlang and also assured that all stake holder will be taken into confident during the construction.



SDO (Elect)  
Bungtlang, South



FEAR for T&D subprojects in Lunglei and  
Lawngtlai District under NERPSIP in Mizoram



## Appendix C

### TOWER SCHEDULE

NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED  
 NAME OF PROJECT :- SUPPLY OF SERVICES CONTRACT FOR TOWER PACKAGE TW01 ASSOCIATED WITH NER POWER SYSTEM IMPROVEMENT PROJECT (INTERSTATE MIZORAM)  
 132KV TRANSMISSION LINE FROM CHAWNGTE TO SOUTH BUNGTLANG - TOWER SCHEDULE (AP 05 - AP 79)

| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) |        | ADJACENT SPAN |        | WEIGHT SPAN (GOLD) |         | WEIGHT SPAN (HOT) |         | CROSSING DETAILS |                                                           | UTM COORDINATE |         | REF/ANNS                                                                                                                         |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|--------|---------------|--------|--------------------|---------|-------------------|---------|------------------|-----------------------------------------------------------|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------|
|      |          |            |                    |          |                    |                   |         | LEFT          | RIGHT  | LEFT          | RIGHT  | LEFT               | RIGHT   | LEFT              | RIGHT   | EASTING          | NORTHING                                                  |                |         |                                                                                                                                  |
| 1    | AP03/G   | XXX        | ED:0M:55"          |          |                    | 0                 | 134.731 | XY            | X      | 305.00        | Y      | 370.118            | YY      | XXX               | 245.055 |                  |                                                           | 463861         | 2502012 |                                                                                                                                  |
| 2    | AP06/O   | SB+0       | 04°44'14"RT        | 305      | 305                | 305.00            | 106.205 | 325.00        | 305.00 | 345.00        | 650.00 | 370.118            | 134.251 | 17.372            | 189.952 | ROAD             |                                                           | 464079         | 2501782 |                                                                                                                                  |
| 4    | AP08/O   | SC+6       | 14°56'21"RT        | 345      | 345                | 650.00            | 96.276  | 310.00        | 345.00 | 275.00        | 620.00 | 211.136            | -70.393 | 152.640           | -75.612 | River            |                                                           | 464278         | 2501508 |                                                                                                                                  |
| 5    | AP09/O   | SC+0       | 17°47'05"RT        | 275      | 275                | 925.00            | 142.593 | 262.50        | 275.00 | 750.00        | 525.00 | -80.649            | 404.270 | 349.395           | -0.321  | ROAD             |                                                           | 464367         | 2501250 |                                                                                                                                  |
| 6    | AP10/O   | SC+0       | 09°5'48"LT         | 250      | 250                | 1175.00           | 164.518 | 267.50        | 250.00 | 285.00        | 535.00 | 332.870            | 593.939 | 251.532           | 210.154 |                  |                                                           | 464468         | 2501018 |                                                                                                                                  |
| 7    | AP11/O   | SD+0       | 39°58'47"LT        | 285      | 285                | 1460.00           | 151.054 | 240.00        | 285.00 | 195.00        | 480.00 | -79.069            | -70.214 | -41.155           | -5.247  |                  |                                                           | 464613         | 2500779 |                                                                                                                                  |
| 8    | AP12/G   | SC+0       | 10°15'12"RT        | 195      | 195                | 1655.00           | 164.707 | 245.00        | 195.00 | 295.00        | 490.00 | 223.568            | 345.309 | 118.259           | 198.574 |                  |                                                           | 464798         | 2500722 |                                                                                                                                  |
| 9    | AP13/O   | SC+0       | 13°31'05"RT        | 295      | 295                | 1950.00           | 204.294 | 297.50        | 295.00 | 300.00        | 595.00 | 440.513            | 87.391  | 527.904           | 326.452 |                  |                                                           | 465059         | 2500582 |                                                                                                                                  |
| 10   | AP14/O   | SC+0       | 12°01'17"RT        | 300      | 300                | 2250.00           | 209.190 | 317.50        | 300.00 | 335.70        | 635.00 | 210.037            | 245.815 | -33.278           | -88.340 |                  |                                                           | 465284         | 2500376 |                                                                                                                                  |
| 11   | AP15/O   | SC+0       | 09°13'37"RT        | 335      | 335                | 2585.00           | 266.009 | 356.00        | 335.00 | 377.80        | 712.00 | 572.844            | 141.628 | 719.272           | 417.315 |                  |                                                           | 465477         | 2500111 |                                                                                                                                  |
| 12   | AP16     | SC+3       | 06°24'50"RT        | 377      | 377                | 2962.00           | 271.298 | 260.50        | 377.00 | 144.00        | 521.00 | 235.774            | 5.005   | 240.779           | 217.444 |                  |                                                           | 465694         | 2499805 |                                                                                                                                  |
| 13   | AP16a    | SB+3       | 05°47'48"LT        | 144      | 144                | 3105.00           | 275.280 | 274.00        | 144.00 | 404.00        | 548.00 | -118.945           | 237.321 | -98.326           | 112.940 |                  |                                                           | 465764         | 2499670 |                                                                                                                                  |
| 14   | AP17     | SC+9       | 09°06'54"LT        | 404      | 404                | 3510.00           | 344.968 | 335.00        | 404.00 | 266.00        | 670.00 | 603.500            | 444.101 | 199.506           | 421.088 |                  |                                                           | 465975         | 2499334 |                                                                                                                                  |
| 15   | AP18     | SD+9       | 21°23'07"RT        | 266      | 266                | 3776.00           | 409.917 | 309.50        | 266.00 | 353.00        | 619.00 | 710.333            | 100.234 | 549.849           | 485.360 |                  |                                                           | 466143         | 2499128 | Ex-2 tower for electric tower requires for obtaining the required ground clearance.                                              |
| 16   | AP19     | SC+9       | 15°00'22"RT        | 353      | 353                | 4129.00           | 440.233 | 319.50        | 353.00 | 296.00        | 639.00 | 513.430            | 241.717 | 268.703           | 380.258 |                  |                                                           | 466268         | 2498796 |                                                                                                                                  |
| 17   | AP20     | SD+9       | 21°06'57"LT        | 286      | 286                | 4415.00           | 507.089 | 333.00        | 286.00 | 380.00        | 666.00 | 530.317            | 154.338 | 684.655           | 375.440 |                  |                                                           | 466257         | 2498508 | D type tower is selected based on adjacent span per mistake limit. Even though its angle of deviation is within limit of C type. |
| 18   | AP21     | SC+0       | 05°04'24"RT        | 380      | 380                | 4793.00           | 522.823 | 305.00        | 380.00 | 250.00        | 610.00 | 225.560            | 263.676 | 487.340           | 711.775 |                  | Proposed 132KV Tr.Line running parallel to Existr. Church | 466195         | 2498139 |                                                                                                                                  |
| 19   | AP22     | SC+9       | 17°03'58"LT        | 230      | 230                | 5023.00           | 498.541 | 226.00        | 230.00 | 222.00        | 452.00 | 331.113            | 382.512 | 351.399           | 25.894  |                  |                                                           | 466193         | 2497907 |                                                                                                                                  |
| 20   | AP23     | SC+6       | 09°43'00"LT        | 222      | 222                | 5240.00           | 476.051 | 326.50        | 222.00 | 431.00        | 653.00 | -160.720           | 90.566  | -70.154           | -54.951 |                  |                                                           | 466233         | 2497687 |                                                                                                                                  |



| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        |        | WEIGHT SPAN (COLO) |          |          | WEIGHT SPAN (POT) |         |          | UTM CO-ORDINATE |          | REMARKS                                                                                                                        |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|--------|--------|--------------------|----------|----------|-------------------|---------|----------|-----------------|----------|--------------------------------------------------------------------------------------------------------------------------------|
|      |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT  | TOTAL  | LEFT               | RIGHT    | TOTAL    | LEFT              | RIGHT   | TOTAL    | EASTING         | NORTHING |                                                                                                                                |
| 21   | AP23/1   | SC+6       | 03°20'59" (LT)     | 431      | 431                | 5678.00           | 498.744 | 355.00        | 431.00        | 279.00 | 710.00 | 340.859            | 240.594  | 581.477  | 292.164           | 201.138 | 495.292  | 466387          | 2497284  | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |
| 22   | AP23/2   | SC+9       | 02°27'35" (RT)     | 279      | 279                | 5957.00           | 483.804 | 344.50        | 279.00        | 410.00 | 689.00 | 37.991             | -175.220 | -137.229 | 77.437            | 27.160  | 90.277   | 466503          | 2497034  | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |
| 23   | AP24/0   | SC+3       | 39°07'24" (RT)     | 410      | 410                | 6367.00           | 555.765 | 332.00        | 410.00        | 254.00 | 664.00 | 585.220            | -12.899  | 572.321  | 437.100           | 41.651  | 478.811  | 466646          | 2496650  |                                                                                                                                |
| 24   | AP24/1   | SC+3       | 10°11'11" (RT)     | 254.0    | 254                | 6621.00           | 570.868 | 322.50        | 254.00        | 391.00 | 645.00 | 267.275            | 14.516   | 281.791  | 212.725           | 84.987  | 297.712  | 466703          | 2496402  |                                                                                                                                |
| 25   | AP24/2   | SC+9       | 11°05'38" (RT)     | 391.0    | 391                | 7012.00           | 594.806 | 345.00        | 391.00        | 299.00 | 690.00 | 376.457            | 78.079   | 454.536  | 305.986           | 105.876 | 411.862  | 466711          | 2496014  |                                                                                                                                |
| 26   | AP24/3   | SD+6       | 16°53'04" (RT)     | 299      | 299                | 7311.00           | 606.835 | 352.00        | 299.00        | 405.00 | 704.00 | 220.848            | 228.283  | 449.131  | 191.051           | 218.238 | 411.289  | 466661          | 2495717  | D type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C type |
| 27   | AP25     | SB+3       | 01°37'39" (LT)     | 405      | 405                | 7716.00           | 605.415 | 297.50        | 405.00        | 190.00 | 595.00 | 176.694            | -56.906  | 119.788  | 186.739           | 2.246   | 188.985  | 466482          | 2495353  |                                                                                                                                |
| 28   | AP26     | SC+0       | 11°52'31" (LT)     | 190      | 190                | 7906.00           | 620.627 | 207.00        | 190.00        | 224.00 | 414.00 | 246.903            | 18.541   | 265.444  | 187.751           | 54.837  | 242.588  | 466006          | 2495179  |                                                                                                                                |
| 29   | AP26/1   | SC+0       | 01°31'26" (LT)     | 224      | 224                | 8130.00           | 629.894 | 328.00        | 224.00        | 432.00 | 656.00 | 204.939            | 276.207  | 481.226  | 108.663           | 252.717 | 421.380  | 466353          | 2494964  | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |
| 30   | AP27/0   | SD+9       | 30°27'20" (LT)     | 432      | 432                | 8562.00           | 609.207 | 339.00        | 432.00        | 246.00 | 678.00 | 155.479            | -117.074 | 38.405   | 178.865           | -23.578 | 155.287  | 466291          | 2494542  |                                                                                                                                |
| 31   | AP28/0   | SD+6       | 31°44'39" (LT)     | 246      | 246                | 8808.00           | 636.808 | 218.00        | 246.00        | 190.00 | 436.00 | 363.126            | 241.712  | 604.838  | 269.630           | 184.727 | 454.357  | 466378          | 2494310  |                                                                                                                                |
| 32   | 28/1     | SD+0       | 30°20'07" (LT)     | 190      | 190                | 8998.00           | 630.997 | 173.50        | 190.00        | 157.00 | 347.00 | -50.367            | -132.519 | 381.577  | 6.023             | 294.673 | 300.696  | 466534          | 2494201  |                                                                                                                                |
| 33   | AP29/0   | SB+0       | 05°56'07" (RT)     | 157      | 157                | 9155.00           | 607.479 | 203.50        | 157.00        | 250.00 | 407.00 | -275.548           | 404.950  | 129.402  | -137.682          | 295.946 | 158.264  | 466689          | 2494182  |                                                                                                                                |
| 34   | AP29/A   | SC+0       | 19°46'26" (LT)     | 250      | 250                | 9405.00           | 577.862 | 213.00        | 250.00        | 176.00 | 426.00 | -154.896           | 695.559  | 540.663  | -45.892           | 459.038 | 413.126  | 466936          | 2494129  | Road                                                                                                                           |
| 35   | AP29/B   | SB+9       | 02°30'39" (LT)     | 176      | 176                | 9581.00           | 526.221 | 164.50        | 176.00        | 153.00 | 329.00 | -519.322           | 91.498   | -427.824 | -282.781          | 85.650  | -197.131 | 467106          | 2494157  |                                                                                                                                |
| 36   | AP30/0   | SD+3       | 40°25'41" (RT)     | 153      | 153                | 9734.00           | 525.249 | 199.00        | 153.00        | 245.00 | 398.00 | 61.461             | -25.119  | 36.342   | 67.309            | 32.208  | 99.517   | 467360          | 2494199  | Road                                                                                                                           |
| 37   | AP31/0   | SD+0       | 29°49'38" (RT)     | 245      | 245                | 9979.00           | 549.460 | 319.00        | 245.00        | 393.00 | 638.00 | 269.333            | 204.744  | 474.057  | 211.986           | 201.556 | 413.542  | 467471          | 2494078  | Road 2 Nos                                                                                                                     |

