Animal Passage Plan

For

Construction of ITBP Ph-II Road from Muguthang to 20R Link Pt. (L=10.70 km)

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1. Introduction to the Project:

1. Present project is for the construction of high altitude hill roads to Indo-China border road under phase II in the State of Sikkim has been entrusted to Central Public Works Department (CPWD) by the Ministry of Home Affairs, Department of Border Management, Govt. of India. The work is of National importance having strategic in nature from Border Security aspect.
2. The forest area required for the Non-forest use i.e. Road construction is **19.36 Ha**. The total capital cost of the project is **Rs- 234.87 /- Crores only** (Rs- Two Hundred Thirty Four Crore Eighty Seven Lac only).

2. Objective of Animal Passage Plan Study:

The objectives of animal passage plan are:

- To incorporate the needs of wildlife into transportation projects.
- To maintain the habitat connectivity.
- To aid in the reduction of human wildlife conflict, improving awareness, safety and reducing collisions.

3. Project Location and Technical Details:

Project:	Construction of ITBP Ph-II Road from Muguthang to 20R Link Pt. (L=10.70 km)
Proposal No.	FP/SK/ROAD/124229/2021 (Forest Territorial)
Project Proponent:	ITBP, 13TH B.N., GANGTOK
Project Cost:	**Rs. 234.87 /- Crores only** (Rs- Two Hundred Thirty Four Crore Eighty Seven Lac only)
Details of Protected Area involved:	NIL
Project Area Inside Protected Area:	NIL

4. **Justification for Proposed road:** The project road Muguthang to 20R Link Pt. is being constructed for ITBP to reach and to protect Indian Territory up to Line of Control. Hence, this will be a very important road to transport ammunitions and Military personals upto border of India. Therefore diversion of required forest land will be essential for constructing the road.

5. **Area Details Falling in Lachen Territorial range:**

Part- 1

(i) Total Length of the Road: 10.70 km

(ii) Width of the Road: 18 mtr.

(iii) Area: 19.36 Ha.

Total Forest Land involved in the Project: 19.36 Ha.

Total Non-Forest Land involved under the Project: 0.00 Ha.

6. **Major Activities involved in the execution of Project:**

A	**Earthwork in excavation in Hilly area**
1	Earthwork in cutting
2	Earthwork in filling
B	**CD Works**
4	Construction of 2.0m Span RCC Culvert
5	Construction of 3.0m Span RCC Culvert
6	Construction of 6.0m Span RCC Culvert
C	**Construction of Protection Walls**
7	Breast/Wall Ht. 2.00 m
8	Breast/Wall Ht. 4.00 m
9	R/Wall Ht. 2.00 m
10	R/Wall Ht. 4.00 m
11	Gabion walls
12	Parapet
13	C/o of Underpasses
D	**Providing & Fixing of Signage and Boards**
14	Main Information Board
15	Road Sign Boards
16	5 Km Stones
17	Km Stone

7. Flora and Fauna of Lachen Territorial Range

The followings are the details of Flora and Fauna which are commonly seen in Lachen (T) range.

(i) List of Plants:

Common name	Life form	Botanical name
Sukpa	Tree	*Juniperus macropoda*
Jatamashi	Shrub	*Nardostachys jatamansi*
Panch auli	Shrub	*Orchis latifolia*
Sunpatti	Herb	*Rhododendron anthopogon*
Jussey Sunpatti	Tree	*Rhododendron seturum*
Lek Chimping	Tree	*Heracleum wallichi*
Bikh	Herb	*Acontium heterophyllum*
Bikhma	Grass	*Acontium biswa*
Kutki	Tree	*Picrorhiza kurooa*
Gueleno	Shrub	*Callicarpa arborea*
Yarhagumba	Tree	*Cordyceps sinensis*
Lama	Tree	*Salix sp.*
Tarabu	Shrub	*Hippophae sp.*

(ii) FAUNA The sanctuary houses a variety of rare and endangered animals. The following specieshave been reported from the area:

Common name	Scientific name
Snow Leopard	Panthera uncia
Wild Yaks	Bas grunniens
Wooly Hare	Lepus oiostolus
Tibetan Wild Dog	Cuon alpinusa
Tibetan Sand fox	Vulpes ferrilata
Tbetan wolf	Canis lupus chanco
Blue sheep	Pseudois nayaur
Himalayan marmot	Marmota himalayana
Siberian weasel	Mustela sibirica
Pika	Ochotona sp.

