

## 18.3 Abstract of Cost

Unit rates will be derived by using the "Schedule of Rates for Road Works, Culvert works and Carriage etc. Rev.SOR 10-2012 Doda JK. The abstract of Cost estimate is given in the Table below.

**ABSTRACT OF COST NOVAPAVH TO DEHRANA PART-I UP TO ANZAL L=18.00 KM**  
**Package No:-JK04- 166**

Package No:-JK04- 166							
S.No	Items		Quantity	Unit	Rate (Rs)	Amount (in Lacs)	Cost/Km (in Lacs)
1	Earth Work		177501.99	Cum	--	293.82	14.94
2	Sub-Grade		--	--	--	--	--
3	GSB		--	--	--	--	--
4	WBM Grade-III		--	--	--	--	--
5	BM		--	--	--	--	--
6	Primer Coat		--	--	--	--	--
7	Tack Coat		--	--	--	--	--
8	20mm thick premix		--	--	--	--	--
9	Seal coat		--	--	--	--	--
10	Berm Fillings		--	--	--	--	--
11	Carriages a) Aggregates		--	--	--	--	--
	b)Bitumenous		--	--	--	--	--
	Pavement				Cost of	268.94 293.82	14.94 16.32
12	Protection Work		280.00	Rmt.	15958.00	44.67	55.31
	I)	R/ Wall 4.0 m Av. Ht.	600.00	Rmt.	10599.00	63.59	79.58
	II)	R/ Wall 3.0 m Av. Ht.	1200.00	Rmt.	12308.00	15.70	23.00
	III)	1.0 m edge wall	1800.00	Rmt.	5473.00	98.51	119.81
	IV)	Breast Wall 2.0 mAv.Ht.	2500.00	Rmt.	1345.00	33.62	36.70
	V)	Pucca Drain	--	Rmt	--	--	--
13	Parapet		--	Nos.	--	--	--
14	Disposal channel for CD works		--	--	--	256.09	14.23
15					Cost of Protection Work	277.70	15.43
16	Aforestation		--	Km	--	--	--
17	CD Work:-	1.0M dia H/P Cult	32	No.s	2004.89	60.48	65.92
		2.0M SpanRCC Cult.	04	No.s	6786.55	26.20	27.92
		6.0m Pucca Scupper	15	No.s	4664.34	65.10	69.90
		12.0M Long Vented Causeway	06	No,s	140715.10	84.42	90.60
					Cost of CD-Work	236.20 254.34	43.12 14.13
17	Road safety and Traffic Sign Board		18.00	Km	0.94	17.05	
	i) PMGSY Logo/Informatory board.		18.00	Km	0.25	4.50	
	ii) Survey & Preperation of DPR/ Inaugurations Stones etc.		--	--	--	0.06	
	iii) Preparation of DPR		--	--	--	21.61	1.20
TOTAL ESTIMATED COST OF PROJECT					2847.47	782.84	43.49
TOTAL ESTIMATED COST OF PROJECT=Rs					782.84 Lacs	@ Rs 13.49 Lacs/Km	

Assistant Executive Engineer  
 PMGSY Sub Division,  
 Inshan

Executive Engineer  
 PWD(R&B) Spl. Sub Div./PIU PMGSY  
 Marwah



## PROFORMA-B

**PRADHAN MANTRI GRAM SADAK YOJANA(PMGSY)  
PACKAGE SUMMARY**

Package No :- JK04-166

District :- Doda(Kishtwar)

State :- Jammu &amp; Kashmir

S. No	Name of Block	Name of Road		Type of Proposal	Proposed Length (KM)	Cost of Pavement (lacs)	No of CD. Work	Cost of CD/Prot. work	Total Estimated Cost (lacs)	Av. Cost Per Km (lacs)
		From	To	N/U	Km	Lacs	No	Lacs	Const	
1	Marwah	Novapachi	Dehrana Up to Hanzal	N	18.00	268.94	57	492.29	761.23	42.29
				i) Add for survey trace cut And setting out/Preparation of DPR/Soil Testng/Road Safety Traffic Sign board. & PMGSY Logo and Sign Board.					21.61	1.20
				<b>Total Estimated Cost</b>					<b>782.84</b>	<b>43.49</b>

TOTAL ESTIMATED COST OF PROJECT = Rs. 782.84 lacs

2 Rs 847.47 Lacs ✓

N – New Conectivity (Y)

U – Upgradation (N)

Prepare By

:- Signature

Name : Er. V.K. Sharma

Designation : I/C. Asstt. Ex.Engineer.  
PMGSY Sub Div. Inshan.