| S.NO. | TOWER NO. | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CURV. CHAMBER (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        |          | WEIGHT SPAN (GOLD) |          |          | WEIGHT SPAN (PBDT) |          |         | CROSSING DETAILS | UTM CO-ORDINATE |                                                                                                                                | REMARKS                                                                                                                        |
|-------|-----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|--------|----------|--------------------|----------|----------|--------------------|----------|---------|------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|       |           |            |                    |          |                    |                   |         |               | LEFT          | RIGHT  | TOTAL    | LEFT               | RIGHT    | TOTAL    | LEFT               | RIGHT    | TOTAL   |                  | EASTING         | NORTHING                                                                                                                       |                                                                                                                                |
| 38    | AP32/D    | SC+0       | 04°25'51"LT        |          | 303                | 1047.20           | 548.098 | 354.00        | 93.00         | 315.00 | 708.00   | 394.368            | 1184.544 | 1372.912 | 391.556            | 794.316  | 975.872 | Road & raila     | 467684          | 2493745                                                                                                                        | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |
| 39    | AP33/O    | SB+9       | 01°34'49"RT        | 315      |                    | 10867.00          | 402.760 | 217.50        | 315.00        | 435.00 | 871.040  | 909.819            | 38.799   | -470.812 | 578.685            | 107.873  |         | 467872           | 2493497         |                                                                                                                                |                                                                                                                                |
| 40    | AP33/A    | SC+6       | 1°36'06"RT         | 120      |                    | 10807.00          | 359.991 | 187.50        | 120.00        | 375.00 | 790.980  | 340.191            | -450.799 | -202.751 | 257.075            |          |         | 467936           | 2493398         |                                                                                                                                |                                                                                                                                |
| 41    | AP33/B    | SB+9       | 02°23'20"LT        | 255      |                    | 11062.00          | 334.897 | 225.00        | 255.00        | 458.00 | 864.655  | -359.748           | -345.903 | -122.530 | -3.616             | -118.914 |         | 468017           | 2493156         |                                                                                                                                |                                                                                                                                |
| 42    | AP34/O    | SC+0       | 20°30'58"LT        | 203      |                    | 11265.00          | 373.940 | 223.00        | 203.00        | 446.00 | 461.515  | 15.761             | 477.276  | 375.800  | 318.914            | 56.886   |         | 468086           | 2492967         |                                                                                                                                |                                                                                                                                |
| 43    | AP34/A    | SB+9       | 03°55'15"RT        | 243      |                    | 11508.00          | 375.787 | 256.50        | 243.00        | 513.00 | 226.979  | -196.027           | 30.952   | 118.462  | 185.854            | -67.392  |         | 468245           | 2492785         |                                                                                                                                |                                                                                                                                |
| 44    | AP35/O    | SB+3       | 04°55'55"RT        | 270      |                    | 11778.00          | 419.333 | 285.00        | 270.00        | 570.00 | 464.647  | 517.245            | 981.892  | 710.163  | 336.012            | 374.151  |         | 468403           | 2492569         |                                                                                                                                |                                                                                                                                |
| 45    | AP36/O    | SC+0       | 07°11'48"RT        | 300      |                    | 12078.00          | 375.757 | 345.00        | 300.00        | 690.00 | 217.245  | 443.191            | 235.946  | 271.866  | -74.599            | 346.485  |         | 468562           | 2492315         | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |                                                                                                                                |
| 46    | AP36/A    | SC+0       | 04°37'49"RT        | 390      |                    | 12468.00          | 394.810 | 490.00        | 390.00        | 860.00 | -53.600  | 206.607            | 167.007  | 269.530  | 43.126             | 226.404  |         | 468721           | 2491961         | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |                                                                                                                                |
| 47    | AP37/A    | SC+0       | 13°46'41"LT        | 470      |                    | 12938.00          | 337.777 | 362.00        | 470.00        | 724.00 | 250.383  | 684.548            | 934.931  | 712.139  | 244.586            | 467.553  |         | 468883           | 2491519         |                                                                                                                                |                                                                                                                                |
| 48    | AP37/B    | SB+9       | 00°52'24"RT        | 254      |                    | 13591.00          | 268.746 | 280.00        | 254.00        | 560.00 | -428.948 | 338.375            | -91.623  | 53.217   | -211.953           | 266.170  |         | 469029           | 2491310         |                                                                                                                                |                                                                                                                                |
| 49    | AP38/O    | SC+9       | 07°29'04"RT        | 306      |                    | 13498.00          | 244.750 | 292.00        | 306.00        | 584.00 | 32.164   | -59.395            | -91.659  | 57.789   | 39.891             | 17.898   |         | 469196           | 2491060         |                                                                                                                                |                                                                                                                                |
| 50    | AP38/A    | SD+9       | 18°39'53"LT        | 278      |                    | 13776.00          | 268.114 | 334.00        | 278.00        | 668.00 | 337.634  | 667.410            | 804.994  | 621.365  | 260.291            | 361.074  |         | 469324           | 2490808         | D type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C type |                                                                                                                                |
| 51    | AP39/O    | SD+6       | 31°23'50"LT        | 390      |                    | 14166.00          | 223.205 | 332.50        | 390.00        | 665.00 | -96.974  | -202.076           | -389.050 | -108.196 | 16.464             | -124.660 |         | 469599           | 2490535         |                                                                                                                                |                                                                                                                                |
| 52    | AP40/O    | SC+3       | 08°51'43"LT        | 275      |                    | 14441.00          | 276.359 | 285.00        | 275.00        | 570.00 | 567.779  | -384.704           | 183.075  | 222.935  | 400.363            | -177.428 |         | 469867           | 2490467         |                                                                                                                                |                                                                                                                                |
| 53    | AP41/O    | SC+3       | 13°01'55"LT        | 295      |                    | 14736.00          | 342.838 | 248.50        | 295.00        | 487.00 | 679.872  | 27.306             | 707.178  | 526.546  | 472.596            | 53.950   |         | 470166           | 2490445         |                                                                                                                                |                                                                                                                                |
| 54    | AP41/A    | SD+0       | 23°39'18"RT        | 403      |                    | 14928.00          | 351.381 | 297.50        | 192.00        | 595.00 | 164.152  | 41.684             | 205.886  | 241.443  | 131.508            | 103.935  |         | 470353           | 2490474         |                                                                                                                                |                                                                                                                                |



| S.N# | TOWER NO | POWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        |         | WEIGHT SPAN (COUL) |          |          | WEIGHT SPAN (PGT) |          |         | CROSSING DETAILS | UTM CO-ORDINATE         |          | REMARKS                                                                                                                        |                                                                                                                                |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|--------|---------|--------------------|----------|----------|-------------------|----------|---------|------------------|-------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
|      |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT  | TOTAL   | LEFT               | RIGHT    | TOTAL    | LEFT              | RIGHT    | TOTAL   |                  | EASTING                 | NORTHING |                                                                                                                                |                                                                                                                                |
| 55   | A-44/0   | 5C+0       | 09°05'12"RT        |          | 403                | 15321.00          | 375.567 | 364.50        | 480.00        | 326.00 | 729.00  | 465.00             | 341.996  | 1971.1   | 309.158           | -1.05296 | 151.862 |                  | 470797                  | 2490388  | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |                                                                                                                                |
| 56   | A-44/0   | 5C+9       | 09°14'33"RT        | 326      |                    | 15657.00          | 435.381 | 358.00        | 326.00        | 716.00 | 618.023 | 457.720            | 510.538  | -20.741  | 450.822           |          | 450.822 | Road-2 nos       | 471075                  | 2490118  |                                                                                                                                |                                                                                                                                |
| 57   | AP45/0   | 5C+9       | 21°39'20"LT        | 990      | 380                | 16047.00          | 497.149 | 288.50        | 320.00        | 577.00 | 703.805 | 440.307            | 323.802  | -237.655 | 290.612           |          | 290.612 | Road-2 nos       | 471293                  | 2489933  |                                                                                                                                |                                                                                                                                |
| 58   | AP45/A   | 5D+0       | 26°17'34"RT        | 187      | 187                | 16234.00          | 548.364 | 196.00        | 187.00        | 392.00 | 627.013 | 300.045            | 717.068  | 94.987   | 514.248           |          | 514.248 |                  | 471467                  | 2489860  |                                                                                                                                |                                                                                                                                |
| 59   | AP45/B   | 5C+9       | 10°10'31"RT        | 205      | 205                | 16438.00          | 540.485 | 287.50        | 205.00        | 575.00 | 515.386 | -267.232           | -51.846  | 113.454  | -30.303           | 80.151   |         | 80.151           |                         | 471605   | 2489705                                                                                                                        |                                                                                                                                |
| 60   | AP46/0   | 5C+6       | 18°26'43"RT        | 370      | 370                | 16809.00          | 595.339 | 285.50        | 370.00        | 571.00 | 595.038 | 83.445             | 619.483  | 89.891   | 489.000           |          | 489.000 |                  | 471791                  | 2489389  |                                                                                                                                |                                                                                                                                |
| 61   | 46/1     | 5B+0       | 00°00'00"          | 201      | 415                | 17010.00          | 605.715 | 207.50        | 201.00        | 415.00 | 116.555 | 187.632            | 304.188  | 110.109  | 156.476           | 266.585  |         | 266.585          | Cart track              | 471845   | 2489187                                                                                                                        |                                                                                                                                |
| 62   | AP46/A   | 5C+9       | 09°48'02"LT        | 214      | 214                | 17224.00          | 599.428 | 260.50        | 214.00        | 521.00 | 277.911 | 367.530            | 305.131  | 58.758   | 284.232           | 343.000  |         | 343.000          | Cart Track & Nolo 2 Nos | 471915   | 2488976                                                                                                                        |                                                                                                                                |
| 63   | AP47/0   | 5C+3       | 06°15'41"RT        | 307      | 307                | 17621.00          | 567.020 | 299.50        | 307.00        | 599.00 | 460.251 | 174.645            | 64.394   | 73.037   | 132.852           | 155.889  |         | 155.889          |                         | 472024   | 2488708                                                                                                                        | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |
| 64   | AP48/0   | 5C+3       | 15°21'19"RT        | 292      | 292                | 17823.00          | 570.220 | 296.00        | 292.00        | 592.00 | 166.297 | 106.715            | 273.516  | 158.590  | 123.573           | 282.163  |         | 282.163          |                         | 472117   | 2488433                                                                                                                        |                                                                                                                                |
| 65   | 48/1     | 5B+3       | 00°00'00"          | 300      | 494                | 18123.00          | 575.724 | 247.00        | 300.00        | 494.00 | 103.281 | 120.838            | 314.054  | 176.427  | 111.534           | 287.961  |         | 287.961          | Pond                    | 472126   | 2488135                                                                                                                        |                                                                                                                                |
| 66   | 48/2     | 5B+0       | 00°00'00"          | 194      | 745                | 18317.00          | 570.800 | 225.00        | 194.00        | 446.00 | 73.337  | 46.583             | 120.180  | 82.468   | 177.718           | 160.184  |         | 160.184          |                         | 472133   | 2487940                                                                                                                        |                                                                                                                                |
| 67   | AP10/0   | 5B+3       | 1°15'19"RT         | 252      | 252                | 18560.00          | 582.170 | 226.50        | 252.00        | 453.00 | 201.838 | 38.440             | 166.398  | 174.103  | 15.700            | 189.903  |         | 189.903          |                         | 472145   | 2487687                                                                                                                        |                                                                                                                                |
| 68   | AP10/0   | 5C+9       | 13°54'07"LT        | 201      | 201                | 18770.00          | 585.002 | 256.00        | 201.00        | 512.00 | 294.628 | 424.570            | -184.942 | 185.486  | -108.774          | -13.238  |         | -13.238          | No 2 Nos                | 472151   | 2487485                                                                                                                        |                                                                                                                                |
| 69   | AP11/0   | 5D+9       | 23°04'07"LT        | 311      | 311                | 19081.00          | 564.275 | 245.50        | 311.00        | 491.00 | 735.382 | -832.056           | 403.296  | 501.536  | -107.724          | 341.812  |         | 341.812          | 11KV Line               | 472237   | 2487185                                                                                                                        |                                                                                                                                |
| 70   | AP2/0    | 5B+3       | 07°36'57"RT        | 180      | 180                | 19261.00          | 703.391 | 235.00        | 180.00        | 290.00 | 512.886 | 36.898             | 808.779  | 347.724  | 115.343           | 453.067  |         | 453.067          | Road                    | 472347   | 2487050                                                                                                                        |                                                                                                                                |
| 71   | AP52/A   | 5C+9       | 09°37'01"RT        | 290      | 290                | 19551.00          | 702.251 | 321.50        | 290.00        | 643.00 | 102.470 | -400.503           | -288.024 | 173.829  | 173.803           | -1.974   |         | -1.974           | 11KV Line               | 472498   | 2486801                                                                                                                        |                                                                                                                                |
| 72   | AP53/0   | 5C+3       | 06°23'11"RT        | 353      | 353                | 19940.00          | 744.494 | 301.50        | 353.00        | 603.00 | 753.563 | 390.867            | 793.450  | 528.653  | 72.746            | 601.609  |         | 601.609          |                         | 472627   | 2486469                                                                                                                        | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |
| 73   | AP54/0   | 5D+0       | 32°45'59"RT        | 250      | 250                | 20154.00          | 805.333 | 315.50        | 250.00        | 631.00 | 208.653 | 68.477             | 277.130  | 175.794  | 116.007           | 291.801  |         | 291.801          |                         | 472747   | 2486257                                                                                                                        |                                                                                                                                |
| 74   | AP54/A   | 5B+0       | 1°14'15"LT         | 381      | 381                | 20535.00          | 826.152 | 325.50        | 381.00        | 651.00 | 312.995 | 361.133            | 673.728  | 265.055  | 273.130           | 538.195  |         | 538.195          |                         | 472713   | 2485876                                                                                                                        |                                                                                                                                |