(iii) Bird species:

Common name	Scientific name
Tibetan Snowcock	Tetraogallus tibetanus
Black necked crane	Grus nigricollis
Tibetan Sandgrouse	Syrrhaptes tibetanus
Guldenstadt's Redstart	Phoenicurus erythrogastrus
Hume's Groundpecker	Pseudopodoces humilis
Lesser kestrel	Falco naumanni
Alpine accentor	Prunella collaris
Hoopoe	Upupa epops
Robin accentor	Prunella strophiata
White wagtail	Motacilla alba
Horned Lark	Eremophila alpestris
Common Stonechat	Saxicola torquatus
Grandala	Garandala coelicolor

The project road shall give major benefit to ITBP and Indian Army to reach Line of Control (LoC). This road is well connected to surrounding areas of Muguthang and North districts. It will also helpful for local people to move in these areas.

In this project no major adverse impacts are associated because it is located at the end point ofLachen Territorial Range. **For avoiding any kind of impacts animal passages are introduced in the project.**

8. Safeguard for Animal/Wildlife Passage:

Passage Plan: Animals moves between habitats in order to survive by finding food, mates and areas of refuge. As rural areas continue to expand and road network and traffic increase there is a threat to animals while crossing the roads. All proposals for roads, railway tracks, canals and power lines will now have to include a plan to provide for safe movement of wildlife and allocate budget for animal passages as per NBWL proceedings dated 25th January 2018.

Project Corridor: The present project corridor is a linear project and has very negligible impact on the Wildlife. The details of area required for Forest clearance is mentioned below:

Part- 1

(i) Total Length of the Road: 10.70 km

(ii) Width of the Road: 18 mtr

(iii) Area: 19.36 Ha.

Total Area involved of Road within Forest Area: 19.36 Ha.

The problem of human wildlife conflict, depriving free flow of habitats will be avoided by the provision of under passages in the form of RCC box culverts. **For Passage to the wildlife habitats Ten (10) No. of RCC boxes/Culverts have been proposed and incorporate in the project.** The details are mentioned below:

Table- 1: Showing location of RCC Box

S. No.	Location of Box	Span
1.	Km- 0+500	7 m
2.	Km- 1+500	7 m
3.	Km- 2+500	7 m
4.	Km- 3+500	7 m
5.	Km- 4+500	7 m
6.	Km- 5+500	7 m
7.	Km- 6+500	7 m
8.	Km- 7+500	7 m
9.	Km- 8+500	7 m
10.	Km- 9+500	7 m

However, during the site visits and during different survey proceedings, no such wildlife crossings were found in the project stretch.

It is important to not only consider present development, but also consider future development. The present road is in hilly terrain. So, the land pattern is mostly open section with few stretchesof built-up section and semi built-up sections.

- **Conflict with Habitats:** Generally, there may be conflicts between local wildlife and the transportation projects. But as per observations and information collected from the forest department, no passage of land animals is seen to cross the project road.

- **Conflict with road characteristics:** Traffic volume and speed play an important rolein determining whether a road will impact wildlife movement. Since the traffic volume will be very low there may be less chances of wildlife-vehicle collisions on the roads.

8.5. Conflicts with Existing Infrastructure: Many existing structures are not designed for wildlife and were installed with human function as the major goal. In order to avoid hindrance for wildlife, the followings are need to be kept in mind:

- Removal of physical barriers
- Structures that incorporate both pedestrian and wildlife into the same structuresNo perched culverts
- Structures with insufficient water depth for aquatic passage Structures with excessive water velocities
- During the construction phase, the excavated pits shall be properly barricaded andfenced, so as to prevent accidental falling of mammals in the vicinity of the construction sites.
- Noise levels during the construction phase shall be monitored properly to avoid disturbance, if any to the animals.
- No construction activity shall be undertaken after sunset and during the night.
- No harm to wildlife habitat including fauna and flora of the sanctuary shall be ensured.
- The WLS area shall not be used for any other work other than the work permitted.
- No establishment of any temporary or permanent labour camp inside the sanctuaryarea.
- Alternate Fuel (LPG) shall be provided to Laborer's for cooking purpose.