Checked By

:- Signature

Name : Er. G.M. Ahanger

Designation : Executive Engineer,  
PWD(R&B) Spl. Sub Div. /PIU PMGSY  
Marwah

Technical Scrutiny

Done By

:- Signature

Name : Er. Raman Puri

Designation : Superintending Engineer,  
PMGSY Circle, Batote.Coordinator  
STA

:- Signature :

Name :

Designation :

**FAYAZ AHMAD MIR**  
Asstt. Professor, NIT Srinagar  
**Coordinator**  
State Technical Agency  
for PMGSY



## PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

## CHECK LIST FOR P.I.U. &amp; S.T.A

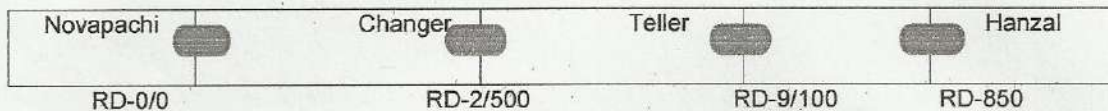
(For Individual Road Works)

To be filled by PIU

1. Location :- State :- JAMMU & KASHMIR		District :- KISHTWAR		Block :- MARWAH	
2. Package No:- JK04-166					
3. Name of Road:- Novapachi To Dehrana Part-I Up To Hanzal (Stage-I)					
4. Length (Km)		Total = 18.00 km		In Built up area : 6.0 Km	
				In Open area : 12.0	
5. A. Estimated Cost:- =Rs.782.84 Lacs					
= Rs. 749.22 Lacs					
= Rs. 847.47 Lacs					
Average Cost:- Rs 43.49 Lacs/Km					
Item		Total Cost (in Lacs)		Cost per Km (in Lacs)	
Flexible Pavement		293.8268.94		16.3214.94	
CD & Protection work		532.04492.29 = 458.64		27.3525.48	
Others		21.61		1.20	
Total		= 749.22782.84 847.47		44.6243.49 47.08	
6. Type of Proposal:- Stage-I New connectivity					
* If the Proposed road is a New connectivity					
- Is the road a part of core network Yes					
- If Yes, Through/Link Route Number L 0 2 3					
- Name of the unconnected Target Habitation (to be cross checked with CN- Hanzal					
6) List of Habitations connected enroute Changer, Tiller					
- Population sub served by the proposed road. 3001 Souls					
- Does the 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 Another Habitation having all-weather road. (Connected Status). Directly to an All weather road.					
If (b), indicate the nature of road to which the proposed road leads.					
(b) RR MDR SH NH RR.					
• If the proposal is for up gradation					
- Is the road a part of the core network Yes					
- Is it associated Through Route or not Yes					
- PCI value					
- Age of the road					
- Is it certified that there are no other Unconnected Habitations in the district. No					
7. a) Whether the Proposed Road has the desired carriageway width, roadway width and road land width (RLW). Yes					
a) Indicate the actual widths adopted for the proposed road.					
b)		In the Built Up Area (m)		In the Open Area (m)	
a) Carriageway		3.00		3.00	
b) Roadway		8.50/6.00		8.50/6.00	
c) Road Land Width		varies		10.00/12.0	



## INDEX MAP



## 8. Base year traffic volume

## Month &amp; year traffic volume.

Motorized Traffic												Non-Motorized Traffic				
Days	Cars, Jeep Van, Three Wheelers	Motorized Three Wheelers	Light Commercial Vehicle	Trucks			Agriculture Tractor Trallors			Buses			Cycles	Cycle Ricksha	Animal drawn vehicle	
				L	U	OL	L	U	OL	L	U	OL			SWC	Num Type
Day 1																
Day 2			NEW CONNECTIVITY.													
Day 3																
Avg.	15	30	24	4	1	0	20	10	0	0	0	0	0	0	6	0

ADT in the year of traffic count = 52  
 Growth rate adopted (%) = 6 %  
 Design life = 10 Years  
 No. of Harvesting seasons = 02  
 No. of days in each Harvesting Season (t) = 75  
 Value of (n) assumed = 01

Base year traffic AADT (T) = 68.71  
 Cumulative ESAL = 59598  
 Traffic Category = T-2

## 9. Sub grade CBR (For different sections) STAGE-I

Chainage																
CBR (%)																

## 10. Cost Details

## A. General Cost.

Cost of preparation of DPR

Cost. Rs. in Lacs

Cost/Km

0.06 Lacs

## 11).B.Pavement Components

Description of the layer	Thickness	Quantity	Cost (Lacs.)	Cost/Km
1.Earth work in excavation/cutting.	-	177501.99	268.94 293.82	14.94 16.37
2. Earth work in filling/Embankment	-	-	-	-
3. Sub-gradePreparation if provided separately.	300mm	-	-	-
4. Shoulders if not considered in earthwork.	-	-	-	-
5.GSB	300 MM	-	-	-
6.Soil + Aggregate Mix	-	-	-	-
7.WBM-G 3	75 MM	-	-	-
8.BM	50 MM	-	-	-