| I.M.O | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        |         | WEIGHT SPAN (COLD) |          |         | WEIGHT SPAN (HOT) |          |         | CROSSING DETAILS           | UTM CO-ORDINATE |          | REMARKS                                                                                                                        |
|-------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|--------|---------|--------------------|----------|---------|-------------------|----------|---------|----------------------------|-----------------|----------|--------------------------------------------------------------------------------------------------------------------------------|
|       |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT  | TOTAL   | LEFT               | RIGHT    | TOTAL   | LEFT              | RIGHT    | TOTAL   |                            | EASTING         | NORTHING |                                                                                                                                |
| 75    | AP44/B   | SC+3       | 9°25'57"RT         | 270      | 270                | 20205.00          | 751.307 | 303.00        | 270.00        | 336.00 | 606.00  | -90.567            | 88.470   | -2.386  | -2.240            | 139.668  | 116.607 | Road 2 Nos & 33 KV Line    | 472697          | 2485693  |                                                                                                                                |
| 76    | AP55/D   | SD+3       | 28°32'07"LT        | 336      | 336                | 21141.00          | 808.675 | 278.00        | 336.00        | 556.00 | 247.637 | -391.248           | -143.611 | 216.617 | -136.133          | 20.534   |         |                            | 472621          | 2485277  |                                                                                                                                |
| 77    | AP55/A   | SD+3       | 18°06'57"LT        | 220      | 220                | 21183.00          | 855.223 | 316.50        | 220.00        | 633.00 | 610.970 | 141.648            | 752.615  | 415.835 | 166.827           | 582.562  |         |                            | 472666          | 2485062  | D-type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C-type |
| 78    | AP56/D   | SC+3       | 16°24'17"RT        | 413      | 413                | 21774.00          | 860.513 | 283.50        | 413.00        | 567.00 | 270.977 | 692.256            | 963.235  | 345.735 | 452.693           | 698.488  |         | Road 2 Nos                 | 472869          | 2484701  |                                                                                                                                |
| 79    | AP57/D   | SC+3       | 19°57'16"RT        | 154      | 154                | 21928.00          | 876.399 | 226.00        | 154.00        | 452.00 | 538.157 | 95.308             | 412.849  | 298.552 | 116.272           | -182.320 |         | Road & 11 KV Line          | 472904          | 2484553  |                                                                                                                                |
| 80    | AP58/D   | SC+3       | 07°43'51"LT        | 298      | 298                | 22226.00          | 893.194 | 264.00        | 298.00        | 528.00 | 202.982 | -162.091           | 40.941   | 182.018 | -54.234           | 127.784  |         |                            | 472868          | 2484254  |                                                                                                                                |
| 81    | AP59/D   | SD+3       | 29°48'21"RT        | 230      | 230                | 22466.00          | 860.068 | 250.00        | 230.00        | 500.00 | 361.059 | 96.735             | 488.234  | 283.730 | 111.469           | 395.199  |         | 11 KV Line & Road          | 472868          | 2484027  |                                                                                                                                |
| 82    | AP59/A   | SD+0       | 28°12'56"LT        | 270      | 270                | 22226.00          | 867.480 | 298.00        | 270.00        | 596.00 | 172.420 | 401.707            | 574.117  | 157.679 | 308.096           | 466.475  |         |                            | 472738          | 2483800  |                                                                                                                                |
| 83    | AP59/B   | SC+0       | 15°18'56"LT        | 326      | 326                | 23062.00          | 834.526 | 264.50        | 326.00        | 529.00 | -75.485 | 20.429             | -55.056  | 17.426  | 51.997            | 69.423   |         | 11 KV Line & Road          | 472713          | 2483468  |                                                                                                                                |
| 84    | AP59/C   | SC+3       | 17°18'07"LT        | 203      | 203                | 23255.00          | 838.485 | 169.00        | 203.00        | 338.00 | 182.564 | 23.902             | 158.667  | 150.936 | 11.854            | 162.860  |         | Road - 2nos                | 472760          | 2483262  |                                                                                                                                |
| 85    | AP60/D   | SD+0       | 21°02'57"LT        | 135      | 135                | 24390.00          | 846.701 | 274.00        | 135.00        | 548.00 | 148.767 | 42.630             | 572.397  | 123.201 | 332.058           | 456.159  |         |                            | 472817          | 2483147  | D-type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C-type |
| 86    | AP61/D   | SD+3       | 29°51'37"RT        | 413      | 413                | 23803.00          | 807.505 | 301.50        | 413.00        | 603.00 | 62.695  | 335.920            | 336.615  | 79.971  | 105.096           | 88.225   |         | 2 nos of Road & 11 KV Line | 473130          | 2482885  |                                                                                                                                |
| 87    | AP62/D   | SD+6       | 21°11'52"RT        | 190      | 190                | 23993.00          | 830.173 | 253.50        | 190.00        | 507.00 | 526.081 | 384.058            | 910.089  | 358.707 | 294.644           | 652.951  |         | 11 KV Line & Road, 3 Nos   | 473202          | 2482707  | D-type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C-type |
| 88    | AP62/A   | SD+6       | 30°57'09"LT        | 317      | 317                | 24343.00          | 805.921 | 343.50        | 317.00        | 687.00 | 67.437  | 139.345            | 75.368   | 20.072  | 162.178           | 177.840  |         | 11 KV Line & Road          | 473197          | 2482390  |                                                                                                                                |
| 89    | AP63/D   | SC+0       | 09°34'03"LT        | 370      | 370                | 24887.00          | 821.997 | 241.50        | 370.00        | 483.00 | 230.817 | 120.332            | 350.349  | 212.394 | 95.355            | 307.749  |         | 11 KV Line & Road          | 473381          | 2482071  |                                                                                                                                |
| 90    | AP64/D   | SD+0       | 30°24'48"RT        | 113      | 113                | 24993.00          | 818.967 | 263.00        | 113.00        | 526.00 | -7.548  | 382.670            | 374.722  | 17.029  | 314.110           | 331.139  |         | Road 4 Nos                 | 473448          | 2481981  |                                                                                                                                |
| 91    | AP64/A   | SB+3       | 03°00'40"LT        | 413      | 413                | 25006.00          | 785.184 | 349.50        | 413.00        | 699.00 | 30.545  | 35.973             | 66.520   | 99.105  | 77.682            | 176.487  |         |                            | 473513          | 2481575  |                                                                                                                                |



| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        |        | WEIGHT SPAN (GOLD) |          |          | WEIGHT SPAN (HOT) |         |         | CROSSING DETAILS                                                                         | UTM CO-ORDINATE |          | REMARKS                                                                                                                        |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|--------|--------|--------------------|----------|----------|-------------------|---------|---------|------------------------------------------------------------------------------------------|-----------------|----------|--------------------------------------------------------------------------------------------------------------------------------|
|      |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT  | TOTAL  | LEFT               | RIGHT    | TOTAL    | LEFT              | RIGHT   | TOTAL   |                                                                                          | EASTING         | NORTHING |                                                                                                                                |
| 92   | AP65/0   | SD+0       | 24°30'00"LT        | 286      | 286                | 25492.00          | 801.152 | 318.00        | 286.00        | 350.00 | 636.00 | 250.181            | 60.369   | 310.550  | 208.074           | 104.814 | 313.288 |                                                                                          | 473373          | 2481297  |                                                                                                                                |
| 93   | AP65/A   | SD+0       | 30°13'47"RT        | 350      | 350                | 25842.00          | 818.007 | 256.00        | 350.00        | 162.00 | 512.00 | 288.641            | 348.888  | 637.529  | 244.196           | 244.461 | 488.657 |                                                                                          | 473784          | 2481015  |                                                                                                                                |
| 94   | AP66/0   | SC+6       | 05°17'41"LT        | 162      | 162                | 26044.00          | 793.689 | 284.00        | 162.00        | 406.00 | 568.00 | -187.453           | 346.847  | 159.394  | -83.326           | 202.751 | 324.728 |                                                                                          | 473758          | 2480651  | C type tower is selected based on adjacent span permissible limit even though the angle of deviation is within limit of B type |
| 95   | AP67/0   | SB+6       | 00°39'54"RT        | 406      | 406                | 26410.00          | 788.971 | 305.50        | 406.00        | 205.00 | 611.00 | 58.885             | -115.087 | -56.202  | 114.952           | -30.284 | 84.668  | Road                                                                                     | 473880          | 2480458  |                                                                                                                                |
| 96   | AP68/0   | SB+0       | 01°27'17"LT        | 205      | 205                | 26615.00          | 793.896 | 232.50        | 205.00        | 260.00 | 465.00 | 370.466            | 139.100  | 459.566  | 235.663           | 135.305 | 370.968 | Road                                                                                     | 473921          | 2480255  |                                                                                                                                |
| 97   | AP69/0   | SC+0       | 07°53'19"RT        | 260      | 610                | 26875.00          | 793.390 | 305.00        | 260.00        | 350.00 | 610.00 | 139.608            | 285.706  | 405.312  | 173.401           | 742.393 | 365.794 | HOW TO CROSSING TO S.BUNGLANG TO S.BUNGLANG, 11 KV LINE                                  | 473975          | 2479999  | C type tower is selected based on adjacent span permissible limit even though the angle of deviation is within limit of B type |
| 98   | AP69/A   | SC+3       | 07°24'24"RT        | 350      | 550                | 27225.00          | 773.967 | 275.00        | 350.00        | 200.00 | 550.00 | 63.249             | 700.451  | 763.700  | 106.562           | 466.642 | 573.204 | REVETMENT                                                                                | 474003          | 2479653  |                                                                                                                                |
| 99   | AP70/0   | SC+6       | 13°50'20"RT        | 200      | 455                | 27425.00          | 720.143 | 227.50        | 200.00        | 255.00 | 455.00 | -500.400           | 318.728  | -181.672 | -266.591          | 744.512 | -22.079 | REVETMENT                                                                                | 473996          | 2479659  |                                                                                                                                |
| 100  | AP70/A   | SC+3       | 13°27'31"LT        | 255      | 617                | 27860.00          | 702.476 | 308.50        | 255.00        | 362.00 | 617.00 | -62.449            | 29.644   | -92.093  | 11.767            | 52.358  | 64.125  | REVETMENT                                                                                | 473918          | 2479208  |                                                                                                                                |
| 101  | AP70/B   | SD+0       | 20°48'55"LT        | 362      | 1037               | 28042.00          | 737.748 | 278.50        | 362.00        | 195.00 | 557.00 | 301.720            | 87.256   | 478.985  | 309.676           | 91.193  | 400.869 | Road, S.BUNGLANG TO CHAWANGTE, 11 KV LINE Proposed 123kv line running parallel to school | 473899          | 2478846  | D type tower is selected based on adjacent span permissible limit even though the angle of deviation is within limit of C type |
| 102  | AP70/C   | SC+6       | 17°02'49"LT        | 195      | 470                | 28237.00          | 732.581 | 210.00        | 195.00        | 225.00 | 470.00 | 107.476            | -95.805  | 11.671   | 103.539           | -14.891 | 86.648  | REVETMENT                                                                                | 473958          | 2478661  |                                                                                                                                |
| 103  | AP71/0   | SD+0       | 32°11'22"RT        | 225      | 627                | 28462.00          | 748.272 | 313.50        | 225.00        | 402.00 | 627.00 | 319.770            | 440.868  | 760.638  | 238.856           | 347.419 | 586.275 | S.BUNGLANG TO CHAWANGTE ROAD - 2nos., 11 KV LINE                                         | 474086          | 2478480  |                                                                                                                                |
| 104  | AP71/A   | SC+6       | 05°12'20"LT        | 402      | 619                | 28864.00          | 711.475 | 309.50        | 402.00        | 217.00 | 619.00 | 39.065             | -54.446  | -93.535  | 54.360            | 8.951   | 63.311  | REVETMENT                                                                                | 474118          | 2478077  |                                                                                                                                |
| 105  | AP71/B   | SB+6       | 00°45'25"RT        | 217      | 499                | 29081.00          | 732.400 | 249.50        | 217.00        | 282.00 | 499.00 | 271.664            | 444.246  | 715.410  | 207.767           | 326.167 | 533.934 | 11 KV LINE                                                                               | 474173          | 2477867  |                                                                                                                                |
| 106  | AP71/C   | SD+0       | 32°00'45"LT        | 282      | 537                | 29363.00          | 696.218 | 268.50        | 282.00        | 255.00 | 537.00 | -162.112           | 369.037  | 206.825  | -44.133           | 275.102 | 230.969 | CHAWANGTE TO S.BUNGLANG ROAD - 02nos                                                     | 474235          | 2477593  |                                                                                                                                |
| 107  | AP72/0   | SC+0       | 13°42'26"RT        | 255      | 528                | 29518.00          | 670.127 | 264.00        | 255.00        | 275.00 | 528.00 | -113.415           | -79.251  | -192.666 | -19.480           | 4.790   | -14.690 | REVETMENT                                                                                | 474417          | 2477413  |                                                                                                                                |



| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAIRAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        |        | WEIGHT SPAN (COLD) |         |         | WEIGHT SPAN (HOT) |         |         | CROSSING DETAILS                          | UTM CO-ORDINATE |          | REMARKS                                                                                                                        |  |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|--------|--------|--------------------|---------|---------|-------------------|---------|---------|-------------------------------------------|-----------------|----------|--------------------------------------------------------------------------------------------------------------------------------|--|
|      |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT  | TOTAL  | LEFT               | RIGHT   | TOTAL   | LEFT              | RIGHT   | TOTAL   |                                           | EASTING         | NORTHING |                                                                                                                                |  |
| 108  | AP72/A   | SC+0       | 03°21'04" RT       |          | 684                | 29883.00          | 695.069 | 347.00        | 273.00        | 421.00 | 694.00 | 352.385            | 371.890 | 724.275 | 268.344           | 330.095 | 618.439 | CHANGWATE TO S.BUNGTLANG ROAD             | 474558          | 2477379  | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of H type |  |
|      |          |            |                    | 421      |                    |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 109  | AP73/O   | SD+3       | 20°36'42" RT       |          |                    | 30312.00          | 663.312 | 355.50        | 471.00        | 290.00 | 711.00 | 48.110             | 191.400 | 239.600 | 111.655           | 173.254 | 284.909 |                                           | 474751          | 2476807  | D type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C type |  |
|      |          |            |                    | 290      |                    |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 110  | AP73/A   | SC+0       | 08°04'00" LT       |          | 290                | 30602.00          | 660.579 | 290.00        | 290.00        | 290.00 | 580.00 | 97.827             | 404.608 | 502.435 | 116.063           | 303.151 | 419.214 | S.BUNGTLANG TO CHAWANGTE ROAD, 11 KV LINE | 474791          | 2476523  |                                                                                                                                |  |
|      |          |            |                    | 290      | 290                |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 110  | AP74/O   | SD+0       | 32°18'15" RT       |          | 280                | 30892.00          | 628.815 | 285.00        | 290.00        | 280.00 | 570.00 | -119.480           | 109.700 | -6.780  | -15.023           | 121.438 | 106.415 |                                           | 474870          | 2476246  |                                                                                                                                |  |
|      |          |            |                    | 280      | 280                |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 111  | AP75/O   | SC+0       | 20°49'14" LT       |          | 290                | 31172.00          | 632.382 | 285.00        | 280.00        | 290.00 | 570.00 | 169.984            | 301.266 | 471.270 | 158.246           | 240.498 | 398.744 |                                           | 474785          | 2475976  |                                                                                                                                |  |
|      |          |            |                    | 290      | 290                |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 112  | AP76/O   | SC+0       | 07°41'05" LT       |          | 290                | 31462.00          | 613.203 | 225.00        | 290.00        | 160.00 | 450.00 | -10.926            | 98.744  | 87.818  | 49.862            | 91.445  | 141.307 | 11 KV LINE                                | 474805          | 2475687  |                                                                                                                                |  |
|      |          |            |                    | 160      |                    |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 113  | AP77/O   | SB+0       | 04°50'22" L        |          | 565                | 31622.00          | 611.964 | 157.50        | 160.00        | 155.00 | 315.00 | 61.256             | -92.054 | -30.798 | 88.555            | -25.743 | 42.812  | S.BUNGTLANG TO CHAWANGTE ROAD,            | 474840          | 2475531  |                                                                                                                                |  |
|      |          |            |                    | 155      |                    |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 114  | AP77/A   | SB+0       | 02°44'42" RT       |          | 250                | 31777.00          | 623.238 | 202.50        | 155.00        | 250.00 | 405.00 | 248.522            | 263.439 | 511.961 | 181.211           | 209.422 | 391.633 |                                           | 474885          | 2475381  |                                                                                                                                |  |
|      |          |            |                    | 250      |                    |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 115  | AP78/O   | SD+0       | 31°33'34" RT       |          | 212                | 32027.00          | 608.597 | 231.00        | 250.00        | 212.00 | 462.00 | -43.995            | 251.886 | 237.891 | 40.022            | 194.947 | 234.969 |                                           | 474943          | 2475138  |                                                                                                                                |  |
|      |          |            |                    | 212      | 212                |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 116  | AP78/A   | SD+0       | 22°45'10" LT       |          | 197                | 32239.00          | 595.522 | 204.50        | 212.00        | 197.00 | 409.00 | -40.553            | 165.440 | 124.887 | 16.386            | 138.790 | 155.176 |                                           | 474875          | 2474937  |                                                                                                                                |  |
|      |          |            |                    | 197      | 197                |                   |         |               |               |        |        |                    |         |         |                   |         |         |                                           |                 |          |                                                                                                                                |  |
| 117  | AP79/O   | XXX        | 00°MM'SS"          |          |                    | 32436.00          | 589.904 | Y             | 197.00        | XX     | YY     | 28.562             | XXX     | YY      | 55.212            | XXX     | YYY     |                                           | 474892          | 2474744  |                                                                                                                                |  |

**NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED**  
**NAME OF PROJECT :- SUPPLY OF SERVICES CONTRACT FOR TOWER PACKAGE TWO1 ASSOCIATED WITH NER POWER SYSTEM IMPROVEMENT PROJECT (INTERSTATE MIZORAM)**  
**CHAWNGTE - SOUTH BUNGLANG TR LINE TOWER SCHEDULE (AP 79/0 - GANTRY)**

| TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m)  | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        |       | WEIGHT SPAN (COLD) |        |          | WEIGHT SPAN (HOT) |         |         | CROSSING DETAILS |          | UTM CO-ORDINATE |         |
|----------|------------|--------------------|-----------|--------------------|-------------------|---------|---------------|---------------|--------|-------|--------------------|--------|----------|-------------------|---------|---------|------------------|----------|-----------------|---------|
|          |            |                    |           |                    |                   |         |               | LEFT          | RIGHT  | TOTAL | LEFT               | RIGHT  | TOTAL    | LEFT              | RIGHT   | TOTAL   | EASTING          | NORTHING |                 |         |
| 1        | AP 79/0    | SC+0               | 280       |                    | 32436             | 569.904 | 239           | 197.00        | 280.00 | 477   | 28.562             | 125.93 | 154.492  | 55.212            | 131.409 | 186.621 |                  |          | 474892          | 2474744 |
| 2        | AP80/0     | SC+6               | 469       | 280                | 32716.00          | 585.57  | 375           | 280.00        | 469.00 | 749   | 154.070            | 213.56 | 367.634  | 148.591           | 221.692 | 370.283 |                  |          | 474865          | 2474465 |
| 3        | AP81/0     | SD+9               | 469       | 469                | 33185.00          | 586.76  | 362           | 469.00        | 255.00 | 724   | 255.310            | 491.26 | 746.571  | 247.182           | 349.609 | 596.791 |                  |          | 474836          | 2473997 |
|          | AP82/0 DE  | SC+0               | 44        | 255                | 33440.00          | 556.51  | 150           | 255.00        | 44.00  | 299   | -236.268           | 76.10  | -160.166 | -94.616           | 55.074  | -39.542 |                  |          | 474909          | 2473753 |
| 5        | BAY        | BAY                | DD°MM'SS" | 44                 | 33484.00          | 558.15  | XXX           | 44.00         | Y      | X     | -31.899            | YY     | XX       | -10.871           | YYY     | XXX     |                  |          | 474936          | 2473718 |

**NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED**

**Tower Abstract of 132kV D/C TL**

| Tower Type\Ext   | +0       | +3       | +6       | +9       | +12      | Total    |
|------------------|----------|----------|----------|----------|----------|----------|
| SA               | 0        | 0        | 0        | 0        | 0        | 0        |
| SB               | 0        | 0        | 0        | 0        | 0        | 0        |
| SC               | 2        | 0        | 1        | 0        | 0        | 3        |
| SD               | 0        | 0        | 0        | 1        | 0        | 1        |
| <b>Total</b>     | <b>2</b> | <b>0</b> | <b>1</b> | <b>1</b> | <b>0</b> | <b>4</b> |
| <b>Net Total</b> |          |          |          |          |          | <b>4</b> |

*B. D. ...*  


DOC NO. POCIL-K8A-TL-DOC-PRO-014

NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED

NAME OF PROJECT :- SUPPLY OF SERVICES CONTRACT FOR TOWER PACKAGE TW01 ASSOCIATED WITH NER POWER SYSTEM IMPROVEMENT PROJECT (INTERSTATE MIZORAM)

