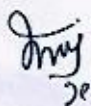
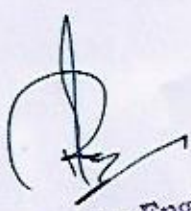


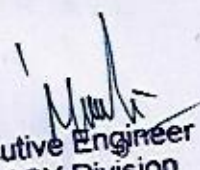
ANIMAL PASSAGE PLAN
FOR
UPGRADATION OF ROAD FROM L-060 KOTHAR TO PONTAL

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ANIMAL PASSAGE PLAN FOR UPGRADATION OF ROAD FROM
L-060 KOTHAR TO PONTAL

1. Introduction to the Project.

Rural Road connectivity is a key component of rural development by promoting access to economic and social services and thereby generating increased agricultural incomes and productive employment opportunities. It is also a key ingredient in ensuring poverty reduction.

The Sub-project road **Kothar to Pontal** is a link route with Code **JK05-210** in **Dansal** block of **Jammu** District. This road directly connects 4642 souls in village Kothar and 291 souls in village Pontal with total population of **4933 souls** as per census 2001. Thus this link road serves the total population of 4933 souls. Road is in mountaneous terrain and starts from village Kothar and connects village Pontal. The length of road is 8.000 km and Width is 6 meter.

It was against this background of poor connectivity that the Prime Minister announced in 2000, a massive rural roads program. The Prime Minister's Rural Road Program (Pradhan Mantri Gram Sadak Yojana, PMGSY) set a target of:

- Achieving all-weather road access to every village/habitation with a population greater than 1000 by 2003.
- Providing all-weather road access to all villages/habitations of population greater than 500 people (250 in case of hill States North-Eastern states, Sikkim, Himachal Pradesh, Jammu & Kashmir and Uttaranchal) by the end of the Tenth Five Year Plan i.e. 2007.

The rural road network required for providing the 'basic access' to all villages/habitations is termed as the Core Network. Basic access is defined as one all-weather road access from each village/ habitation to the nearby Market Centre or Rural Business Hub (RBH) and essential social and economic services.

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A Core Network comprises of Through Routes and Link Routes. Through routes are the ones which collect traffic from several link roads or a long chain of habitations and lead it to a market centre or a higher category road, i.e. the District Roads or the State or National Highways. Link Routes are the roads connecting a single habitation or a group of habitations to Through Roads or District Roads leading to Market Centers. Link Routes generally have dead ends terminating on habitations, while Through Routes arise from the confluence of two or more Link Routes and emerge on to a major road or to a Market Centre.

The Core Network may not represent the most convenient or economic route for all purposes. However, since studies show 85-90% of rural trips are to market centers, the Core Network is likely to be a cost-effective conceptual framework for investment and management purposes, particularly in the context of scarce resources.

Objectives 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.

Achieving these goals will include restoring connections where they have been removed and ensuring that existing connections remain as the project road expands.

2. Project Location & Technical details of the Project Proposed.

Project:	Upgradation of Road from L-060 Kothar to Ponthal (JK 05-210)
Proposal No.	FP/JK/ROAD/120321/2021.
Project Proponent:	Executive Engineer PMGSY Division Jammu
Project Cost	682.60 Lakh.
Project Area inside PA	2.442 Ha.
Details of PA involved.	Surinsar-Mansar Wildlife Sanctuary

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3. Justification for proposed route & alternative examined.

- I. The Project for Upgradation of road from L060- kothar to Ponthal (Package No.: JK05-210) is sanctioned by MORD Govt. of India under PMGSY-II Batch-I 2019-20. Some stretches of road pass through forest/wildlife area. The road namely L060- kothar to Ponthal takes off from the railway station Manwal and ends at village Ponthal. It directly connects 4642 souls in village kothar and 291 souls in village Ponthal with a total population of 4933 souls as per census 2001 and the road on its completion shall provide connectivity to the population as enumerated above.
- II. Forest/Wildlife area cannot be avoided as the alignment proposed is the only feasible alignment providing vital connectivity to the hamlets.
- III. Hence, the diversion of the forest/wildlife land is the only choice to construct the road.