## 12). C Bituminous Layers

Prime Coat	-	-	-	-
Tack Coat	-	-	-	-
OGPC (20mm thick)	-	-	-	-
Seal Coat	-	-	-	-



Berm filling	-	-	-	-																												
Carriages of Aggregates	-	-	-	-																												
12).D. Carriage of bituminous	-	-	293.82	16.32																												
	Total		268.94 lacs	14.94																												
13). E.CD Works	No. of Existing CD works Do they require any improvement If yes, cost of improvement No. of proposed CD works with Classification		nil no nil																													
	i) 1.0 m dia H/P Culvert. = 32 no's ii) 2.0 m Span RCC. Cult. = 04 no's iii) 6.0 m long Pucca Scupper = 15 no's iv) 12.0 m Long Vented Causeway = 06 no's Total CD'S = 57 no's		= Rs. 60.48 lacs = 65.92 = Rs. 26.20 lacs = 27.92 = Rs. 65.10 lacs = 69.90 = Rs. 84.42 lacs = 90.60 = Rs. 236.20 lacs = 258.34 13.42 14.13																													
14).F. Protection Works = R/wall, B/wall, parapets & edge walls/ (880 + 1800 + 0.00 + 1200) = 3880.00 RM			= Rs. 222.47 lacs = Rs. 277.70 12.36 15.43																													
15).G. Pucca Side Drains (if provided) 2500 mts			= Rs. 33.62 lacs 4.86																													
16).H Road Logo, Other Road furniture, Road safety & traffic sign boards																																
1 PMGSY Logo Sign Boards & traffic sign boards :-			=Rs.21.55 Lacs																													
2 Load Testing																																
3 Design Consultancy			=Rs0.06 Lacs																													
4 Preperation of DPR			Total:- =Rs.21.61 Lacs																													
16).I. Any Other Provisions. (please specify)			= Rs. 749.22 lacs 41.62 lacs/km																													
Cost of Project = Rs. 782.84 lacs			43.49																													
= Rs. 847.47 lacs			47.08																													
Name of the Road :- Novapachi To Dehrana up to Hanzal Stage-I																																
17).J. Five Year Routine Maintenance	<table border="1"> <thead> <tr> <th>Year</th> <th>Cost in lacs</th> <th>% of const. cost</th> <th>Cost/Km in Lacs</th> </tr> </thead> <tbody> <tr> <td>i</td> <td></td> <td></td> <td></td> </tr> <tr> <td>ii</td> <td></td> <td></td> <td></td> </tr> <tr> <td>iii</td> <td></td> <td></td> <td></td> </tr> <tr> <td>iv</td> <td></td> <td></td> <td></td> </tr> <tr> <td>v.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Year	Cost in lacs	% of const. cost	Cost/Km in Lacs	i				ii				iii				iv				v.				Total			
Year	Cost in lacs	% of const. cost	Cost/Km in Lacs																													
i																																
ii																																
iii																																
iv																																
v.																																
Total																																
Stage-I DPR																																
18). Whether the road has Geometrics as per Rural Roads Manual (RRM)/ Latest circulars of NRRDA.				YES																												
19). Whether CD Works / Protection works are provided as per RRM/ Latest circulars of NRRDA/ Respective codes.				YES																												
20). Whether the Cost estimates are as per standard data analysis and S.S.R				YES																												

Certified that information provided is true

Prepared By Assistant Executive Engineer PMGSY Sub-Division Inshan	Checked by Executive Engineer PWD(R&B) Spl.Sub Div./PIU PMGSY Marwah	Scrutinized by Superintending Engineer PMGSY Circle Batote.
---	---	--

FAYAZ AHMAD MIR  
Asstt. Professor, NIT Srinagar  
Co-ordinator  
State Technical Agency  
PMGSY



**TO BE FILLED BY S.T.A****Name of the STA**

15.	Is the proposed road entered on the OMMS	Yes / No
16.	If the proposal is for new connectivity	
	Have you satisfied yourself that the proposed road is a part of the Core Network	Yes / No
	Is the unconnected habitation(s) part of list of unconnected habitation as per CN-6	Yes / No
	Does the proposal ensure full connectivity of the target habitation <ul style="list-style-type: none"> <li>• If No, the name of unconnected Habitation upto which it is connected.</li> <li>• If such Unconnected Habitation eligible under PMGSY</li> </ul>	Yes / No
17.	Are you satisfied with the following	
	Engineering Survey (L-section, X-section must be verified)	Yes / No
	Soil / Material Investigation (CBR, Density, LL, P1, Gradation to be verified)	Yes / No
	Traffic Surveys / Estimation	Yes / No
	Hydraulic Studies (Catchment for structures with more than 2 Vents to be verified from tope sheet Location and requirement of all CD structures to be verified from L section)	Yes / No
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 stabilization etc. been proposed (if not, specific reason given by PIU)	Yes / No
20.	Is the design of the following elements as per Roads Manual/Circulars of NRRDA Alignment & Geometric Pavement Design CD Works and protection Measures Side Drains Integration for cross and longitudinal drainage	Yes / No Yes / No Yes / No Yes / No Yes / No
21.	Is the design of Flexible Pavement as per IRC SP 72-2007 and design of Rigid Pavement as per IRC SP 62-2004	N-A-



22.	Does the estimation confirm to standard rate analysis and SSR generated for the current phase.	Yes / No
23.	Does the proposal have provision for PMGSY Logo Sign Boards Km / Hm stones Guard Stones (where necessary) Traffic Sign Board ( as necessary)	Yes / No Yes / No Yes / No Yes / No
24.	SPECIFIC REMARKS, IF ANY BY STA	

Certified that the Design and Estimation for the proposed road work are based on the data and SSR provided by PIU Engineers. The proposal after final correction is entered on the OMMS. The proposal may be considered for clearance.

