



PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

Detailed Project Report for Upgradation of road from
BONIYAR To MAIDANAN,
Stage "U"

PMGSY / JKRRDA DIVISION URI

District: BARAMULLA Block: BONIYAR
Package No: Length: 9.2 Km

Estimated Cost	1448.24 lacs
Maintenance Cost	173.79lacs
6 th Year periodic renewal by way of OGPC layer	133.99 lacs
Total Project Cost	1,756.02 lacs



A. Chapters

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1. Introduction

1.1 Objectives of Pradhan Mantri Gram Sadak Yojna (PMGSY)

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.

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), the desert areas and tribal areas] by the end of the Tenth Five Year Plan, i.e., 2007

1.2 All Weather Road

An all-weather road means providing obstacle free vehicular access from Villages/Habitations to the nearest Market Centre in all weather conditions / seasons of the year. Thus all-weather road provides the targeted habitation essential access to economic, social services resulting in generation of agricultural/ Horticultural income and productive employment and ensures sustainable development.

In a state like J&K, vehicular traffic is interrupted mainly due to heavy snow fall. As a matter of policy and providing immediate relief and facility to the people ODR's are cleared on the same day of snowfall while as village roads (VR) are cleared within a maximum of two days after snowfall.

1.3 Core Network

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.

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 Centres. 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 centres, the Core Network is likely to be a cost-effective conceptual frame work for investment and management purposes, particularly in the context of scarce resources.

The Sub-project road Boniyar to Maidanan, is a link road with Code 1541858 in Boniyar block of Baramulla District. This road directly connects the habitations of Bachi, Badian, Bela Salamabad, Ladi, Maidanan, Trikanajan with populations of 671, 262, 465, 1094, 1047, 2035 respectively. Thus this link road serves the total population of 5574.

1.4 Geography

Kashmir is located on the Northern Side of India. The region is located between Peer Panchal and Karakorum mountain ranges, thus the terrain is mostly hilly. Geographically the location has moderate weathering grade involving mass movement in the form of avalanches at various spots. The soil is free draining with a vegetation cover of wheat, maize and walnut. The geology of soil consists of soil and rocks with glacial at higher reaches and ground water emanating from springs snaking along the alignment of the road.

1.5 Climatic Condition

In study area summers are long and winters are short and very cold with high snowfall thus damaging the pavement life drastically. The climate is temperate with precipitation averaging 664 mm with the Subzero temperature persists for nearly 3 Months (December, January, February) with temperature plummeting to -10 C in Winters. The frost depth is around 900mm and average snow depth around 600mm to 900 in the area. Average precipitation is 664 mm.

1.6 The Sub-Project Road

The Boniyar Maidanan road has a take-off point 50m away from the National Highway (NH1A) situated in the middle of district Baramulla and Uri town. The road was first constructed by BEACON in 1970 as track road and later road was handover to R&B department, Kashmir. In 2003 they changed it into fair weather road. The first three kilometer length was achieved by dumping boulders and granular material from nearby Nallah by Beacon to make the road tractable.

The road snakes through the hilly terrain having a grade difference of 317m (for 9.2km road length) with a total "gradient gain" of 639m and a total "gradient loss" of -330m. The average time taken to reach Maidanan from takeoff point (Boniyar) in a private vehicle is around 40 minutes with an average speed of 13.7kmph and maximum speed of 40kmph. The maximum slope of the road is 55% and minimum slope is -9%.

The road is very vital in terms of quick connectivity to five Panchayat Halqas (Maidanan, Lari, Trikanjan, Badian, Bela Salamabad) as the road acts as a feeder road to cater traffic of four PMGSY roads (*Bela Salamabad to Hillan Peernia at RD 3.5km, Trikanjan Salasan at RD 6.63m, Badian Dudran at RD 6 km, Maidanan Chotali at RD 9km*) and one R&B roads (i.e. Banali). Having high volume of daily traffic from both commercial and non-commercial vehicles the upgradation of this road was a long pending demand of general public and Sarpanches.

The target habitation has huge potential for generation of hydel projects and at present a mini hydel project is under execution. Moreover, the upgradation of the road will provide quick access to army mobility as end habitation is in vicinity of LOC having army pickets/posts thus better the road can cater to the huge army needs. There is huge potential of walnut and fish production in the region thus better roads can boost local

economy.

The road passes through hilly terrain with a cross slope more than 40 percent. The average roadway width is around 6.0m in open areas and around 5m in build up areas. The average carriageway for first three kilometers is 4.50m and for rest six kilometers is nearly 3.5m to 4.5m. The gradient of road is very steep at few spots; wherein geometrics of the road need to be improved by way of either a) increase length of road b) changing alignment of road c) by way of granular filling of road to reduce negative gradient. The roadway width at some spots needs to be increased by way Retaining wall, excavation on hill side and protecting the hill by way of breasts wall. The existing cross drainage needs to be replaced by 22 No of Cross drainage works, 1825m CC Drain, 5000RM kacca drain, 233 No. crates.

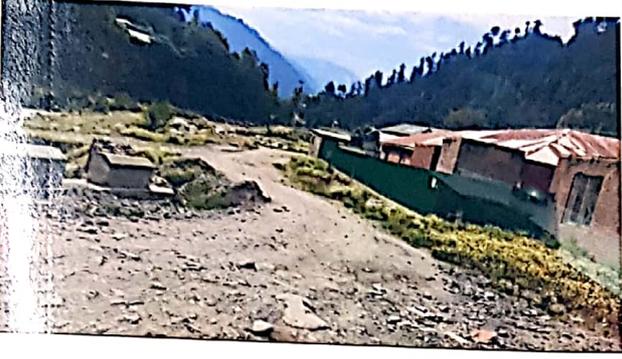
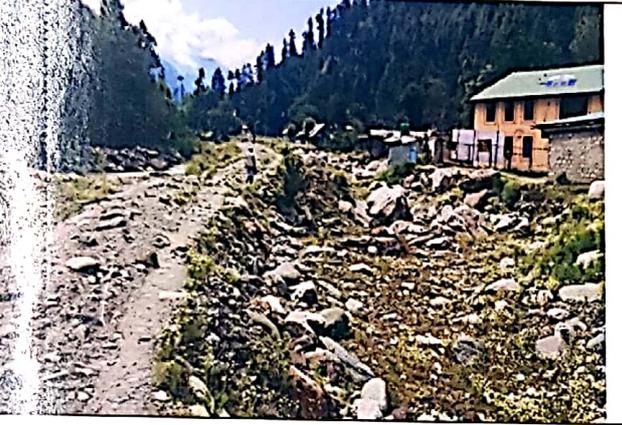
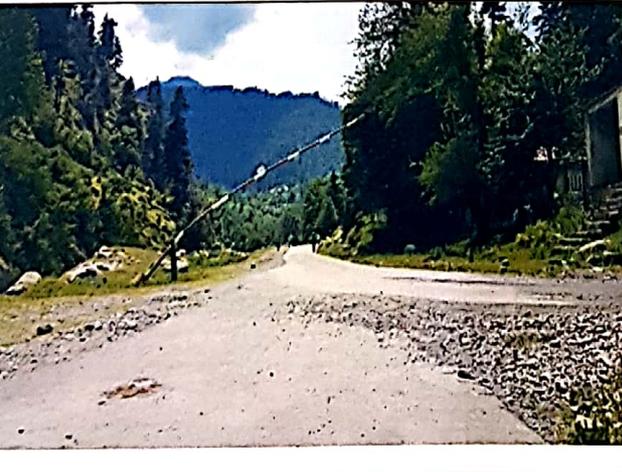
The road needs to be designed from safety point of view as the road figures in high rate of accidents owing to the hilly terrain and less roadway width. Crash barriers, parapits and retro reflective traffic signs need to be provided.

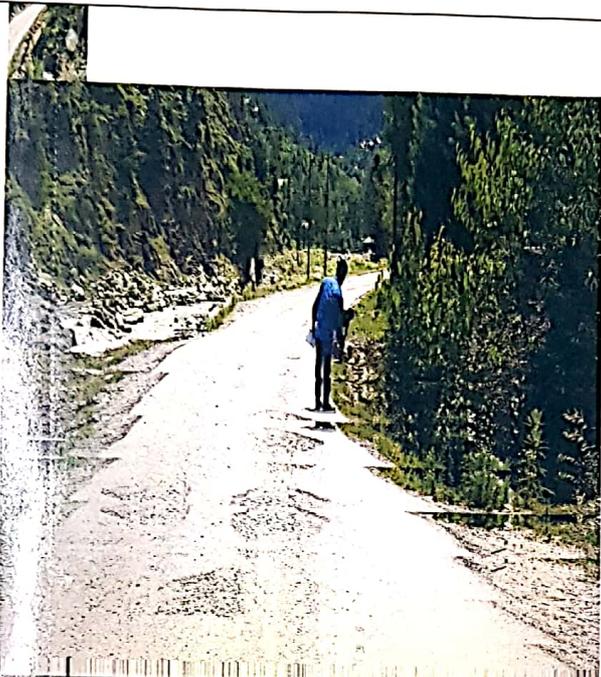
1 High School, 4 Primary School, 5 mosques, 20 No. of walnut trees, 9 No of electric polls and 1 electric transformer falls along the alignment of the road.

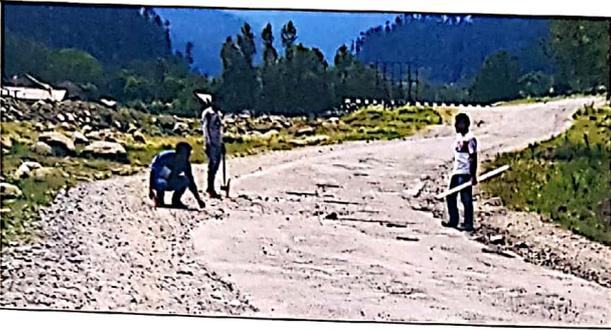
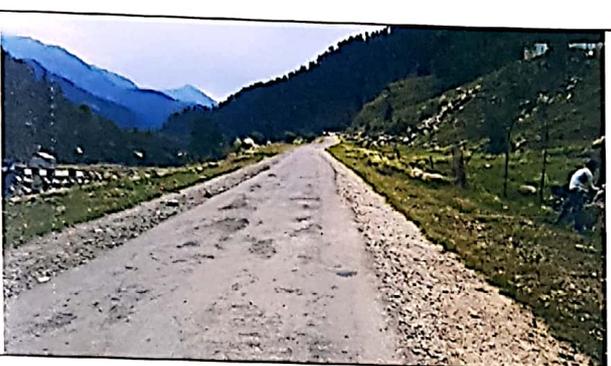
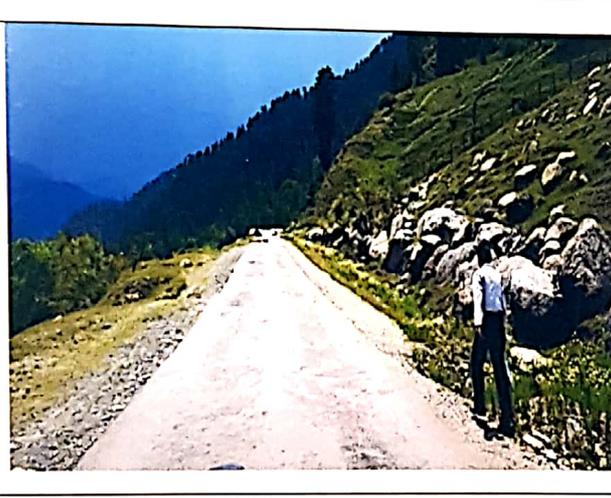
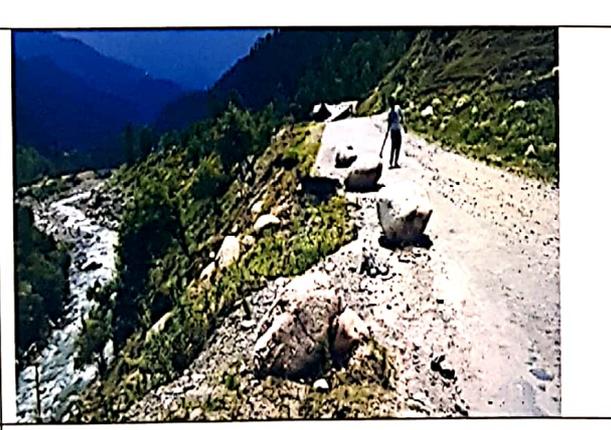
District: Baramulla
 Block: Boniyar
 Road Name: Boniyar to Maidanan
 Road Code: 1541858
 Package No:
 Road Length: 10.2 Km
 Start Point: { 34.135763°, 74.178150°
 End Point: 34.068421°, 74.192632

Sl.No.	Habitation benefited	Population benefited		Chaniage	
		Direct	Indirect	From	To
1	Bachi	671			
2	Badian	262		6000	
3.	Bela Salamabad	465		1700	
4	Ladi	1094		4100	4300
6	Trikanjan	2035		4400	6200
5	Maidanan	1047		9000	9200

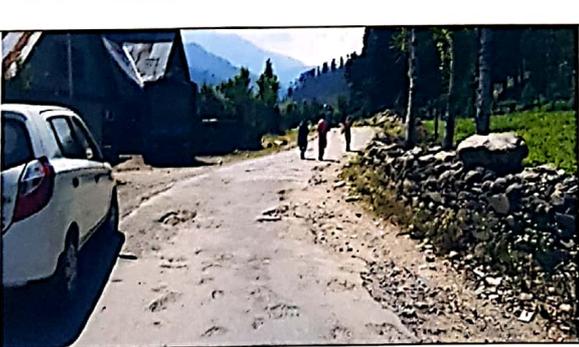
2.3: SITE PHOTOGRAPHS

		<p>Chainage 0.00km.</p> <p>Take off point. Higher Secondary School on RHS and Nallah with high catchment area on LHS of road.</p>
2		<p>Chainage 0.100km</p> <p>NTPHC boniyar on RHS of road and Nallah on LHS of road. Temporary road constructed by granular material and road not motorable.</p>
3		<p>Chainage 0.2km</p> <p>Protection work in form of crates and concrete RWs, parapets provided.</p>
4		<p>Chainage 0.300km</p> <p>Junction of roads coming from Boniyar. On RHS of road Forest Division boniyar and LHS of road Nallah. The desirable ROW is available.</p>

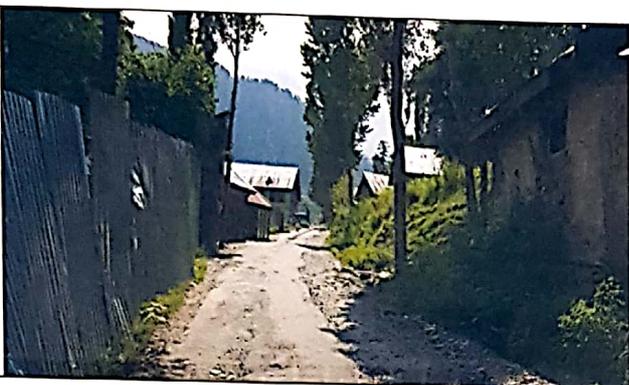
5		<p>Chainage 0.500 km</p> <p>Existing culvert at RD 525m with steel decking. The Road width needs to be increased and crates to be provided along the RHS nallah of road</p>
6		<p>Chainage 0.600 km</p>
7		<p>Trial pit excavation to gauge existing pavement thickness.</p>