4. Area details falling in Surinsar-Mansar Wildlife Sanctuary.

Total Length of Road = 8000 meter

Width of Road = 6.000 meter

Total area involved of Road within protected area = $4070 \times 6 = 24420$ sqm

Total Project area involved within protected area = 2.442 ha

Forest Land involved from RD 3/930 to 6/400 = 2470 meter

Total Forest Land involved in road = **2470 meter**

Forest area involved in road = $2470 \text{ m} \times 6 \text{ m} = 14820 \text{ sqm} = 1.482 \text{ ha}$

Total forest area involved within protected area = **1.482 ha**

Total non forest area involved within protected area = $2.442 \text{ ha} - 1.482 \text{ ha} = 0.96 \text{ ha}$

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S No	Total Project Area	Project area under protected area	Project area under non - protected area	Forest Area involved in project within protected area	Non Forest Area involved in project within protected area
1	4.925 ha	2.442 ha	2.483ha	1.482 ha	0.96 ha

5. 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
3	Construction of 60.0M span Bridge
4	Construction of 15.0 M span Vented Causeway
5	Construction of 1.0 M Dia HP Culvert
6	Construction of 2.0 M Span RCC Culvert
7	Construction of 3.0 M Span RCC Culvert
8	Construction of 6.0 M Span RCC Culvert
C	Construction of Semi Pucca Walling
9	R/Wall Ht. 3.00 M
10	R/Wall Ht. 4.00 M
11	B/Wall Ht. 2.55 m
12	Parapet
13	Pucca Drain
D	Providing & Fixing of PMGSY Boards
14	Citizen & Main Information Board
15	Logo Board
16	Road Sign Boards
17	KM Stones
18	200 M Stones

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6. Likely impact of the Project on Protected Area of Surinsar-Mansar Wildlife Sanctuary.

The Surinsar-Mansar Wildlife Sanctuary is situated between river Tawi in the North, Udhampur -Samba road and Gambirkhad in the East, Battal-Billawar road in the Southeast, Surinsar-Mansar road in the Southwest and river Tawi and Surinsar lake in the North West. The total area of Surinsar-Mansar Wildlife Sanctuary is 9782 Ha. as per notification. The detail of mammals present in Wildlife Sanctuary is as under :

S No	Scientific Name	Common Name	Family
1	<i>Canis Aureus</i>	Jackal, Indian	Canidae
2	<i>Felis Chaus</i>	Cat, Jungle	Felidae
3	<i>Funambulus pennant</i>	Squirrel, Five-striped	Sciuridae
4	<i>Hystrixedwardsii</i>	Indian grey mongoose	Herpestidae
5	<i>Hystrix Indica</i>	Porcupine, Indian	Hystriidae
6	<i>Macaca Mulatta</i>	Macaque, Rhesus	Cercopithecidae
7	<i>Muntiacusmuntjak</i>	Barking Deer	Cervidae
8	<i>Panthera pardus</i>	Leopard, Indian	Felidae
9	<i>Paradoxurus hermaphroditus</i>	Asian palm Civet	Viverridae
10	<i>Rousettus leschenaultia</i>	Bat, Fulvous Fruit	Pteropodidae
11	<i>Sus Scrofa</i>	Wild boar	Suidae
12	<i>Viverricula Indica</i>	Civet, Small Indian	Viverridae


The road from L060-Kothar to Ponthal (JK05-210) shall give benefit to village Ponthal when completed and provide connectivity to a population of about 4933 souls inhabiting this village.


6.1 Adverse effect associated with Linear Project vis-à-vis present project

The linear projects passing through wildlife protected areas are associated with:

- Loss of habitat resulting reduced carrying capacity.
- Fragmentation of habitat into spatially isolated parts.
- Injury/mortality to animals.


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- Presence of construction camps.
- Deprive animals from using their entire habitat.
- Increased human wildlife conflict.
- Pollution due to liquid or solid waste.

a. Habitat Loss and Fragmentation: Generally, linear Projects like Roads are known to affect many different animal groups, predominantly mammals. These impacts are largely associated with fragmentation & degradation of wildlife habitats along the Project corridor. The Project might impact the habitat and movement of others arboreal species like monkey, primates etc.

b. Induced Impact on Wildlife from Construction workers:

Construction manpower will be required for execution of the project and makeshift construction camps and will be set up as per site requirement. Generally, for construction works, local manpower/workers will be engaged. The induced impact on the wildlife of Surinsar-Mansar Wildlife Sanctuary from such construction workers is the likelihood of involvement in hunting/trafficking of wild animals and other unlawful activity during the execution of the project.


In case of Upgradation of road from L060- kothar to Ponthal, no labour camp will be established in Sanctuary area. It shall be ensured that that no activity is carried out after sunset within the sanctuary area. Awareness-raising will be done to mitigate this risk. The contractor and his workers must 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.

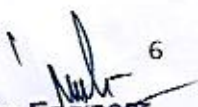
7. Safeguard for Animal/Wildlife Passage.