TOWER SCHEDULE (AP 83C/0 - AP 05/0) Chawngte - S.bunhtalang TR.Line

| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m) | WIND SPAN (m) | ADJACENT SPAN |        |       | WEIGHT SPAN (COLD) |         |         | WEIGHT SPAN (HOT) |         |         | CROSSING DETAILS |            | UTM CO-ORDINATE |             | Remarks                                                       |
|------|----------|------------|--------------------|----------|--------------------|-------------------|--------|---------------|---------------|--------|-------|--------------------|---------|---------|-------------------|---------|---------|------------------|------------|-----------------|-------------|---------------------------------------------------------------|
|      |          |            |                    |          |                    |                   |        |               | LEFT          | RIGHT  | TOTAL | LEFT               | RIGHT   | TOTAL   | LEFT              | RIGHT   | TOTAL   | LEFT             | RIGHT      | TOTAL           | EASTING     |                                                               |
| 1    | AP030C   | DD+9       | 42°27'29"RT        | 78       |                    | 0                 | 94.089 | X             | X             | 78.00  | Y     | XX                 | -161.41 | YY      | XXX               | -83.430 | YYY     |                  |            | 465748.582      | 2502994.099 | This Tower Already has taken into account of Luogsen Chawngte |
| 2    | AP030    | SD+0       | 38°58'15"RT        | 187      | 78                 | 78.00             | 106.67 | 132.50        | 78.00         | 187.00 | 265.0 | 239.078            | -67.85  | 171.233 | 161.103           | -4.932  | 146.151 |                  |            | 465748.582      | 2502994.099 |                                                               |
| 3    | AP040    | SD+0       | 38°10'21"LT        | 223      | 187                | 265.00            | 119.47 | 205.00        | 187.00        | 223.00 | 410.0 | 255.176            | -49.99  | 205.187 | 192.283           | 12.965  | 208.248 | 33 KV LINE       | REVERTMENT | 465728.856      | 2502767.809 |                                                               |
| 4    | AP050    | SD+0       | 34°50'41"RT        | 223      | 223                | 488.00            | 134.75 | Y             | 223.00        | Y      | X     | 273.347            | YY      | XX      | 210.393           | YYY     | XXX     | 33 KV LINE       |            | 465833.754      | 2502570.616 |                                                               |

NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED

Tower Abstract of 132KV D/CTL

| Tower Type\Extn | +0 | +3 | +6 | +9 | +12 | Total |
|-----------------|----|----|----|----|-----|-------|
| SA              | 0  | 0  | 0  | 0  | 0   | 0     |
| SB              | 0  | 0  | 0  | 0  | 0   | 0     |
| SC              | 0  | 0  | 0  | 0  | 0   | 0     |
| SD              | 3  | 0  | 0  | 0  | 0   | 3     |
| DD              | 0  | 0  | 0  | 0  | 0   | 0     |
| Total           | 3  | 0  | 0  | 0  | 0   | 3     |
| Net Total       |    |    |    |    |     | 3     |





**NAME OF PROJECT :- SUPPLY OF SERVICES CONTRACT FOR TOWER SCHEDULE (API2 - AP68)**  
**132KV Lungsien - Chauvngte Transmission Line - TOWER SCHEDULE (API2 - AP68)**

| S/NO | TOWER NO | TOWER TYPE | TOWER DEVIATION OF ANGLE | DEPARTURE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |        | WEIGHT SPAN (COLD) |          | WEIGHT SPAN (HOT) |         | CROSSING DETAILS | UTM CO-ORDINATE                        |        | REMARKS |                                                                 |
|------|----------|------------|--------------------------|-----------|----------|--------------------|-------------------|---------|---------------|---------------|--------|--------------------|----------|-------------------|---------|------------------|----------------------------------------|--------|---------|-----------------------------------------------------------------|
|      |          |            |                          |           |          |                    |                   |         |               | LEFT          | RIGHT  | LEFT               | RIGHT    | LEFT              | RIGHT   |                  | LEFT                                   | RIGHT  |         | EASTING                                                         |
| 1    | AP12     | SB+0       | 27°44'35" (RT)           | 0         | 288      | 288                | 0                 | 429.924 | 324           | 288.00        | 648.00 | 182.797            | 294.620  | 167.649           | 250.004 | 417.653          | Nala dross                             | 458217 | 2524848 | Revetment Proposed                                              |
| 2    | AP13     | SB+0       | 0°00'00" (RT)            | 288       | 360      | 648                | 288.00            | 434.661 | 324           | 360.00        | 648.00 | 182.797            | 294.620  | 167.649           | 250.004 | 417.653          | Sagan Gauden, Nala Zeros               | 458445 | 2526660 | Revetment Proposed                                              |
| 3    | AP14     | SC+0       | 8°15'31" (LT)            | 360       | 360      | 648                | 648.00            | 417.287 | 282           | 360.00        | 564.00 | 65.380             | 54.497   | 110.087           | 72.954  | 183.041          | Nala                                   | 458598 | 2526331 | Revetment Proposed                                              |
| 4    | AP15     | SC+0       | 14°37'02" (RT)           | 204       | 204      | 852                | 852.00            | 421.374 | 201.00        | 204.00        | 402.00 | 149.292            | 52.776   | 202.068           | 70.776  | 201.611          | Nala                                   | 458701 | 2526154 | Revetment Proposed                                              |
| 5    | 151      | SB+0       | 0°00'00" (RT)            | 198       | 198      | 1050               | 1050.00           | 426.174 | 265.50        | 198.00        | 313.00 | 145.274            | 252.561  | 397.785           | 218.551 | 346.175          | Cart Track                             | 458758 | 2525964 | Revetment Proposed                                              |
| 6    | 152      | SB+0       | 0°00'00" (RT)            | 333       | 333      | 1383               | 1383.00           | 413.161 | 314.50        | 333.00        | 296.00 | 79.939             | 11.275   | 91.214            | 64.587  | 178.116          | Nala                                   | 458849 | 2525641 | Revetment Proposed                                              |
| 7    | AP15A    | SB+0       | 3°58'12" (LT)            | 296       | 296      | 1679               | 1679.00           | 430.259 | 274.00        | 296.00        | 548.00 | 284.985            | 370.246  | 655.231           | 275.122 | 506.815          | Nala, Cart Track                       | 458928 | 2528360 | Revetment Proposed                                              |
| 8    | AP16     | SB+9       | 5°46'46" (RT)            | 252       | 252      | 1931               | 1931.00           | 392.219 | 224.00        | 252.00        | 448.00 | -118.313           | 715.378  | 597.065           | -23.189 | 474.998          | Road                                   | 459010 | 2525117 | Weight span reduction, sent for approval from Engrs. Dept. Chiv |
| 9    | AP16A    | SB+9       | 5°09'15" (LT)            | 196       | 196      | 2127               | 2127.00           | 343.984 | 261.50        | 196.00        | 327.00 | -519.222           | 404.380  | -114.842          | 310.905 | 31.663           | Road                                   | 459055 | 2524931 | Revetment Proposed                                              |
| 10   | AP17     | SC+9       | 11°23'20" (LT)           | 327       | 327      | 2454               | 2454.00           | 310.668 | 284.00        | 327.00        | 568.00 | -77.763            | 366.878  | 289.115           | 16.112  | 287.112          | Road 5nos                              | 459168 | 2524614 | Revetment Proposed                                              |
| 11   | AP18     | SB+3       | 4°47'05" (LT)            | 241       | 241      | 2695               | 2695.00           | 291.527 | 256.50        | 241.00        | 272.00 | -125.557           | 196.121  | 70.564            | -29.679 | 172.778          | Road 2nos                              | 459280 | 2524411 | Revetment Proposed                                              |
| 12   | AP19     | SB+0       | 4°51'08" (LT)            | 272       | 272      | 2967               | 2967.00           | 287.619 | 282.00        | 272.00        | 564.00 | 76.232             | 230.950  | 307.182           | 99.271  | 297.497          | 33kV Line, Nallah                      | 459438 | 2524190 | Revetment Proposed                                              |
| 13   | AP20     | SC+0       | 16°59'54" (LT)           | 292       | 292      | 3249               | 3249.00           | 277.124 | 302.50        | 292.00        | 313.00 | 61.080             | 27.538   | 88.618            | 94.154  | 171.903          | Road 3nos, 11 KV Line, 11kv Line-01 No | 459625 | 2523966 | Revetment Proposed                                              |
| 14   | AP20A    | SC+0       | 11°26'07" (RT)           | 313       | 313      | 3572               | 3572.00           | 294.199 | 303.00        | 313.00        | 293.00 | 285.425            | 7.130    | 292.555           | 255.214 | 296.838          | Road 2 nos                             | 459881 | 2523794 | Revetment Proposed                                              |
| 15   | AP21     | SC+0       | 14°07'48" (RT)           | 293       | 293      | 3865               | 3865.00           | 311.531 | 245.50        | 293.00        | 198.00 | 286.347            | 145.411  | 431.758           | 232.059 | 359.191          | Road 2nos                              | 460090 | 2523586 | Revetment Proposed                                              |
| 16   | AP21A    | SC+0       | 11°45'49" (RT)           | 198       | 198      | 4063               | 4063.00           | 207.625 | 238.50        | 198.00        | 279.00 | 51.787             | 141.611  | 193.398           | 70.016  | 210.846          | Road ( Parallel to line)               | 460798 | 2523420 | Revetment Proposed                                              |
| 17   | AP22     | SC+3       | 13°37'12" (LT)           | 279       | 279      | 4342               | 4342.00           | 304.388 | 324.50        | 279.00        | 370.00 | 137.599            | 174.519  | 312.118           | 138.38  | 317.032          | 11 KV Line, 11 KV Line, Road           | 460887 | 2523153 | Revetment Proposed                                              |
| 18   | AP23     | SC+3       | 06°39'53" (RT)           | 370       | 370      | 4712               | 4712.00           | 306.051 | 324.00        | 370.00        | 278.00 | 195.748            | 60.985   | 286.733           | 191.615 | 283.044          | Road                                   | 460888 | 2522842 | Revetment Proposed                                              |
| 19   | AP24     | SC+0       | 18°22'53" (RT)           | 278       | 278      | 4990               | 4990.00           | 318.259 | 264.00        | 278.00        | 528.00 | 217.348            | 71.064   | 288.412           | 186.904 | 278.969          | Nala 2 nos                             | 460612 | 2522595 | Revetment Proposed                                              |
| 20   | AP24/1   | SB+0       | 0°00'00" (RT)            | 250       | 250      | 5240               | 5240.00           | 323.959 | 225.00        | 250.00        | 450.00 | 178.925            | 193.394  | 372.319           | 157.025 | 314.951          | Nala 2 nos                             | 460646 | 2522347 | Revetment Proposed                                              |
| 21   | AP24/2   | SB+9       | 0°00'00" (RT)            | 209       | 209      | 5440               | 5440.00           | 307.057 | 248.50        | 209.00        | 497.00 | 6.606              | -108.424 | -101.818          | 42.984  | 34.551           | Nala 3 nos, Sagan Garden               | 460673 | 2522151 | Revetment Proposed                                              |
| 22   | AP25     | SC+9       | 08°27'58" (LT)           | 297       | 297      | 5737               | 5737.00           | 339.295 | 338.50        | 297.00        | 677.00 | 405.137            | -102.633 | 302.504           | 305.146 | 316.49           | Road                                   | 460715 | 2521853 | Revetment Proposed                                              |



*Handwritten signature and date: 5/10/2018*

For Power Grid Corporation of India Ltd.