8		<p>Chainage 0.600km</p> <p>Roadway width sufficient road. Nallah on LHS of road. Raveling on the surface of the road visible.</p>
9		<p>Chainage 0.800km</p> <p>The required gradient available for this stretch. Steel bridge along the Nallah to connect the habitation on LHS of road and hill on RHS of the road. Alignment follows general gradient.</p>
10		<p>Chainage 0.900km</p> <p>Flat road. Alignment follows general gradient. Nallah on left sides of the alignment and boulders on the hill on RHS.</p>
11		<p>Chainage 1.100-1.300 km</p> <p>Road damaged at RD 1200 and ahead steep gradient. The grade to be improved by way of change in alignment of the road. Nallah clearly visible on LHS of the road.</p>

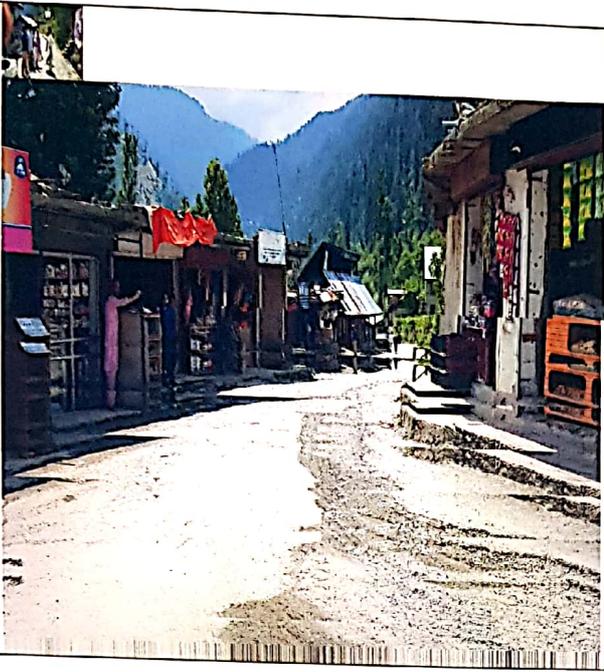
<p>12</p>		<p>Chainage 1.400km</p> <p>Roadway with available. Build up area with few houses the LHS of road. BT developed distresses Raveling on the surface of the road visible.</p>
<p>14</p>		<p>Chainage 1.600km</p> <p>Government Primary School on LHS of the road. ROW available. Alignment follows general gradient. Raveling on the BT surface of the road is also visible with some potholes.</p>
<p>15</p>		<p>Chainage 1.700km</p> <p>Take of point of PMGSY road Bela Salamabad to Hillan Peernia. Alignment follows general gradient.</p>
<p>16</p>		<p>Chainage 1.900km</p> <p>Road encroached on RHS of road by dry masonry wall and 3 No. of trees needs to be axed to achieve desired ROW. Slippage cracking at the center of the road is quite visible.</p>

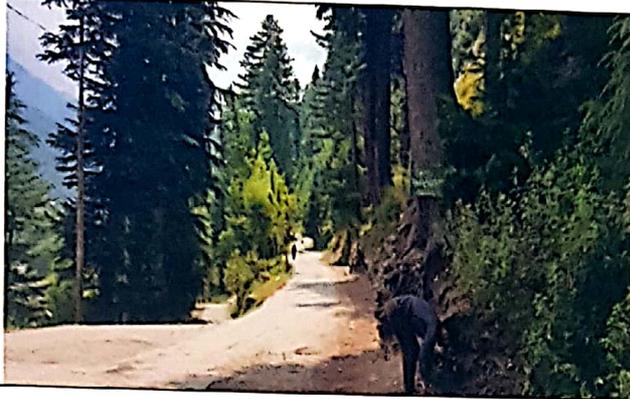
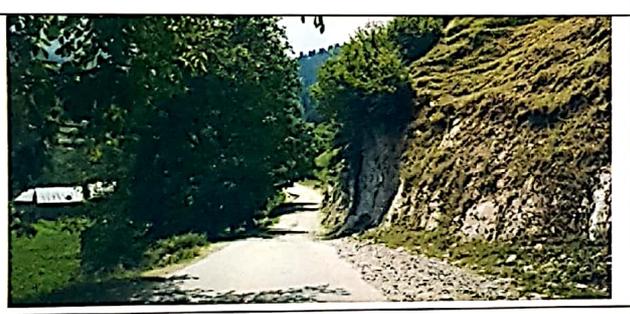
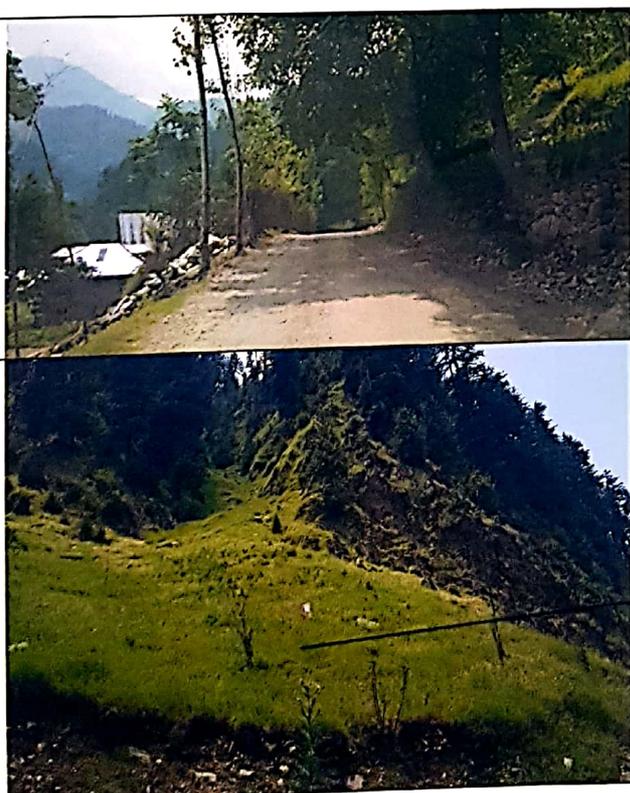
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17		<p>Chainage 2.300km.</p> <p>Roadway width available. Hill on RHS of road and Nallah on LHS of road</p>
18		<p>Chainage 2.500km</p> <p>Existing culvert to be replaced by Box culvert with wing walls. Gradient steep ahead of culvert. Crates to be provided towards RHS of road against protect from soil erosion.</p>
19		<p>Chainage 2.700km</p> <p>Existing culvert in good condition but geometrics of road need to be improved by changing alignment of the road and enhancing radius of curve. BT in dilapidated condition with slippage cracking along the curve surface.</p>
20		<p>Chainage 2.900km</p> <p>Less Roadway width available in buildup area and electric poles need to be shifted. BT in deteriorated condition and side drain available.</p>
21		<p>Chainage 3.000km</p> <p>Damaged BT and side drains. Restricted roadway width available. Rice fields towards LHS of road.</p>

22		<p>Chainage: 3.100km</p> <p>During transit walk survey. Build up area. Longitudinal cracking & raveling visible. Rice field on LHS of road. Road width to be increased by providing R wall on LHS of road.</p>
23		<p>Chainage: 3.400km</p> <p>Less Roadway width available and dilapidated BT in build-up area. Trees coming along the alignment of the road.</p>
25		<p>Chainage 3.600km</p> <p>Roadway available but gradient steep. BT is completely damaged.</p>
26		<p>Chainage 3.700km</p> <p>Build up area. Mosque on the LHS side of road with deteriorated BT surface (raveling) and poor quality dry masonry B Wall on RHS along hillside of road. Pipe culvert to be provided at RD 3770m.</p>

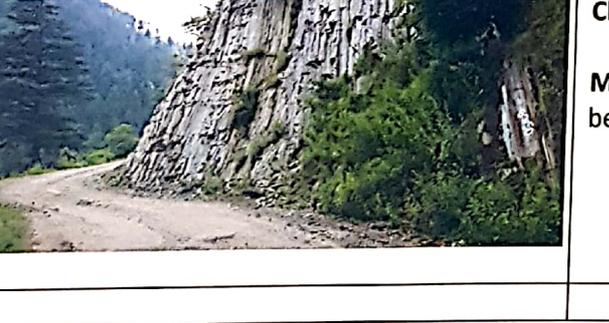
<p>27</p>		<p>Chainage 3.800km-4.100km</p> <p>The road passes through average width of 5m. BT surface dilapidated. Paddy land available LHS of road while hard rock is available towards the hill side. R/B Walls to be provided.</p>
<p>28</p>		<p>Chainage 4.100km</p> <p>Existing Steel Bridge of span 9.40mx3.80m with 4m high abutment requires another steel bridge of same dimension along the hill side.</p>
<p>29</p>		<p>Chainage 4.200km</p> <p>PHC on LHS of road. Widening to be done along the hill side. BT in dilapidated condition. The road has negative gradient upto the Trikanjan market (for around 350m) and geometrics needs to be improved by cutting and filling on the road.</p>
		<p>Chainage 4.100km</p> <p>Trial pit excavation to gauge the existing pavement thickness.</p>

31		<p>Chainage 4.400km</p> <p>Transit walk discussion at Trikanjan main market. Steep gradient. Rigid pavement to be adopted for some stretches for the buildup area having high traffic volume and snowfall. 9 No. of shops on RHS of road to be demolished to achieve desired ROW and geometrics of the road.</p>
32		<p>Chainage 4.500km-4.600km</p> <p>Restricted Roadway available. 6 pipe culvert @1000m dia as cross drainage to protect the road against high water flow from the hill side. Crate work to protect the hillside against erosion to be provided. BT deteriorated and side drain on RHS to be constructed.</p>
33		<p>Chainage 4.700km-4.900km</p> <p>Forest land starts at RD 4700m. Few Walnut trees need to be axed to achieve the desired roadway width along the hillside and R/B Walls adopted also. Kucca drain to be provided on RHS of road. Box type culvert at RD 4920m to be provided.</p>
34		<p>Chainage 5.000km</p> <p>Trikanjan B Shops on LHS of road. Cross drainage to be provided to divert the water emanating from melting of glaciers from the hill to downstream nallah. Cement concrete drain to be provided.</p>

<p>35</p>		<p>Chainage 5.15km -5.300km</p> <p>Forest area. Banali road (R&B) takeoff point from here. Cutting towards the hill side having mostly hard rock strata and few forest trees coming along the alignment of the road. Roadway width increased by way of construction of R walls by cutting towards hill side.</p>
<p>36</p>		<p>Chainage 5.300km</p> <p>Giant walnut tree coming in the alignment of the road needs to be axed and roadway width restricted. Hill side cutting to be adopted to achieve desired ROW.</p>
<p>37</p>		<p>Chainage 5.400km-5.500km</p> <p>The road has steep gradient and geometrics of road need to be improved. The road passes rocky hill and hill side cutting to be adopted to achieve desired ROW. R/walls to be constructed. Few walnut trees come LHS of the road.</p>
<p>38</p>		<p>Chainage 5.600km</p> <p>The area is very prone to avalanches during snow season as the cross high side has steep slope. This road segment remains blocked during the winter season .Thus, rigid pavement is recommended for this stretch. Some plantation at hill side is also recommended. Geometrics of the need to be improved.</p> <p>Avalanche prone hill</p>

39		<p>Chainage 5.700km</p> <p>2 No of walnut trees come along the alignment of the road. Steep gradient of the road.</p>
40		<p>Chainage 5.80km</p> <p>BT is completely damaged for this stretch as the road is prone to water coming from the spring on the hill. Cross drainage to be adopted and side drain to be given. R/B walls to be provided as ROW is restricted.</p>
41		<p>Chainage 5.900km</p> <p>Roadway width to be achieved by hill side rock cutting.</p>
42		<p>Chainage 6.000km</p> <p>Take off point of PMGSY Badian-Dudran road Rock cutting to be adopted. Kacca drain to be given.</p>
43		<p>Chainage 6.100km</p> <p>Govt. Boys Primary school on LHS of road. The Roadway width is restricted as such rock cutting to be adopted. BT is damaged.</p>

44		<p>Chainage 6.200km</p> <p>No cross drainage provided and hume pipe culvert to be provided to divert water to Nallah side. Paddy land available on LHS of road.</p>
45		<p>Chainage 6.400km</p> <p>No side drain available and Roadway width available.</p>
46		<p>Chainage 6.500km</p> <p>Box culvert to be replaced with existing culvert along nallah as a cross drainage structure.</p>
47		<p>Chainage 6.600km</p> <p>Take off point of Trikanjan Salasan, PMGSY road</p>
48		<p>Chainage 6.750km</p> <p>Mosque on RHS of road and steep gradient prevalent.</p>

54		<p>Chainage 7.600km</p> <p>Narrow road alignment</p>
55		<p>Chainage 7.700km</p> <p>Narrow road alignment and few walnut trees to be axed along the alignment of road.</p>
56		<p>Chainage 7.900km</p> <p>Radius of curve to be increased.</p>
57		<p>Chainage 8.000km</p> <p>Restricted ROW available.</p>
58		<p>Chainage 8.300 km</p> <p>Major rock at curve. The radius of the curve to be achieved by the hard rock cutting.</p>

49		<p>Chainage 6.850km Forest area. BT damaged. No side drain available</p>
50		<p>Chainage 7.000km Forest area. BT damaged. No side drain available</p>
51		<p>Chainage 7.100km Forest area Radius of curve to be increased. Geometrics of the road to be improved.</p>
52		<p>Chainage 7.300 km ROW available. Potholes visible on the road.</p>
53		<p>Chainage 7.400km Electric transformer needs to be shifted and radius of curve to be increased. BT damaged.</p>

59		<p>Chainage 8.400km</p> <p>Restricted ROW.</p>
60		<p>Chainage 8.495km</p> <p>Restricted ROW.</p>
61		<p>Chainage 8.600km</p> <p>Restricted ROW.</p>
62		<p>Chainage 8.800km</p> <p>Restricted ROW.</p>
63		<p>Chainage 8.800km</p> <p>Maidanan to Chotali (8km) takeoff point of PMGSY road on LHS.</p>

64		<p>Chainage 8.783km</p> <p>Steep gradient</p>
65		<p>Chainage 9.100km</p> <p>N.T PHC at Maidanan. Restricted ROW</p>
66		<p>Chainage 9.200km</p> <p>End of the road at Army Camp at Maidanan.</p>

2.4 Road Design Brief

Table 2.1 Road Design Brief

Sl.	Location	Issue	Design Solutions
1	Ch. 0.00km-0.275m	The proposed road has been earlier washed away by floods in 2014 for 275mts as Nallah is towards left of proposed road.	The embankment for 7.5m road way by way of nallah filling for 275m and crate work along the Nallah towards left side of road to protect the road again from flash floods. The pavement height to be kept above HFL.
2	Ch.275 to 0.500 km	The road has already desired roadway width with fair condition of BT.	Existing pavement thickness 300mm. Only top layer of BM with OGPC along hard shoulders to be provided.
3	Ch. 0.500 to 0.600 km	The road has already desired roadway width with fair condition of BT. Steel culvert at RD 523 has width of 4m.	Only top layer of OGPC with hard shoulders to be provided. The culvert width needs to be improved to 5.5m and crates to be provided along the nallah side. Kaccha drain needs to be provided on RHS of road.
4	Ch. 0.600 to 0.900 km	The road has grade of 27% for this stretch (3030m) with sufficient roadway width available and condition of BT is fair	Only base layer with hard shoulders to be provided. Kaccha drain needs to be provided on right side of road. Gradient to be improved by increasing length of road along hill side.
5	Ch. 0.900 to 1.100 km	The road has already desired roadway width with fair condition of BT.	Only base layer with hard shoulders to be provided. Kaccha drain needs to be provided on right side of road.
7	Ch. 1.100km-1.200km	The road is damaged for 18m length and has desired roadway width	The crates need to be provided as protection work for damaged road.
8	Ch. 1.300 to 1.400km	Cross drainage issues and erosion on hill side. The gradient is steep for small stretch for 200m	At RD 1305 m, 3 No. of Hume pipe culvert (HPC) as a cross drainage structure to be provided to divert the hill water to downstream end of Nallah and crates to be provided to protect hill side from further erosion. The gradient needs to be improved by increasing length of road towards hill side as land is available.
9	Ch. 1.400 to 1.500km	Build up area with shops and houses along the alignment of road. No Cross drainage and frequent erosion from hill side	At RD 1305m 3 No. of Hume pipe culvert (HPC) as a cross drainage structure to be provided to divert the hill water to downstream end of Nallah and crates to be provided to protect hill side from further erosion. Rigid pavement for 50m to be provided.

