

PMGSY

DPR

FOR
CONSTRUCTION OF ROAD FROM

TOWARA

TO

DODLA

LENGTH OF ROAD : 3.500 KMS

STAGE : 1st

PACKAGE NO : JK 07- 119

BLOCK : BASOHLI

DISTRICT : KATHUA

ESTIMATED COST : 402.08 Lacs

Executive Engineer
PMGSY Division
Kathua

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PMGSY DPR REVIEW CHECKLIST AND SCORELIST

State :
 Road no.:
 Road Name:
 District:
 Block:

Chapter	Description	Ranking	review
Introduction	Name of work , its status vis-a -vis master plan, core network, priority , terrain, geography, climatic condition, habitation served, population of habitation connected, population served by the proposed road , land use , predominant type of agriculture.		
Planning and basic design consideration	It is mandatory that this chapter must include the complete photograph record of the road and all existing features and describe following aspects in detail. Keymap including district and block road hierarchy through road of link road , potential for future through road traffic destination, potential development and future traffic generators. Prelim alignment investigation strict plan including constriction on road , obligatory points including existing features and fixed obstacles ,existing tracks intersection , school and govt. buildings. Existing road alignment and proposed road alignment consideration of alternative alignment , improvement, by passes. Site photo at max 100 m intervals and all points of interest ,road design briefs, transect walk summary.		
Topographic Survey	Temporary bench marks , centerline, cross sections, digital terrain model, setting out, actual road land width available.		
Soil - Material survey	Borrow area , quarry chart , availability of local material, sub grade testing,soil testing.		
Traffic Survey	it is mandatory that all of the following aspects are assessed. Different type of rural vehicles playing per day , network transport and traffic impacts, base year traffic data of motorized and non motorized vehicles, consideration of through road potential, consideration of specific traffic generators (e.g Rice mills, sand mining), Comparison with similar roads already in use , growth rate adopted and projected traffic for the horizon year based on the design life.		
Hydrological Survey	Local Drainage system plan for the area of the road , catchment identification, data required for hydrolic design of cross drainage works, agriculture irrigation crossing.		
Geometric design standards.	Roadway width, carriage width, shoulders, design speed, horizontal curves, vertical gradients, cross slopes, etc.		
Alignment design.	Horizontal profile , vertical prof.le, cross section , utility and services, intersection layout. Road safety treatments. Existing road alignments and proposed road alignments. Consideration of alternative alignments , alignment improvements , by passes.		
Pavement design	Design life , design traffic and capital Esals, sub grade CBR , design alternatives, embankment design, type of pavement, thickness design , use of local material. Type of surfaces adopted layerwise design of the pavement along with a sketch of dimensioned cross section indicating the pavement layers, carriage way, roadway and road land width. Location of earth shoulders and hard shoulders . Location of BT pavement and CC pavement .		
Design of cross drainage.	Types of culverts , submersible bridges paved dips, high level structures , bridges , irrigation crossings, catchment and discharge calculation , high flood level estimates and justification for the selection.		
Protective Works	Retaining walls, breast walls, check walls, Stone pitching, turfing, and planting.		
Land Acquisition	Obtained existing, villages plan from the revenue authority, determine requirement for land acquisition , prepare pals showing the land acquisition.		
Utility shifting and Relocation.	It is mandatory that a cost estimate for relocation of utilities is provided. Detail of existing utilities and detail of new location of utilities to be relocated, the department is responsible for each utility, the rules pertaining to the shifting relocation of utilities and cost estimates for relocation of utilities.		
Road safety and traffic management.	Details and location of speed breakers , line marking and edge line , traffic advisory and warning signs, stone markers and guide posts. Audit the design at a stage when the measure conceptual and layout designs have already been made. In sure that safety measures are in corporated in to the design, especially when the design is constrain e.g narrow carriageway section , speed beeds to be controlled.		
Specifications	Choice of technology, specification adopted.		
Environmental issues	Reinstatement of borrows area, erosion control , filling of ponds, vegetation and tree removal, forest area, wild life and antiquity , historic and religious sites,		

	environmentally , construction camps, permits and clearances required, etc.	
Analyses of rates. Cost estimates.	Derivation of rates for all different items making up the design works.	
Construction program	Brief methodology statement describing construction activities and sequence, estimated duration of activities estimated overall time required for the construction and analysis and impact of monsoon season on construction period.	
Drawing Description		
State map	Showing the state in relation to India , district in relation to state, and a district map showing all the blocks, with the name of each block marked.	
Master road Map	Showing the master plan and the core network and the proposed road	
Existing road map	Showing the full road to a suitable scale, topographical a(features like river, railway lines, streams, villages, markets, centers, other road legend). Alternative alignment, alignment improvement, by passes.	
Plan and longitudinal sections	It is mandatory that all of the following information is shown on the drawing. Drawing showing first KM in each sheet with chainage , level information, gradients details, horizontal and vertical curve details, utility and services, intersection layouts, road safety treatments. Longitudinal drainage and drainage in built up areas. Existing road alignment and proposed road alignments, location of earth shoulders and hard shoulders, location of BT pavements and CC pavements, obligatory points including existing features and fixed obstacles e.g bridges, ponds, temples, etc. Existing tracks, intersection school and govt. buildings. Large scale drawing where alignment deviates from existing centre line and where clearance is tight.	
Typical cross section	Drawing showing typical cross section, pavement details including BT and CC , Hard shoulder and soft shoulder better slopes , longitudinal drainage. Typical cross section in built up area and typical section in normal rural area.	
Detail Cross section	Drawing showing detail cross section with level information centerline offset details and so on.	
Cross drainage	Drawing of culverts, submersible bridges, paved dips , high level bridges giving general arrangement drawings.GAD	
Protective works	Drawings of protective works like r- wall, breast walls, check walls, drains.	
Traffic and Misc	Drawing like KM stones , traffic signs, hazard signs, advisory signs, speed breakers, line markers, stone markers, guide posts, project sign boards.	
Reviewed by	Name Position Organisation Date:	Total score

Instruction and notes.:

Complete the road details in the title block and the reviewer details in the reviewed in the block.

1. Review DPR report chapter by chapter . rank each as not included (0), Poor standard(1), fair standard(2) or good standard(3) in the ranking cell.
2. Review drawings section by section . Rank as not included (0), Poor standard(1), fair standard(2) or good standard(3) in the ranking cell.
3. DPR report chapter 2,5 and 18 and drawing section 2,3 4,5,6,7 are critical categories and have higher weighting.
4. If mandatory information is not included (report chapters 2 and 5 and drawing section 4). Score is zero and DPR is not approved.
5. Ranking less than 1 or less than 2 for critical categories means the chapter / drawings can not be reviewed and DPR will not be approved.
6. The outcome for each chapter and section will be automatically displayed. If it is checked (Cell highlights green the review continues).
7. All report chapters and drawing sections must achieve checked status to proceed to check the overall score.
8. If any report chapter or drawing section does not achieve checked status , the DPR will not be approved and the overall score will not be checked.
9. If the total score is not greater than the 70 % the DPR will not be approved.
10. If the total score is greater than 70 % the decision will be automatically be approved (Cell highlight green).
11. Only when all review cell give result of checked and approved (All review cell highlighted green) will the DPR be approved for issue.

TECHNICAL REPORT

Name of Scheme:- Construction of the road from Towara to Dodla

Authority :- PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

Status :- New-Connectivity.

Length :- 3.500 Km.

Classification :- Village Road.

Village benefited:- - Dodla,Lari,Nagana & Duck

Population benefited:- - 789 Souls

Project Profile:-

The scheme under consideration has to be taken up for construction by PMGSY Division Kathua in phase 9 under package no. JK07-119 .It includes earthwork in cutting/ filling and construction of cross drainage works.

In keeping with accelerated emphasis of Government of India regarding construction of rural roads under PMGSY, it would be prudent if the said road is constructed upto all weather status i.e upto black top level. Because it shall be only then that the real benefit of construction of the said road is realized. When completed the road shall truly usher the connected areas towards economic progress and prosperity.

Proposals and Specifications:-

It is purposed to construct fair weather road from Towara to Dodla by way of earthwork in cutting/filling.

The cross drainage work will includes construction of 1000mm dia. HPC, culverts (2m span & 3m Span) & scupper. Pucca drain & pucca covered drain shall be provided.

The protection work shall be provided in the form of retaining walls, breast walls & edge wall.

V) Period of completion:-

The project shall be completed in twelve months subject to availability of funds.

262.71

392.52 Lacs.

VI) Cost:


Asstt. Executive Engineer,
PMGSY Sub-Division,
Basohli


Executive Engineer,
PMGSY Division,
Kathua

Introduction

1.1 Objectives of Pradhan Mantri Gram Sadak Yojna (PMGSY)

Rural road connectivity is a key component of road development by promoting access to social and economic services and thereby generated 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 road program. The Prime Minister's Rural road Program set a target of

- a) Achieving all weather road access to every village/habitation with a population greater than 1000 by 2003
- b) 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 and Kashmir and Uttarakhand), the desert areas and tribal areas] by the end of Tenth Five Year Plan, i.e. 2007

1.2 All weather Roads

Roads that can be traversed throughout the year in every season are known as all weathered roads.

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-weathered road access from each village/habitation to the nearby Market Centre or Rural Business Hub 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 centers. Link Routes generally have dead ends terminating on habitations, while Through Routes arise from the confluence of two or more Link Routes and emerge on to a major road or to a Market Centre. The core network may not represent the most convenient or economic route for all purposes. However since studies show 85-90% of rural trips are to market centres the core network is likely to be a cost effective conceptual frame work for investment and management purposes, particularly in context of scarce resources. The sub-project road Towara to Dodla is a link road with package number : JK 07-119 in Basohli block of kathua District. The road directly connects the habitations of Dodla, Nagana, Duck & Lari with population of 455, 126, 95 & 113 souls respectively. Thus this road serves the total population of 789 souls.

1.4 Geography

The proposed road takes off from Towara village to Dodla. The whole road passes through mountainous terrain.

1.5 Climatic Condition

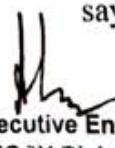
In summer day temperature rises to maximum 42°C and in winter night temperature fall to minimum of 5°C.