7.1 Passage Plan

Animals move 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


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wildlife and allocate budget for animal passages as per NBWL proceedings dated 25th January 2018.

7.2 Project Corridor

The present project under discussion, through a linear project has very negligible or null ill effect to the project. On critical analysis/ observation of this project is seen that:

- The project length of road L060- kothar to Ponthal is 8.000 Km and the 4.070Km length is passing through SurinsarMansar Wildlife Sanctuary.
- The land required for this project is 2.442 Ha in protected area.
- The project road is a major rural link road and is in proposal to come within protected area.
- 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 Culverts.


Passage to the wildlife habitats will be provided in the form of under passages by means of RCC Culverts and vented causeway already proposed in the DPR. 1 No. of vented causeway and 2No. of RCC culverts of Span 3M are proposed in the road. The locations of animal passage are also shown in the GPS Map attached below. The forest land involves in the road from RD 3/930 – 6/400.

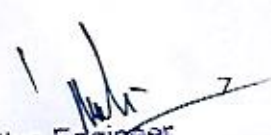
Table no. 1: Showing Location of RCC Culverts

S No	Location of Culvert	Span
1	RD 4/475	15 M
2	RD 5/475	3 M
3	RD 6/350	3 M

The land use of the project area and the adjacent lands will play a large role in determining the type and extent of mitigation required. As the area surrounding the project is slated for high density residential/commercial development, the facilitating wildlife movement through this area is likely not feasible or desired. As per observation made in the site visits and during different survey proceedings, no wildlife crossings were found in the project stretch.


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Common land uses in the project road include the following:

- Residential
- Agricultural
- Natural Area
- Drainage Channels

It is important to not only consider present development, but also consider future development. The present road is in hilly terrain. So, the landuse pattern is mostly open section with few stretches of built-up section and semi-builtup sections. Farming is found in many stretches. Few stretches come under forest region.

7.3 Conflict with Habitats

Generally, there may be conflicts between local wildlife and the transportation projects. But as per observations and informations collected from the forest department, no passage of land animals is seen to cross the project road as the project corridor is full with patches of built-up sections and human interference.

The project has low traffic volume and/or speed or large vehicles. Different species will be less affected affected by the traffic volume and /or speed in different ways depending on their mobility. But as mentioned above, there is no crossing across the project road.


7.4 Conflict with road characteristics

Traffic volume and speed play an important role in determining whether a road will impact wildlife movement. Because vehicle traffic behaves as a filter to movement rather than a absolute barrier, the number of species both attempting and successfully crossing the road will be reduced at greater traffic volume and speeds. The majority of wildlife-vehicle collisions occur on the roads with immediate traffic volume while low traffic volume roads have essentially no incidents.

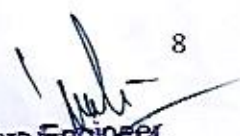
7.5 Conflicts with Existing Infrastructure:

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

- Removal of physical barriers




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- Structures that incorporate both pedestrian and wildlife into the same structures
- No 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 and fenced, 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 sanctuary area.
- 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.

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7.6 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 and maintenance access.

7.7 Identify Ecological Design Group

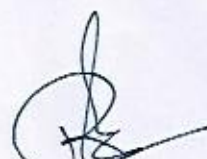
The vast biodiversity in nature provides a challenge when attempting to maintain connectivity and reduce genetic isolation. Each species within an area will have slightly different habitat requirements and behavior making it difficult to design a corridor that will satisfy the requirements of all the 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:

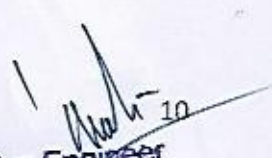
- Species that require dispersal for survival
- Species that are integral to ecological processes
- Species that are dominant but could become less important if connectivity is lost
- Species that need connectivity to prevent genetic divergence
- Species experiencing high vehicle associated mortality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

7.8 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:

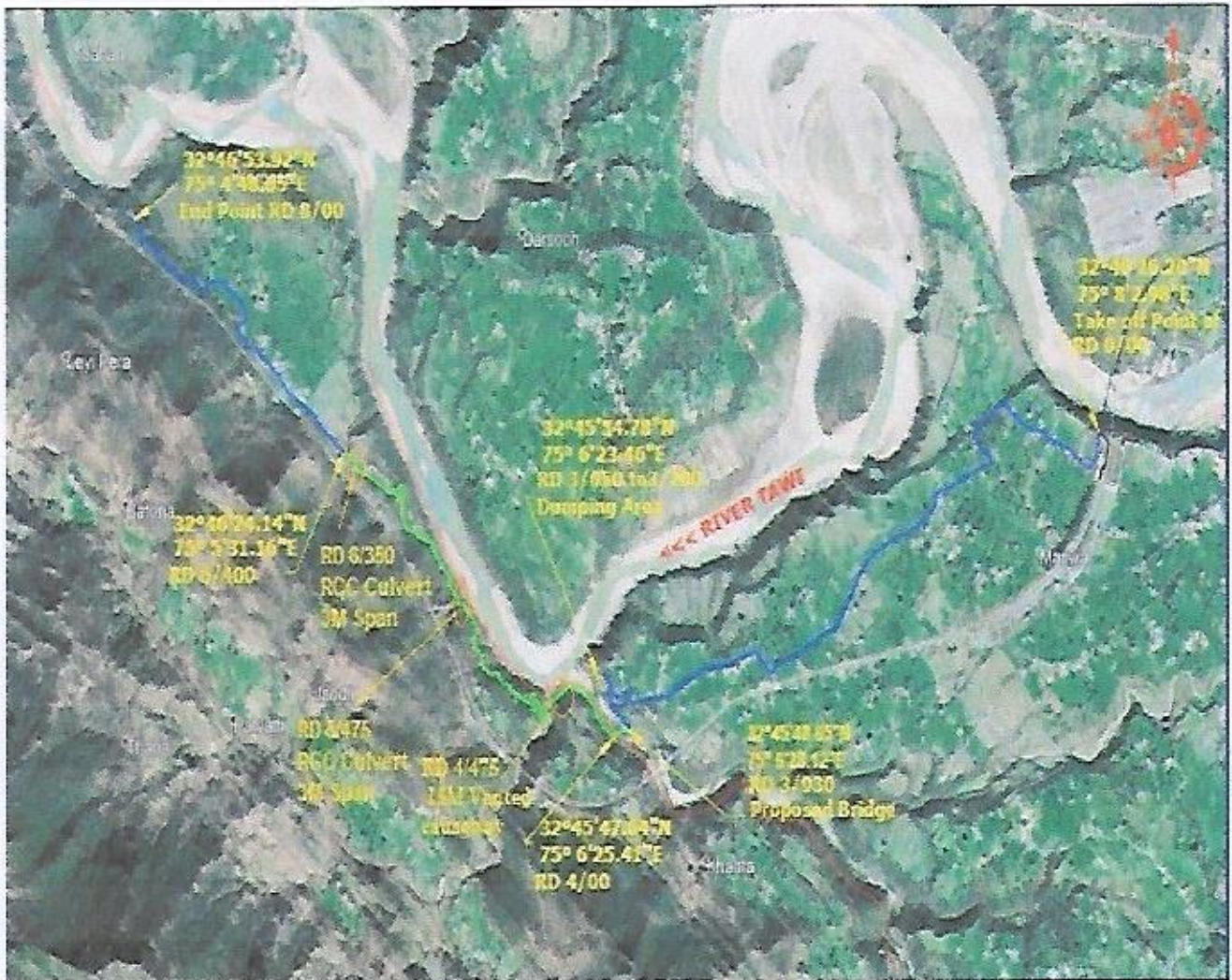


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Fig.1: Showing Locations of Animal Crossings



7.9 Calculation of Openness Ratio

- $\text{Openness Ratio} = \frac{\text{height of the opening} \times \text{width of th structure}}{\text{length of the underpass}}$

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Fig.2 : Dimensions of an underpass determining its openness