Sl.	Location	Issue	Design Solutions
11	Ch. 1.700 to 2.300km	The location falls in mostly Build up area with road width available for most of the length but protection work needs to be provided along the hill side. The road has steep gradient for 300m stretch. BT in damaged.	300m breast wall to be provided towards hill side to protect road from sliding. Gradient needs to be improved by way grade filling.
12	Ch. 2.300km to 2.500km	A steep gradient before the existing culvert at RD2450m at the start of horizontal curve.	The gradient needs to be improved by increasing length of the road.
12	Ch. 2.300km to 2.500km	Roadway width available and existing culvert (7x4m span)	Radius of curve needs to be improved
13	Ch. 2.500km to 2.600km	Roadway width of 5.4m available. Existing culvert to be replaced. BT available for 3m but in dilapidated state.	Existing culvert to be replaced by Box type culvert. CC drain to be provided for 50. Crates to be provided and wing walls
14	Ch. 2.600km to 2.700km	ROW available (7.5m).	
15	Ch. 2.700km to 2.800km	Existing culvert in good condition. Steep gradient. BT in dilapidated condition with slippage cracking along the curve surface.	Granular filling required for 20m to achieve desired ROW. Geometrics of road need to be improved by changing alignment of the road and enhancing radius of curve.
16	Ch. 2.800km to 2.900km	BT available for 2.5m and ROW mostly available	ROW to be achieved by providing protection work from Rd 2750 to 2900. CC drain to be provided.
17	Ch. 2.900km to 3.000km	Less ROW available in buildup area and electric poles need to be shifted. BT in deteriorated condition.	ROW to be achieved by granular filling on the downhill side of road and RW to be provided for 60m length. Kucca side drain to be provided also.
18	Ch. 3.00 to 3.2km	Build up area. Longitudinal cracking & raveling visible. Rice field on LHS of road.	ROW increase by providing RW. Grade of the road to be improved.
18	Ch. 3.2 to 3.4km	Restricted ROW available. BT damaged.	Protection work from RD 3220-3510 and granular filling along BW wall of the road. Kacca drain to be provided.
18	Ch. 3.4 to 3.5km	ROW available. BT damaged badly.	Radius of horizontal curve to be increased and kacca drain to be provided.
18	Ch. 3.5 to 3.6km	BT badly damaged and 7m ROW available. Steep gradient from Rd 3100-3.500 (i.e. 400mt).	R-wall be provided to achieve desired ROW. Increase the road alignment to meet the desired grade. Hume Pipe culvert to be provided at RD 3650m.
19	Ch. 3.7 to 3.8km	Restricted Roadway width. Build up area. Mosque on the LHS side of road with deteriorated BT surface (raveling) and poor quality dry masonry (BW) on RHS along hillside of road.	Cutting on hill side followed up construction of Breast Wall. CC drain to be provided. Hume Pipe culvert to be provided at RD 3770m.

Sl.	Location	Issue	Design Solutions
20	Ch. 3.8 to 3.9km	5.5m Roadway width available. Rock on RHS of road and Paddy land on LHS of road	Desired width of road can be achieved by excavation of hard rock on RHS of road.
20	Ch. 3.9 to 4.00km	4.4 m Roadway available.	Desired width of road can be achieved by excavation of hard rock on RHS of road.
21	Ch. 4.00 to 4.10km	2.75m width available from center line of road.	Desired width of road can be achieved by excavation of hard rock on RHS of road.
22	Ch. 4.10 to 4.2km	Existing Steel Bridge of span 9.40mx3.80m with 4m high abutment. The road has positive gradient upto the Trikanjan market (for around 100m)	Build up area. Rigid payment to be provided for some stretches. Requirement of another steel bridge of same dimension along the hill side. Geometrics of the road needs to be improved by excavating avg. 1.5m to meet the required grade.
22	Ch. 4.2 to 4.4km	BT in dilapidated condition. The road has negative gradient upto the Trikanjan market (for around 100m)	Build up area. Rigid payment to be provided for some stretches. Road Widening to be done along the hill side by dismantling 9 No of shops on the RHS of road. Geometrics of the road need to be improved by grade filling of avg. 1.5m.
23	Ch. 4.4 to 4.6km	2.75m width available from center line of road.	RWs to be provided
24	Ch. 4.5 to 4.6km	Restricted ROW available. BT deteriorated and	6 No. of Hume pipe culvert (HPC) as cross drainage to protect the road against high water flow from the hill side. Crate work to be provided to protect the hillside against erosion. Side drain to be provided on RHS of road.
25	Ch. 4.6 to 4.7km	7m Roadway width available.	Excavation of hard rock on RHS to achieve remaining width of road.
25	Ch. 4.7 to 4.8km	Forest land starts at RD 4700m.	Few Walnut trees need to be axed to achieve the desired roadway width along the hillside and R/B Walls adopted also. CC drain to be provided on RHS of road. Crate to be provided at RD 4765.
25	Ch. 4.8 to 4.9km	BT surface damaged. 3m width available from center line of road.	Box type culvert at RD 4920m to be provided. R/B wall to be provided to achieve desired ROW.
25	Ch. 4.9 to 5km	ROW available	AT RD 4920m, width of 3.3 m culvert to increased to 5.5m. Crate to be provided towards upside of Nallah (hill side)

Sl.	Location	Issue	Design Solutions
25	Ch. 5.00 to 5.100km	ROW available. 3.5m BT surface damaged. No proper cross drainage to divert water coming from hillside.	Cross drainage as HPC to be provided to divert the water emanating from melting of glaciers from the hill to downstream nallah. Cement concrete drain to be provided.
25	Ch. 5.00 to 5.3km	3.1m width available from center line of road.	Cutting towards the hill side having combination of hard/oft rock strata and few forest trees coming along the alignment of the road. Roadway width increased by way of construction of R/B walls by cutting towards hill side.
25	Ch. 5.4 to 5.6km	The road has steep gradient and geometrics of road need to be improved. The road passes through the rocky hill.	Hill side Rock cutting to be adopted to achieve desired ROW. R/walls to be constructed for 70m. Few walnut trees come LHS of the road need to be axed.
26	Ch. 5.6 to 5.7km	The area is very prone to avalanches during snow season as the cross high side has steep slope. This road segment remains blocked during the winter season.	Rigid pavement is recommended for this stretch. Some plantation at hill side is also recommended.
26	Ch. 5.7 to 5.8km	Steep gradient of the road.	2 No. of walnut trees come along the alignment of the road to be axed. Reduce the grade of road for 30m length by way of cutting and filling.
27	Ch. 5.8 to 6km	ROW is restricted. BT is completely damaged for this stretch as the road is prone to water coming from the spring on the hill.	HPC to be provided and side drain to be given. R/B walls to be provided.
28	Ch. 6 to 6.2km	ROW available but restricted in some stretches. BT is damaged.	Rock cutting to be adopted for some stretches. CC drain to be given.
29	Ch. 6.2 to 6.4km	No cross drainage provided and water gets collected on the road	Pipe culvert and CC drain to be provided. Crate to be provided towards hillside. R/B walls also to be provided.
30	Ch. 6.4 to 6.5km	Restricted Roadway width (5.5m) available. Steep slope available.	Grade filling. And radius of horizontal curve to be improved.
31	Ch. 6.5 to 6.6km	ROW available.	Box culvert to be replaced with existing culvert along nallah as a cross drainage structure.
32	Ch. 6.6 to 6.7km	3m width available from center line of road.	B-walls to be provided towards RHS of road to achieve desired width of road.
33	Ch. 6.8 to 6.9km	ROW available	CC drain to be provided
34	Ch. 6.9 to 7.2km	Restricted ROW available	Cutting towards hill side of forest land. R/B walls to be provided at some stretches to achieve desired ROW.

Sl.	Location	Issue	Design Solutions
35	Ch. 7.2 to 7.5km	Restricted Roadway width available	Cutting towards hill side of forest land. R/B walls to be provided at some stretches to achieve desired ROW. HPC at RD 7240m. Electric pole need to be shifted at RD 7400m.
36	Ch. 7.5 to 7.8km	Narrow road alignment and few walnut trees along the alignment of road.	Cutting towards hill side of forest land. R/B walls to be provided at some stretches to achieve desired Roadway width.
36	Ch. 7.8 to 7.9km	Narrow road alignment	R/B walls to be provided at some stretches to achieve desired ROW. Cutting towards hill side
36	Ch. 8 to 8.5km	Mainly narrow road alignment	Major rock cutting at Rd 8300m. R/B walls to be provided at some stretches to achieve desired Roadway width. WMM, BM, OGPC layers to be provided for road to achieve thickness of 450mm. Crash barriers and parapets on RWs to be provided as a road safety measure
36	Ch. 8.5 to 9.2km	Narrow road alignment	R/B walls to be provided at some stretches to achieve desired Roadway width. Crash barriers and parapets on RWs to be provided as a road safety measure

Table 5.1 Average Daily Traffic at Boniyar and Lari (both ways).

		Month & Year of Traffic Volume																												
Days	Cars, Jeep, Vans, Three Wheelers	PCU	Traffic Forecast (PCUs)	Motorised two wheelers	PCU	Traffic Forecast (PCUs)	Light Commercial Vehicle	PCU	Traffic Forecast (PCUs)	Trucks		L+U (PCU)	Traffic Forecast (PCUs)	Agricultural Tractors Trailers		PCU	Traffic Forecast (PCUs)	Buses		Traffic Forecast (PCUs)	Cycles	PCU	Traffic Forecast (PCUs)	Animal Drawn Vehicle /bullock Carts	PCU	Traffic Forecast (PCUs)	Base year ADT	Base year traffic (PCUs)	Total Forecast traffic (PCUs)	
										L	U			L	U			L	U											
Day 1	1324	1324	2729	110	55	187	73	73	150	55	50	315	649	61	61	366	754	22	15	111	229	80	40	82	27	216	445	1878	2500	4997
Day 2	1390	1390	2865	102	51	173	78	78	161	52	50	306	631	64	62	378	779	20	16	108	223	48	24	49	25	200	412	1907	2535	5081
Day 3	1316	1316	2712	90	45	153	80	80	165	60	58	354	730	60	60	360	742	18	18	108	223	62	31	64	24	192	396	1846	2486	4980
Average	1343	1343	2769	101	50	171	77	77	159	56	53	325	670	62	61	368	758	20	16	109	225	63	32	65	25	203	418	1877	2507	5019

The traffic forecast has been calculated for next 10 years from the base year of opening of traffic which include two years of construction of upgradation of the road.

From IRC 73, Table 9, PCU value for Car is 1, Cycle is 0.5; Truck, Buses, Agriculture trailer is 3; Bullock cart is 8 and from Table 10, capacity (passenger car units for day in both directions) for intermediate lane roads having 5.5m carriageway with adequate shoulders 1m wide is 5000 (in PCUs).

Since average PCU of study road is more than 5000 (in PCUs from table 5.1) and sufficient roadway width of 5.5 m is also available, therefore intermediate lane is proposed for Boniyar Maidanan road.

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MURAE

7. Adopted Geometric Design Standards

7.1 General

The geometric design standards for this project conform to PMGSY guidelines and the guidelines as stated in IRC-SP 20:2002. Recommended design standards vis-à-vis the standards followed for this road are described below.

7.2 Terrain

The classification of terrain was selected from plain/rolling/hilly/steep classification for which following criteria will be applicable.

Terrain classification	Cross slope of the country	
Mountainous	25-60%	1 in 4 to 1 in 1.67

7.3 Design Speed

The proposed design speed along this project road will be selected from the following table:

Road classification	Mountainous terrain	
	Ruling	Min.
Rural Roads (ODR and VR)	25	20

7.4 Right of Way (ROW)

The requirement of ROW for this road is as follows (as specified in IRC-SP 20:2002):

Road classification	Mountainous and Steep Terrain			
	Open Area		Built-up Area	
	Normal	Range	Normal	Range
Rural roads (ODR and VR)	12	12	12	9

7.5 Roadway Width

Roadway width for this road is given below:

Terrain Classification	Roadway Width (m)
Mountainous and Steep	6.0

7.6 Carriageway Width

The width of carriageway for this project road is **5.5m (intermediate lane)**. Carriageway width may be restricted to 4.5 to 5m where traffic intensity is less than 100 motorised vehicles per day and where the traffic is not likely to increase due to situation, like dead end, low habitation and difficult terrain condition.

7.7 Shoulders

It is proposed to have 1m wide shoulder as the case may be on both sides of which at least 0.875m is hard shoulder where required.

7.8 Roadway width at cross-drainage structures

The roadway width at culvert locations for this road is 6.0m in mountainous terrain. Roadway width at bridges will be 4.25m in hilly areas.