ABSTRACT OF COST FOR CONSTRUCTION OF ROAD FROM TOWARA TO DODLA

Length 3.5 KM

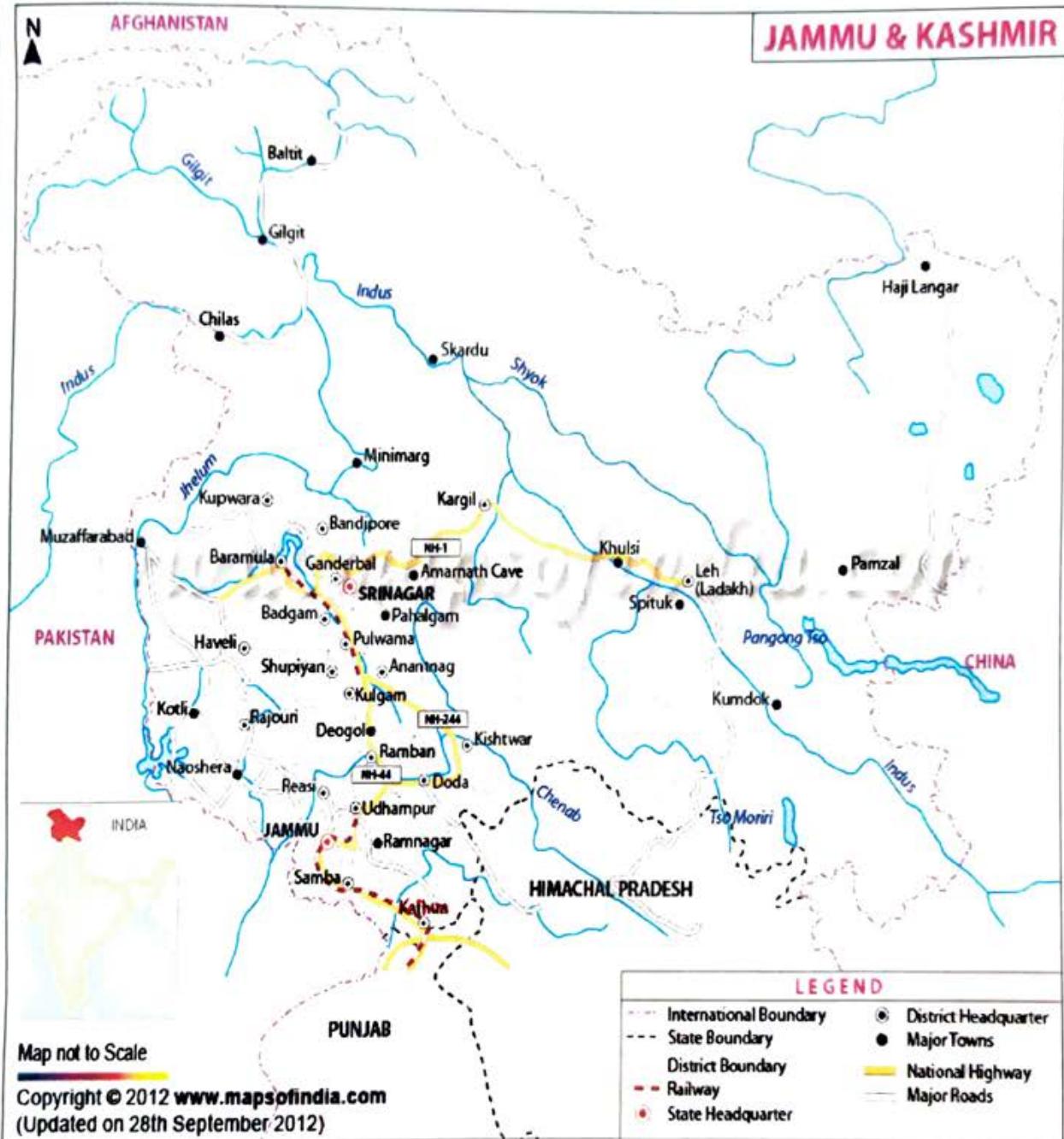
Item	Qty	Rate	Unit	Amount
1) Clearing and Grubbing road Land	-	-	-	
2) Earth work in Cutting				
a) Hard soil	30792.6	29736.942	M3	3420000 35.41
b) Soft Rock	12830.25	12412.388	M3	2405200 25.79
c) Hard Rock	7698.15	9171.608	M3	31458662 26.40
3) Earth work in filling (available from cutting)	1248.255	58	M3	22399.79 0.72 / 88.32
4) Drainage crossing		7.07		
i) RCC Culverts 2.0 m span	3	779093	No.	2337279 21.21
ii) RCC Culverts 3 span	1	9.70	No.	9.70
iii) 1.0 M Dia Pipe Culverts	10	2.02	No.	2145649 20.20
iv) Scupper	5 Nos	50	Rmt	4135400 41.35 / 92.46
5) Protection works				
i) R/Wall 4 m Ht.	200	14635	Rmt	2901000 29.27
ii) R/Wall 3 m Ht.	250	9478	Rmt	2339000 23.70
iii) Edge/Wall	350	3295	Rmt	2306500 11.53
iv) B/Wall 1.50m ht.	400	4757	Rmt	1002800 19.03
iv) B/Wall 2.55m ht.	300	6738	Rmt	2021400 20.21
6) Providing and laying GSB				103.74
7) Providing and Laying WBM G-III				
8) O.G.P.C. Premixing				
9) Earthern Shoulders				
			Total (Rs.)	40003858 284.52
6) Maintences cost for five years	(6% of cost)			
5) Traffic Signs			0.38 440000	1.20
Add for Survey Work+ Preparation of DPR				
			Total (Rs.)	40208000 285.72
			say 402.08 lacs	
			285.72	


Asst Executive Engineer,
PMGSY Sub-Division,
Basohli

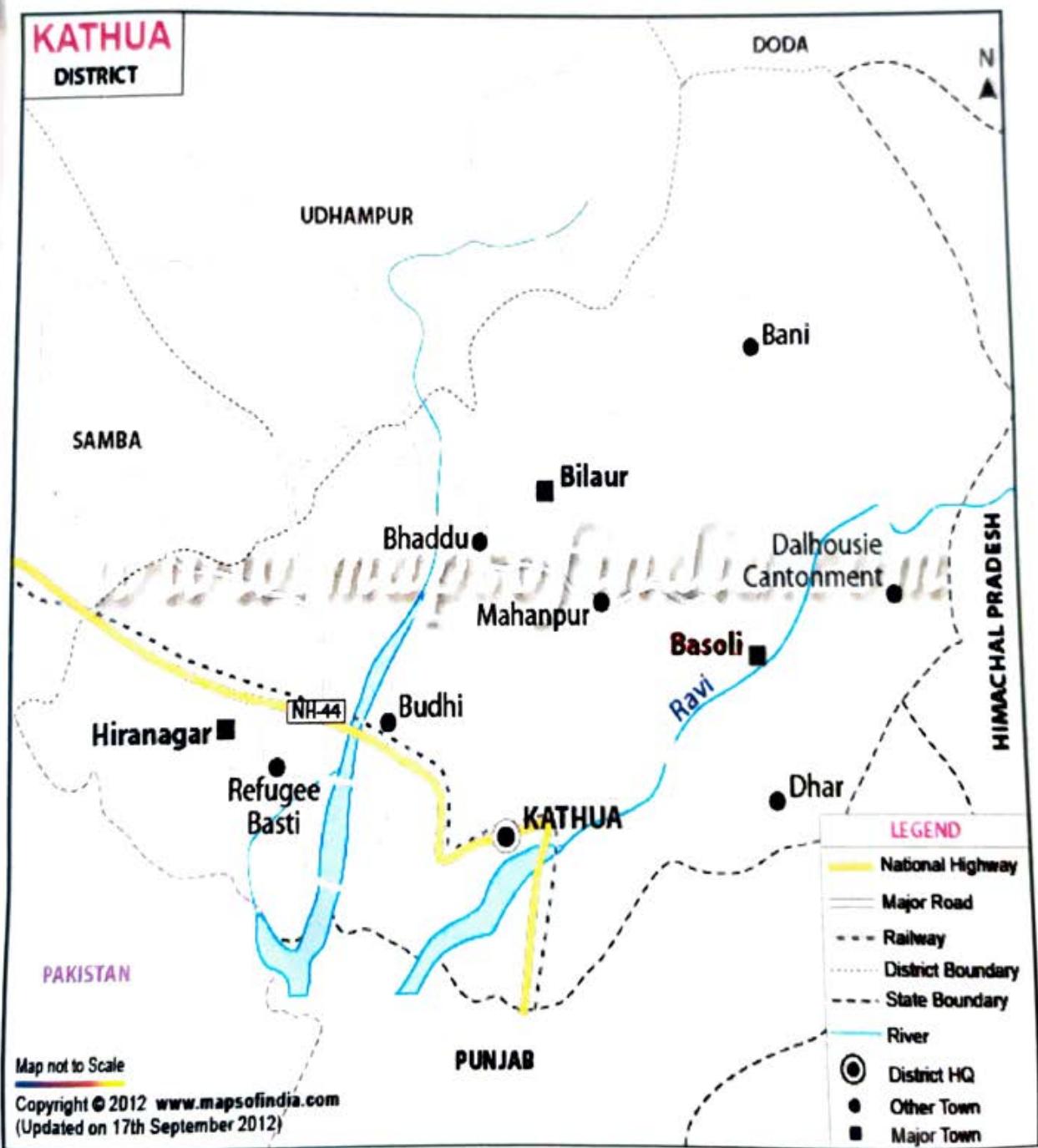

Executive Engineer,
PMGSY Division,
Kathua.



JAMMU & KASHMIR



[Handwritten signatures and text]
S. R. EXERCISE ENGINEER
RAJASTHAN



EXCECUTIVE ENGINEER
PROJECT: KATHUA

Transect Walk Summary

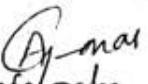
Chainage	Existing Land Width*	Additional Land Required		Type of Loss		Village	Remarks
		LHS	RHS	LHS	RHS		
0+000	2.5	0	9.5	Forest land	Forest land	Towara	
0+100	2.5	1.5	8	Forest land	Forest land		
0+195	2	8	2	Forest land	Forest land		
0+400	0	9.0	3.0	Forest land	Forest land		
0+500	0	9.0	3.0	Forest land	Forest land		
0+500	0	9.0	3.0	Forest land	Forest land		
0+600	0	8.0	4.0	Forest land	Forest land		
0+700	0	9.0	3.0	Forest land	Forest land		
0+800	0	9.0	3.0	Forest land	Forest land		
0+900	0	10.0	2.0	Forest land	Forest land		
0/1000	0	8.0	4.0	Forest land	Forest land	CATTLE SHED	
1+50	0	4.0	8.0	Forest land	Agricultural Land		
1+150	0	4.0	8.0	Forest land	Forest land		
1+200	0	6.0	6.0	Forest land	Forest land		
1+300	0	4.0	8.0	Forest land	Forest land		
1+400	0	3.0	9.0	Forest land	Forest land	Nagana	
1+700	0	2.0	10.0	Forest land	Forest land		
1+800	0	3.0	9.0	Forest land	Forest land		
1/1000	0	3.0	9.0	Forest land	Forest land		
2+100	0	3.0	9.0	Forest land	Forest land	Duck	

2+300	0	4.0	8.0	Forest land	Buildup area	Dodla	Private land on RHS
2+400	0	4.0	8.0	Agricultural Land	Agricultural Land		
2+500	0	6.0	6.0	Agricultural Land	Agricultural Land		
2+700	0	6.0	6.0	Agricultural Land	Agricultural Land		
2+725	0	5.0	7.0	Agricultural Land	Agricultural Land		
2+800	0	6.0	6.0	Agricultural Land	Forest land		
2+900	0	5.0	7.0	Agricultural Land	Forest land		
2/1000	0	4.0	8.0	Agricultural Land	Forest land		
3+100	0	5.0	7.0	Agricultural Land	Agricultural Land		
3+200	0	3.0	9.0	Middle School	Agricultural Land		
3+300	0	1.0	11.0	Buildup area	Buildup area		
3+400	0	3.0	9.0	Buildup area	Buildup area		
3+500	0	3.0	9.0	Buildup area	Buildup area		

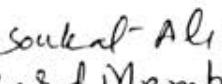
Transit Walk

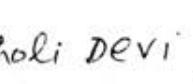
A transit walk

ing with Sarpanches, members & local people
was conducted for Survey of road
from Towara to Dodla. The people
of Area are satisfied with the
Alignment of the Road.

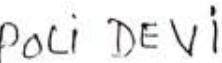
1. 
Gyan Chand
Sarpanch
Bengalpura Panchayat
Taluk Dalka Block Assembly

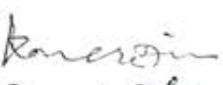
2. 
PIJAN CHAND
MA. SARPANCH
TALUKA DODLA
Nimb Sarpanch
Dodla.

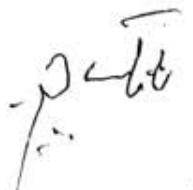
3. 
Sulek Ali
Ward Member
Ward no. 6.