Coordinator  
S.T.A.

Technical Scrutiny  
Done by

Signature :- *[Signature]*  
Name :- *P. S. Min*  
Designation :- *Professor*

Signature :- *[Signature]*  
Name :- **FAYAZ AHMAD MIR**  
Designation :- **Asstt. Professor, NIT Srinagar**  
**Co-ordinator**  
**State Technical Agency**  
**for PMGSY**



Sanctioned JK04-166, Ph-X Stage I

Year 2016-17

Final DPR Template

# GOVT OF JAMMU & KASHMIR



(J&K RURAL ROADS DEVELOPMNET AGENCY)

(BHARAT NIRMAN)



PRADHAN MANTRI  
GRAM SADAK YOJANA

DISTRICT : KISHTWAR (DODA)

NAME OF THE ROAD:-Novapachi To DehranaPart-I Up To Hanzal ST. I

BLOCK : MARWAH

LENGTH : 18.00 KM

Construction Cost : Rs.847.47 Lacs

NO. OF VILLAGES : 03

NAME OF THE VILLAGE : Changer, Tiller & Hanzal

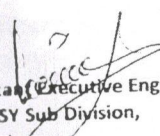
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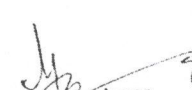
LINK ROUTE NO : L023



A. Chapters

1. Introduction
2. Planning and Basic Design Consideration
3. Topographic Survey.
4. Soil and Materials Survey
5. Traffic Survey
6. Hydrological Survey
7. Geometric Design Standards
8. Alignment Design
9. Pavement Design
10. Design of Cross Drainage
11. Protective Works & Drainage
12. Land Acquisition
13. Utility shifting/relocation
14. Road Safety and Traffic Management
15. Specification
16. Environmental Issues
17. Analysis of Rates
18. Cost Estimate
19. Construction Program

  
Assistant Executive Engineer  
PMGSY Sub Division,  
Inshan

  
Executive Engineer  
PWD(R&B) Spl. Sub Div./PIU PMGSY  
Marwah



**B. Proforma**

- |     |   |  |
|-----|---|--|
| 1.  | Proforma B  | Package Summary  |
| 2.  | Proforma C  | Check List for PIU & STA   |
| 3.  | Format F1   | Package-wise Summary Sheet   |
| 4.  | Format F2A  | Roads proposed in PMGSY for Rural Connectivity                           |
| 5.  | Format F2B  | Pavement Layers  |
| 6.  | Format F3   | Typical Cross Section of Existing Pavement                               |
| 7.  | Format F4   | Typical proposed cross section in Straight Section – Flexible Pavement   |
| 8.  | Format F5   | Summary: Cost Estimate   |
| 9.  | Format F6   | Cost estimate for Road Construction Works – Pavement Works               |
| 10. | Format F7   | Cost estimate for Cross Drainage Works – Slab Culvert                    |
| 11. | Format F8   | Rate of Materials supplied at site – Rate Analysis                       |
| 12. | Format F9A  | Certificate of Ground Verification from Executive Engineer / Head of PIU |
| 13. | Format F9B  | List of DPRs verified on Ground  |
| 14. | Environmental Checklist                             |  |
| 15. | Checklist for community consultation on engineering |  |

**C. List of figures**

{Insert list of figures used in this report}

- |           |   |
|-----------|---|
| Figure-1  | Road Map of India and state   |
| Figure-2  | District Map  |
| Figure-3  | Block Maps showing all existing connectivity like District/block HQ, new townships, National and State highway network, mandis, hospitals, colleges, schools etc. |
| Figure-4  | Strip plan showing land and alignment details   |
| Figure -5 | Quarry Map  |

**D. Annexure**

{Insert list of Annexure provided in this report}

- |            |  |
|------------|--|
| Annexure-1 | Details of soil tests (Section 4.2)  |
| Annexure-2 | Detailed hydraulic calculation of all replaced and proposed new culverts (Section 6.7) |
| Annexure-3 | Chainages-wise Cut/fill volume   |
| Annexure-4 | Transect walk report   |






## 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

Duration of interruption on ODRs and VRs falling in the block Marwah is about 4-5 months due to heavy snowfall in the area.

### 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 starts from **Novapachi To (Dehrana) Hanzal** is a link road with Code **L023Marwah** block of **Kishtwar** District. This road directly connects the habitations of **Changer, Tiller & Hanzal**. Thus this link road serves the total population of **3001 Souls**.