7.9 Sight Distance

The safe stopping sight distance is applicable in the geometric design. The sight distance values for this road as per IRC recommendations are presented below:

Design Speed (km/hr)	Safe Stopping Sight Distance (m)
30	30

7.10 Radius of Horizontal Curve

According to IRC recommendations/standards, the minimum radius of horizontal curve for this project road is given below:

Terrain Category	Radius of Horizontal Curve (m)	
	Ruling Minimum	Absolute Minimum
Mountainous	25	15

To minimize extra land arrangement, minimum radius used is 17-22m and design speed in these curves are also restricted to 15 km/hr has been adopted

S No	Location /Chainage in mts	Available Radius of curve (R)	Adopted radius of curve	Adopted speed (V) kmph	Adopted Super-elevation %	Estimated Super-elevation (e)	Remarks
1	2500	12.5	19.0	17	0.07	6%	Ruling min radius for snow bound areas for mountainous region is 23m. Maximum superelevation for mountainous terrain bound by snow is 0.07
2	2700	13	20.0	18	0.07	4%	
3	3200	12	18.0	16	0.07	4%	
4	4100	10	17.0	16	0.07	6%	
5	5300	11	22.0	18	0.07	4%	
6	4400	13	19.0	16	0.06	5%	
7	6500	12	20.0	17	0.06	4%	
8	7900	13	20.0	18	0.07	6%	
9	8300	10	20.0	15	0.05	4%	
10	9000	11	20.0	15	0.05	3%	

7.11 Camber & Super elevation

SK

vertical alignment of this road. Vertical curves are not required when grade change is less than 1%, however a minimum vertical curve is provided to avoid vertical kink.

7.13 Vertical Curves

For satisfactory appearance, the minimum length of vertical curve for different design speed is given in IRC-SP 20:2002. Vertical curves will be designed to provide the visibility at least corresponding to the safe stopping sight distance. Valley curves will be designed for headlight sight distance.

7.14 Side slope

Side slope for this rural road where embankment height is less than 3.0m is given in the table below.

Condition	Slope (H:V)
Embankment in silty/sandy/gravel soil	2:1
Embankment in clay or clayey silt or inundated condition	2.5:1 to 3:1
Cutting in silty/sandy/gravelly soil	1:1 to 0.5:1
Cutting in disintegrated rock or conglomerate	0.5:1 to 0.25:1
Cutting in soft rock like shale	0.25:1 to 0.125:1
Cutting in medium rock like sandstone, phyllite	0.083:1 to 0.0625:1
Cutting in hard rock like quartzite, granite	Near vertical

7.15 Extra Widening of Pavement

The Extra Widening of Pavement at Curve as per IRC guideline is given below:

8. Alignment Design

8.1 General

The basic aim of highway design is to identify technically sound, environment-friendly and economically feasible highway alignment. The ensuing sections deals with obligatory points, which control highway alignment, design of cross-section, highway geometric design & methodology, design of miscellaneous items.

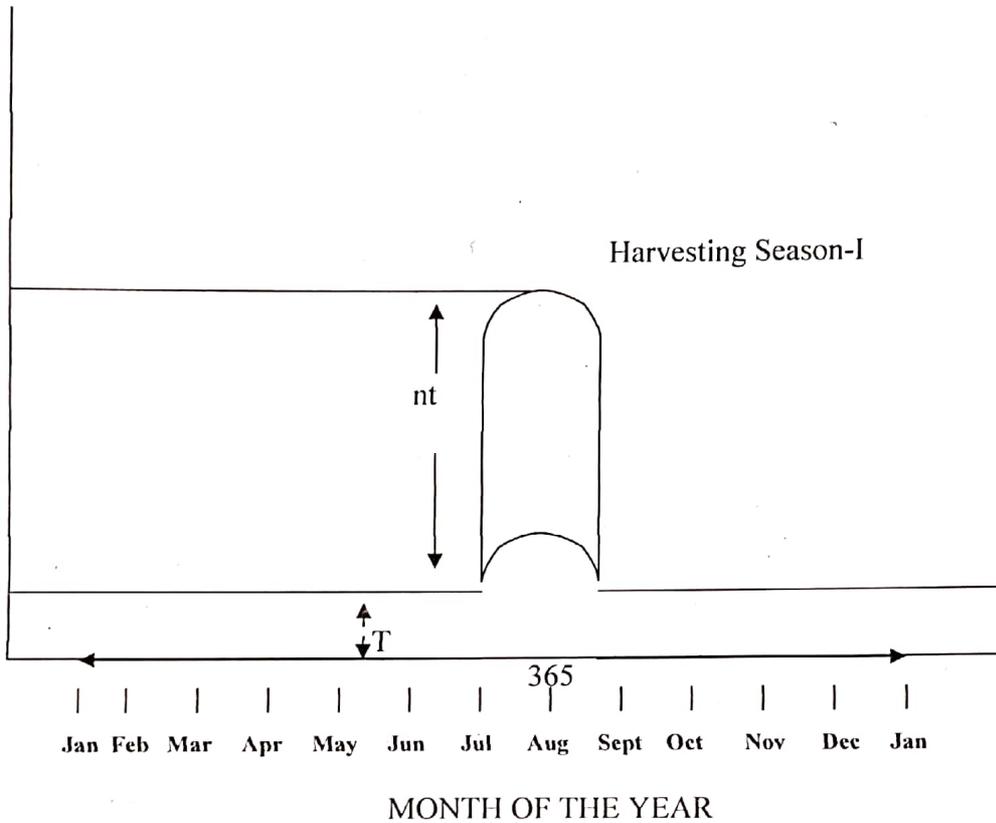
Radius of Curve (m)	Upto 20	21 - 60	Above 60
Extra Widening for 3.75 m wide single lane carriageway, (m)	0.9	0.6	Nil

The main components included in the highway design are:

- Cross-sectional elements
- Embankment
- Horizontal alignment
- Vertical profile
- Junctions and/or Interchanges
- Road furniture
- Miscellaneous items

COMPUTATION OF DESIGN TRAFFIC

Name of the Road: Boniyar Maidanan



Average daily traffic (ADT)
as per form (C)

$$T = 1877$$

Base Year Traffic (AADT)

$$= T + \frac{1.2nT}{365} = 1877 + \frac{1.2 \times 1 \times 100 \times 62}{365} = 1898$$

(AADT) at the time of opening the road to traffic

$$= \frac{1877}{1} \times (1+0.06) = 1990$$

Value of n=1

Growth rate r=6%

No. of harvesting season=1

MMS
AE

HCV

Laden = 118
 Un-laden = 114

MCV

Laden = 20
 Un-laden = 16

V.D.F. for HCV

Laden = 0.3
 Un-laden = 0.29

V.D.F. for MCV

Laden = 0.35
 Un-laden = 0.02

No. of Commercial Vehicle

$$To = (118 \times 0.3 + 114 \times 0.29) + (20 \times 0.35 + 16 \times 0.02) = 76.$$

Lane Distribution Factor, L=1

Age of road 10Years

Growth rate 6%

ESAL

$$= To \times 4811 \times 1$$

$$= 76 \times 4811 \times 1$$

$$= 365636.$$

MMS
 AE

9.2.4 Subgrade CBR

The subgrade CBR range of 5%-6% was considered and the traffic falls in the T6 category.

9.3 Design Alternatives

Design alternatives considered

Chainage		Design alternatives considered						Specify design alternative selected	Justification
From	To	Pavement		Shoulder					
		Flexible	Rigid	Earthen width full	Hard Full width	Hard shoulder 0.875 m each side	Soil stabilization and use of locally available marginal materials.		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

9.4 Pavement composition

Flexible Pavement

The designed pavement thickness and composition was calculated by referring Figure 4 (Pavement design catalogue) of IRC: SP: 72 – 2007. The ratio between heavy commercial vehicles and medium commercial vehicles as given in Chapter 5 should be maintained as far as possible.

The pavement layers provided are given below:

TRAFFIC DESIGN: T6

Pavement Thickness Design:

CBR value (taken of adjacent road varies from) = 5.0% to 6.5%)

For snow bound areas (frost action) total pavement thickness required as per IRC SP72 (FROST ACTION)) = 450 mm

a) From RD 0-275

Thus, pavement thickness of 450 mm is provided for length of RD 0-275m.

Existing thickness = Average 1m on granular filling

Adopted thickness= 450mm

Overlay=450mm.

GSB	= 300 mm thick
WMM	= 75 mm thick
Bituminous Macadam	= 50 mm thick (multiplying factor of 1.5)
Total thickness	= 450mm

b) From RD 275-2500

The existing pavement is on boulder /granular filling over the entire stretch as sub-grade material therefore, due to very good CBR and good pavement wearing course, only 350mm thickness is provided as a special case. The BM and OGPC is overlayed on already good bituminous surface from the economic and pavement strength point of view as a special case.

Thus, pavement thickness of 350 mm is provided for length of RD 275-2500m.

Existing thickness

= Soling (100mm) +G2(50mm)+G3(50mm)+BM(50mm)+OGPC (20mm)

=275mm

Overlay= 350-275=75mm

Bituminous Macadam	= 50 mm thick (multiplying factor of 1.5)
Total thickness provided	= 450mm

c) From RD 2500-9200

The pavement thickness of 450 mm is provided for length of RD 2500-9200m. The wearing course (BM+OGPC) is much damaged and needs to be scarified and then overlayed by 150mm WMM layer followed by 50mm BM and 25mm OGPC layer with seal coat.

Existing thickness = 250mm

Adopted thickness= 450mm

Overlay=175mm.

WMM = 150 mm thick

Bituminous Macadam = 50 mm thick

Total thickness provided = 450mm

Thus, pavement thickness of 450 mm is provided for entire length of 9.2 km.

Existing thickness = Average 270mm (Soling +G2+G3+BM)

Adopted thickness:450mm

Overlay=450-270=180mm

WMM	= 100 mm thick
Bituminous Macadam	= 50 mm thick
OGPC	= 20mm
Seal coat	= 6mm

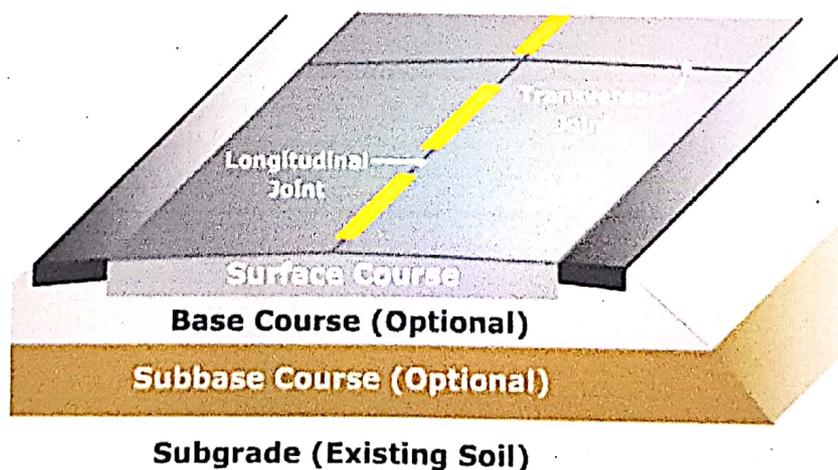
Total thickness provided = 450mm

Top layer of WMM will be treated with bituminous surface.

Rigid Pavement

Concrete pavements have been constructed on many rural roads under PMGSY programme. They are also being widely used on minor roads of cities carrying low volume of traffic because of their durability even under poor drainage conditions. Concrete pavements offer an alternative to flexible pavements especially where the soil strength is poor, the aggregates are costly and drainage conditions are bad. The rigid pavement will be provided for 200m stretch for buildup habitation of Trikanjan.

Rigid pavements are so named because the pavement structure deflects very little under loading due to the high modulus of elasticity of their surface course. A rigid pavement structure is typically composed of a PCC surface course built on top of either (1) the subgrade or (2) an underlying base course. Because of its relative rigidity, the pavement structure distributes loads over a wide area with only one, or at most two, structural layers).



10. Design of Cross Drainage Works

10.1 General

On the basis of hydrological survey, The existing cross drainage needs to be replaced by 2 No of box culverts, 2 No. of additional increase in roadway width of culverts, 8 No. of Hume Pipe Culverts (HPC), 6 No. of 500mm pipe culvert, new cross drainage structures are recommended for the project road as listed.

10.2 Hydrological Design

The existing structures in poor condition that are proposed for replacement as listed below. Agricultural conduits, which basically act as balancers, have also been provided as listed below.

10.3 Design Feature

Design Standards for culverts has been prepared based on standard codes and guidelines of IRC: SP: 20: 2002 and similar type of ongoing projects. General features of the designed cross drainage structures are given below:

For hume pipe culvert, minimum road width has been taken as 7.5 m,

Width of culvert : 5.5 m with parapet.

Width of Steel Bridge: 4.5 m with parapet.

10.4 Justification for retaining/widening and replacement of culverts

The two proposed culverts are in bad condition with 3.75 width and require to be upgraded to 5.5m width culvert as PMGSY guidelines.

10.5 Hydraulic calculation for Culvert

The design discharge was calculated by the rational method considering peak runoff from catchment using the formula,

$$Q = 0.028 \times P \times A \times I_c$$

Where P = Coefficient of Run Off for the catchments characteristics, A = Catchments Area in Hectares & I_c = Rainfall Intensity

Small bridge-site length of which exceeds 15 m to be jointly visited by STA and S.E. Design – as per SP-20 & SP-13 and relevant IRC Codes for Bridges.

Causeways and submersible bridges – Design to be done as per SP-20 and SP-82:2005.

Table 10.2 Proposed Culverts

Sl. No.	Chainage	Type of Culvert	Span/dia
1	RD 1600m	3m additional width of RCC type culvert	3m
2	RD 2550	(5x2m) Box type Culvert	5m
3	RD 6450m	3m additional width of RCC type culvert	3m
4	RD 8240	(5x2m) Box type Culvert	5m
5	Rd 4100m	Steel bridge	9.4x4m

11. Protective Works & Drainage

11.1 General

The road passes through hilly terrain with huge back cuts having large catchment area. The soil is free draining with a vegetation cover comparing of herbs, shrubs and trees. The land form is mostly rocky with glacial and ground water deposits at places.

11.2 Road side drain

As the insufficient drainage of surface water leads to rapid damage of road, road side drain as shown in drawing volume has been provided particularly on the location of habitation areas.

11.3 Protective Works

Necessary protection works consisting of random rubble stone masonry obtaining stone from approved source having 60:40 wet dry ratio as per requirement and in some stretches adopting cement concrete Retaining walls . Table 11.1 gives the chainage-wise protection works adopted.