4. 
Bholi Devi
Ward Member
Ward I


Shoket Ali


Poli Devi

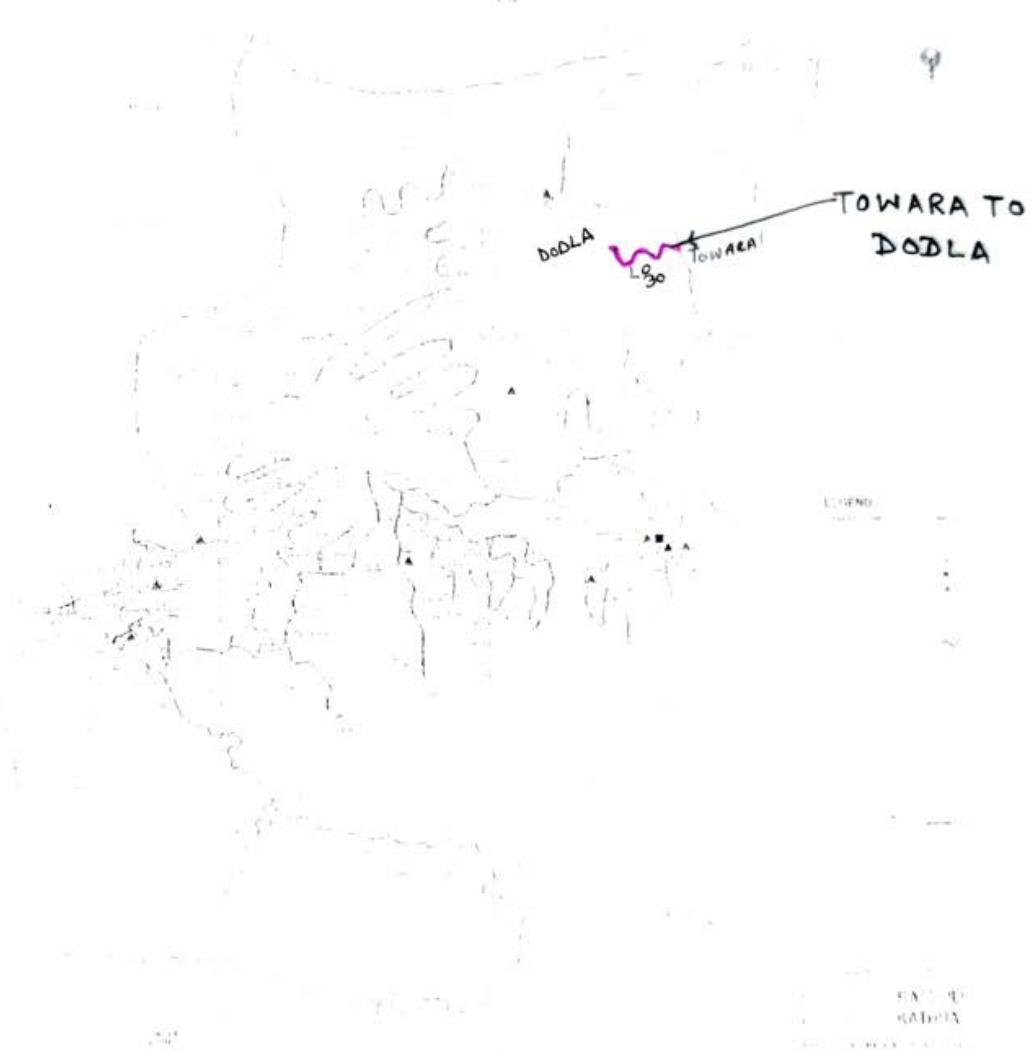
5. 
Kanchan
Gyan Chand
Chairman
Dodla.

6. 
Sh. Manik Chand
Numberdar
Dodla.

Quarry map

Yes

No



PROJECT ROAD


AEE


Executive Engineer
PMGSY Division

Kathua

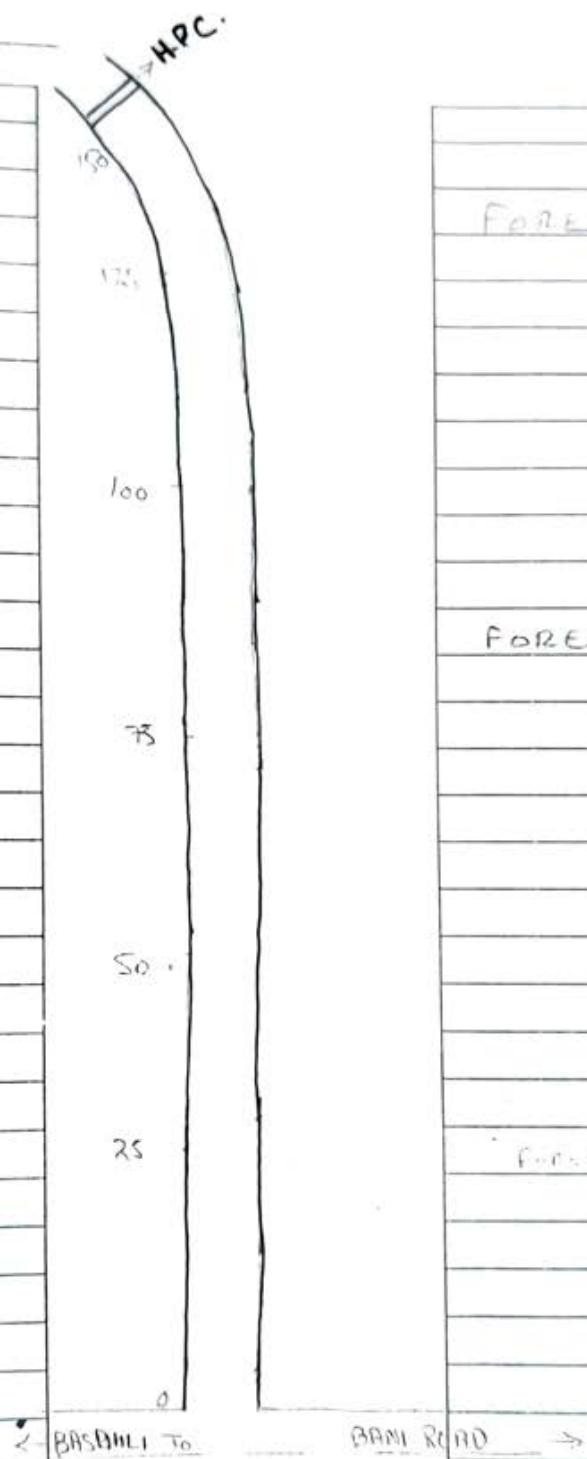
Name of the road TOWNSHIP TO DODDIA
Block BASAM
District KATNI
State JRK
Date 05/12/2016
Page 11

LHS Notes

1975 100

FOREST LAND

F. H. J. F. VAN DER



RHS Notes

Forest Land

FOREST LAND

FOLIO 57 (100)