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Inshan

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Marwah



#### 1.4 Geography

Hanzalis situated on the Right bank of River **Marsudar** and towards east side of block Marwah.

Presently **Hanzal** is connected with a bridle track having deep ascends and descends and remains mostly cut off during winter season. All the essential commodities are to be carried upto **Hanzal** by head load or ponies resulting in backwardness of the area both socially as well as economically. Mostly the people are illiterate and unemployed due to lack of education facilities in the vicinity of the area.

The Block Marwah is spreaded over a vast hilly area having many beautiful tourist spots, pastures and meadows having great exploration of Tourism potential. The construction of road shall boast tourism sector in the area in general and the whole block shall come up at par with the famous Tourist resorts and shall improve the socio-economical condition of the down trodden and poverty stricken populace of the block.

This road will increase the intensity of tourism in the area similar as Phalgam in Kashmir.

The road shall also provide accessibility to school, High school, Health Centre etc.

#### 1.5 Climatic Condition

Whole the area in the winter season remains under snow cover for about 4-5 months.

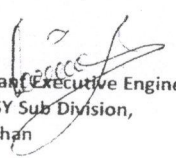
#### 1.6 The Sub-Project Road

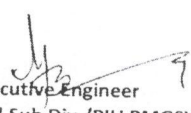
The road passes through hilly terrain.

The road construction has been proposed (mostly in cutting with a formation width of 6.0M except , except at valley/zig points where construction of R/walls are inevitable from geometrical constraints and at horizontal curves, extra widening has been proposed ranging from 0.60 to 0.90 Mtr. depending upon the radius of horizontal curve and as per IRC specification

For proper drainage of surface water 1.0 M dia H/P Culverts, 2.00 M Span RCC culvert and 6.0M long scupper have been proposed at required locations and at intercepting non-parinal Nallahs.

Semi pucca R/walls have been proposed in critical sections to ensure road geometric with height of R/wall more than 3 Mtrs. and semi pucca B/wall have been proposed at required locations to prevent soil erosion. The top band, bottom band and vertical pillars of R/walls and B/walls shall be of stone masonry in cement 1:6 mix and penal of RR dry masonry. The R/walls with height less than 3 Mtrs have been proposed in dry stone masonry.

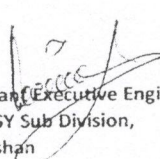
  
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PMGSY Sub Division,  
Inshan

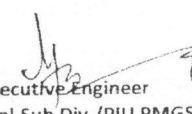
  
Executive Engineer  
PWD(R&B) Spl. Sub Div./PIU PMGSY  
Marwah



District Doda ( Kishtwar )  
Block: Marwah  
Road Name: Novapachi To Dehrana Part-I Up To Hanzal  
Road Code: L023  
Package No: JK04-166  
Road Length: 18.00 KM  
Start Point: Novapachi  
Erid Point:(Dehrana) Hanzal

Sl.No.	Habiaions benifited	Population Benified		Chainage	
		Direct	Indirec t	From	To
1	Changer	--	1612	Km-3 <sup>rd</sup> RD-500	Km-3 <sup>rd</sup> RD-700
2	Tiller	--	1046	Km-10 <sup>th</sup> RD-000	Km-10 <sup>th</sup> RD-350
3	Hanzal	343	--	Km-18 <sup>th</sup> RD-550	Km-18 <sup>th</sup> RD-875

  
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PMGSY Sub Division,  
Inshan

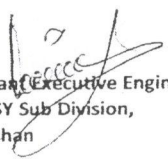
  
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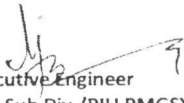


## 2.4 Road Design Brief

Table 2.1 Road Design Brief (example attached)

Sl	Location	Issue	Design Solutions
1	Ch. 0.00km to Ch. 0.700km	The proposed road alignment passes through the build up Area i.e., Market at Novapachi.	Proper cross drainage structure has been proposed.
2	Ch. 0.700km to Ch. 1.250 km	The road alignment passes through the Private Land.	Proper cross drainage structure has been proposed.
3	Ch. 1.250 km to Ch. 1.850 km	The road alignment passes through the Forest Land.	Proper cross drainage structure has been proposed.
4	Ch. 1.850 km to Ch. 7.00 km	The road alignment passes through the Private Land.	Proper cross drainage structure has been proposed. Village Changere falls RD-3/(500-700).
5	Ch. 7.00 km to Ch. 8.600km	The road alignment passes through the Forest Land.	Proper cross drainage structure has been proposed.
6	Ch. 8.600 km To Ch. 10.300 km	The road alignment passes through the Private Land.	Road passes through the Village Tiller RD-9/(0-350)
7	Ch. 10.300km To Ch. 17.500 km	The road alignment passes through the Forest Land.	Proper cross drainage structure has been proposed.
8	Ch. 17.500 km To Ch. 18.00 km	The road alignment passes through the Private Land.	Road passes through the Village Hanzal RD-9/(550-850). RD-17/(700-775) Temple At Hanzal falls Up Hill side of the proposed road alignment and the road is proposed on Walling.