Table 11.1 List of protective works

S No	Chainage From	To	LHS/RHS	Comments
1	1700	1900	RHS	Stone Masonry BW Wall
2	2700	2720	RHS	Stone Masonry BW Wall
3	2920	2960	RHS	Stone Masonry BW Wall
4	2900	3000	RHS	Stone Masonry BW Wall
5	3200	3380	RHS	Stone Masonry BW Wall
6	3180	3210	RHS	Stone Masonry BW Wall
7	3300	3510	RHS	Stone Masonry BW Wall
8	4150	4200	RHS	Stone Masonry BW Wall
9	4800	4840	RHS	Stone Masonry BW Wall
10	4870	4890	RHS	Stone Masonry BW Wall
11	5220	5270	RHS	Stone Masonry BW Wall
12	5316	5346	RHS	Stone Masonry BW Wall
13	5420	5520	RHS	Stone Masonry BW Wall
14	5700	5710	RHS	Stone Masonry BW Wall
15	5900	5930	RHS	Stone Masonry BW Wall
16	6100	6130	RHS	Stone Masonry BW Wall
17	6150	6170	RHS	Stone Masonry BW Wall
18	8300	8400	RHS	Stone Masonry BW Wall
19	8950	9000	RHS	Stone Masonry BW Wall
20	1600	1624	LHS	Stone Masonry RW Wall
21	2850	2920	LHS	Cement Concrete RW
22	3630	3638	LHS	Stone Masonry RW Wall
23	3800	3840	LHS	Stone Masonry RW Wall

24	3970	4010	LHS	Stone Masonry RW Wall
25	3050	3100	LHS	Stone Masonry RW Wall
26	4470	4510	LHS	Stone Masonry RW Wall
27	4550	4590	LHS	Cement Concrete RW
28	4700	4760	LHS	Cement Concrete RW
29	5220	5235	LHS	Stone Masonry RW Wall
30	5290	5320	LHS	Stone Masonry RW Wall
31	5500	5520	LHS	Stone Masonry RW Wall
32	5530	5600	LHS	Stone Masonry RW Wall
33	6250	6300	LHS	Stone Masonry RW Wall
34	7400	7550	LHS	Stone Masonry RW Wall
35	7995	8010	LHS	Stone Masonry RW Wall
36	8150	8300	LHS	Stone Masonry RW Wall
37	8250	8300	LHS	Stone Masonry RW Wall
38	8300	8400	LHS	Stone Masonry RW Wall
39	8600	8750	LHS	Stone Masonry RW Wall
40	9000	9100	LHS	Stone Masonry RW Wall

S No	Chainage for Crate work (RD in meters)	No	Qty cum
1	240	96	692.3
2	1190	14	101.0
3	2000	15	108.2
4	2560	10	72.1
5	4765	18	129.8
6	4920	8	57.7
7	5316	6	43.3
8	5380	12	86.5
9	5600	16	115.4
10	5800	8	57.7
11	6200	10	72.1
12	6450	20	144.2

12. Land Requirement

12.1 General

The existing road is generally with dilapidated BT with less ROW at some stretches and needs upgradation. Thus the project road is a upgradation project.

12.2 Proposed ROW

The width of carriageway has been considered as **5.5 m** in accordance with the IRC-SP 20: 2002. The total roadway width is limited to 7.5 m with 1 to 1.875 m earthen shoulder on either side of carriage way. The proposed ROW generally varies from 12 m – 15 m depending upon the embankment height and the proposed ROW is even less than 10 m in some stretches of habitation area and in areas having tree plantation.

12.3 Additional Land

Local administration and local panchayat need to apprise the villagers about requirement of minor areas in places for development of the road. Villagers are generally highly enthusiastic during site visits for selection of the road.

13. Utility shifting/relocation

13.1 Existing utilities

13.2 PHE, PDD, Horticulture

13.4 {Provide an estimate with breakdown of costs for relocation of utilities}

Table 13.1 Estimated Cost for Relocation of Utilities

Sl. No.	Utility Type	Qty	Estimated Rate	Estimated Cost
1	Electric poles at RD 3200,3400,6630,7100	9	20,000/pole	1.8 lacs
2	Transformer	1	30000	3 lacs
3	Walnut trees at RD 3100,4800,5400,6650	16	Avg 30000/tree	5 lacs
4	PHE water pipes	Misc		5 lacs
Estimated Total Cost				14.8 lacs

14. Traffic Management and Road Safety Measures

14.1 Road Furniture

Road Furniture details include:

- Road markings
- Cautionary, mandatory and information signs
- KM stones and 200m stones
- Delineators and object markers
- Guard posts, crash barriers and speed breakers

14.1.1 Road Markings

Road markings perform the important function of guiding and controlling traffic on a highway. The markings serve as psychological barriers and signify the delineation of traffic paths and their lateral clearance from traffic hazards for safe movement of traffic. Road markings are therefore essential to ensure smooth and orderly flow of traffic and to promote road safety. The Code of Practice for Road Markings, IRC: 35-1997 has been used in the study as the design basis. Schedules of Road Markings are included in contract drawings.

14.1.2 Cautionary, Mandatory and Informatory Signs

Cautionary, mandatory and informatory signs are provided depending on the situation and function they perform in accordance with the IRC: 67-2001 guidelines for Road Signs.

Overhead signs are proposed in accordance with IRC: 67-2001.

14.1.3 Kilometer Stone and Hectometer Stone

The details of kilometre stones are in accordance with IRC: 8-1980 guidelines. Both ordinary and fifth kilometre stones are provided as per the schedule. Kilometre stones are located on both the side of the road.

The details of 200m stones conform to IRC: 26-1967. 200m stones are located on the same side of the road as the kilometre stones. The inscription on the stones shall be the numerals 2,4,6 and 8 marked in an ascending order in the direction of increasing kilometerage away from the starting station. Table 14.1 gives the details of Km. stone, 5th km. stone and boundary pillars provided.

Table 14.1
Details of Km. stone, 5th km. stone and boundary pillars

Sl.	Name of Road	Chainage (km)	5 th Km. stone (nos.)	Km. stone (nos.)	200m stone (nos.)	Boundary stone (nos.)
1	Boniyar Maidanan	9.2km		9		154

14.1.4 Delineators and Object Markers

Roadway delineators are intended to mark the edges of the roadway to guide drivers on the alignment ahead. Object markers are used to indicate hazards and obstructions within the vehicle flow path, for example, channelising islands close to the intersections.

Delineators and object markers are provided in accordance with the provisions of IRC: 79-1981. They are driving aids and should not be regarded as substitutes for warning signs, road markings or barriers.

14.1.5 Guard Posts, Crash Barriers and Speed Breakers

Guard posts are proposed on embankments of height more than 1.5m and bridge approaches. The spacing of guard post shall be **10.0m c/c** in these areas. Typical Guard post consists of pre-cast (M20) CC post of size **200mm x 200mm and a height of 600mm** above ground level. They are encased in M15 cement concrete to a depth of 450mm below ground level. Guard posts are painted with alternate black and white reflective paint of 150mm wide bands. Table 14.2 gives the details of guard posts, crash barrier and speed breakers. A layout of a typical speed breaker is given below.

Table 14.2
Details of guard posts, crash barrier and speed breakers

Sl.	Name of Road	Chainage (km)	Guard post (nos.)	Crash Barrier (m)	Speed breakers (nos)
				2000	20

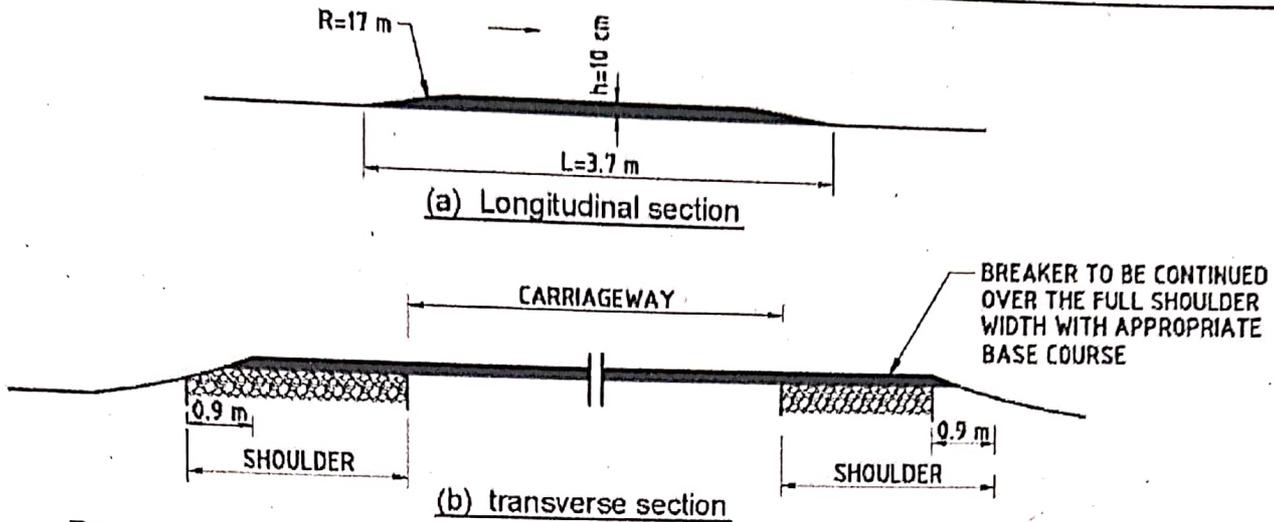
14.2 Temporary traffic control

The road under consideration has to be widened alongwith the bridges and culvert. The list below provides the c/d structures to be widened/reconstructed and temporary traffic control measures to be implemented.

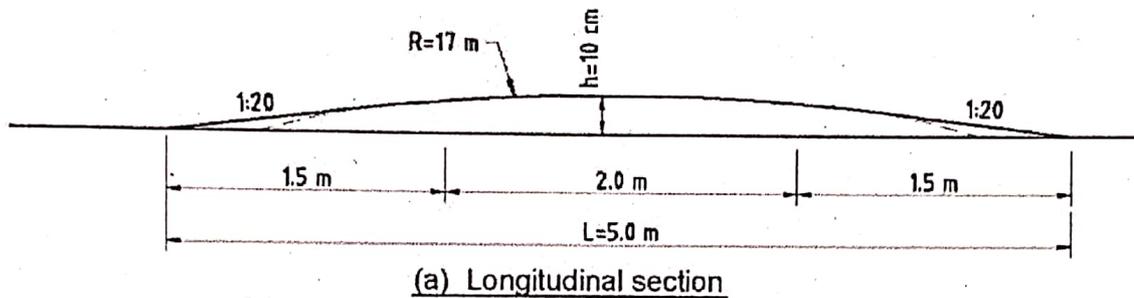
Table 14.3 gives the section-wise details of temporary traffic control measures to be adopted.

Table 14.3
Details of temporary traffic control measures to be adopted

Sl.	Name of Road	Chainage (km)	Temporary traffic control measures to be adopted			
1	Boniyar Maidanan					

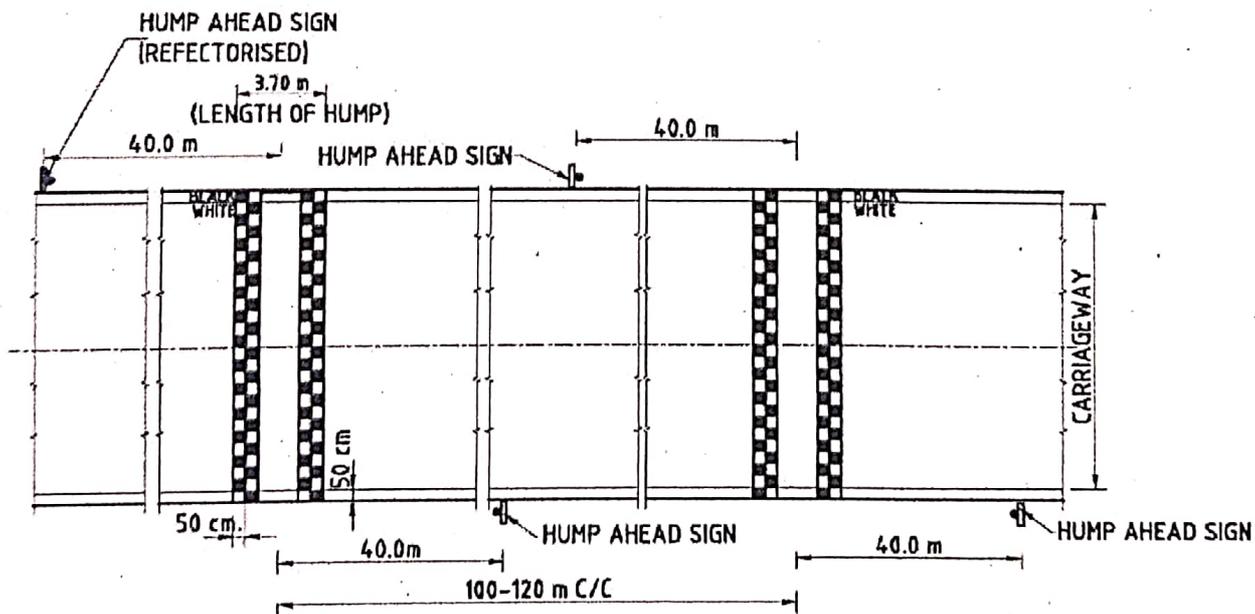


Recommended specification for rounded hump type breaker for general traffic at preferred crossing speed 25 km/h



(b) Transverse section is same as given in fig. 1

Recommended specification for hump type of speed breaker heavy truck & bus traffic at preferred crossing speed 25 km/h



Recommended placement of hump/ humps in mid block section, hump marking in chequered pattern and sign board locations

14.3 Checklist for Road Safety Measures

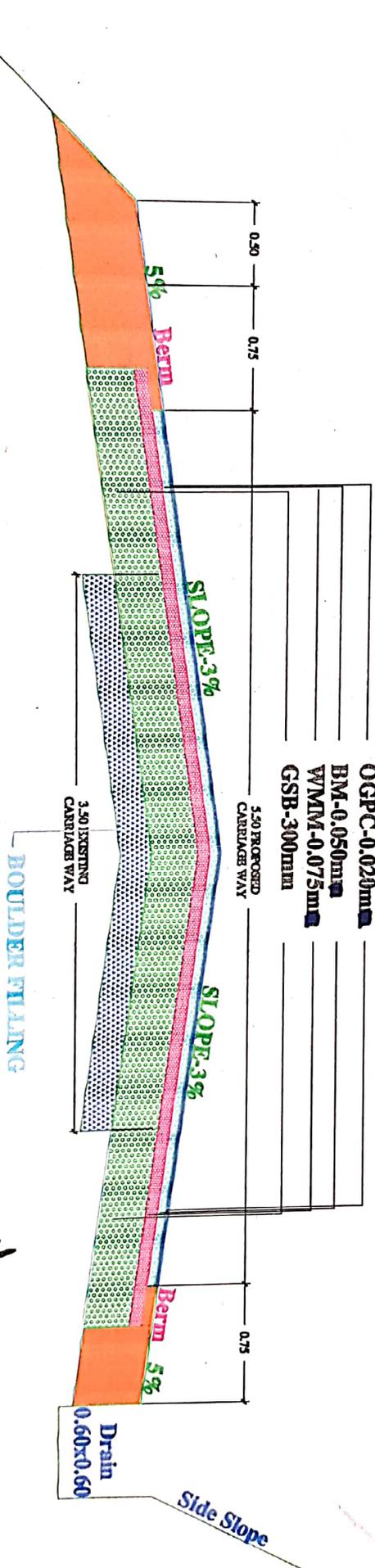
SI Road Safety Checklist

- a A minimum 100 mm thickness of pavement GSB layer constructed to the full roadway width.
- b The upper layer of all shoulders of sub-base quality compacted to a minimum thickness of 100 mm.
- c Shoulder side slopes are not be steeper than 2H:1V unless stone pitching of the slope is provided.
- d Speed breakers as per NRRDA circular comply with the requirements of IRC:99-1988 for general traffic.
- e Speed breakers placed at the threshold of a habitation and at regular intervals (150 - 200 m) through the habitation.
- f Within densely populated habitations, a cement concrete (CC) pavement or V-shaped side drain is constructed to the full width of the available roadway.
- g Within habitations, wherever deep side drains are constructed either within or adjacent to the roadway, is covered by slabs laid level with the adjacent pavement and capable of being manually removed.
- h In habitations where child playing areas border the road, a low profile wall, raised kerb or similar form of boundary marking (depending on the site conditions), is constructed to create a physical boundary and act as a deterrent to the random movement of a child onto the road.
- i On roads where, because of the lack of dry land in the general area, the shoulder will be continually occupied and only intermittently available for traffic, speed breakers are installed at regular intervals, not more than 300 m apart, for the entire length of the road.
- j The drawings show all obstructions in the proposed road shoulder with a note that the obstruction is to be removed.
- k If a shoulder obstruction cannot be removed, hazard markers are installed to mark the Obstruction
- l Hazard markers are installed at all pipe culvert headwalls.
- m Hazard markers are installed at each end of all box culverts, river crossing causeways and similar CD structures.
- n Hazard markers are installed at any discontinuity in the shoulder.
- o Directional sight boards are installed on all sharp curves and bends.
- p Speed breakers are provided at sharp curves and bends where the curve design speed is less than 40 km/h in plain and rolling terrain, and less than 25 km/h in mountainous and steep terrain.
- q Speed breakers are provided and directional sight boards installed at sites where reverse horizontal curves are closely spaced and speed reduction is required.
- r At a main road intersection, signs and pavement markings for STOP control on the PMGSY village road are installed, side road warning signs on the main road and intersection warning signs on the village road are installed, and speed breakers on the PMGSY village road are provided as given in the figures (refer IRC 99-1988).