LHS Notes

FOREST LAND

FOREST LAND

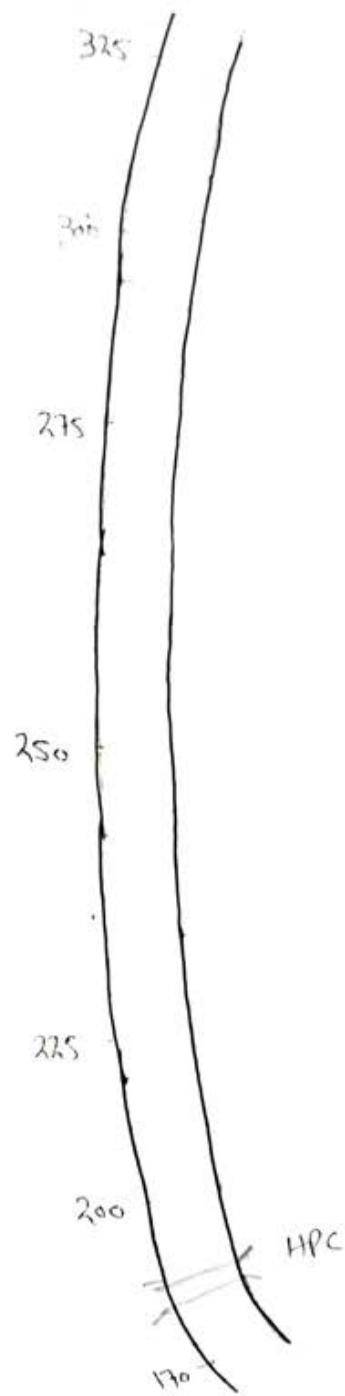
FOREST LAND

RHS Notes

TOP FOREST LAND

FOREST LAND

FOREST LAND

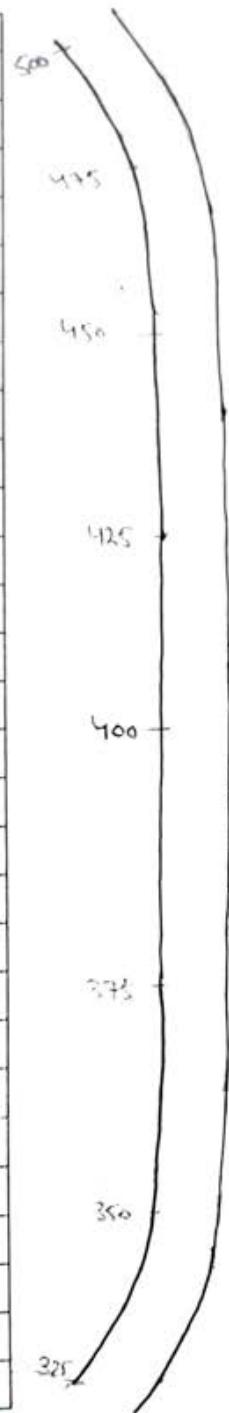


LHS Notes

FOREST LAND

FOREST LAND

FOREST LAND



RHS Notes

FOREST LAND

FOREST LAND

FOREST LAND

LHS Notes

FOREST LAND

CATTLE
STABLE

FOREST LAND

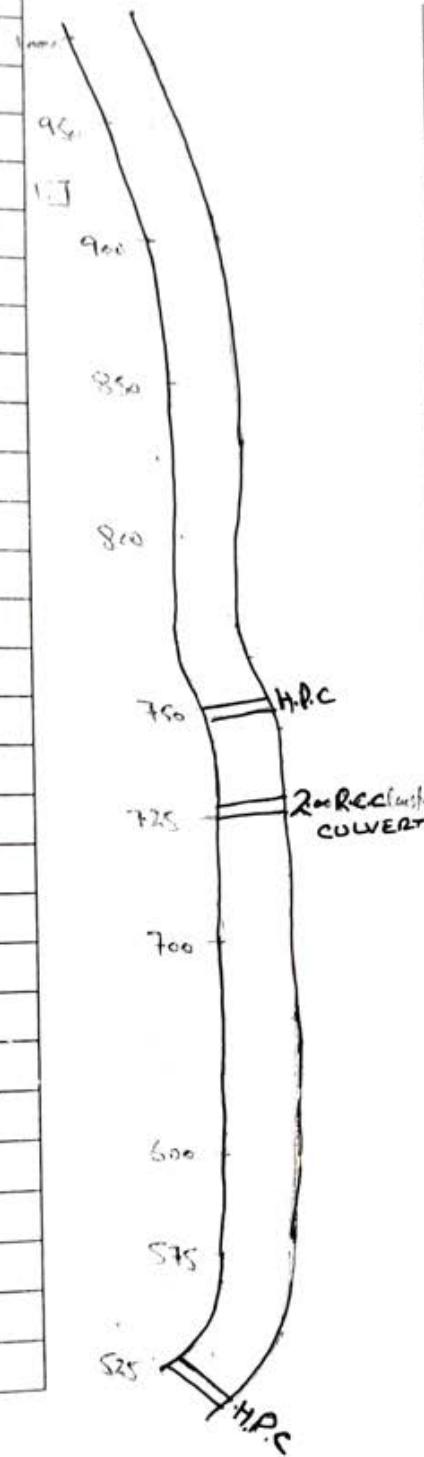
FOREST LAND

RHS Notes

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FOREST LAND



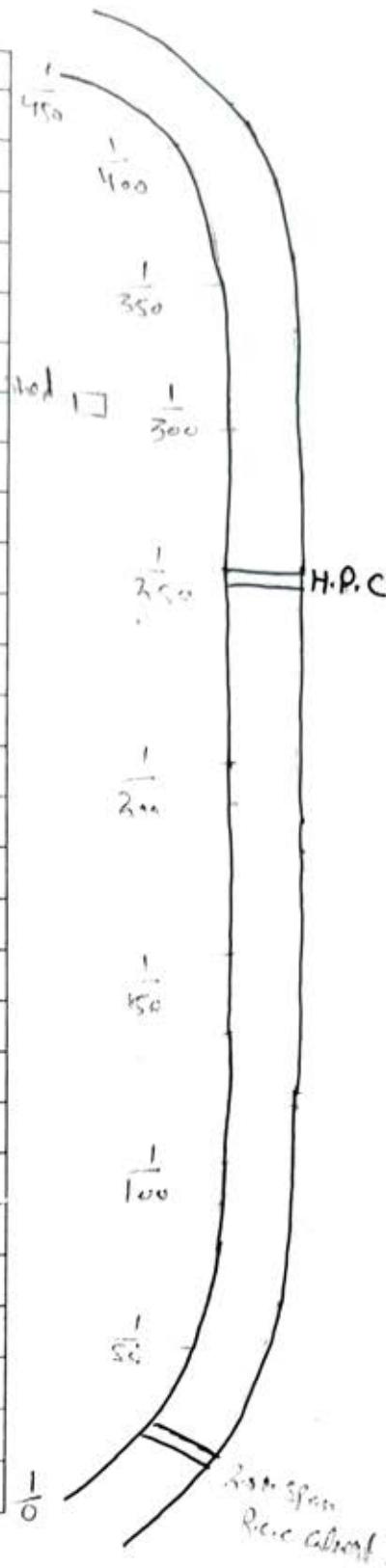
LHS Notes

FOREST LANDS

Cattle land

FOREST LANDS

FOREST LANDS



RHS Notes

FOREST LAND

FOREST LAND

FOREST LAND

LHS Notes

FOREST LAND

FOREST LAND

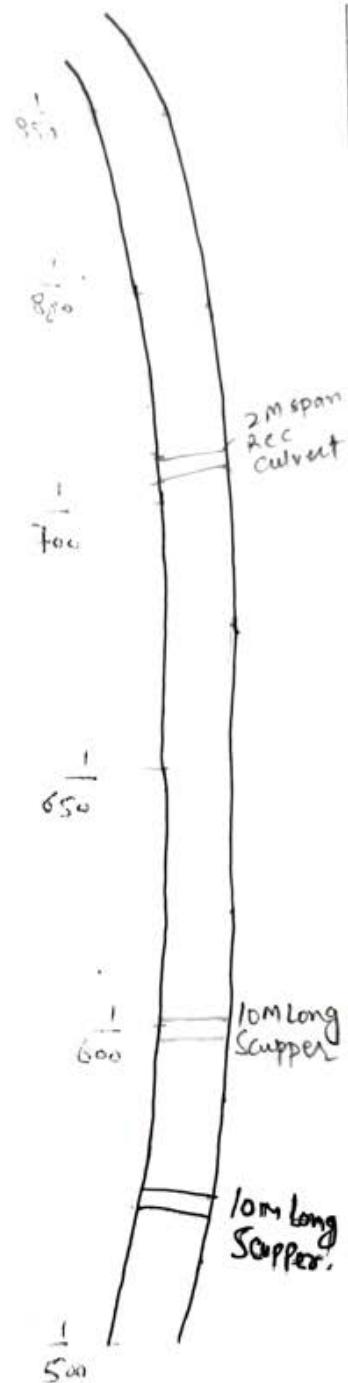
FOREST LAND

RHS Notes

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FOREST LAND

FOREST LAND

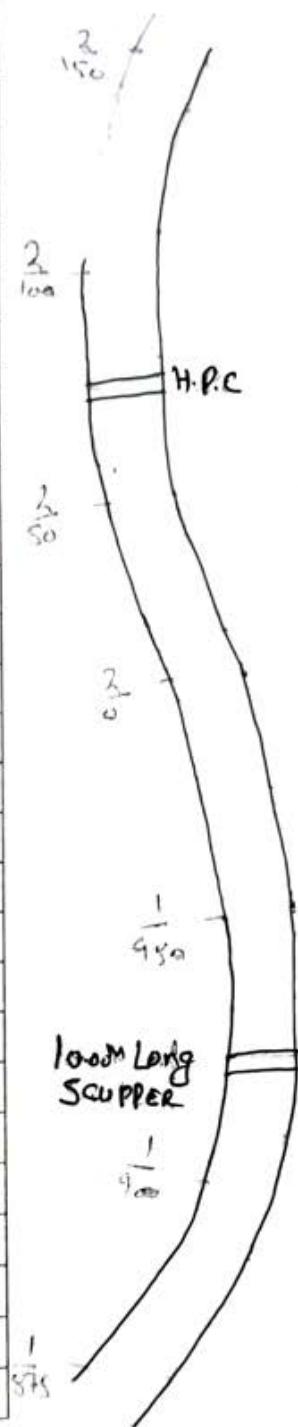


LHS Notes

Forest LAND

Forest LAND

Forest LAND



RHS Notes

Forest LAND

Forest LAND

Forest LAND

LHS Notes

AGRICULTURE LAND
OF ABDUL HAMIDAGRICULTURE
LAND

AGRICULTURE

LAND OF

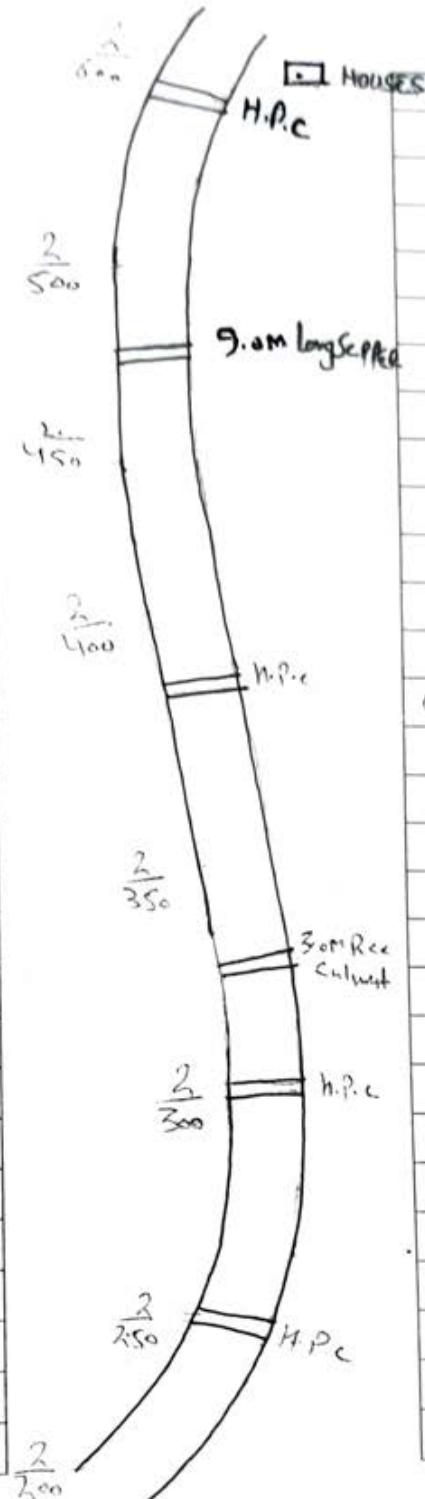
Abdul Hamid

S/o Subhan Ali

Doda

FOREST LAND

FOREST LAND



RHS Notes

AGRICULTURE LAND

AGRICULTURE LAND
OF ABDUL HAMID
S/o SUBSHAN ALI
DODIA

AGRICULTURE LAND

OF Abdul Hamid

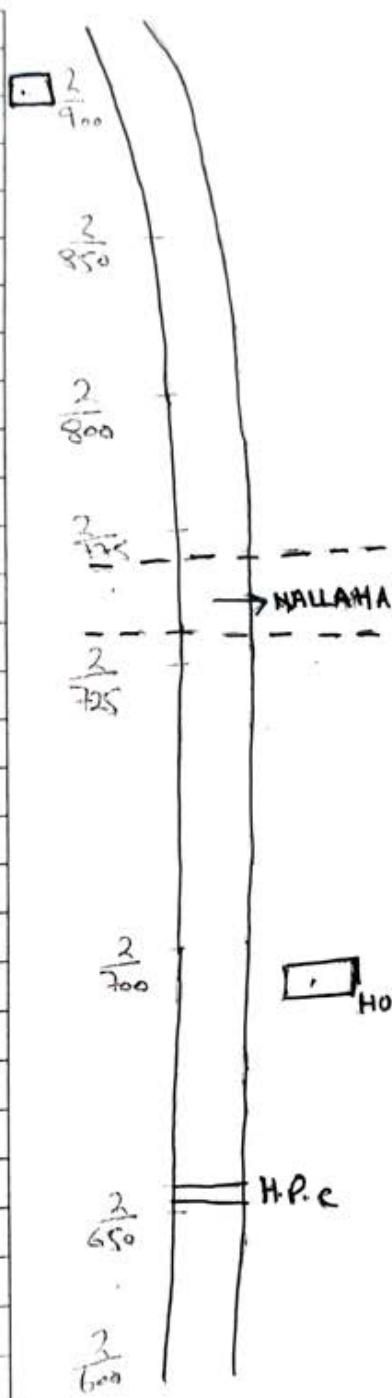
S/o Mahdi Ali

Doda

FOREST LAND

FOREST LAND

LHS Notes
House
AGRICULTURE LAND OF
SH. KULBHAR DOBRA 3/.
Samevegan
AGRICULTURE LAND OF
SH. ABDUL HAMID S/0
S/0 SUBHAN 3/.
DODLA



RHS Notes
AGRICULTURE LAND OF
SH. KULBHAR DOBRA 3/.
Fagirchand P/ Subhan
PROP PRINCE AT DODLA.
AGRICULTURE LAND OF ABDUL HAMID S/0 SUBHAN 3/.
DODLA

LHS Notes

Locality: Ghat Road, Sanganer

Rajasthan

3
2003
15011.00 m long
scupper3
1003
503
02
9502
900

H.P.C

RHS Notes

PRIVATE LAND OF
SH. KULDIP DOGRA
S/o FABIR CHAND
R/o DODLAPRIVATE LAND OF
SH. KULDIP DOGRA
S/o FABIR CHAND
R/o DODLAAGRICULTURE LAND
OF SH. SHANKER
S/o DHANIRAM R/o
DODLA

RHS Notes

AGRICULTURE LAND

LAND OF

AGRICULTURE

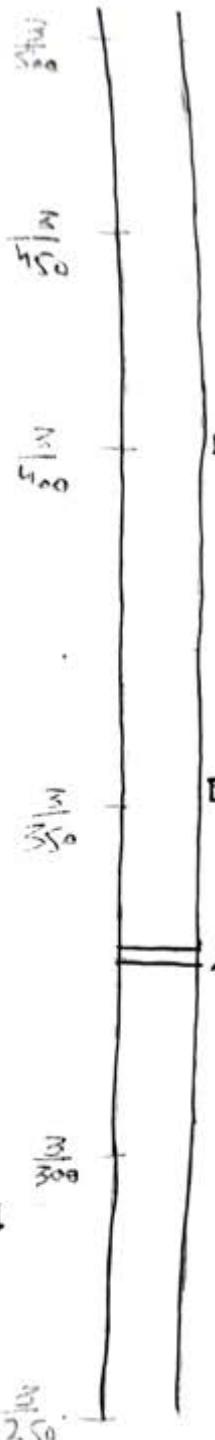
LAND OF

SH. GANAN S/0 MANGLO
R/o DODLA

AGRICULTURE

LAND OF

SH. GLADUS S/0 MANGLO
R/o DODLA



RHS Notes

AGRICULTURE LAND

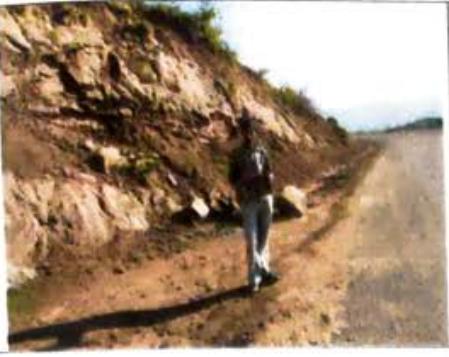
AGRICULTURE

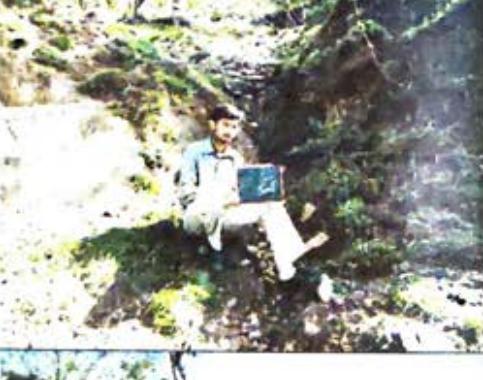
LAND OF SH. GANAN
S/0 MANGLO R/o
DODLA

AGRICULTURE LAND

OF SH. GLADUS S/0

MANGLO R/o DODLA

1		<p>Chainage 0.00km Start point of proposed road from Towara to Dodla</p>
2		<p>Chainage 100</p>
3		<p>Chainage 150 Proposed 1000mm dia. HPC</p>
4		<p>Chainage 200</p>