- No vehicular movement inside sanctuary area shall be allowed from sunset to sunrise except emergency vehicle.
- Awareness-raising will be done to mitigate this risk. The contractor and his workers shall be informed on the Forest and Nature Conservation Act, Rules and Regulations and copies of these shall be made available to them. Workers shall be made aware of the fines and penalties as well as the risk of job loss for poaching/hunting to avoid such illegal activities.
- In addition to above mitigation measures, any other measures as envisaged by the CWLW/State Board of Wildlife/National Board of Wildlife and as per provisions of wildlife (Protection) Act, 1972 shall be implemented by the company during execution of the project.

Design Guidelines: The design of the roadway can help to reduce the effects of transportation infrastructure on wildlife. Some simple principles that should be considered in the road design include:

- Consider the slope of the roadside
- Consider potential/known areas of higher wildlife activity
- Consider impact of drainage ditches
- Consider the implications of the roadway design for emergency response access andmaintenance access.

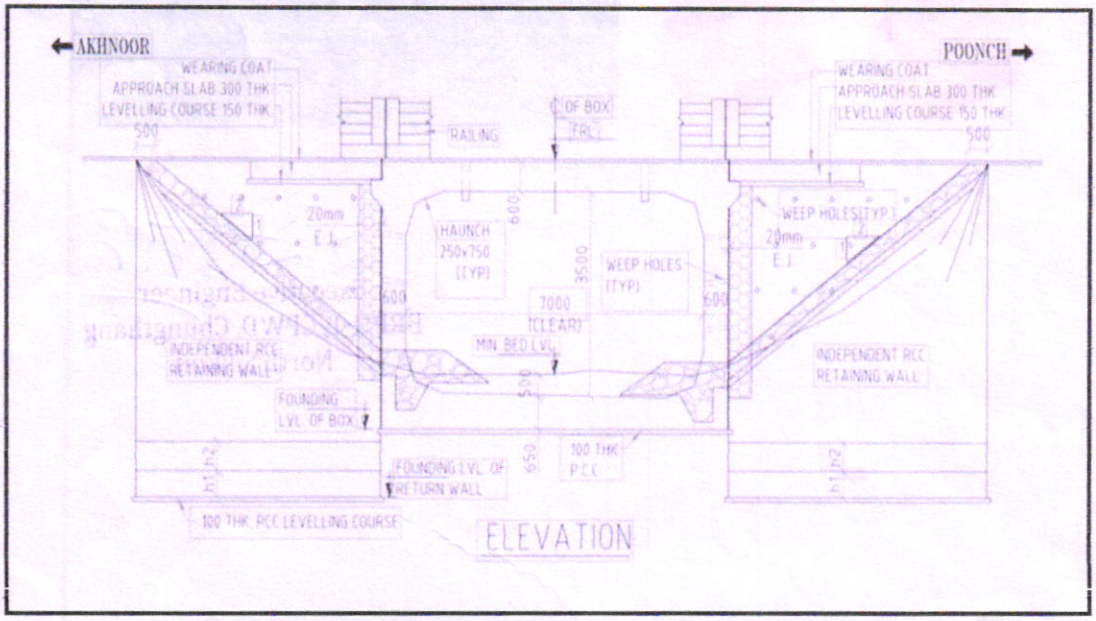
Identify Ecological Design Group: The vast biodiversity in nature provides a challenge when attempting to maintain connectivity and reduce genetic isolation. Each species within an area will have slightly different habitat requirements and behavior making it difficult to design a corridor that will satisfy the requirements of all the species. In addition, there is insufficient data for many species which provides a challenge when attempting to understand their life history strategy and to design a corridor that will satisfy the requirements. The category of species which special attention are as follows:

- Species that require dispersal for survival
- Species that are integral to ecological processes
- Species that are dominant but could become less important if connectivity is lost
- Species that need connectivity to prevent genetic divergence
- Species experiencing high vehicle associated mortality in or near the study area
- Rare, endangered or vulnerable species

Identify Mitigation: Mitigation for the purpose of this passage plan, is intended to be site specific and practical. The details of the crossings provided are as under:

Figure- 1: Location of Animal Crossings

Figure- 2: Details of RCC Box



Specifications of 7 m Span RCC Box

- Length = 12 m
- Width = 7 m
- Height = 3.50 m

The GAD of both RCC Boxes is shown in Annexure- 1 & 2.

Provision of Safety Features

- Cautionary / Warning Sign Boards will be provided at the start and at the end of each stretch of forest land.

- Road Studs / Speed Breakers will be provided at the start and at the end of each stretch of forest land.

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