This DPR may be subjected to a road safety audit by an independent third party. The recommendations of the road safety audit as approved by PIU shall be incorporated in the final DPR.}

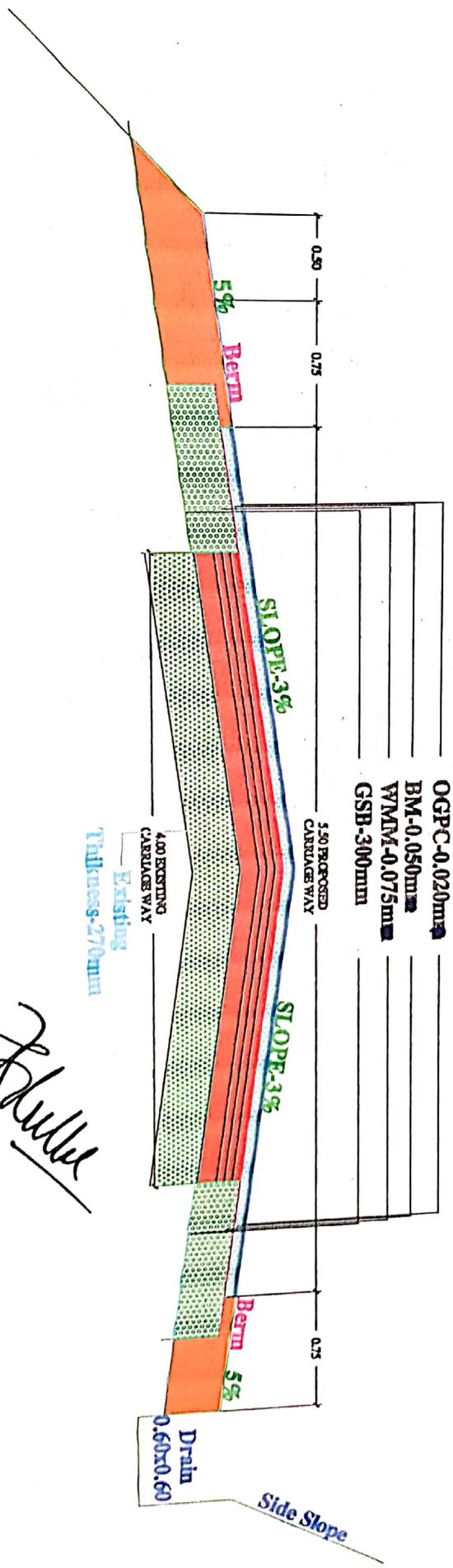
Road safety issues identified during the design were and the mitigation measures are included in all designs and shown on the DPR drawings.

(A)
 TYPICAL CROSS SECTION
 IN BUILT UP AREA FROM RD 0M TO 275M



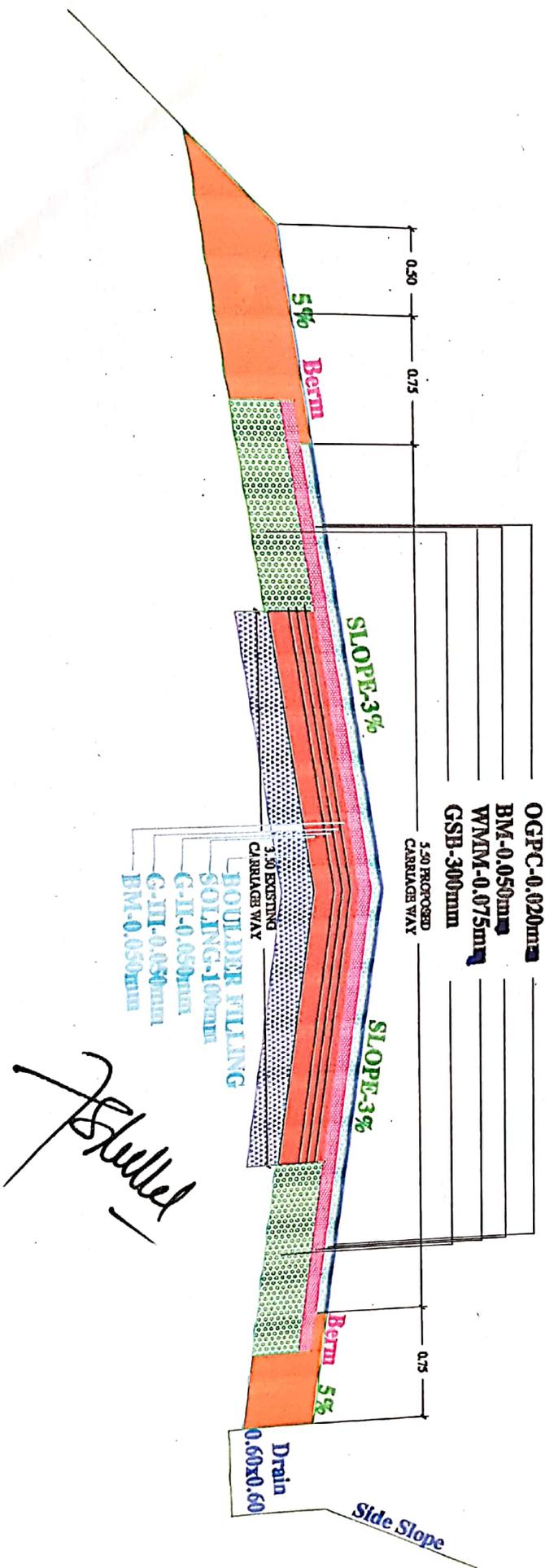
Fluiter

(B)
TYPICAL CROSS SECTION
IN BUILT UP AREA FROM RD 275M TO 2500M



Shuler

(C)
 TYPICAL CROSS SECTION
 IN BUILT UP AREA FROM RD 2500M TO 9200M



FORMAT F-9A

**PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)
CERTIFICATE OF GROUND VERIFICATION FROM EXECUTIVE ENGINEER / HEAD PIU**

1. a) Certified that the Land width for the Road is available and that no additional land is required; or
b) Certified that land width for the Road is likely to be available as certified by the Panchayats.
2. a) Certified that no forest land is involved along the entire road way; or
b) Certified that the case for permission under Forest conservation Act has been moved to the Forest Department on (Date).
3. Certified that the DPR has been checked at site by

AE 
On date 20/07/2019
(DPR checked by AE) **Asstt. Engineer**
PMGSY Division
Boniya


Superintending Engineer
PMGSY (JKRRDA) Circle
Baramulla


Executive Engineer,
Head of PIU,
PMGSY Division Uri

FORMAT F-9B

LIST OF DPRS VERIFIED ON GROUND:

#	DPRs seen on ground by	DPR Nos	% of total number
1	AE		
2	EE		
3	SE		

Head of PIU

Pradhan Mantri Gram Sadak Yojana (PMGSY) Summary Sheet

Name of the Block	Total No. of Habitations	Unconnected Habitations				Package No.		
		>1000	500-999	250-500	<250			
BONIYAR	5							
Type of Work	No. of Roads	Total Length of Road (Km)	No. of new CD Structures	Estimated Cost			No. of new villages connected	
				Pavement From F-5	CD Str. From F-6	Total 5+6	Total Villages	SC/ST Villages
1	2	3	4	5	6	7	8	9
Stage U	1	9.200	22	1238.2	169.56	1407.76		

Total Cost of Work:	Rs.	1407.76
Misc. Cost:	Rs.	40.49
Total Cost of Project:	Rs.	1448.24
5 yr. Maintenance Cost:	Rs.	173.79
6th Year renewal cost by way of providing OGPC	Rs.	133.99
Grand Total	Rs.	1756.02

W.R.
Assistant Engineer

[Signature]
Assistant Executive Engineer
Asstt. Executive Engineer
PMGSY Sub-Division
Boniyar

[Signature]
Executive Engineer, PMGSY Uri
PMGSY Division Uri

DPR Technically Scrutinized
for Rs. 1448.24 lacs (excluding
maintenance & renewal cost)

[Signature]
Prof. (Dr) Mohammad Shah
Officer-in-Charge
Transportation Engineering and Planning Division
Civil Engineering Department
National Institute of Technology (NIT) Srinagar
Hazratbal Srinagar, J&K - 190006

Pradhan Mantri Gram Sadak Yojana (PMGSY)

Details of UPGRADATION AND MANTAINAENCE OF ROAD FROM BONIYAR to MAIDANAN

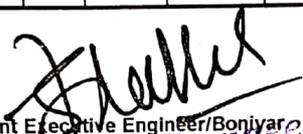
District: Baramulla

Block: Boniyar

S.No.	Name of Road	Road length (Km)	Road Connecting	Facilities accessed (Use A/B/C/D)	Traffic/ day				Existing Road Details				Bituminus Layers		
					Total Motorised	Total Truck/ Tractors	Land Width (m)	Road Width (m)	Embankment formation		WMM Layers		Type	Width (m)	Thicknes s (mm)
									Height (m)	Width (m)	Width (m)	Thicknes s (mm)			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	BONIYAR to MAIDANAN	9.200	D	D	622	36	8.5 & 7.5	6.50			5.5	150 & 75	BM	5.5	50
													OGPC	5.5	20

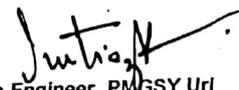


Assistant Engineer



Assistant Executive Engineer/Boniyar

Asstt. Executive Engineer
PMGSY Sub-Division
B. ar



Executive Engineer, PMGSY Uri

Executive Engineer
PMGSY Division Uri

Pradhan Mantri Gram Sadak Yojana (PMGSY)
UPGRADATION AND MANTANENCE OF BONIYAR MAIDANAN ROAD

Di:

Block: Boniyar

S.No	Name of place/ tourist place connected by road		New Const./ Upgradation (Use N/U)		Facilities accessed (Use A/B/C/D)	Road length (Krn)	Existing Surface Type	Details of Thickness & Cost for Pavement Paver												Total cost of Pavement in Lacs
	From	To	N	U				Details	60 mm BM Rigid Pavement	Earth Work, Grade Cutting	Earthen Shoulder	Sub Grade Preparation (tree cutting & Grubbing)	GSB	WMM	Prime Coat/ Tack Coat	20mm OGPC	R/ Wall And B/Wall	Cement Concrete Drain	Sum of (10 to 20)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	
1	BONIYAR	MAIDANAN		U	D	9.2	BT		248.8	147.86	10.65	14.5	108.5	162.5	37.0	134.0	343.4	31.1	1238.20	

W.S.
 Assistant Engineer

[Signature]
 Assistant Executive Engineer
 Asstt. Executive Engineer
 PMGSY Sub-Division
 Boniyar

[Signature]
 Executive Engineer, PMGSY, Uri
 Executive Engineer
 PMGSY Division Uri

PRADHAN MANTRI GRAM SADAK YOJNA (P.M.G.S.Y.)
ROADS PROPOSED FOR CONSTRUCTION FOR RURAL CONNECTIVITY (PAVEMENT
JAMMU & KASHMIR STATE

(MAINTENANCE COST)

Sr.No	Maintenance	Total Cost	Total Cost
	12% of the total cost of project		
TOTAL		173.79	


Assistant Executive Engineer
Asstt. Executive Engineer
PMGSY Sub-Division
Boniyar


Executive Engineer, PMGSY-URI
Executive Engineer
PMGSY Division Uri

Pradhan Mantri Gram Sadak Yojana (PMGSY)
Road Proposed in PMGSY for Rural Connectivity (X- Drainage Structures)

District: Baramulla

Block: BONIYAR

S.No.	Name of Road	New Const./ Upgradation (Use N/U)	Road length (Km)	Existing CD Structures by Type												Details	Details of Proposed CD Structures by Type								Total Cost of Proposed CD Str.					
				H.P Culvert		Slab Culvert		M. Bridge		Causeway		Scupper		Pipe Crossing			H.P Culvert		Slab Culvert (Box Type)		M. Bridge		Causeway			Scupper		Pipe Crossing		
				No.	Dia. mm	No.	L m	No.	L m	No.	L m	No.	L m	No.	Dia. mm		No.	Dia. mm	No.	L m	No.	L m	No.	L m		No.	Dia. mm			
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	
1	BONIYAR to MADANAN	U	9.200			6	4							10	300		8	1000	2	3	1	9	0	0	0	0	0	12	500	169.56
TOTAL																											169.56			

ms
 Assistant Engineer

[Signature]
 Assistant Executive Engineer
 Asstt. Executive Engineer
 PMGSY Sub-Division
 Boniyar

[Signature]
 Executive Engineer, PMGSY Uri
 PMGSY Division Uri

To be filled by State Technical Agency

Name of STA: _____

Name of Road: **Upgradation & Maintenance of Road From Boniyar to Maidanan**

15 Is the Proposed road entered on the OMMS:
(Data entries to be verified by STA before clicking the Proposal) Yes / No

16 **If the Proposal is for new connectivity**
Have you satisfied yourself that the proposed road is a part of Core Network Yes / No
Is the unconnected habitation(s) part of list of unconnected Habitations as per CN - 6 Yes / No
Does the proposal ensure full connectivity to target habitation
a) If No, the Name of unconnected Habitation up to which it is connected Yes / No
b) If such unconnected Habitation eligible Under PMGSY Yes / No

17 **Are you satisfied with the following**
Engineering Surveys (L section, X section must be verified) Yes / No
Soil/ Material Investigation (CBR, Density, LL, PI, Gradation to be verified) Yes / No
Traffic Surveys/ Estimation Yes / No
Hydraulic Studies Yes / No
(Catchment for structures for more than 2 vents to be verified from topo sheet. Location and requirement)

18 In case, Traffic is projected beyond T4 category are you satisfied with the reason given by PIU Yes / No

19 In case, sub grade CBR is less than 3; has soil stabilisation etc. been proposed
(If not, specific Reasons given by PIU) Yes / No

20 Is the design of the following elements as per Rural Roads Manual/ Circulars of NRRDA:
Alignment & Geometrics Yes / No
Location and type of CD works and Yes / No
Side drains Yes / No
Integration for Cross and Longitudinal Yes / No
Protection works Yes / No

21 Is the design of flexible Pavement as per IRC SP: 72-2007 and design of Rigid Pavement as per IRC SP: Yes / No

22 Does the estimation conform to Standard Rate Analysis and SSR generated for the current Phase Yes / No

23 **Does the proposal have provisions for**
PMGSY Logo Sign Boards and Information Boards Yes / No
KM/ Hm Stones Yes / No
Guard stones (where necessary) Yes / No
Traffic Sign Boards (as necessary) Yes / No

24 **Specific Remarks, if any, by STA**
(Specific remarks of STA about the overall project are necessary on each DPR)
The DPR is for a 9.2 Km long Road to develop a Carriageway width of 5.5m (Intermediate/1W). It includes improvement of structural design and slope stability and drainage aspects. The road does qualify for an intermediate 1W.