5		Chainage 300
6		Chainage 400
7		Chainage 500
8		Chainage 525 Proposed HPC 1000 mm dia
9		Chainage 600

10		Chainage 700
11		Chainage 800
12		Chainage 900
13		Chainage 925 Cattle shed of Mohd. Shafi S/o Akbar R/o Dodla
14		Chainage 1000

15



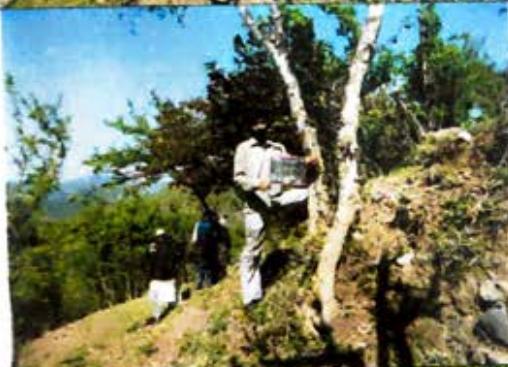
Chainage 1/50
Proposed HPC 1000 mm Dia

16



Chainage 1/100

17



Chainage 1/200

18



Chainage 1/250
Proposed HPC 1000mm dia

19



Chainage 1/300

20



Chainage 1/325
Cattle shed of Sh. Charan Dass S/o Kenthu R/o Dodla

21



Chainage 1/400

22



Chainage 1/500

23



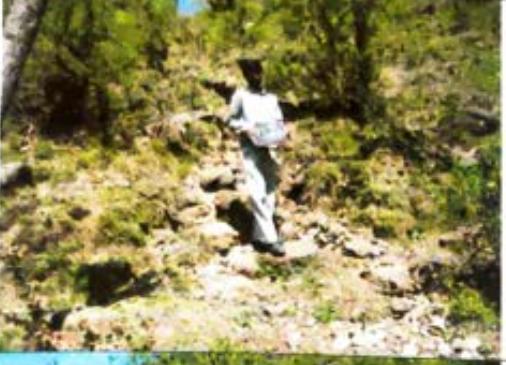
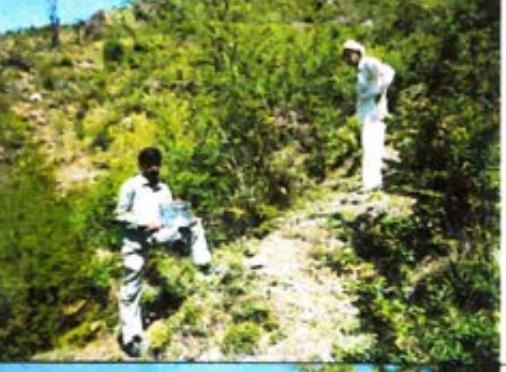
Chainage 1/550

24



Chainage 1/600

25		Chainage 1/700
26		Chainage 1/725 Proposed 2mtr span RCC Culvert
27		Chainage 1/800
28		Chainage 1/900
29		Chainage 1/1000

30	 A surveyor in a blue shirt and brown pants stands on a rocky, grassy hillside, holding a theodolite. The background shows a dense green hillside.	<p>Chainage 2/25 Proposed 2mtr span RCC Culvert</p>
31	 A surveyor in a white shirt and light blue pants stands on a rocky, grassy hillside, holding a theodolite. The background shows a dense green hillside.	<p>Chainage 2/75 Proposed HPC 1000mm dia</p>
32	 Two surveyors in white shirts and light blue pants stand on a rocky, grassy hillside. One is holding a theodolite, and the other is holding a clipboard. The background shows a dense green hillside.	<p>Chainage 2/100</p>
33	 A surveyor in a white shirt and light blue pants stands on a rocky, grassy hillside, holding a theodolite. The background shows a dense green hillside.	<p>Chainage 2/200</p>
34	 A surveyor in a white shirt and light blue pants stands on a rocky, grassy hillside, holding a theodolite. The background shows a dense green hillside.	<p>Chainage 2/250 Proposed 1000 mm dia HPC</p>

40



Chainage 2/525
Proposed 1000mm dia HPC

41



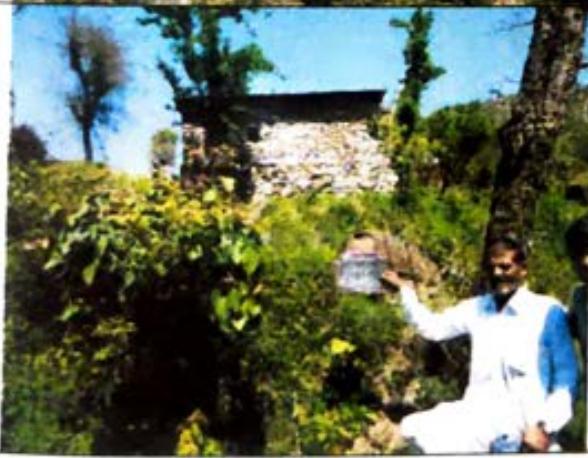
Chainage 2/600

42

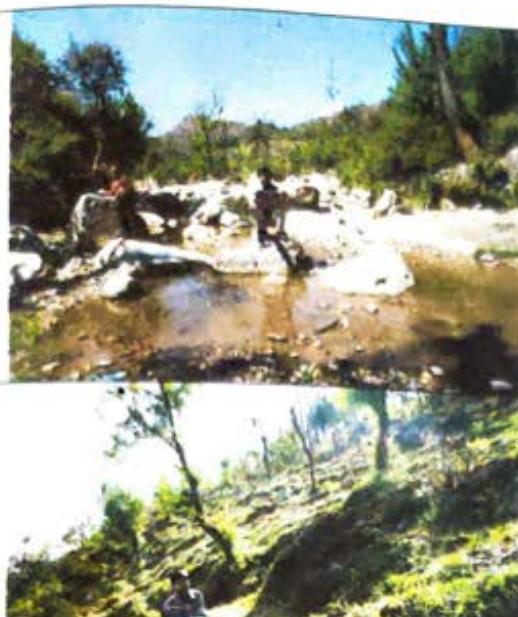


Chainage 2/650
Proposed 1000mm dia HPC

43

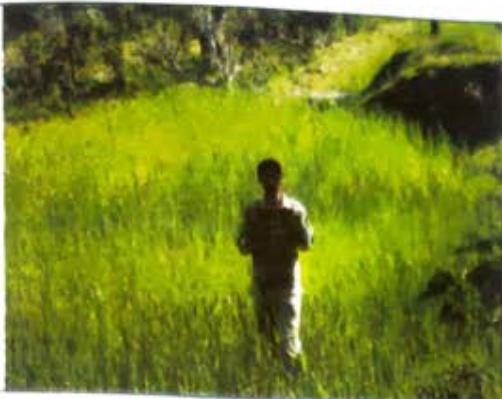


Chainage 2/700

45		<p>Chainage 2/725 Proposed Bridge 25 mtr. Span over Chiril Nallah</p>
46		<p>Chainage 2/800</p>
47		<p>Chainage 2/900</p>
48		<p>Chainage 2/1000</p>
49		<p>Chainage 3/100</p>

50		Chainage 3/200 Govt. Middle School Dodla
51		Chainage 3/225 Proposed 1000mm dia HPC
52		Chainage 3/300
53		Chainage 3/325 Proposed 2mtr span RCC Culvert
54		Chainage 3/400

55



Chainage 3/500

56



Transect Walk

57



Transect Walk

58



Transect Walk

59



Transect Walk

60



Transect Walk

61



Transect Walk

62



Transect Walk

63

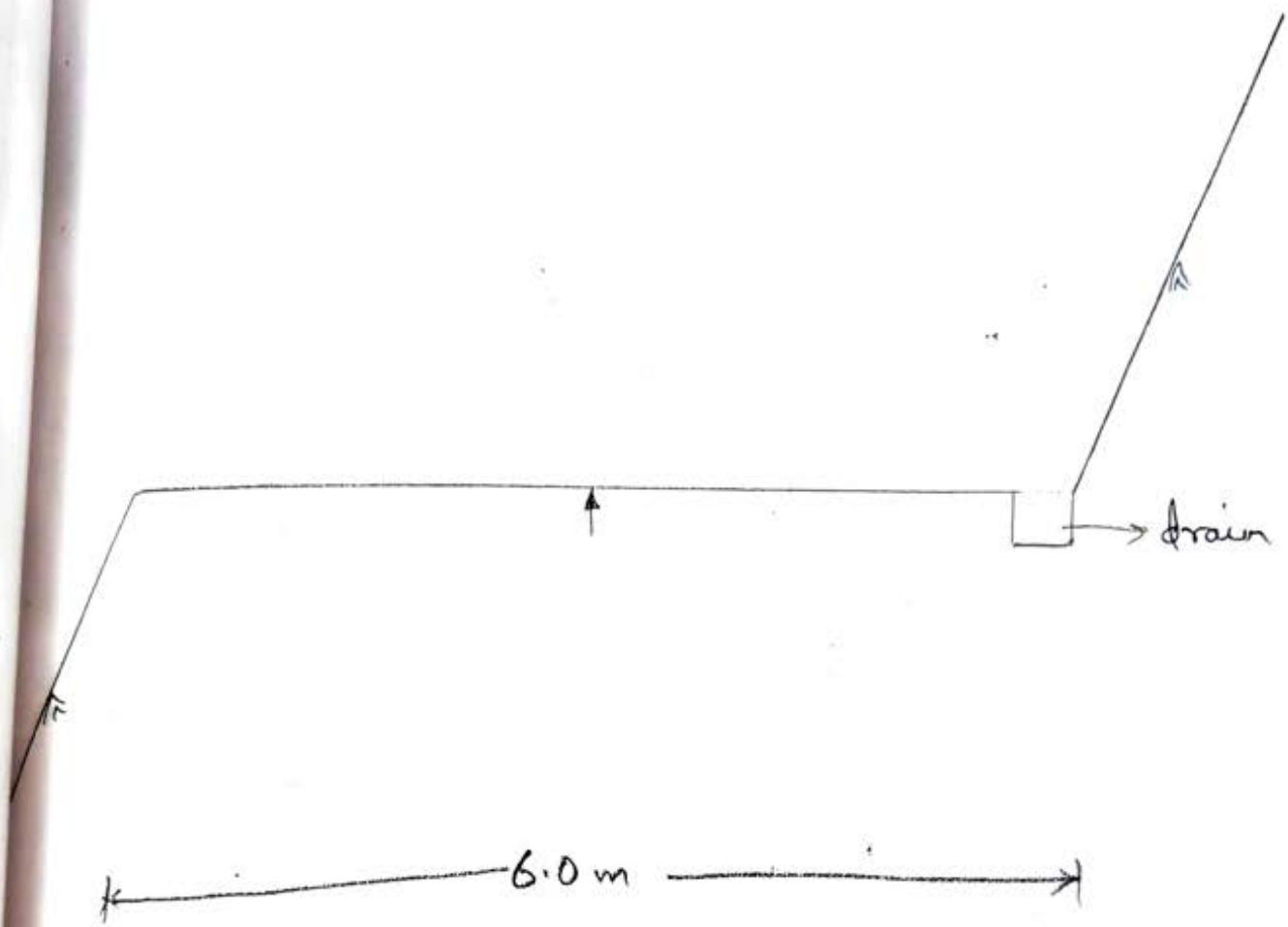


Transect Walk

64



Transect Walk



95



Transect Walk

96



Transect Walk

97



Transect Walk

98



Transect Walk

60



Transect Walk

61



Transect Walk

62



Transect Walk

63



Transect Walk

64



Transect Walk

60



Transect Walk

61



Transect Walk

62



Transect Walk

63



Transect Walk

64



Transect Walk

65		Transect Walk
66		Transect Walk (Existing Govt. Middle School Dodla)
67		Transect Walk
68		Transect Walk
69		Transect Walk