  
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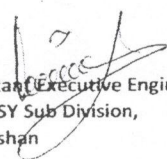
## 2.5 Transect Walk Summary

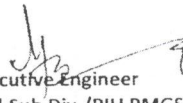
Table 2.2 Transect Walk Summary (example attached)

1. Total No. of People present for the Transect walk : 08 no's  
Male : 08 no's , Female: nil , Total : 08no's
2. Demographic information where the Walk was conducted :Novapachi, Changer, Teller & Hanzal
3. No. of Govt. Employees present : 04 no's
4. No. of Contractors Employees : nil
5. No. of participants from Minority community :04 no's  
SC: nil , ST: nil , Women :nil
6. Enclose a separate sheet with names, designation (if Govt. Employee, or Elected Representative) and Signatures of participants of transect walk

## 2.6 Checklist

Transect walk done	Yes <input type="checkbox"/> Y	No <input type="checkbox"/>
Transect walk summary table included	Yes <input type="checkbox"/> Y	No <input type="checkbox"/>
Photographs taken	Yes <input type="checkbox"/> Y	No <input type="checkbox"/>
Major changes in alignment perceived	Yes <input type="checkbox"/> Y	No <input type="checkbox"/>
Design brief provided	Yes <input type="checkbox"/> Y	No <input type="checkbox"/>

  
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## TRANSECT WALK SUMMARY SHEET

NAME OF ROAD :- NOVAPACHI To Dehrana Part-I up to Hamzal  
 PACKAGE NO :-  
 BLOCK :- MARWAH  
 DISTT :- KISHTWAR

1. Flood prone Area on the road identified.  
 Solution/Suggestions:-

yes

2. Locations for Irrigation ducts Specified and inspected.

yes

3. Road leads to Quarries, Mining, Tourist attractions, etc..

4. If any plans to build new schools, hospitals, Religious Structures, etc.,

5. Any need for deviations from existing/proposed road alignment.

6. Need of speed breakers. Existing intersection checked with the community at site.

yes

7. Proposed Culvert locations verified with community on site.

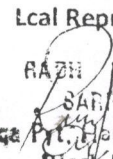
yes

8. Type of land available for the construction of road.

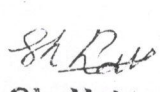
Forest-land / Private land / state land

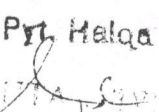
## Participants of Transect Walk:-

## A. Local Representatives :-

1.   
 RAZI  
 SARDAR  
 Halqa Pyl. Hamzal (Chh.)  
 Block Marwah

2.   
 Gh. Haider  
 SARDAR  
 Pyl. Halqa Tiller (Marwah)

3.   
 Gh. Haider  
 PANCH

4.   
 Smt. K. Singh  
 Panch W. in Bungam-A  
 Chanjer Teh. Marwaha

S.D.O.  
 PMGSY Deptt.

Govt., Employee

1. Name/Designation

Deptt.

2. Name/Designation

Seal &amp; Sig.

Deptt.



### 3. Topographic Survey

#### 3.1 General

Topographic survey true to ground realities have been done using Auto level.

Topographic survey true to ground realities have been done BY using Auto Level. The in-house standards, work procedures and quality plan prepared with reference to IRC: SP 19-2001, IRC: SP 20, IRC: SP 13 (in respect of surveys for rivers/streams) and current international practices have been followed during the above survey.

**3.2 Traversing** Traverse has been done by Compass having angular measurement accuracy of  $\pm 1$  sec.

#### Brief Methodology of Compass Traversing :-

As the Compass Traversing is suitable, when surveying is done in a jungle or in a dense forest and the area is hilly where chaining is tedious and liable to error. **Field Party**:- It will consist of four persons:-

- I. Surveyor for taking bearings and recording field notes,
- II. Two chain men and
- III. One flag man/staff holder/peg man to fix the station.

#### METHOD :-

After performing preliminary steps and marking the station points, i.e. RD'S 0/0, 0/25, 0/50 and so on. Compass is set up over starting station i.e., RD 0/0 and the bearing is taken towards the next station i.e., RD 0/25, compass is shifted to RD 0/25 and bearing is taken towards RD 0/50 simultaneously the bearings are recorded on record book by Surveyor.

The bearings are recorded only when keys in the compass are stationary free from any hindrance. While viewing towards the fixed station Cross-hair, angles in compass and the targeted station must be in one line.

**3.3 Leveling** Leveling has been done by using Auto Level.

#### 3.4 Cross Section & Detailing

Cross sections were taken at 25 m interval and at closer interval in curved portion of the existing road. All physical features of the road were recorded.

**3.5 Data Processing** :- All data from topographic survey recorded by total station were downloaded and final alignment, plan, profile were prepared and presented in AutoCAD Format.