Certified that the design and estimation for the proposed road work are based on the data and SSR provided by PIU Engineers. The

Technical Scrutiny at STA done by:
Signature 
Name **Dr. M. S. Mir**
Date _____

Co-ordinator STA: 
Signature _____
Name _____

Prof. Dr. Mohammad Shafi Mir
Officer-In-Charge
Transportation Engineering and Planning Division
Civil Engineering Department
National Institute of Technology (NIT) Srinagar
Hazratbal Srinagar, J&K - 150006

Pradhan Mantri Gram Sadak Yojana (PMGSY)
PACKAGE SUMMARY

State: Jammu & Kashmir

Proforma - B

District: Baramulla

S.No	Name of Block	Name of Road		Type of Proposal	Proposed Length Km	Cost of Pavement (in Lacs)	No. of C.D works Nos	Cost of C.D works (in Lacs)	Misc. Cost (in Lacs)	Total Estimated (in Lacs)	Average cost per Km (in Lacs)
		From	To								
1	BONIYAR	BONIYAR	MAIDANAN	N	9.200	1238.2	22	169.56	40.49	1448.24	157.42

Total Estimated Cost of Package	Rs: 1448.24 lac
Routine Maintenance for 5 Years (12%)	Rs: 173.79 lac
6th year Renwal Cost by way of providing SDPC (25mm)	Rs: 133.99 lac
Grand Total	Rs: 1756.02 lac

New Connectivity U

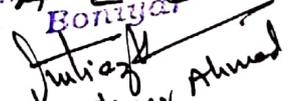
N=

U= Upgradation

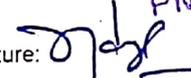
Prepared by:

Signature: 
 Name: **Tariq Abdur Raheem**
 Designation: **Asstt. Executive Engineer**
PMGSY S.D. Division
Boniya
A.E.E

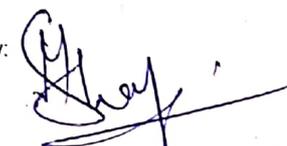
Checked by:

Signature: 
 Name: **Irtiqat Ahmad**
 Designation: **Executive Engineer**
PMGSY Division Uri

Scrutnized by:

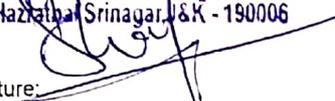
Signature: 
 Name: **R.C. Anjum**
 Designation: **Superintending Engineer**
PMGSY (JKRDA) Circle
Baramulla

Technical Scrutiny done by:

Signature: 
 Name: **Prof. (Dr) Mohammad Shafi Mir**
 Designation: **Officer-in-Charge**

Transportation Engineering and Planning Division
Civil Engineering Department
National Institute of Technology (NIT) Srinagar
Hazratbal Srinagar, J&K - 190006

Coordinator STA:

Signature: 
 Name:
 Designation:

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

CHECK LIST FOR P.I.U & S.T.A

(For Individual road works)

To be filled by PIU

1. Location:- State:- Jammu & Kashmir

District: Baramulla

Block: BONIYAR

2. Package No.

3. Name of the Road:- From: BONIYAR

To: Maidanan

4. Total length (Km):- 9.20

In Built Up Area:- 3.1 KM

In Open Area:- 6.1 KM

5. Estimated Cost Rs: 1448.24

Average Cost: 157.42

Item	Total Cost in	Cost per Km.
Flexible Pavement	708.66	77.03
Rigid Pavement	30.36	151.8
Others	205.637	22.35
Total	944.65	251.18

6. Type of Proposal:- New Connectivity (Upgradation)

..If the proposed road is a New Connectivity

No
YES

..Is the road a part of Core Network

or

If Yes Through Route/ Link Route No.

.. Name of the unconnected Target Habitation (s)
(to be crosschecked with CN-6)

.. Population Sub served by the proposed road. 5574

.. Does Proposed Road Lead up to the Habitation for which it is supposed to provide connectivity (In other words are you sure that the road is not being made partially?)

YES

.. Does the proposed road connect the unconnected Habitation to:

- ..A) Another habitation having All- Weather Road.
- ..B) Directly to an All Weather Road.

UPGRADATION WORK

If (B) indicate the nature of Road to which the proposed road leads.

Maidanan	Trikanjan	Chotali	

.. If the proposal is for upgradation

Yes
Yes

.. Is the road a part of the core network

.. Is it associated Through Route or Not

2

.. PCI value

50

.. Age of the Road

.. Is it certified that there are no other un connected Eligible Habitations in the District.

7 a) Whether the Proposed Road has the desired carriage way width, Roadway width and Road Land width (RLW)

b) Indicates the actual widths of the following for the proposed road

a) Carriageway

b) Roadway

c) Road Land Width

In the Built Up Area (m)	In the Open Area (m)
5.50	5.50
6.50	6.50
7.5 & 8.5	8.50

8. Base Year Traffic Volume

Month & Year of Traffic Volume																
Days	Motorised Traffic											Non Motorised traffic				
	Cars, Jeep, Vans, Three Wheelers	Motorised two Wheelers	Light Commercial Vehicle	Trucks			Agricultural Tractors Trailers			Buses			Cycles	Cycle Rickshaw	Animal Drawn Vehicle/Bullock Carts	
				L	U	OL	L	U	OL	L	U	OL			SWC	Num. Tyred
Day 1	1324	110	73	55	50		61	61		22	15		80		27	
Day 2	1390	102	78	52	50		64	62		20	16		48		25	
Day 3	1316	90	80	60	58		60	60		18	18		62		24	
Average	1343	101	77	56	53		62	61		20	16		63		25	

ADT in the year of Traffic Count= **1877** Traffic Volume in PCU **5019**
 Growth rate adopted (%)= **7.5%** Avg Annual daily traffic AADT (T)=
 Design life= **10 Years**
 Number of harvesting Seasons= **1**
 Value of (n) assumed= **1** Cumulative ESAL=
 Traffic Category= **T6**

9. Subgrade CBR (for Different Sections) = CBR taken from different feeder roads of PMGSY :Bela Salamabad road, Badian Dudran road, Trikanjan Salasan road, Boniyar Barnate, Maidanan Chotali roads

Chainage	km 1	km 2	km 3	km 4	km 5	km 6	km 7	km 8
CBR %	8.00	7.50	5.00	5.50	6.10	6.50	6.30	6.50

10. Cost Details

A. General Costs

Cost of Preparation of DPR

Cost Rs.	Cost / Km (Rs)
0.92	0.10

B. Pavement Components

Description of Layer	Thickness in mm	Qty.	Cost Rs.	Cost / Km (Rs)
C. Earth Work in Excavation/ Cutting	As per x-sections.	50425.51	122.91	13.66
Shoulders and grade filling (If not considered in the Earthwork)	As per drawing	3622.50	10.65	1.18
Grade Filling	As per drawing	3840.00	21.12	2.35
Grannular Sub Base (GSB)	As per design	7392.26	108.50	12.06
WMM	75	6416.55	162.47	18.05
D. Bituminous Layers				
Prime Coat		49500.00	28.84	3.20
Tack Coat		49500.00	8.17	0.91
OGPC/Semi Dense	20	51975.00	133.99	14.89
BM	50.00	2728.69	218.44	23.74
E. Cement Concrete Road	0.30	330.00	30.36	151.80

F. C D Works

No. of Existing CD Works
 Do they require any improvement - specify the nature of improvement proposed
 If yes, their number and cost of improvement

25

REPLACEMENT

Location - Chainage (Similar Type of CD's may be grouped together)	Type of CD & their Nos.	Total Length of Bridge / Culvert	Cost in Rs.
Hume pipe culvert (1000mm)	8	7.5m	22.68
Buried conduits (500mm)	12	7.5m	1.79
Box type Culvert	5	5.5m	19.50
Culvert (Additional width increase)	2	3m	50.00
Steel Bridge	1	9.4	70.50
Earthen Drain	RM	5000	5.09

Total Cost of Proposed CD works		169.56	9.20
		Cost in Rs	Cost / KM in (Rs.)
F. Protection Works	3641.00 m	343.36	94.30
G. Pucca Side Drains (if Provided)	1825.00 RM	31.09	17.03
H. Road Logo, other Road Furniture		40.49	4.40
I. Any other Provisions (Please Specify)			
Total Cost of the Project (Rs)		1448.24	157.42

Name of Road: Boniyar to Maidanan

J. Five Year Routine Maintenance

Year	Cost in Lacs	% Cost	Cost / Km
I	Maintenance @ 12% of the total cost of project		
II			
III			
IV			
V			
Total Maintenance Cost	173.79	0.00	18.89

11. Whether the road has Goemetrics as per Rural Roads Mannual RRM / Latest Circulars of NRRDA. Yes

12. Whether C.D. Works / Protection works are provided as per RRM / Latest Circulars of NRRDA/ Respective Codes. yes

13. Whether the Cost estimate are as per standard data analysis and S. O. R Yes

14. soueces and the Lead distances of Materials are as under:

Material	Source	Lead Distance	Material	Source	Lead Distance
Earth Work	Barrowpits	1000 m	Cement	Srinagar	100 KM
Murum	Veerwan Quarry Baramulla	35 KM	NP3 Pipes	Khrew, Srinagar	100 KM
Aggregate	Veerwan Quarry Baramulla	35 KM			
Sand	Juhama	35 KM	Steel	Pampore	100 KM

Certified that the information provided is true:

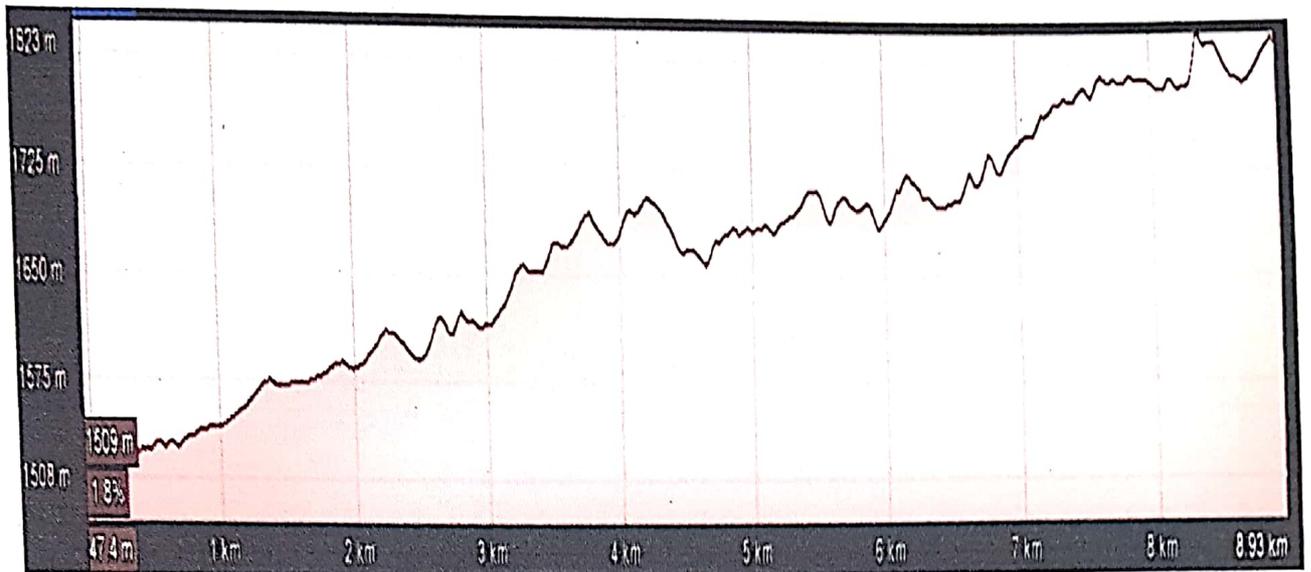
Prepared By (Name) *Asstt. Executive Engineer PMGSY Sub-Division Boniyar A.E.E*

Checked By *Intiyoz Ahmad. Intiyoz Ahmad. Senior Engineer PMGSY Division Uri*

Scrutinized By *Superintending Engineer PMGSY (JKRRDA) Circle Baramulla*

Counter Signatures of Co-ordinator STA *[Signature]*

Prof. (Dr) Mohammad Shafi Mir
 Officer-in-Charge
 Transportation Engineering and Planning Division
 Civil Engineering Department
 National Institute of Technology (NIT) Srinagar
 Hazratbal Srinagar, J&K - 190006



(Fig: L section of Boniyar Maidanan Road from mytrack software during transit walk)

$\frac{MS}{AE}$

ROAD GEOMETRICS OF THE PROPOSED ROAD

1	Terrain	Hilly
2	Cross Slope(Natural)	10-60%
3	Gradient	1 in (15-20)
4	Road Land Width	7.00m to 8.50 m
5	Road Width	6.5 Meters
6	Carriageway	5.5 Meters
7	Camber	3.5 %
8	Side Slopes	1:4 to 1:5 Cutting
9	Design Speed	30 Km/Hr.
10	Minimum Curve Radius	14.00 Meters
11	Super Elevation	Max. 7% Min 3.5%
12	Passing Paces	3 per Km.