1. Total No. of People present for the Transect walk :

Male : 8 , Female: 8 , Total : 16

2. Demographic information where the Walk was conducted :Population of Dodla, Nagana & Duck is about 676.

3. No. of Govt. Employees present : NIL

4. No. of Contractors Employees : NIL

5. No. of participants from Minority community :

SC: 5 , ST: 2 , Women : 1

Transect walk done

Yes No

Transect walk summary table included

Yes No

Photographs taken

Yes No

Major changes in alignment perceived

Yes No

Design brief provided

Yes No

Preliminary alignment investigation

Road Design Brief

Sl	Location	Issue	Design Solutions
1	Ch. 0.00km	<i>The existing 2.5m track up to 0.300Km from Towara needs to be developed into a proper road.</i>	<i>The existing track has to be widened.</i>
2	Ch. 0 to 0.300 km	<i>This chainage has forest land on both sides .</i>	<i>For protection, Proper pucca drain needs to be constructed. Cross drainage works need to be constructed.</i>
3	Ch. 0.300 to 1.000 km	<i>Forest area on both. Local nallahs also cross at different pts.</i>	<i>Puccadrain to be provided. Proper cross drainage structure are to be provided for nallahs.</i>
4	Ch 1.000 to 2.300 km	<i>Forest area on both. Local nallahs also cross at different pts.</i>	<i>Proper cross drainage structures to be provided for efficient drainage crossing.</i>
5	Ch. 2.300 to 2.725km	<i>Agricultural land on both sides. cross drainage works are to be required.</i>	<i>Cross drainage structures with proper pitched grouted drain are to be provided.</i>
6	Ch. 2.725 to 2.775km	<i>Big nallah crosses.</i>	<i>Bridge of 25m span is proposed.</i>
7	Ch. 2.800 to 3.200km	<i>Private land on left side and forest land on right side.</i>	<i>Proper cross drainage structures to be provided for efficient drainage crossing.</i>
8	Ch. 3.200 to 3.500km	<i>Middle school at 3.200 and built up area on both sides.</i>	<i>For protection, Proper pucca drain needs to be constructed. Cross drainage works need to be constructed.</i>

Land Availability Resolution

We the People of the
village townsia, naga, duck a doda. We
and work from townsia to doda.
All people along with Sarpanch, Panchies
are satisfied with the Alignment
of Survey. Accordingly a
Resolution has been passed in presence
of all Sarpanch, members & local people
of Area on 29.3.2013.

Abdul Quddum
Sarpanch

1. Sh. Abdul Quddum
Sarpanch
Doda

Poli Devi

4. Bholi Devi

2. Sh. Lachchand
Naib Sarpanch

5. Karez Dini

Sh. Qamar Dini
Chairman
Doda

3. Shukri Ali
Ward no 6 Member

PUPAN CHAND
NAID SERPANCH
Pvt. HALKA DODLA

Shukri Ali

6. Sh. Nank Chand
Number 1
doda

3. Topographic Survey

3.1 General

Topographic survey true to ground realities have been done 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 and current international practices have been followed during the above survey.

3.2 Traversing

Traverse has been done by Auto Level having angular measurement accuracy of ± 1 sec.

3.3 Leveling

Leveling has been done using auto level by Height of Instrument method. The earthwork charts are attached herewith.

3.4 Cross Section & Detailing

Cross sections were taken at 25m 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 auto level and compass were drawn and final alignment, plan, profile were prepared and presented in graphic form.

3.6 Checklist

Reference pillars given	Yes / No
TBM with northing easting given	Yes / No
Traverse survey carried out	Yes / No
Cross Section & Detailing carried out	Yes / No

4 Soil and Material 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 are identified.

4.2 Soil sample Collection and Testing

Soil samples are collected along and around the road alignment at three 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.

4.3 Analysis of Test Results

The tests reports are attached herewith. The laboratory soaked CBR values ranges from 10% to 15%. The soil laboratory test results are summarized as:

S. No.	Section	CBR %
1		N.A

4.4 Coarse and Fine Aggregates

Information regarding the source of aggregate and sand will be gathered. The source and 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.

4.5 Checklist

Borrow pit suitable	Yes / No
SSI for existing ground	Yes / No
Investigation for coarse / fine aggregate	Yes / No
Quarry Map	Yes / No

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 existing kachcha track. The surveys have been carried out by trained enumerators manually under the monitoring of Engineering Supervisor.

5.2 Traffic Data and Analysis

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 unladen commercial vehicles was recorded during the traffic counts. Traffic volume count for this project road was done during summer season.

Table 5.1 Average Daily Traffic at 0/200 both ways

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

- Traffic Volume and mix do not vary along the road
- Traffic Volume and mix vary along the road
- Traffic Volume and mix will vary along the road in the future
- There is a potential for through traffic using the road
- %age of loaded vehicles

Hydrological Survey

6.

General

6.1

Hydrological survey is necessary for design of adequate and safe Cross Drainage Structures so that the rain water can pass as per natural slope. Hydrological survey of the proposed road is based on the following observations:

- Rainfall Data
- Catchments Area
- Time of Concentration
- Existing Cross Drainage Structures

6.2

Rainfall Data

Rainfall Data as applicable for the project road were collected with maximum rainfall occurring in the months of July to September.

6.3

Catchment Area

The Catchments area is calculated by gathering local information and topographical survey data as it was not possible to calculate from topographical sheets due to their unavailability.

6.4

Time of Concentration

Time of concentration (tc) in hours is calculated from the formula of $(0.87 \times L / H)^{0.185}$, where L is distance from the critical point to the structure site in km and H is the difference in elevation between the critical point and the structure site in meters.

6.5

Existing Cross Drainage Structures

Table-6.1 List and condition of existing culverts

Sl.	Chainage (km)	Description of Existing Structure		
		Type	Span/ Dia. (m)	Condition
		N.A		

Hydrological data for 3.0 m span RCC Culvert at RD 250-275 of KM 2nd of road from
TOWARA TO DODLA

Stream area = $A = 0.010 \text{ km} \times 3.20 \text{ km} = 0.032 \text{ sq. km}$

Slope of nallah = 5 %

Width of nallah at the crossing = 3.0m

Bed level of nallah = 101.65
(Assuming the nallah bed level at the point of crossing 100.00)

Flow discharge to pass through the structure = $Q_p = 11.5 \times (A)^{3/4}$
= $11.5 \times (0.032)^{3/4}$
= 1.497 cumecs
= 52.84 susecs

3.0 m span culvert is proposed.


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Hydrological data for 3.0 m span RCC Culvert at RD 650-675 of KM 3rd of road from
TOWARA TO DODLA

ment area = $A = 0.225 \text{ km} \times 4.30 \text{ km} = 0.09675 \text{ sq. km}$

width of nallah = 9.5 m

width of nallah at the crossing = 5.0m

- 104.68
(assuming the nallah bed level at the point of crossing 100.00)

$$\begin{aligned}\text{Flow to pass through the structure} &= Q_p = 11.5 \times (A)^{3/4} \\ &= 11.5 \times (0.09675)^{3/4} \\ &= 1.99 \text{ cumecs} \\ &= 69.82 \text{ susecs}\end{aligned}$$

3.0 m span culvert is proposed.


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Technical data for 2.0 m span RCC Culvert at RD 250-275 of KM 1st of road from
TOWARA TO DODLA

$$Area = A = 0.510 \text{ km} \times 0.011 \text{ km} = 0.0561 \text{ sq. km}$$

$$Slope = 10.10 \%$$

Width of nallah at the crossing = 3.9m

Width of the nallah bed level at the point of crossing 100.00

$$\text{Flow pass through the structure} = Q_p = 11.5 \times (A)^{3/4}$$
$$= 11.5 \times (0.0561)^{3/4}$$
$$= 1.332 \text{ cumecs}$$
$$= 46.79 \text{ susecs}$$

2.0 m span culvert is proposed.


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Hydrological data for 2.0 m span RCC Culvert at RD 25-50 of KM 3rd of road from
TOWARA TO DODLA

catchment area = $A = 0.490 \text{ km} \times 0.010 \text{ km} = 0.049 \text{ sq. km}$

Percentage of nallah = 8.20 %

Width of nallah at the crossing = 4.5m

$z = 102.85$
(assuming the nallah bed level at the point of crossing 100.00)

charge to pass through the structure = $Q_p = 11.5 \times (A)^{3/4}$
= $11.5 \times (0.049)^{3/4}$
= 1.197 cumecs
= 42.25 susecs

A 2.0 m span culvert is proposed.


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Geological data for 2.0 m span RCC Culvert at RD 325-350 of KM 3rd of road from
TOWARA TO DODLA

point area = $A = 0.510 \text{ km} \times 0.110 \text{ km} = 0.0561 \text{ sq. km}$

of nallah = 8.20 %

width of nallah at the crossing = 2.3m

100.85
using the nallah bed level at the point of crossing 100.00

time to pass through the structure = $Q_p = 11.5 \times (A)^{1/4}$
= $11.5 \times (0.0561)^{1/4}$
= 1.332 cumecs
= 46.68 susecs

2.0 m span culvert is proposed.


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Hydrological data for 2.0 m span RCC Culvert at RD 325-350 of KM 4th of road from
TOWARA TO DODLA

ment area = $A = 0.410 \text{ km} \times 0.125 \text{ km} = 0.05125 \text{ sq. km}$

of nallah = 12.2 %

width of nallah at the crossing = 3.45m

= 101.35
ming the nallah bed level at the point of crossing 100.00)

$$\begin{aligned}\text{Flow to pass through the structure} &= Q_p = 11.5 \times (A)^{3/4} \\ &= 11.5 \times (0.05125)^{3/4} \\ &= 1.2387 \text{ cumecs} \\ &= 43.39 \text{ susecs}\end{aligned}$$

2.0 m span culvert is proposed.


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1 Adopted Geometric Design Standards

3.1 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 are in the standards followed for this road are described below.

7.2 Terrain

The classification of terrain was selected from hilly classification for which following criterion will be applicable:

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

7.1 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 IBC SF 2020):

Road classification	Mountainous and Steep Terrain			
	Open Area		Built-up Area	
	Normal	Range	Normal	Range
Rural roads (ODR and VR)	12	12	12	2

38 *Reid van Wijk*

Results with the next generation



7.7 Shoulders

It is proposed to have 1.20m wide shoulder as the case may be on both sides. Roadway width at cross-drainage structures 6.0mtrs.

The roadway width at culvert locations for this road is 6.0mtrs.

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)
20	20
30	30
40	45
50	60

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	23	14

To minimize extra land arrangement, minimum radius used is 20 m and design speed in these curves are also restricted to 20 km/hr.

7.11 Camber & Super elevation

A camber adopted on this road section is given below. The maximum super elevation is 5.0% for this project road.

Surface type	Camber (%)	
	Low rainfall (Annual rainfall <1000mm)	High rainfall (Annual rainfall >1000mm)
Earth road	4.0	5.0
WBM Gravel road	3.5	4.0
Thin bituminous road	3.0	3.5

7.12 Vertical Alignment

The present road is in mountainous terrain and vertical alignment has been designed well within ruling gradient.

Generally, minimum gradient of 0.3% for drainage purpose is considered for designing the 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.

Design of Circular Curves at various RD's on Towara to Dodla Road

Curve No.	Chainage	Deflection Angle in degrees	Velocity km/hr	Superelevation(m)	Transition Length L1	Radius of curve	$L=Lc+2L1(m)$	Hand of curve	Length Provided (m)
1	0/150-0/200	85	18	0.28	28.00	14.88	78.66	Right	80.00
2	0/200-0/250	105	15	0.35	29.12	8.24	73.33	Right	75.00
3	0/500-0/550	75	20	0.21	23.31	10.29	60.08	Right	62.00
4	0/675-0/725	115	15	0.28	23.29	10.3	57.27	Right	70.00
5	1/425-1/475	60	20	0.28	31.08	18.33	81.34	Right	83.00
6	1/525-1/575	120	15	0.28	23.29	10.3	68.14	Right	70.00
7	1/700-1/750	105	15	0.35	29.12	8.24	73.33	Right	75.00
8	2/250-2/300	75	20	0.21	23.31	10.29	60.08	Right	62.00
9	2/325-2/375	105	15	0.35	29.12	8.24	73.33	Right	75.00
10	2/500-2/550	130	12	0.35	23.31	5.28	58.59	Right	60.00
11	2/800-2/850	108	15	0.35	29.12	8.25	73.76	Right	75.00
12	2/950-2-1000	100	15	0.28	23.29	10.3	64.54	Right	66.00



DESIGN OF COMPOSITE CURVE FROM RD 0/150- TO 0/200 (IN km IST) FOR ROAD
FROM TOWARA TO DODLA

The deflection angle (Taken from Site Plan) = $\Phi = 85^\circ$.