**3.6** {Insert List of permanent reference pillars and TBMs including northing easting and levels}

#### 3.7 Checklist

{Tick the relevant box}

Reference pillars given

TBM with northing-easting given

Traverse survey carried out

Cross section and detailing carried out

Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>	No <input type="checkbox"/>
Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>

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#### 4. Soil and Materials Survey

##### 4.1 General

The soil and material investigations were done following the guidelines of IRC: SP: 20-2002 and IRC: SP: 72-2007 and other relevant IS codes. The potential sources of borrow areas for soil and quarry sites will be identified.

##### 4.2 Soil sample collection and Testing

Soil samples will be collected along and around the road alignment at three (3) locations per km, from the adjoining borrow areas, as well as one sample is collected from the existing road. Soil Classification tests like grain size analysis and Atterberg's limit were conducted for all the samples collected. Standard Proctor test and the corresponding 4 day soaked CBR test were conducted either for a minimum of one test per km for soil samples of same group or more tests due to variation of soil type. The following tests were conducted as detailed below:

- Grain size analysis as per IS : 272 (Part 4) – 1985
- Atterberg's limit as per IS : 2720 (Part 5) – 1985
- Standard Proctor density test as per IS : 2720 (Part 7) – 1980
- 4 day soaked CBR test as per IS : 2720 (Part 16) – 1985

##### 4.3 Analysis of Test Results :- **Stage-I DPR**

The laboratory soaked CBR value ranges from .....% to .....%{Insert range}.  
The soil laboratory test results will be summarized in Table 4.1

##### 4.4 Coarse and Fine Aggregates

Information regarding the source of aggregate and sand will be gathered. The stone aggregates shall be procured from River Mursudar where as the locally available sand shall be used. The source and the lead distance from the quarry to project site will be finalized in discussion with the PIU. The aggregates and sand where available and acceptable shall be used for bituminous work, concrete works, other pavement works.

**Figure -3** Quarry Map {Insert the quarry map}

##### 4.5 Sub-soil investigation for bridges:-**No Bridge is involved.**

##### 4.6 Checklist

Borrow pit suitable  
SSI for existing ground  
Investigation for coarse/fine aggregate  
Quarry map

Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yes <input type="checkbox"/>	No <input type="checkbox"/>

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## 5. Traffic Survey 5.1 General

In the present scenario of new connectivity/upgradation road, 3 day, 24 hr traffic volume count has been conducted on the already completed or similar type of PMGSY road in the vicinity of the project road. The Classified Volume Count survey has been carried out in accordance with the requirements of the TOR and relevant codes (IRC: SP: 19-2001, IRC: SP: 20, IRC: SP: 72-2007). The surveys have been carried out by trained enumerators manually under the monitoring of Engineering Supervisor.

## 5.2 Traffic Data and Analysis :- ( New Conectivity )

The traffic count done was classified into different vehicle category as given below:

- Motorized vehicle comprising of light commercial vehicle, medium commercial vehicle, heavy commercial vehicle, trucks, buses, agricultural tractors with trailers, car, jeep, two wheelers etc.
- Non- motorized vehicles comprising of cycle, rickshaw, cycle van, animal drawn vehicle etc.

The number of laden and un-laden commercial vehicles was recorded during the traffic counts. Traffic volume count for this project road was done during Summer season. The seasonal variation \_\_\_\_\_ is based on local enquiry. Average of 3 day traffic data is presented in Table 5.1.

**Table 5.1 Average Daily Traffic Expected.**

Sl. No.	Type of Vehicle	Day-1	Day-2	Day-3	Average
1	Car, Jeep, Van				15
2	Auto Rickshaw				30
3	Scooters/Motorbikes				20
4	Bus / Minibus				10
5	Trucks				20
6	Tractors with trailer				10
7	Tractor without trailer				20
8	Cycles				0
9	Cycle Rickshaw / Hand Cart				0
10	Horse cart / Bullock Cart				0
11	Pedestrian				100
Total commercial vehicle per day (cvpd)					20
Total motorised vehicle per day					30
Total non-motorised vehicle per day					75

{Tick the relevant box}

- a) Traffic volume and mix do not vary along the road  
 b) Traffic volume and mix vary along the road  
 c) Traffic volume and mix will vary along the road in the future  
 d) There is a potential for through traffic using the road  
 e) % of loaded vehicles

☐  
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### 5.3 Traffic Growth Rate and forecast

("Read – Delete") Depending on the case or combination of cases, the designers should select the location of traffic counts and apply different growth scenarios. In all cases as described in 5.2 above, except for (a), the designers will be required to provide more detail, e.g., explain reasons (e.g., traffic coming from ... side road at ... chainage etc), specify homogenous sections etc. Insert a proper assessment of the possible traffic growth (normal, generated and diverted) taking care of mining or other economic activities that might generate traffic. The Consultants should exercise good judgment to properly estimate future traffic specially taking care of diverted and generated traffic. The Consultants may, incase no data is available, use similar studies to estimate growth trend. Growth rates shall be shown separately for different types of vehicle where there are specific generators of traffic (eg mining activities). Where there are no specific generators of traffic growth, the consultant may adopt an average annual growth rate of 6% over the design life as set out in IRC: SP 72-2007.}

Table 5.2 Average Annual Daily Traffic Expected.