| Sl. No. | Code    | Angle | Height         | Span | Weight   | Clearance | Ground | Remarks | Revertment Proposed |        |           |          |          |          |          |          |        |         |                                                                                                                               |
|---------|---------|-------|----------------|------|----------|-----------|--------|---------|---------------------|--------|-----------|----------|----------|----------|----------|----------|--------|---------|-------------------------------------------------------------------------------------------------------------------------------|
| 23      | AP26    | SC+0  | 06°43'38" (RT) | 380  | 6117.00  | 395.464   | 304.00 | 380.00  | 228.00              | 608.00 | 462.653   | 362.553  | 845.186  | 368.778  | 265.846  | 634.624  | 460822 | 2521499 | C type tower is selected based on adjacent span permissible limit eventhough its angle of deviation is within limit of B type |
| 24      | AP27    | SB+0  | 06°05'23" (RT) | 228  | 6345.00  | 371.462   | 282.50 | 228.00  | 337.00              | 565.00 | -131.141  | 214.613  | 80.472   | -37.434  | 196.804  | 159.37   | 460858 | 2521262 | Naha                                                                                                                          |
| 25      | AP28    | SD+9  | 19°33'14" (LT) | 337  | 6682.00  | 355.926   | 323.50 | 337.00  | 310.00              | 647.00 | 123.146   | -34.664  | 88.482   | 40.955   | 39.192   | 180.147  | 460873 | 2520930 | Road, Naha, 7 by ground 11KV line                                                                                             |
| 26      | AP28A   | SB+9  | 00°43'49" (LT) | 310  | 6992.00  | 380.804   | 284.00 | 310.00  | 258.00              | 568.00 | 344.664   | -472.638 | -127.974 | 270.808  | -238.338 | 32.47    | 460987 | 2520645 | D type tower is selected based on adjacent span permissible limit eventhough its angle of deviation is within limit of C type |
| 27      | AP29    | SC+0  | 17°09'22" (LT) | 258  | 7250.00  | 455.965   | 180.50 | 258.00  | 103.00              | 361.00 | 730.738   | 532.372  | 1263.11  | 496.438  | 344.956  | 841.394  | 461093 | 2520403 | Weight span violation, sent for approval from Engg. Dept. Ghy                                                                 |
| 28      | AP30    | SB+9  | 04°42'20" (LT) | 103  | 7353.00  | 426.159   | 113.50 | 103.00  | 124.00              | 227.00 | -430.204  | 1241.575 | 811.371  | -242.788 | 182.273  | 539.485  | 461157 | 2520325 | Weight span violation, sent for approval from Engg. Dept. Ghy                                                                 |
| 29      | AP30A/0 | SC+9  | 10°22'41" (LT) | 124  | 7477.00  | 364.17    | 258.00 | 124.00  | 392.00              | 516.00 | -1117.415 | 352.685  | -764.730 | -658.113 | 291.619  | -366.494 | 461242 | 2520231 | Weight span violation, sent for approval from Engg. Dept. Ghy                                                                 |
| 30      | AP31/0  | SB+9  | 02°58'33" (LT) | 392  | 7869.00  | 338.309   | 321.00 | 392.00  | 250.00              | 642.00 | 39.049    | 295.535  | 334.584  | 100.115  | 229.127  | 329.242  | 461562 | 2520009 |                                                                                                                               |
| 31      | AP31A/0 | SD+0  | 38°17'39" (RT) | 250  | 8119.00  | 329.043   | 335.50 | 250.00  | 421.00              | 671.00 | -45.541   | 251.152  | 205.611  | 20.867   | 233.245  | 256.112  | 461776 | 2519879 | Naha                                                                                                                          |
| 32      | AP32/0  | SD+0  | 30°35'52" (RT) | 421  | 8540.00  | 321.773   | 375.00 | 421.00  | 329.00              | 750.00 | 169.452   | -57.132  | 112.32   | 185.359  | 29.181   | 214.54   | 461910 | 2519506 |                                                                                                                               |
| 33      | AP33/0  | SB+0  | 06°02'19" (RT) | 329  | 8869.00  | 352.633   | 276.50 | 329.00  | 224.00              | 553.00 | 386.175   | -40.821  | 345.354  | 299.862  | 18.726   | 318.588  | 461845 | 2519184 | Levelling required for obtaining the required ground clearance.                                                               |
| 34      | AP34/0  | SB+9  | 01°25'28" (LT) | 224  | 9093.00  | 358.139   | 305.50 | 224.00  | 387.00              | 611.00 | 265.014   | 181.359  | 446.373  | 205.467  | 186.087  | 391.554  | 461779 | 2518966 |                                                                                                                               |
| 35      | AP34A/0 | SB+0  | 02°12'31" (LT) | 387  | 9480.00  | 369.127   | 265.00 | 387.00  | 143.00              | 530.00 | 205.641   | 26.948   | 232.509  | 200.913  | 44.389   | 245.302  | 461671 | 2518586 |                                                                                                                               |
| 36      | AP35/0  | SC+0  | 16°22'39" (RT) | 143  | 9623.00  | 371.846   | 276.50 | 143.00  | 410.00              | 553.00 | 116.526   | 129.333  | 245.661  | 99.085   | 158.729  | 257.814  | 461639 | 2518458 | 33KV LINE crossing from Left to Right with proposed 132KV Lumpsum - Chawngie Line.                                            |
| 37      | AP35A/0 | SC+0  | 06°12'03" (LT) | 410  | 10033.00 | 385.039   | 279.00 | 410.00  | 148.00              | 558.00 | 281.133   | -45.880  | 235.253  | 251.539  | 0.747    | 252.286  | 461437 | 2518104 | C type tower is selected based on adjacent span permissible limit eventhough its angle of deviation is within limit of B type |
| 38      | AP36/0  | SC+0  | 15°46'14" (RT) | 148  | 10181.00 | 392.523   | 194.00 | 148.00  | 240.00              | 388.00 | 193.587   | 167.632  | 361.229  | 146.97   | 149.084  | 296.054  | 461373 | 2517972 |                                                                                                                               |
| 39      | AP36A/0 | SC+6  | 14°36'43" (LT) | 240  | 10421.00 | 387.676   | 203.50 | 240.00  | 167.00              | 407.00 | 72.368    | -163.582 | -91.214  | 90.916   | -67.331  | 23.585   | 461220 | 2517782 | Old Road                                                                                                                      |



5/11/2018

For Power Grid Corporation of India Ltd.



|    |         |      |                 |       |          |         |        |        |        |        |          |          |          |          |          |          |                         |        |         |                                                                                                                                 |
|----|---------|------|-----------------|-------|----------|---------|--------|--------|--------|--------|----------|----------|----------|----------|----------|----------|-------------------------|--------|---------|---------------------------------------------------------------------------------------------------------------------------------|
| 40 | AP36B/0 | SD+0 | 41°10'41" (LT)  | 151   | 10588.00 | 411.161 | 159.00 | 167.00 | 151.00 | 318.00 | 330.766  | 174.490  | 505.256  | 234.515  | 135.95   | 370.465  | Old Road - 2 Nos.       | 461155 | 2517633 | D type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C type. |
| 41 | AP36C/0 | SD+0 | 21°23'41" (1.1) | 365   | 10739.00 | 404.836 | 258.00 | 151.00 | 365.00 | 516.00 | -23.454  | 36.053   | 12.899   | -15.086  | 93.046   | 77.96    |                         | 461197 | 2517488 |                                                                                                                                 |
| 42 | AP37/0  | SD+9 | 21°15'05" RT    | 365   | 11104.00 | 418.429 | 268.50 | 365.00 | 172.00 | 537.00 | 328.772  | 567.088  | 895.860  | 271.779  | 379.75   | 651.529  | ROAD 2 NOS              | 461414 | 2517200 | D type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of C type. |
|    | AP37/1  | SB+9 | 00°00'00"       | 172   | 11276.00 | 383.418 | 136.00 | 172.00 | 100.00 | 272.00 | -393.088 | 854.100  | 459.012  | -207.75  | 540.895  | 333.145  |                         | 461465 | 2517029 | Weight span violation, sent for approval from Engrg. Dept. Ghy.                                                                 |
|    | AP37A/0 | SB+9 | 02°18'40" LT    | 100   | 11376.00 | 349.531 | 240.50 | 100.00 | 381.00 | 481.00 | -754.532 | 241.858  | -512.674 | -441.327 | 221.831  | -219.496 |                         | 461492 | 2516935 | Weight span violation, sent for approval from Engrg. Dept. Ghy.                                                                 |
|    | AP38/0  | SD+9 | 22°19'59" RT    | 381   | 11757.00 | 341.243 | 302.00 | 381.00 | 223.00 | 604.00 | 138.997  | -617.507 | -478.510 | 159.024  | -333.658 | -174.634 | ROAD 1 NOS.             | 461620 | 2516581 | Weight span violation, sent for approval from Engrg. Dept. Ghy.                                                                 |
|    | AP39/0  | SD+9 | 30°27'48" RT    | 223   | 11980.00 | 409.974 | 263.50 | 223.00 | 304.00 | 527.00 | 840.35   | -300.014 | 540.336  | 556.501  | -124.016 | 432.485  |                         | 461616 | 2516355 | Weight span violation, sent for approval from Engrg. Dept. Ghy.                                                                 |
|    | AP40/0  | SD+0 | 37°02'18" LT    | 304   | 12284.00 | 477.092 | 283.50 | 304.00 | 263.00 | 567.00 | 603.918  | 686.177  | 1290.095 | 427.92   | 470.175  | 898.095  |                         | 461434 | 2516103 | Weight span violation, sent for approval from Engrg. Dept. Ghy.                                                                 |
| 48 | AP41/0  | SC+9 | 12°01'46" LT    | 263   | 12547.00 | 406.374 | 246.50 | 263.00 | 230.00 | 493.00 | -423.219 | 323.249  | -99.970  | -267.217 | 242.069  | 34.852   | ROAD 1 NOS & Fly ground | 461451 | 2515842 |                                                                                                                                 |
| 49 | AP42/0  | SB+6 | 02°20'43" LT    | 230   | 12777.00 | 389.125 | 264.00 | 230.00 | 298.00 | 538.00 | -92.692  | -10.382  | -104.074 | -12.512  | 51.709   | 39.197   | 33 KV LINE              | 461510 | 2515620 |                                                                                                                                 |
| 50 | AP43/0  | SC+9 | 14°23'50" LT    | 298   | 13075.00 | 406.24  | 278.50 | 298.00 | 259.00 | 557.00 | 308.522  | -20.618  | 287.904  | 246.431  | 37.776   | 284.207  | NALA                    | 461599 | 2515334 |                                                                                                                                 |
| 51 | AP43A/0 | SB+9 | 07°42'07" LT    | 259   | 13334.00 | 422.653 | 227.00 | 259.00 | 195.00 | 454.00 | 279.294  | 95.406   | 374.700  | 220.9    | 96.222   | 317.122  | 33 KV LINE              | 461735 | 2515116 | 33KV LINE TO BE SHIFTED BY PED/POCCL.                                                                                           |
| 52 | AP43A/1 | SB+3 | 00°00'00"       | 195   | 13529.00 | 428.826 | 214.50 | 195.00 | 234.00 | 429.00 | 99.594   | -0.729   | 98.865   | 98.778   | 45.048   | 143.826  | NALA                    | 461861 | 2514964 |                                                                                                                                 |
| 53 | AP43B/0 | SB+9 | 00°36'58" LT    | 234   | 13763.00 | 434.448 | 255.50 | 234.00 | 277.00 | 511.00 | 233.655  | 33.600   | 267.255  | 188.607  | 74.542   | 263.149  | NALA                    | 462002 | 2514782 |                                                                                                                                 |
| 54 | AP44    | SD+9 | 29°10'59" RT    | 277   | 14040.00 | 446.792 | 326.00 | 277.00 | 375.00 | 652.00 | 243.877  | 40.675   | 384.552  | 202.935  | 97.844   | 300.779  | NALA                    | 462185 | 2514568 |                                                                                                                                 |
| 55 | AP45/0  | SC+9 | 08°23'08" RT    | 375   | 14415.00 | 470.085 | 348.50 | 375.00 | 322.00 | 697.00 | 334.297  | -204.031 | 130.266  | 277.128  | -61.844  | 215.284  | 33 KV LINE, ROAD 1 NO.  | 462260 | 2514205 |                                                                                                                                 |
| 56 | AP46/0  | SC+9 | 10°01'03" LT    | 322   | 14737.00 | 519.867 | 238.00 | 322.00 | 154.00 | 476.00 | 526.246  | -203.503 | 322.743  | 384.059  | -94.365  | 289.694  | NALA                    | 462276 | 2513884 | REVETMENT REQUIRED                                                                                                              |
| 57 | AP47    | SB+0 | 0°00'00"        | 154   | 14891.00 | 546.638 | 121.75 | 154.00 | 89.50  | 243.50 | 357.031  | 28.944   | 386.975  | 247.893  | 35.196   | 283.089  | NALA                    |        |         |                                                                                                                                 |
| 58 | AP48/0  | SD+9 | 24°58'48" LT    | 89.5  | 14980.50 | 538.685 | 217.75 | 89.50  | 346.00 | 438.50 | 304.387  | 157.172  | 461.559  | 233.273  | 163.372  | 396.645  | ROAD 2 NOS, 33 KV LINE  | 462326 | 2513647 |                                                                                                                                 |
| 59 | AP49/0  | SC+3 | 14°35'04" LT    | 346   | 15326.50 | 547.017 | 291.75 | 346.00 | 237.50 | 583.50 | 189.013  | 267.447  | 456.460  | 182.813  | 209.545  | 392.358  |                         | 462546 | 2513375 |                                                                                                                                 |
| 60 | AP49A   | SB+9 | 02°56'24" LT    | 237.5 | 15564.00 | 526.074 | 265.25 | 237.50 | 293.00 | 530.50 | -29.941  | 19.152   | -10.789  | 27.961   | 68.719   | 96.68    |                         | 462734 | 2513232 |                                                                                                                                 |