Assumed speed of vehicle at the zig point = $v = 18 \text{ Km/hr} = 5 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 5% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 4 \times 7.0 / 100 = 0.28 \text{ m} = 28 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 28 \times 5 / 5 = 28 \text{ m}$.

Length of transition curve = $L_2 = 28 \times 5 / 5 = 28 \text{ m}$.

Now, Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CL_1$$

$$\Rightarrow R = (5)^3 / (0.3 \times 28) = 14.88 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 14.88 \times 85^\circ / 180^\circ = 22.06 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 78.06 \text{ m}$.


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DESIGN OF COMPOSITE CURVE FROM RD 0/200 TO 0/250 (IN km Ist) FOR ROAD

From Towara to Dodla

The deflection angle (Taken from Site Plan) = $\Phi = 105^\circ$.

Assumed speed of vehicle at the zig point = $v = 15 \text{ Km/hr} = 4.16 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 5% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 5 \times 7.0 / 100 = 0.35 \text{ m} = 35 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 35 \times 4.16 / 5 = 29.12 \text{ m}$.

Length of transition curve = $L_2 = 35 \times 4.16 / 5 = 29.12 \text{ m}$.

Now, Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CR$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 29.12) = 8.24 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 8.24 \times 54^\circ / 180^\circ = 15.09 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 73.33 \text{ m}$.


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DESIGN OF COMPOSITE CURVE FROM 0/500 to 0/550 (IN km Ist) FOR ROAD

From Towara to Dodla

deflection angle (Taken from Site Plan) = $\Phi = 75^\circ$.

sumed speed of vehicle at the zig point = $v = 20 \text{ Km/hr} = 5.55 \text{ m/s}$.

length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 3% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5cm/s)

per Elevation = $h = 3 \times 7.0 / 100 = 0.21 \text{ m} = 21 \text{ cm}$.

erefore, Length of transition curve = $L_1 = 21 \times 5.55 / 5 = 23.33 \text{ m}$.

Length of transition curve = $L_2 = 21 \times 5.55 / 5 = 23.33 \text{ m}$.

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CL_1$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 23.33) = 10.29 \text{ m}$$

length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 10.29 \times 75^\circ / 180^\circ = 13.46 \text{ m}$.

efore, Length of composite curve = $L_1 + L + L_2 = 60.08 \text{ m}$.


Assistant Executive Engineer
PMGSY Sub-Division
Johli


Executive Engineer
PMGSY Division
Kathua


DESIGN OF COMPOSITE CURVE FROM RD 0/675 to 0/725 (IN km IST) FOR ROAD

From Towara to Dodla

The deflection angle (Taken from Site Plan) = $\Phi = 115^\circ$.

Assumed speed of vehicle at the zig point = $v = 15 \text{ Km/hr} = 4.16 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 4% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 4 \times 7.0 / 100 = 0.28 \text{ m} = 28 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 28 \times 4.16 / 5 = 23.29 \text{ m}$.

Length of transition curve = $L_2 = 28 \times 4.16 / 5 = 23.29 \text{ m}$.

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CL_1$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 23.29) = 10.30 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 10.30 \times 115^\circ / 180^\circ = 20.66 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 67.24 \text{ m}$.


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DESIGN OF COMPOSITE CURVE FROM RD 1/425 to 1/475 (IN km 2nd) FOR ROAD

From Towara to Dodla

The deflection angle (Taken from Site Plan) = $\Phi = 60^\circ$.

Assumed speed of vehicle at the zig point = $v = 20 \text{ Km/hr} = 5.55 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 4% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 4 \times 7.0 / 100 = 0.28 \text{ m} = 28 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 28 \times 5.55 / 5 = 31.08 \text{ m}$.

Length of transition curve = $L_2 = 28 \times 5.55 / 5 = 31.08 \text{ m}$.

Now, Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CR$$

$$\Rightarrow R = (5.55)^3 / (0.3 \times 31.08) = 18.33 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 18.33 \times 60^\circ / 180^\circ = 19.18 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 81.34 \text{ m}$.


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DESIGN OF COMPOSITE CURVE FROM RD 1/525 to 1/575 (IN km 2nd) FOR ROAD
From Towara to Dodla

deflection angle (Taken from Site Plan) = $\Phi = 120^\circ$.

assumed speed of vehicle at the zig point = $v = 15 \text{ Km/hr} = 4.16 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 4% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 4 \times 7.0 / 100 = 0.28 \text{ m} = 28 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 28 \times 4.16 / 5 = 23.29 \text{ m}$.

Length of transition curve = $L_2 = 28 \times 4.16 / 5 = 23.29 \text{ m}$.

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CL_1$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 23.29) = 10.30 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 10.30 \times 120^\circ / 180^\circ = 21.56 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 68.14 \text{ m}$.

Assistant Executive Engineer
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PMGSY Division
Kathua

DESIGN OF COMPOSITE CURVE FROM RD 1/700 to 1/750 (IN km 2nd) FOR ROAD
From Towara to Dodla

deflection angle (Taken from Site Plan) = $\Phi = 105^\circ$.

assumed speed of vehicle at the zig point = $v = 15 \text{ Km/hr} = 4.16 \text{ m/s.}$

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 5% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 5 \times 7.0 / 100 = 0.35 \text{ m} = 35 \text{ cm.}$

Therefore, Length of transition curve = $L_1 = 35 \times 4.16 / 5 = 29.12 \text{ m.}$

Length of transition curve = $L_2 = 35 \times 4.16 / 5 = 29.12 \text{ m.}$

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CR$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 29.12) = 8.24 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 8.24 \times 54^\circ / 180^\circ = 15.09 \text{ m.}$

Therefore, Length of composite curve = $L_1 + L + L_2 = 73.33 \text{ m.}$


Assistant Executive Engineer
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Kathua

DESIGN OF COMPOSITE CURVE FROM RD 2/250 to 2/300 (IN km 3rd) FOR ROAD
From Towara to Dodla

deflection angle (Taken from Site Plan) = $\Phi = 75^\circ$.

assumed speed of vehicle at the zig point = $v = 20 \text{ Km/hr} = 5.55 \text{ m/s.}$

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 3% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 3 \times 7.0 / 100 = 0.21 \text{ m} = 21 \text{ cm.}$

Therefore, Length of transition curve = $L_1 = 21 \times 5.55 / 5 = 23.33 \text{ m.}$

Length of transition curve = $L_2 = 21 \times 5.55 / 5 = 23.33 \text{ m.}$

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CL_1$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 23.33) = 10.29 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 10.29 \times 75^\circ / 180^\circ = 13.46 \text{ m.}$

Therefore, Length of composite curve = $L_1 + L + L_2 = 60.08 \text{ m}$


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PMGSY Division
Kathua

DESIGN OF COMPOSITE CURVE FROM RD 2/500 to 2/550 (IN km 3rd) FOR ROAD
From Towara to Dodla

deflection angle (Taken from Site Plan) = $\Phi = 130^\circ$.

assumed speed of vehicle at the zig point = $v = 12 \text{ Km/hr} = 3.33 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 5% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5cm/s)

Super Elevation = $h = 5 \times 7.0 / 100 = 0.35 \text{ m} = 35 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 35 \times 3.33 / 5 = 23.31 \text{ m}$.

Length of transition curve = $L_2 = 35 \times 3.33 / 5 = 23.31 \text{ m}$.

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CL_1$$

$$\Rightarrow R = (3.33)^3 / (0.3 \times 23.31) = 5.28 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 5.28 \times 130^\circ / 180^\circ = 11.97 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 58.59 \text{ m}$.


Assistant Executive Engineer
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Executive Engineer

PMGSY Division

Kathua

DESIGN OF COMPOSITE CURVE FROM RD 2/800 to 2/850 (IN km 3rd) FOR ROAD
From Towara to Dodla

deflection angle (Taken from Site Plan) = $\Phi = 108^\circ$.

assumed speed of vehicle at the zig point = $v = 15 \text{ Km/hr} = 4.16 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 5% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Super Elevation = $h = 5 \times 7.0 / 100 = 0.35 \text{ m} = 35 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 35 \times 4.16 / 5 = 29.12 \text{ m}$.

Length of transition curve = $L_2 = 28 \times 4.16 / 5 = 29.12 \text{ m}$.

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CR$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 29.12) = 8.24 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 8.24 \times 108^\circ / 180^\circ = 15.52 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 73.76 \text{ m}$

Assistant Executive Engineer
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PMGSY Division
Kathua

DESIGN OF COMPOSITE CURVE FROM RD 2/950 to 2/1000 (IN km 3rd) FOR ROAD
From Towara to Dodla

deflection angle (Taken from Site Plan) = $\Phi = 100^\circ$.

assumed speed of vehicle at the zig point = $v = 15 \text{ Km/hr} = 4.16 \text{ m/s}$.

Length of Transition Curve = $L_1 = h \times v / a$

where h = super-elevation in cm (= 4% of road width)

v = speed in m/s

a = time rate in cm/s (between 2.5 - 5 cm/s)

Elevation = $h = 4 \times 7.0 / 100 = 0.28 \text{ m} = 28 \text{ cm}$.

Therefore, Length of transition curve = $L_1 = 28 \times 4.16 / 5 = 23.29 \text{ m}$.

Length of transition curve = $L_2 = 28 \times 4.16 / 5 = 23.29 \text{ m}$.

Length of transition curve = $L_1 = v^3 / CR$

Where v = speed in m/s

C = rate of change of radial acceleration = 0.3 m/s^3

R = Radius of circular curve in meters.

$$\Rightarrow R = v^3 / CL_1$$

$$\Rightarrow R = (4.16)^3 / (0.3 \times 23.29) = 10.30 \text{ m}$$

Length of circular curve = $L = \pi \times R \times \Phi / 180 = 3.14 \times 10.30 \times 100^\circ / 180^\circ = 17.96 \text{ m}$.

Therefore, Length of composite curve = $L_1 + L + L_2 = 64.54 \text{ m}$.


Sub-Executive Engineer
Sub-Division


Executive Engineer
PMGSY Division
Kathua

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.

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

8.2 Horizontal Alignment : Separate horizontal curve designs at curve points are attached

In DPR

8.3 Vertical alignment (Not applicable)

9 Pavement Design

9.1 General

Considering the subgrade strength, projected traffic and the design life, the pavement design for low volume PMGSY Roads was carried out as per guidelines of IRC:SP: 72-2007, or IRC:SP:77 "Design of Gravel road" and IRC:SP:62-2004 "Cement Concrete Roads".

9.2 Pavement Design Approach

Design Life

A Design life of 10 years was considered for the purpose of pavement design of flexible and granular pavements.

9.3 Design Traffic

The average annual daily traffic (AADT) for the opening year as well as the total commercial vehicle per day (CPVD) was presented on next page.

9.4 Determination of ESAL Applications

(Refer next page)

9.5 Subgrade CBR

The subgrade CBR range is () % and the traffic fall is the category

9.6 Pavements composition

Flexible Pavement

The designed pavements thickness and composition was calculated by referring 4 Pavement design catalogue of IRC:SP: 72-2007. The ratio between heavy commercial vehicle and medium commercial vehicles as given in chapter 5 should be maintained as far as possible.

The pavement layers provided are given below:

Top layer	Premix carpet with type B Seal Coat	
Base layer	WBM Grading III	N. A
Sub-Base layer	Granular Sub-base	
	Total thickness	

Top layer of WBM will be treated with Bituminous surface.