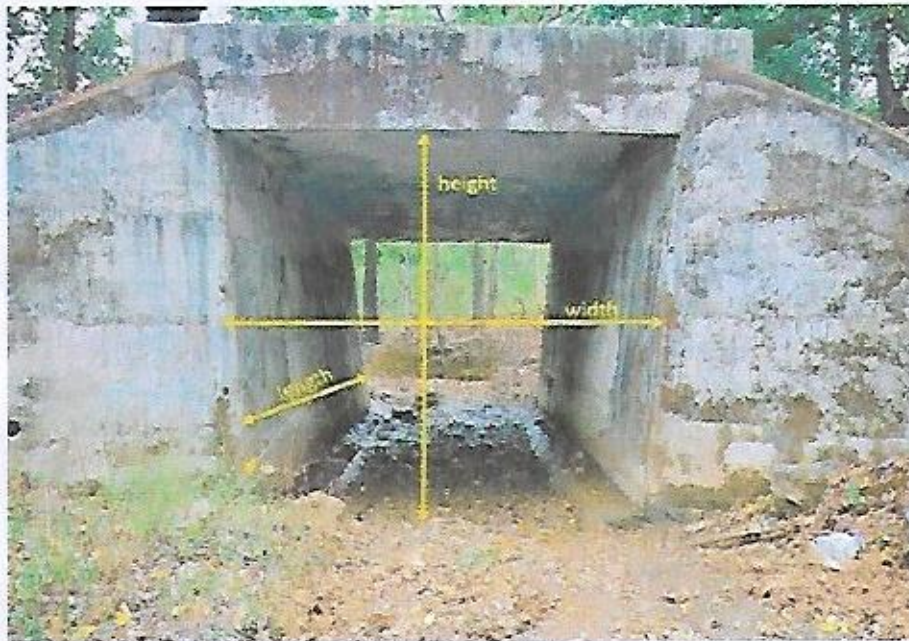
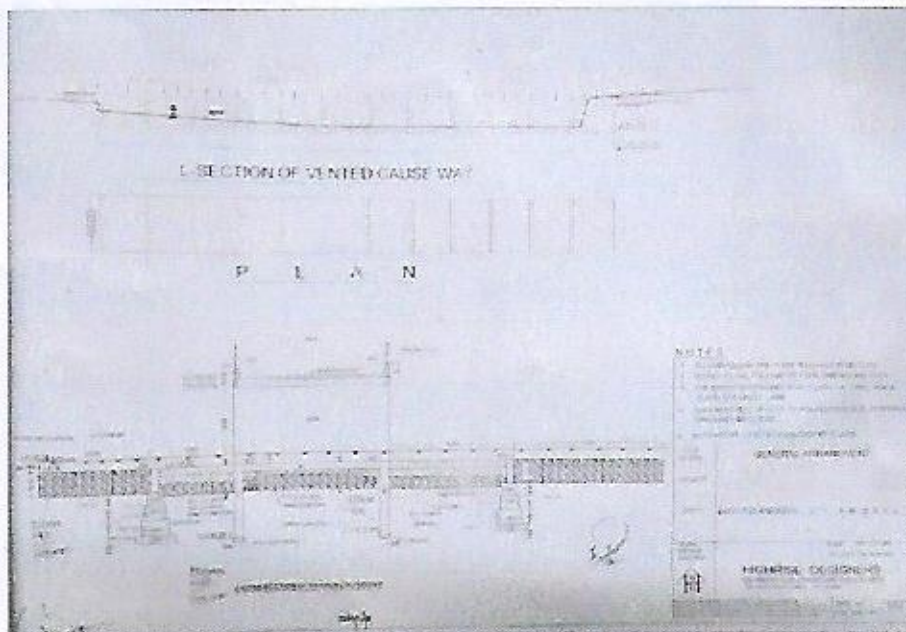


Fig.3: Specifications of 15m Span Vented Causeway



- Length = 6.00 m
- Width = 4.50 m
- Height = 3.00 m
- Openness Ratio = $\frac{4.50 \times 3.00}{6.00} = 2.25$ m
- NO. Of vents = 3 No.

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- Table No. 2: Showing Openness Ratio Value of RCC Culverts
to be used as Underpass**

S No	Location of Culvert	Span	Openness Ratio
1	RD 4/475	15 M	2.25
2	RD 5/475	3 M	2.10
2	RD 6/350	3 M	2.10

- Cautionary / Warning Sign Boards will be provided at the start and at the end of each stretch of forest land. Fig. below showing board to be used:



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Table No. 3: Showing location of Animal Crossing Boards

S No	RD	Board Count
1	3/930	01
2	6/400	01
	Total	02

- **Road Studs / Reflectores / Speed Breakers** will be provided at the start and at the end of each stretch of forest land. Fig. below showing road studs to be used

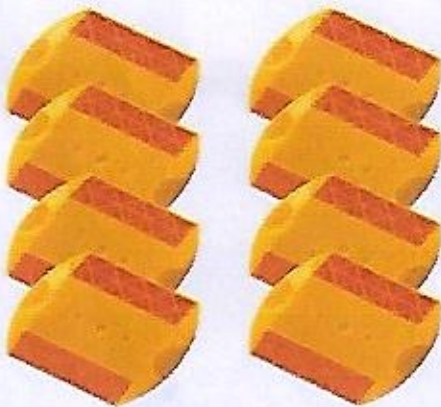


Table No.4: showing location of Road Studs

S No	RD	Road Studs (No)
1	3/930	20
2	6/400	20
	Total	40

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