Sl. No.	Type of Vehicle	ADT	AADT	Growth Rate
1	Car, Jeep, Van	52	68.71	6%
2	Auto Rickshaw			
3	Scooters/Motorbikes			
4	Bus / Minibus			
5	Trucks			
6	Tractors with trailers			
7	Tractors without trailers			
8	Cycles			
9	Cycle Rickshaw / Hand Cart			
10	Horse cart / Bullock Cart			
11	Pedestrian			
Total commercial vehicle per day (cvpd)				
Total motorised vehicle per day				
Total non-motorised vehicle per day				

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**10. Design of Cross Drainage Works****10.1 General**

On the basis of hydrological survey 57 no's new cross drainage structures are recommended for the project road as listed below.

**LIST OF CD – WORKS PROPOSED****Table 10.2 Proposed Culverts**

Sl.No.	Chainage Location		Type of Culvert	Span/Dia
	Km	RD		
1	1st	200-250	Hume Pipe Culvert	1.0
2		430-455	Vented Causeway	12.0
3		800-825	RCC.Culvert	2.0
4	2nd	125-175	Hume Pipe Culvert	1.0
5		575-625	Hume Pipe Culvert	1.0
6		920-960	Vented Causeway	12.0
7	3rd	200-225	Pucca Scupper	6.0
8		500-525	Hume Pipe Culvert	1.0
9		825-875	RCC.Culvert	2.0
10	4th	250-300	Hume Pipe Culvert	1.0
11		500-550	Hume Pipe Culvert	1.0
12		850-900	Hume Pipe Culvert	1.0
13	5th	200-250	Hume Pipe Culvert	1.0
14		400-450	RCC.Culvert	2.0
15		850-900	Hume Pipe Culvert	1.0
16	6th	250-300	Hume Pipe Culvert	1.0
17		610-645	Hume Pipe Culvert	1.0
18		745-800	Pucca Scupper	6.0
19	7th	850-900	Vented Causeway	12.0
20		320-360	Vented Causeway	12.0
21		450-500	Pucca Scupper	6.0
22	8th	750-800	Hume Pipe Culvert	1.0
23		875-900	Pucca Scupper	6.0
24		125-175	Hume Pipe Culvert	1.0
25	9th	550-600	Vented Causeway	12.0
26		950-1000	Pucca Scupper	6.0
27		250-275	Pucca Scupper	6.0
28	10th	625-675	Hume Pipe Culvert	1.0
29		875-925	Vented Causeway	12.0
30		400-450	Hume Pipe Culvert	1.0
31	11th	825-875	Hume Pipe Culvert	1.0
32		300-350	Pucca Scupper	6.0
33		675-700	Hume Pipe Culvert	1.0
34	12th	925-975	Pucca Scupper	6.0
35		100-150	Pucca Scupper	6.0
36		530-625	Hume Pipe Culvert	1.0
37	13th	850-900	Hume Pipe Culvert	1.0
38		50-100	Hume Pipe Culvert	1.0
39		325-375	Pucca Scupper	6.0
40	14th	925-975	Hume Pipe Culvert	1.0
41		250-325	Pucca Scupper	6.0
42		525-550	Hume Pipe Culvert	1.0



43		900-950	Pucca Scupper	6.0
44		175-200	Hume Pipe Culvert	1.0
45	15th	400-425	Pucca Scupper	6.0
46		775-825	Hume Pipe Culvert	1.0
47		275-300	Hume Pipe Culvert	1.0
48	16th	750-800	Pucca Scupper	6.0
49		875-900	Hume Pipe Culvert	1.0
50		325-350	Hume Pipe Culvert	1.0
51	17th	600-650	Hume Pipe Culvert	1.0
52		825-850	Hume Pipe Culvert	1.0
53		100-125	RCC.Culvert	2.0
54		200-250	Pucca Scupper	6.0
55	18th	275-300	Hume Pipe Culvert	1.0
56		475-525	Hume Pipe Culvert	1.0
57		775-825	Hume Pipe Culvert	1.0

- 1) 1.0 m dia H/P Culvert = 32 no's
- 2) 2.0 m Span RCC Culvert = 04 no's
- 3) 6.0 m long Pucca Scupper = 15 no's
- 4) 12.0 m long Vented Causeway = 05 no's

**Total = 56 no's**

#### 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. **NIL**

#### 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 5.0 m,

Width of culvert : 6.0 m with parapet.

Width of Bridge: 4.25 m with parapet.

#### 10.4 Justification for retaining/widening and replacement of culverts .

{Insert the design considerations developed after the transect walk}

#### 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<sub>c</sub> = 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.