MS
AFH

The

Chief Engineer

PMGSY ,Kashmir

Subject: **Boniyar Maidanan road in PMGSY phase II.**

Sir,

The residents of Maidanan panchayat ,Baiden ,Trikanjan,Banali,Bela,Ladi Panchayat came to know that Boniyar Maidanan road has not been kept in DPR preparation in PMGSY phase II as it has more length i.e. around 10.5km.

As your department is well versed about bad conditions of our road and frequent accidents due to less road width at several places .This road caters more than 22000 population which use the services of this road daily .The poor condition of road damage not only our vehicles but take a lot of time to reach our destinations.

Therefore above mentioned road need quick up gradation plan under PMGSY .We six sarpanches of Block Boniyar request your good self to intervene in the matter and keep Boniyar Maidanan road in top priority list so that its DPR is prepared at the earliest.

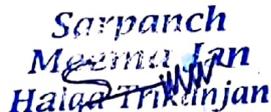
Yours faithfully


1. SARPANCH MAIDANAN
Sarpanch
Pvt. Halqa Maidanan
Block Boniyar

2.SARPANCH BAIDEN

SARPANCH
Panchayat Halqa
Baidan Boniyar

3.SARPANCH BANALI

4.SARPANCH TRIKANJAN

Sarpanch
Meema Jan
Halqa Trikanjan

5.SARPANCH LADI
Mohd. Amin Banday

Sarpanch
Halqa Ladi

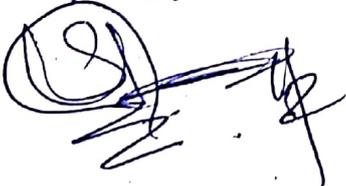
6.SARPANCH BELA

Masrat Javeed
SARPANCH
Halqa Bela Salamabad









ABSTRACT OF COST FOR UPGRADATION AND MANTAINAENCE OF ROAD FROM BONIYAR to MAIDANAN

ROAD NAME		BONIYAR	To	Maidanan	BARAMULLA	
LENGTH		9.20	km	DISTRICT	BONIYAR	
TYPE OF WORK		Stage U			BLOCK	BONIYAR
District: Baramulla						
S.No	Description Of Item	Unit	Quantity	Amount (Lacks) Rs.		Remarks
A	Site Clearance					
	Clearing and grubbing road land including uprooting wild vegetation	Hect	3.4	Rs.	1.82	Rs. 1.82
B	Earth Work					
	Excavation in soils in Hilly Area by mechanical means	cum	20170.2	Rs.	26.79	
	Excavation in hilly areas in ordinary rock not requiring blasting	cum	15127.7	Rs.	34.76	
	Excavation in Hilly Area in hard rock	cum	15127.7	Rs.	61.36	Rs. 122.91
C	Protection work					
1	R/B Masonary walls	m	2474.0	Rs.	273.44	
2	Cement Concrete R Walls (M-20)	m	170.0	Rs.	29.59	
3	Crates	Cum	1680.5	Rs.	40.33	
D	Pavement					Rs. 343.36
1	Preparation of sub grade	cum	5118.8	Rs.	14.47	
2	Granular sub base (GSB)	cum	7392.3	Rs.	108.50	
3	WMM	cum	6416.6	Rs.	162.47	
4	Primer Coat	sqm	49500.0	Rs.	28.84	
5	Scarfyng of existing pavement	sqm	18200.0	Rs.	2.01	
6	Tack Coat	sqm	49500.0	Rs.	8.17	
7	Bituminous Macadum BM (50 mm)	cum	2728.7	Rs.	218.44	
8	OGPC (20 mm) with 6mm seal coat	sqm	51975.0	Rs.	133.99	
9	Earthen shoulders	cum	3622.5	Rs.	10.65	
10	Grade cutting	cum	3840.0	Rs.	21.12	
11	Rigid pavement	cum	330.0	Rs.	30.36	
E	CD Works					Rs. 739.02
1	Steel Bridge	RM	9.4	Rs.	70.50	
2	Box type culvert	No	2.0	Rs.	19.50	
3	Hume Pipe culverts (HPC)	No	8.0	Rs.	22.68	
4	RCC Culverts	No	2.0	Rs.	50.00	
5	RCC Pipes(Buried Conduites)	No	18.0	Rs.	1.79	
6	Cemen concrete Drain	RM	1825.0	Rs.	31.09	
7	Kacca Drain	RM	5000.0	Rs.	5.09	
F	Miscellaneous Items					Rs. 200.65
1	PMGSY information sign board	No	1.0	Rs.	0.16	

Citizen Information Board	No	1.0	Rs.	0.16	
PMGSY Logo Boards	No	28	Rs.	0.97	
Back Pillers	No	184.0	Rs.	0.98	
Boundary pillers	No	184.0	Rs.	0.89	
JOB Pillar	No	36.8	Rs.	0.17	
Kilometer stones	No	9	Rs.	0.19	
Parapets	cum	113.4	Rs.	5.75	
Crash railing	No.	1000.0	Rs.	10.00	
Steel pipe Railing	RM	2104.7	Rs.	16.84	
Road Center line painiting	sqm	1380.0	Rs.	2.38	
Retro reflective traffic signs	sqm	27.0	Rs.	0.53	
Add for DPR Preparation	km	9.2	Rs.	0.92	
Add for survying / investigation charges (soil testing)	km	9.2	Rs.	0.55	Rs. 40.49
Total construction cost			Rs.	1,448.24	
5 year Maintenance cost			Rs.	173.79	
6TH Year perodic renewal by way of OGPC layer			Rs.	133.99	
Grand Total			Rs.	1,756.02	

WZ
AE



PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

Detailed Project Report for Upgradation of road from
BONIYAR To MAIDANAN,
Stage "U"

PMGSY / JKRRDA DIVISION URI

District: BARAMULLA

Block: BONIYAR

Package No: JK03-312

Length: 9.2 Km

Estimated Cost	1448.24 lacs
Maintenance Cost	173.79 lacs
6 th Year periodic renewal by way of OGPC layer	133.99 lacs
Total Project Cost	1,756.02 lacs

1290.50 ✓
154.86 ✓
133.99 ✓

1424.49



Pradhan Mantri Gram Sadak Yojana (PMGSY) Summary Sheet

Name of the Block	Total No. of Habitations	Unconnected Habitations				Package No. J1503-312			
		>1000	500-999	250-500	<250				
BONIYAR	5								
Type of Work	No. of Roads	Total Length of Road (Km)	No. of new CD Structures	Estimated Cost			No. of new villages connected		
				Pavement From F-5	CD Str. From F-6	Total 5+6	Total Villages	SC/ST Villages	
1	2	3	4	5	6	7	8	9	
Stage U	1	9.200	22 21	1238.2 1286.10	169.56 175.65	1407.76 1461.75			

Total Cost of Work:	Rs.	1329.12 1407.76 1286.10
Misc. Cost:	Rs.	4.40.48 4.40
Total Cost of Project:	Rs.	1448.24 1290.50
5 yr. Maintenance Cost: (1/2)	Rs.	1333.883.79 60.82
6th Year renewal cost by way of providing OGPC	Rs.	133.99
Grand Total	Rs.	1756.02 1587.57

mr
Assistant Engineer

[Signature]
Assistant Executive Engineer
Asstt. Executive Engineer
PMGSY Sub-Division
Boniyar

[Signature]
Executive Engineer, PMGSY Uri
PMGSY Division Uri

DPR Technically Scrutinized
for Rs. 1448.24 Lacs (excluding
maintenance & renewal cost)

[Signature]
Prof. (Dr) Mohammad Shah JI
Officer-in-Charge
Transportation Engineering and Planning Division
Civil Engineering Department
National Institute of Technology (NIT) Srinagar
Hazratbal Srinagar, J&K - 190006

Pradhan Mantri Gram Sadak Yojana (PMGSY)

UPGRADATION AND MANTANENCE OF BONIYAR MAIDANAN ROAD

Di:

Block: Boniyar

S.No	Name of place/ tourist place connected by road		New Const./ Upgradation (Use N/U)		Facilities accessed (Use A/B/C/D)	Road length (Km)	Existing Surface Type	Details of Thickness & Cost for Pavement Paver												Total cost of Pavement in Lacs
	From	To	N	U				Details	50 mm BM Rigid Pavement	Earth Work Grade cutting	Earthen Shoulder	Sub Grade Preparation (tree cutting & Grubbing)	GSB	WMM	Prime Coat/ Tack Coat	20mm OGPC	R/ Wall And B/Wall	Cement Concrete Drain	Sum of (10 to 20)	
1	BONIYAR	MAIDANAN		U	D	9.2	BT		248.8	147.86	10.65	14.97	90.48	162.47	28.84	134.0	343.4	36.10	1153.47	
																			1238.20	
																			1148.47	

ms
Assistant Engineer

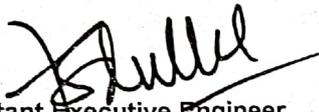
Shukla
Assistant Executive Engineer
Asstt. Executive Engineer
PMGSY Sub-Division
Boniyar

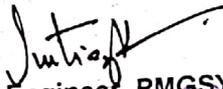
Intiaff
Executive Engineer, PMGSY, Uri
Executive Engineer
PMGSY Division Uri

PRADHAN MANTRI GRAM SADAK YOJNA (P.M.G.S.Y.)
ROADS PROPOSED FOR CONSTRUCTION FOR RURAL CONNECTIVITY (PAVEMENT
JAMMU & KASHMIR STATE

(MAINTENANCE COST)

Sr.No	Maintenance	Total Cost	Total Cost
	12% of the total cost of project		
	TOTAL		173.79 / 160.02


Assistant Executive Engineer
Asstt. Executive Engineer
PMGSY Sub-Division
Boniyar


Executive Engineer, PMGSY-URI
Executive Engineer
PMGSY Division Uri

Pradhan Mantri Gram Sadak Yojana (PMGSY)
Road Proposed in PMGSY for Rural Connectivity (X- Drainage Structures)

District: Baramulla

Block: BONIYAR

S.No.	Name of Road	New Const./ Upgradation (Use N/U)	Road length (Km)	Existing CD Structures by Type												Details of Proposed CD Structures by Type												Total Cost of Proposed CD Str.				
				H.P Culvert		Slab Culvert		M. Bridge		Causeway		Scupper		Pipe Crossing		H.P Culvert		Slab Culvert (Box Type)		M. Bridge		Causeway		Scupper		Pipe Crossing						
				No.	Dia. mm	No.	L m	No.	L m	No.	L m	No.	L m	No.	Dia. mm	No.	Dia. mm	No.	L m	No.	L m	No.	L m	No.	L m	No.	Dia. mm					
1	BONIYAR to MADANAN	U	9.200			6	4							10	300			8	1000	2	3	1	9	0	0	0	0	0	0	12	500	
TOTAL																																

169.56
 139.47
 169.56

ms
 Assistant Engineer

[Signature]
 Assistant Executive Engineer
 Asstt. Executive Engineer
 PMGSY Sub-Division
 Boniyar

[Signature]
 Executive Engineer, PMGSY Unit
 PMGSY Division Unit

Pradhan Mantri Gram Sadak Yojana (PMGSY)
PACKAGE SUMMARY

State: Jammu & Kashmir

Proforma - B

District: Baramulla

S.No	Name of Block	Name of Road		Type of Proposal	Proposed Length Km	Cost of Pavement (in Lacs)	No. of C.D works Nos	Cost of C.D works (in Lacs)	Misc. Cost (in Lacs)	Total Estimated (in Lacs)	Average cost per Km (in Lacs)
		From	To								
1	BONIYAR	BONIYAR	MAIDANAN	N/U	9.200	1074.37 1238.21	22 21	175.65 169.56	48.49 40.48	1290.50 1448.24	157.42 148.27

Total Estimated Cost of Package Rs: 1448.24 lac

Routine Maintenance for 5 Years (12%) Rs: 173.79 lac

6th year Renwal Cost by way of providing SDPC (25mm) Rs: 133.99 lac

Grand Total Rs: 1756.02 lac

Rs: 1448.24 lac

Rs: 173.79 lac

Rs: 133.99 lac

Rs: 1756.02 lac

N= New Connectivity

U= Upgradation

Prepared by:

Signature:

Name:

Designation:

Signature:

Name:

Designation:

Checked by:

Signature:

Name:

Designation:

Scrutinized by:

Technical Scrutiny done by:

Signature:

Name:

Designation:

Transportation Engineering and Planning Division

Civil Engineering Department

National Institute of Technology (NIT) Srinagar

Hazratbal Srinagar, J&K - 190006

Coordinator STA:

Signature:

Name:

Designation:

(Tariq Abdulhakeem)
Asstt. Executive Engineer
PMGSY S.D. Division
Boniya

Intiyaz Ahmad
Executive Engineer
PMGSY Division Utri

R.C. Anwarul Engineer
Superintendent Engineer
PMGSY (JKRDA) Circle
Baramulla

Dr. Mohammad Shafi Mir
Prof. (Dr) Mohammad Shafi Mir
Officer-in-Charge

Transportation Engineering and Planning Division
Civil Engineering Department
National Institute of Technology (NIT) Srinagar
Hazratbal Srinagar, J&K - 190006

Total Cost of Proposed CD works		144.56 169.56	9.20
		Cost in Rs	Cost / KM In (Rs.)
F. Protection Works	3641.00 m	343.36	94.30
G. Pucca Side Drains (if Provided)	1825.00 RM	31.09	17.03
H. Road Logo, other Road Furniture		40.49	4.40
I. Any other Provisions (Please Specify)			
Total Cost of the Project (Rs)		1448.24	157.42

Name of Road: Boniyar to Maidanan

J. Five Year Routine Maintenance

Year	Cost in Lacs	% Cost	Cost / Km
I	Maintenance @ 12% of the total cost of project 168.02 59.86	0.00	17.39 18.583
II			
III			
IV			
V			
Total Maintenance Cost	173.79	0.00	18.89

11. Whether the road has Goemetrics as per Rural Roads Mannual RRM / Latest Circulars of NRRDA. Yes

12. Whether C.D. Works / Protection works are provided as per RRM / Latest Circulars of NRRDA/ Respective Codes. yes

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Aggregate	Veerwan Quarry Baramulla	35	KM				
Sand	Juhama	35	KM	Steel	Pampore	100	KM

Certified that the information provided is true:

Prepared By: *[Signature]* Engineer
(Name) *[Signature]* Asstt. Executive Engineer
PMGSY Sub-Division *[Signature]* A.E.E

Checked By: *[Signature]* Intiyaz Ahmad.
Engineer
PMGSY Division Uri

Scrutinized By: *[Signature]* Superintending Engineer
PMGSY (JKRRDA) Circle
Baramulla

Counter Signatures of
Co-ordinator STA: *[Signature]*

[Signature]
Prof. (Dr) Mohammad Shafi Mir
Officer-in-Charge
Transportation Engineering and Planning Division
Civil Engineering Department
National Institute of Technology (NIT) Srinagar
Hazratbal Srinagar, J&K - 190006