For Power Grid Corporation of India Ltd.



|    |        |      |             |        |          |         |        |        |        |        |          |          |          |         |          |         |                                    |        |         |                                                                                                                                |  |
|----|--------|------|-------------|--------|----------|---------|--------|--------|--------|--------|----------|----------|----------|---------|----------|---------|------------------------------------|--------|---------|--------------------------------------------------------------------------------------------------------------------------------|--|
| 61 | AP500  | SC+9 | 05°37'39"LT | 293    | 18887.00 | 541.848 | 314.25 | 293.00 | 335.50 | 628.50 | 273.727  | 81.142   | 354.869  | 224.16  | 114.856  | 339.016 | ROAD, 2nd OF 33 KV LINE            | 462979 | 2513064 | 33KV LINE TO BE SHIFTED BY PED/PGCIL                                                                                           |  |
| 62 | AP510  | SD+6 | 29°00'53"LT | 335.50 | 16192.50 | 557.136 | 254.75 | 335.50 | 174.00 | 509.50 | 254.296  | -73.022  | 181.274  | 220.582 | -10.771  | 209.811 | CART TRACK, 33KV LINE              | 463270 | 2512905 | 33KV LINE TO BE SHIFTED BY PED/PGCIL                                                                                           |  |
| 63 | AP51A  | SC+3 | 10°10'13"RT | 174    | 16366.50 | 571.884 | 330.75 | 174.00 | 487.50 | 661.50 | 246.702  | -50.432  | 196.270  | 134.451 | 64.074   | 248.525 | CART TRACK                         | 463445 | 2512906 |                                                                                                                                |  |
| 64 | AP52A  | SC+6 | 10°05'47"RT | 487.5  | 16854.00 | 629.508 | 340.25 | 487.50 | 193.00 | 680.50 | 537.077  | -36.417  | 501.260  | 423.171 | 15.425   | 438.596 | CART TRACK                         | 463919 | 2512822 |                                                                                                                                |  |
| 65 | AP53/0 | SD+3 | 29°05'46"RT | 193    | 17047.00 | 643.404 | 241.50 | 193.00 | 290.00 | 483.00 | 229.845  | 295.529  | 525.374  | 178.003 | 236.926  | 414.929 | CART TRACK                         | 464104 | 2512756 |                                                                                                                                |  |
| 66 | AP54/0 | SC+9 | 08°39'30"RT | 290    | 17337.00 | 618.933 | 315.25 | 290.00 | 340.50 | 630.50 | -5.46    | 423.797  | 418.337  | 53.143  | 325.072  | 378.215 | NALA                               | 464293 | 2512536 |                                                                                                                                |  |
| 67 | AP54A  | SC+9 | 17°29'16"RT | 340.5  | 17677.50 | 582.402 | 330.75 | 340.50 | 321.00 | 661.50 | -83.255  | -272.912 | -356.167 | 15.47   | -104.088 | -88.618 | CART TRACK                         | 464474 | 2512252 |                                                                                                                                |  |
| 68 | AP55/0 | SC+9 | 10°16'56"LT | 321    | 17998.50 | 641.335 | 330.50 | 321.00 | 340.00 | 661.00 | 394.173  | 220.810  | 814.983  | 425.349 | 201.027  | 626.376 | CART TRACK                         | 464559 | 2511942 |                                                                                                                                |  |
| 69 | AP56/0 | SC+3 | 11°40'35"LT | 340    | 18338.50 | 640.026 | 266.50 | 340.00 | 193.00 | 533.00 | 119.204  | 277.806  | 397.010  | 138.987 | 207.281  | 346.268 |                                    | 464700 | 2511654 |                                                                                                                                |  |
| 70 | AP57/0 | SC+0 | 10°11'07"LT | 193    | 18531.50 | 628.208 | 295.00 | 193.00 | 307.00 | 590.00 | -84.394  | 333.684  | 249.290  | -13.9   | 281.009  | 267.109 |                                    | 464815 | 2511478 |                                                                                                                                |  |
| 71 | AP58/0 | SD+3 | 26°56'05"RT | 397    | 18928.50 | 602.495 | 379.50 | 397.00 | 362.00 | 759.00 | 63.141   | 73.208   | 136.349  | 115.816 | 115.052  | 230.868 |                                    | 465105 | 2511206 |                                                                                                                                |  |
| 72 | AP59/0 | SB+3 | 01°13'58"LT | 362    | 19290.50 | 618.924 | 359.50 | 362.00 | 357.00 | 719.00 | 288.123  | -131.037 | 157.086  | 246.279 | -10.542  | 235.737 |                                    | 465227 | 2510866 |                                                                                                                                |  |
| 73 | AP60/0 | SC+9 | 13°58'02"RT | 357    | 19647.50 | 659.676 | 282.50 | 357.00 | 208.00 | 565.00 | 487.832  | -239.935 | 247.897  | 367.331 | -105.939 | 261.392 | CART TRACK                         | 465336 | 2510533 |                                                                                                                                |  |
| 74 | AP60A  | SC+6 | 09°38'12"LT | 208    | 19855.50 | 692.989 | 227.50 | 208.00 | 247.00 | 455.00 | 448.26   | 384.231  | 832.491  | 314.264 | 282.723  | 596.987 |                                    | 465381 | 2510326 |                                                                                                                                |  |
| 75 | AP61/0 | SD+9 | 24°02'55"RT | 247    | 20102.50 | 662.733 | 306.50 | 247.00 | 366.00 | 613.00 | -137.119 | 201.526  | 64.407   | -35.611 | 194.254  | 158.643 | ROAD, 2 NOS, 11 KV LINE NEAR       | 465481 | 2510091 |                                                                                                                                |  |
| 76 | AP62/0 | SD+3 | 24°23'37"LT | 366    | 20468.50 | 665.843 | 313.00 | 366.00 | 260.00 | 626.00 | 164.173  | 98.373   | 262.546  | 171.445 | 110.716  | 282.161 | ROAD                               | 465393 | 2509729 |                                                                                                                                |  |
| 77 | AP62A  | SC+0 | 09°52'34"LT | 260    | 20728.50 | 672.332 | 235.25 | 260.00 | 210.50 | 470.50 | 161.613  | 63.631   | 225.244  | 149.425 | 79.851   | 229.276 |                                    | 465462 | 2509478 |                                                                                                                                |  |
| 78 | AP63/0 | SB+0 | 04°07'27"RT | 210.5  | 20939.00 | 676.043 | 234.25 | 210.50 | 258.00 | 468.50 | 146.935  | 199.294  | 346.229  | 130.715 | 171.998  | 302.713 | 33 KV LINE, ROAD                   | 465550 | 2509289 |                                                                                                                                |  |
| 79 | AP64/0 | SB+9 | 02°17'54"RT | 258    | 21197.00 | 662.379 | 239.00 | 258.00 | 220.00 | 478.00 | 59.098   | 240.809  | 299.907  | 86.395  | 188.815  | 276.23  | 11 KV LINE                         | 465640 | 2509045 |                                                                                                                                |  |
| 80 | AP65/0 | SC+9 | 14°13'42"LT | 220    | 21417.00 | 647.204 | 218.00 | 220.00 | 216.00 | 456.00 | -20.997  | 316.304  | 295.507  | 30.165  | 235.329  | 265.494 | 11 KV, 33KV LINE                   | 465707 | 2508837 |                                                                                                                                |  |
| 81 | AP65A  | SC+9 | 10°11'45"LT | 216    | 21633.00 | 628.144 | 265.00 | 216.00 | 314.00 | 530.00 | -100.415 | 370.278  | 269.863  | -19.24  | 287.322  | 268.082 | CART TRACK                         | 465324 | 2508653 |                                                                                                                                |  |
| 82 | AP66/0 | SC+9 | 15°41'23"RT | 314    | 21947.00 | 599.796 | 323.50 | 314.00 | 333.00 | 647.00 | -55.786  | 334.328  | 278.542  | 27.17   | 268.957  | 296.127 |                                    | 466003 | 2508419 |                                                                                                                                |  |
| 83 | AP67/0 | SC+9 | 04°43'57"RT | 333    | 22280.00 | 576.149 | 339.00 | 333.00 | 345.00 | 678.00 | -1.417   | 207.191  | 205.774  | 63.954  | 193.723  | 257.677 |                                    | 466181 | 2508121 | C type tower is selected based on adjacent span permissible limit even though its angle of deviation is within limit of B type |  |
| 84 | AP67A  | SC+9 | 18°29'18"LT | 345    | 22625.00 | 571.097 | 287.50 | 345.00 | 230.00 | 575.00 | 138.017  | 100.297  | 238.314  | 151.485 | 106.03   | 257.515 | ROAD, CART TRACK, 11 KV, 33KV LINE | 466299 | 2507802 |                                                                                                                                |  |
| 85 | AP68/0 | SB+0 | DDPMMSS"    | 230    | 22855.00 | 581.53  | 115.00 | 230.00 | Y      | X      | YY       | XX       | YY       | XXX     |          |         |                                    |        | 466441  | 2507618                                                                                                                        |  |



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For Power Grid Corporation of India Ltd.



NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED

NAME OF PROJECT :- SUPPLY OF SERVICES CONTRACT FOR TOWER PACKAGE TWO ASSOCIATED WITH NER POWER SYSTEM IMPROVEMENT PROJECT (INTERSTATE MIZORAM)

132KV LUNGSEN - CHAWNGTE Tr-Line - TOWER SCHEDULE (AP 67A - AP83/C)

| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CTM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |         |         | WEIGHT SPAN (COLD) |          |          | WEIGHT SPAN (HOT) |         |         | CROSSING DETAILS | UTM CO-ORDINATE |                                                                                       | REMARKS |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|---------|---------|--------------------|----------|----------|-------------------|---------|---------|------------------|-----------------|---------------------------------------------------------------------------------------|---------|
|      |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT   | TOTAL   | LEFT               | RIGHT    | TOTAL    | LEFT              | RIGHT   | TOTAL   |                  | EASTING         | NORTHING                                                                              |         |
| 1    | AP67A/0  | SC+9       | 18°29'18"LT        | 230      | 230                | 22630.500         | 571.097 | 287.500       | 375.000       | 230.000 | 605.000 | 138.017            | 7.832    | 145.849  | 151.485           | 49.571  | 201.056 | 466299           | 2507802         |                                                                                       |         |
| 2    | AP68/0   | SB+9       | 08°35'28"RT        | 294      | 294                | 22860.700         | 581.530 | 262.000       | 230.000       | 294.000 | 524.000 | 222.206            | 210.942  | 433.148  | 180.467           | 186.083 | 366.550 | 46644            | 2507616         | ROAD, 33 KV LINE, OLD ROAD, 11 KV LINE                                                |         |
| 3    | AP69/0   | SD+9       | 36°54'46"RT        | 218      | 294                | 23154.500         | 579.619 | 256.000       | 294.000       | 218.000 | 512.000 | 83.263             | -55.308  | 27.967   | 108.124           | 8.345   | 116.469 | 466592           | 2507363         | NALA, ROAD                                                                            |         |
| 4    | AP70/0   | SC+9       | 09°28'46"RT        | 218      | 218                | 23372.500         | 594.275 | 360.500       | 218.000       | 503.000 | 721.000 | 274.303            | 422.191  | 696.494  | 210.001           | 555.720 | 565.721 | 466574           | 2507147         | 33 KV LINE                                                                            |         |
| 5    | AP71/0   | SC+9       | 04°11'48"RT        | 340      | 503                | 23875.500         | 557.946 | 471.500       | 503.000       | 340.000 | 843.000 | 80.795             | 386.577  | 467.370  | 147.264           | 302.069 | 449.333 | 466438           | 2506664         | CART TRACK 2 P.O.S                                                                    |         |
| 6    | AP72/0   | SC+3       | 15°30'10"RT        | 125      | 340                | 24215.500         | 532.806 | 232.500       | 340.000       | 125.000 | 465.000 | -47.450            | -90.960  | -138.410 | 37.056            | -31.092 | 5.964   | 466331           | 2506340         | NALA                                                                                  |         |
| 7    | AP73/0   | SC+0       | 17°14'24"LT        | 163      | 125                | 24540.500         | 543.974 | 144.000       | 125.000       | 163.000 | 288.000 | 216.522            | 295.017  | 511.539  | 156.654           | 211.841 | 368.495 | 466262           | 2506236         |                                                                                       |         |
| 8    | AP74/0   | SD+9       | 14°18'16"LT        | 163      | 163                | 24803.500         | 520.257 | 339.500       | 163.000       | 486.000 | 659.000 | -132.181           | 478.784  | 346.603  | 49.085            | 408.917 | 359.902 | 466204           | 2506085         | ROAD, 33 KV LINE, 11 KV LINE                                                          |         |
| 9    | AP75/0   | SC+9       | 12°24'33"RT        | 486      | 496                | 24994.500         | 471.822 | 378.000       | 496.000       | 260.000 | 756.000 | 17.170             | 466.662  | 483.832  | 107.047           | 335.564 | 442.611 | 466186           | 2505585         | 33KV LINE TO BE REROUTED / SHIFTED BY PED/PGCIL to obtain the required line clearance |         |
| 10   | AP76A    | SB+9       | 06°07'39"LT        | 326      | 260                | 25259.500         | 434.952 | 293.000       | 260.000       | 326.000 | 586.000 | -206.662           | 278.381  | 71.719   | -75.564           | 233.350 | 157.786 | 466123           | 2505338         |                                                                                       |         |
| 11   | AP76/0   | SC+9       | 09°43'05"LT        | 326      | 326                | 25585.500         | 419.026 | 234.900       | 326.000       | 145.000 | 469.000 | 47.097             | 662.423  | 709.520  | 62.128            | 432.221 | 534.349 | 466065           | 2505015         | CART TRACK, NALA                                                                      |         |
| 12   | AP76A    | SD+9       | 22°45'16"RT        | 143      | 143                | 25728.500         | 385.376 | 294.000       | 143.000       | 445.000 | 588.000 | -519.500           | 426.067  | -93.833  | -285.698          | 346.792 | 57.094  | 466070           | 2504873         | 33 KV LINE                                                                            |         |
| 13   | AP77/0   | SD+9       | 23°08'07"RT        | 445      | 445                | 26173.500         | 345.046 | 458.500       | 445.000       | 432.000 | 877.000 | 18.905             | -211.616 | -192.711 | 98.180            | -45.112 | 53.068  | 465904           | 2504461         | REVIEMENT                                                                             |         |
| 14   | AP78/0   | SD+6       | 44°16'36"RT        | 432      | 432                | 26065.500         | 426.193 | 286.000       | 432.000       | 140.000 | 572.000 | 643.554            | 255.865  | 899.419  | 477.050           | 183.345 | 640.385 | 465394           | 2504160         | CHAWNGTE TO CHIMORHM (OLD) ROAD, 33 KV LINE, 11 KV LINE                               |         |
| 15   | AP79/0   | SD+6       | 18°22'28"LT        | 208      | 140                | 26745.500         | 415.219 | 174.000       | 140.000       | 208.000 | 348.000 | -115.601           | 554.717  | 438.116  | -44.081           | 378.367 | 334.486 | 465456           | 2504146         |                                                                                       |         |
| 16   | AP80/0   | SD+9       | 40°42'33"LT        | 208      | 208                | 26985.500         | 372.665 | 220.500       | 208.000       | 233.000 | 441.000 | -347.082           | 334.300  | -12.782  | -171.499          | 249.554 | 78.085  | 465255           | 2504086         | 11 KV LINE                                                                            |         |
|      |          |            |                    | 233      | 233                |                   |         |               |               |         |         |                    |          |          |                   |         |         |                  |                 | 11 KV LINE, OLD ROAD, 33KV LINE parallel to line                                      |         |

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| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RL (m)  | WIND SPAN (m) | ADJACENT SPAN |         |         | WEIGHT SPAN (COLD) |         |         | WEIGHT SPAN (HOT) |         |         | UTM CO-ORDINATE |          | REMARKS           |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|---------|---------|--------------------|---------|---------|-------------------|---------|---------|-----------------|----------|-------------------|
|      |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT   | TOTAL   | LEFT               | RIGHT   | TOTAL   | LEFT              | RIGHT   | TOTAL   | EASTING         | NORTHING |                   |
| 17   | AP80/A   | SC+9       | 10°29'22"RT        |          |                    | 27186.500         | 351.118 | 300.500       | 233.000       | 368.000 | 691.000 | -100.961           | 511.622 | 410.661 | -16.215           | 383.955 | 367.740 | 465138          | 2503880  | REVIEMENT         |
| 18   | AP81/B   | SD+6       | 33°12'18"LT        | 368      | 368                | 27554.500         | 303.132 | 291.500       | 388.000       | 215.000 | 583.000 | -144.082           | 412.077 | 267.995 | -16.415           | 293.279 | 276.814 | 464902          | 2503605  | REVIEMENT         |
| 19   | AP81/A   | SC+6       | 89°28'35"RT        | 215      | 215                | 27769.500         | 275.529 | 330.000       | 215.000       | 485.000 | 700.000 | -198.331           | 699.341 | 591.010 | -79.083           | 521.154 | 441.671 | 464875          | 2503389  | REVIEMENT SUGGEST |
| 20   | AP81/B   | SD+9       | 38°49'08"RT        | 485      | 485                | 28254.500         | 178.914 | 383.500       | 485.000       | 282.000 | 767.000 | -215.835           | 446.326 | 230.491 | -37.648           | 377.462 | 289.814 | 464731          | 2503910  |                   |
| 21   | AP82/0   | SC+3       | 20°41'36"RT        | 282      | 282                | 28536.500         | 148.471 | 254.000       | 282.000       | 226.000 | 508.000 | -164.173           | 146.367 | -17.306 | -45.302           | 133.425 | 88.123  | 464485          | 2502772  |                   |
| 22   | AP83/0   | SD+4       | 19°48'33"LT        | 276      | 276                | 28762.500         | 148.289 | 313.000       | 226.000       | 400.000 | 626.000 | 79.894             | 44.501  | 124.395 | 92.836            | 104.771 | 197.607 | 464275          | 2502721  |                   |
| 23   | AP83/A   | SC+0       | 10°37'33"RT        | 400      | 400                | 29162.500         | 174.350 | 295.500       | 400.000       | 191.000 | 591.000 | 334.032            | 450.745 | 804.297 | 293.782           | 312.383 | 606.165 | 463940          | 2502502  |                   |
| 24   | AP83/B   | SC+9       | 17°33'01"LT        | 191      | 191                | 29365.500         | 136.696 | 281.000       | 191.000       | 371.000 | 562.000 | -259.889           | 475.947 | 216.058 | -121.527          | 363.902 | 241.375 | 463766          | 2502452  |                   |
| 25   | AP83/C   | DB+9       | 83°37'33"RT        | 371      | 371                | 29724.500         | 91.089  | YY            | 371.000       | YY      | XX      | -104.659           | YY      | XX      | 8.386             | YY      | XX      | 463463          | 2502218  |                   |

NAME OF CLIENT :- M/S. POWER GRID CORPORATION OF INDIA LIMITED  
Tower Abstract of 132KV S/C TL

| Tower Type/Exe. | +0 | +3 | +6 | +9 | +12 | Total |
|-----------------|----|----|----|----|-----|-------|
| SA              | 0  | 0  | 0  | 0  | 0   | 0     |
| SB              | 0  | 0  | 0  | 2  | 0   | 2     |
| SC              | 2  | 2  | 1  | 7  | 0   | 12    |
| SD              | 1  | 0  | 3  | 6  | 0   | 10    |
| Total           | 3  | 2  | 4  | 15 | 0   | 24    |

Net Total



NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED

NAME OF PROJECT :- SUPPLY OF SERVICES CONTRACT FOR TOWER PACKAGE TW01 ASSOCIATED WITH NER POWER SYSTEM IMPROVEMENT PROJECT (INTERSTATE MIZORAM)

132kV LUNGSEN - CHAWNGTE Tr.Line - TOWER SCHEDULE (AP 83C - GANTRY)

| S.NO | TOWER NO | TOWER TYPE | DEVIATION OF ANGLE | SPAN (m) | SECTION LENGTH (m) | CUM. CHAINAGE (m) | RI. (m) | WIND SPAN (m) | ADJACENT SPAN |         |         | WEIGHT SPAN (COID) |            |         | WEIGHT SPAN (TOT) |            |         | CROSSING DETAILS                                             |       | UTM CO-ORDINATE |         | REMARKS |          |
|------|----------|------------|--------------------|----------|--------------------|-------------------|---------|---------------|---------------|---------|---------|--------------------|------------|---------|-------------------|------------|---------|--------------------------------------------------------------|-------|-----------------|---------|---------|----------|
|      |          |            |                    |          |                    |                   |         |               | LEFT          | RIGHT   | TOTAL   | LEFT               | RIGHT      | TOTAL   | LEFT              | RIGHT      | TOTAL   | LEFT                                                         | RIGHT | TOTAL           | EASTING |         | NORTHING |
| 1    | AP83B    | SC+9       | 12°33'01"LT        | 371      |                    | 29933.500         | 136.696 | 281.000       | 191.000       | 371.000 | 562.000 | -259.889           | 482.434    | 222.545 | -121.527          | 366.858    | 245.331 |                                                              |       | 463766          | 2502432 |         |          |
| 2    | AP83C    | DD+9       | 03°37'33"RT        | 371      | 371                | 29724.500         | 91.089  | 289.000       | 371.000       | 207.000 | 578.000 | -111.241           | 267.630    | 156.389 | 4.335             | 203.988    | 208.323 | CURT TRACK, LT LINE, PROPOSED LINE RUNNING PARALLEL TO HOUSE |       | 463463          | 2502218 |         |          |
| 3    | AP83D    | DC+3       | 18°54'00"LT        | 207      | 207                | 29931.500         | 85.631  | 196.000       | 207.000       | 185.000 | 392.000 | -60.515            | 134.500    | 74.585  | 3.126             | 118.581    | 121.707 |                                                              |       | 463288          | 2502100 |         |          |
| 4    | AP840    | DD+0       | 33°49'47"LT        | 185      | 185                | 30116.500         | 85.973  | 134.000       | 185.000       | 85.000  | 268.000 | 49.927             | 115.509    | 165.427 | 66.446            | 86.795     | 153.244 | ROAD                                                         |       | 463182          | 2501952 |         |          |
| 5    | AP850    | DC+0       | 19°46'48"LT        | 83       | 83                 | 30199.500         | 83.901  | 53.000        | 83.000        | 23.000  | 106.000 | -32.480            | SLACK SPAN | XXX     | -3.778            | SLACK SPAN | YYY     |                                                              |       | 463176          | 2501870 |         |          |
| 6    | TAPPING  | DD+6       | 14°24'05"LT        | 23       | 23                 | 30222.500         | 85.555  | 21.500        | 23.000        | 20.000  | 43.000  | SLACK SPAN         | SLACK SPAN | XXX     | SLACK SPAN        | SLACK SPAN | YYY     |                                                              |       | 463181          | 2501846 |         |          |
| 7    | BAY      | BAY        | DD°MM'SS"          | 20       | 20                 | 30242.500         | 91.943  | YY            | 20.000        | YY      | XX      | SLACK SPAN         | SLACK SPAN | XXX     | SLACK SPAN        | SLACK SPAN | YYY     |                                                              |       |                 |         |         |          |



| NAME OF CLIENT :- M/S POWER GRID CORPORATION OF INDIA LIMITED       |    |    |    |    |       |   |
|---------------------------------------------------------------------|----|----|----|----|-------|---|
| 132kV LUNGSEN - CHAWNGTE Tr.Line - Tower Abstract (AP 83A - GANTRY) |    |    |    |    |       |   |
| Tower Type\Extn                                                     | +0 | +3 | +6 | +9 | Total |   |
| DA                                                                  | 0  | 0  | 0  | 0  | 0     | 0 |
| DB                                                                  | 0  | 0  | 0  | 0  | 0     | 0 |
| DC                                                                  | 1  | 1  | 0  | 0  | 2     | 2 |
| DD                                                                  | 1  | 0  | 1  | 1  | 3     | 3 |
| DX                                                                  | 0  | 0  | 0  | 0  | 0     | 0 |
| Total                                                               | 2  | 1  | 1  | 1  | 5     | 5 |
| Net Total                                                           |    |    |    |    |       | 5 |