10 Design of Cross drainage Works

10.1 General

On the basis of hydrological Survey 4 number of new cross drainage structures are recommended for the projected road.

10.2 Hydrological Design

separate hydrological data for each structure is attached herewith.

10.3 Design Feature

Design standards for Culverts has been prepared based on standard codes and guidelines or 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 6 m.

Width of culvert 6 m with parapet.

Justification for retaining/widening and replacement of culverts

Width of road is equal to 6m and width of existing road is 0m.

Proposed Culverts : The location chart of CD works is attached with the DPR.

11. Protective Works and Drainage

11.1 Road side drain

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

11.2 Protective works

The location chart of protection works is attached in DPR.

BHARAT NIRMAN (PMGSY)**CARRIAGE CHART**Road From : **Towara to Dodla**Length of the Road (KM) : **3.500 Kms**

Package Number: JK-07- 119

Block : **Basohli**District: **Kathua**

Sr.No.	Items/Material	Rate of Source Rs/Cum.	Loading	Unloading	Carriage			Sub Total in Rs 4+5+6+7+8	Remarks
					B.T	Gavel	(Insurface / Kacha		
1	2	3	4	5	6			9	10
1.	Sand from Kathua	Cum	41.00 25	10.00 11	112 Km x 4.49 x 1.60 = 804.60	— Km x 5.40 x 1.70 =	03 Km x 10.86 x 1.60 = 52.12	— 907.72 892.72	115 Km
2.	Crushed stone Agg. From Kathua	Cum	63.00 48	10.00 11	112 Km x 4.49 x 2.0 = 1005.76	— Km x 5.40 x 2.00 =	01 Km x 10.86 x 2.0 = 65.16	— 1163.92 1129.92	115 Km
3.	Stone from Local	Cum	83.00 100	10.00 11	14 Km x 4.49 x 2.15 = 135.14	— Km x 5.40 x 2.15 =	04 Km x 10.86 x 2.15 = 93.39	— 321.55 339.55	18 Km
4.	Cement From Kathua	Tonne	103.00 127	103.00 127	112 Km x 4.49 x 1.0 = 502.88	— Km : 5.40 x 1.0 =	01 Km x 10.86 x 1.0 = 32.58	— 741.76 789.76	115 Km
6.	Steel from Kathua	Tonne	110.00 138	110.00 138	112 Km x 4.49 x 1.0 = 502.88	— Km x 5.40 x 1.0 =	01 Km x 10.86 x 1.0 = 32.58	— 755.46 811.46	115 Km
7.	Bitumen from Kathua	Tonne	422.00 149	113.00 135	197 Km x 4.49 x 1.0 = 884.53	— Km x 5.40 x 1.0 =	01 Km x 10.86 x 1.0 = 32.58	— 1152.11 1201.11	200 Km


Asstt. Executive Engineer
PMGSY Sub-Division,
Basohli.


Executive Engineer
PMGSY
Kathua

LOCATION CHART FOR CONSTRUCTION OF ROAD FROM TOWARA TO DODLA LENGTH 3.500 KM IN PMGSY DIVISION KATHUA

Kim	HPC 1000 dia	R/Wall 4.00 mtr	B/Wall in Mtr.(2.55)	Edge Wall 1.0 M	Pucca drain in Mtr.	Pucca drain with cover in Mtr.	R/Wall 3.00 mtr	Culvert 2mtr	Culvert 3.0 M Span	Scupper	B / wall 1.50 mtr.
Kim 1st	0.150=1 0.350=1 0.750=1	0-500 = 100m 500-1000 = 100m	0-1000 = 100m	0-1000 = 200M	0-1000 = 150m	0-1000 = 150m	0-1000 = 100	1-75 = 1	—	—	0-1000=100m
Kim 2nd	1-50=1 1-250=1	0-500 = 100m 500-1000= 100m	0-1000 = 100m	0-1000 = 200M	0-1000= 160m	0-1000=25m	0-1000= 100	1-75 = 1	—	1-55.6=100mtr 1-600mtr 1-915=100mtr	0-1000=100m
Kim 3rd	2-75=1 2-250=1 2-600=1 2-625=1 2-525=1 2-650=1 3-225=1	0-1000 = 125m	0-1000 = 100m	0-1000 = 150M	0-1000 = 100m	0-1000 = 20m	0-1000= 300	2-75 = 1	2/325 = 1	2-475=9mtr	0-100=50mtr
Kim 4th		0-500 = 75m		0-500= 150M	0-500=90m	0-500= 25m	0-500=100	3-35 = 1	—	3-72.5=11mtr	0-500=150mtr
Q.Total	13 Nos.	600RMT	300RMT	700 RMT	500MT	120RMT	600RMT	35	01 NOS	50.00 mtr.	400 Mtr.

Asstt. Ex. Engineer,
PMGSY Sub-Division,
Bachli

RR
Executive Engineer,
PMGSY Division,
Kathua.

Bridge 725-775

**Detailed Estimate For The Construction of 1.0 Mtrs Dia H.P. Culvert
for construction of road from Towara to Dodla In PMGSY Division**

Kathua

S.No.	Description	02	Amount
			03
1	Earth work in excavation for structures as per drawing and technical specifications clause 305.1 including setting out construction of shoring & to a lead of 50 Mtr. Dressing of sides and bottoms and back filling in trenches with excavated suitable material. Ordinary Soil 70%, Ordinary Rock 20%, Hard Rock 10%		
	Drop Wall = 1 x 3 x 1.06 x 1.07 av	= 8.16 Cum.	
	Curtain Wall = 1 x 3 x 1.6 x 2.00 av	= 9.60 Cum	
	Catch Pit = 1 x 2.60 x 1.50 x 1.40 av	= 5.46 Cum	
	Crate = 1 x 6.0 x 1.20 x 1.20	= 8.64 Cum	
	Toe Wall = 1 x 6.00 x 0.60 x 1.40	= 5.00 Cum	
	Pipe Portion = 1 x 4.50 + 3.50 x 1.80 x 1.20 av		
	Approaches = 2 x 3.0 x 0.60 + 1.20 x 1.225	= 8.64 Cum = 6.61 Cum	43.26
	Total :-	52.15 Cum	33.34 18930
2	Providing /Laying for plain/reinforced concrete in open foundations complete as per drawing and technical specifications clause 802, 803, 1202 & 1203 PCC grade M-10 (1:3:6) nominal mix. Using 40mm down size aggregate.	363 Cum @ 243.60/Cum	+2704.00
	Drop wall & Curtain Wall = 2 x 3.0 x 1.60 x 0.10	= 0.96 Cum	
	Catch Pit = 1 x 2.60 x 1.50 x 0.10	= 0.39 Cum	
	Toe Wall = 1 x 6.00 x 0.60 x 0.10	= 0.36 Cum	
	Below Pipe = 1 x 3.70 x 1.80 x 0.60	= 3.99 Cum	
	Approaches = 2 x 3.0 x 1.225 x 0.10	= 0.74 Cum	5.34
	Total:-	6.44 Cum	1444 24066
		3737 @ 3387.00/Cum	21812.00
3	Providing /Laying plain/reinforced cement concrete in Sub Structure complete as per drawing and technical specifications clause 802, 804, 805, 806, 807, 1202 & 1204 PCC grade M-15 (1:2:5:5) nominal mix. Using 40mm down size aggregate.		
	Drop wall & Curtain Wall = 2 x 3.0 x 0.40 + 1.40 x 2.40		
		2	= 12.96 Cum
	Toe Wall = 6.00 x 0.40 x 1.20		= 2.88 Cum
	Catch Pit Walls = 1 x 3.80 x 0.40 x 1.30		= 1.976 Cum
	Parapit = 4 x 1.0 x 0.40 x 0.60		= 0.96 Cum
	D/d Pipe Portion = 2 x 22/7(0.50) ² x 0.90		= 1.41 Cum
	Total :-	17.36 Cum	14.40 70933
		4086 @ 3722.00/Cum	64614.00
4	Providing /Laying of boulder apron laid in wire crates with 4mm dia GI wire confirming to IS:280 & IS:4826 IN 100mm mesh(woven diagonally) including 10% extra for laps and joints laid with stone boulders weighing not less than 25Kg each as per drawing and technical specification clause 1301 (Incl. Cost of Crates)		-7.16
	Toe Wall = 1 x 6.0 x 1.20 x 1.20	= 8.64 Cum	5.82 14818
		1715 @ 1588.00 Cum	+3720.00
		Total:-	112850.00

		H.P.C	B/F = Rs. 112850.00
5 a)	Black filling with stones behind abutment, wing wall and return wall complete as per drawing and technical specification clause 1204.38 Above Pipe = 1 x 5.20 x 1.80 x 0.30 Approaches = 2 x 3.0 x 0.70 + 1.30 x 1.0	= 2.80 Cum = 6.00 Cum Total:- 659 @ 510.00/Cum	7.30 562 5799 4488.00
b)	Earth filling in foundation trenches as per drawing and technical specification clause 305.3.9 1 x 5.20 x 1.80 x 0.45	= 4.21 Cum 182 @ 120.00/Cum	2.69 3.49 766 505.00
6	Providing /Laying plain/reinforced cement concrete pipe NP3 for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation protection work, backfilling concrete and masonry works in head walls and parapets clause 1106 (1000mm dia) 7.50 Rmt.	480 6.22 5436 @ 5130.00/RM	40770 38475.00
7	Polygonal Rubble Masonry brought to course, in 1 cement : 6 fine sand mortar, with Nallah Stone, in Sub-structure, including leveling up at specified levels with M-5 Nominal mix (Max size of stone aggregates: 20mm nominal) concrete: including cost of through/bound stones Approach Walls Bottom Band = 2 x 3.0 x <u>1.225 + 1.075</u> x 0.60 2 Top Band = 2 x 3.0 x <u>0.75 + 0.60</u> x 0.60 2 Vertical Band = 2 x 2 x 0.60 x <u>1.075 + 0.75</u> x 1.20 2 Total:- 2938.68 @ 2647.00/Cum	= 4.14 Cum = 2.43 Cum = 2.63 Cum 9.20 Cum 5.88 @ 2647.00/Cum	7.63 27036 24352.00
8 bnd bry	Polygonal Rubble Masonry brought to course, in 1 cement : 6 fine sand mortar, with Nallah Stone, in Sub-structure, including leveling up at specified levels with M-5 Nominal mix (Max size of stone aggregates: 20mm nominal) concrete: including cost of through/bound stones Approaches = 2 x 1.80 x <u>1.075 + 0.75</u> x 1.20 2 @ 1626/Cum 1974.15 Total:-	3.27 = 3.94 Cum 2.51 @ 1626/Cum 1974.15 187076.00	7778 6406.00 210896

**Detailed Estimate For The Construction of 2.0 Mtr. Span RCC Culvert
In PMGSY Division KATHUA.**

#	Description	Amount
1	<p>Earth work in excavation for structures as per drawing and technical specifications clause 305.1 including setting out construction of shoring & bracing, removal of stumps and other deleterious materials and disposal up to a lead of 50 Mtr. Dressing of sides and bottoms and back filling in trenches with excavated suitable material.</p> <p>Ordinary Soil 70%, Ordinary Rock 20%, Hard Rock 10%</p> <p>Abutment = $2 \times 7.00 \times 2.60 \times 1.80$ = 65.52 Cum.</p> <p>Wing Wall = $4 \times \frac{0.70 + 1.00}{2} \times 1.80$ av = 6.12 Cum</p> <p>Approaches = $2 \times 2.50 \times 1.60 \times 2.30$ av = 18.40 Cum</p> <p>Total :- 90.04 Cum 81.70</p>	
		32685 21934.00
2	<p>Providing /Laying for plain/reinforced concrete in open foundations complete as per drawing and technical specifications clause 802, 803,1202 & 1203 PCC grade M-10 (1:3:6) nominal mix. Using 40mm down size aggregate.</p> <p>Abutment = $2 \times 7.00 \times 2.57 \times 0.20$ = 7.19 Cum</p> <p>Wing Wall = $4 \times 0.60 \times 2.41 \times 0.20$ = 1.15 Cum</p> <p>Approach Wall= $2 \times 2.50 \times 1.53 \times 0.20$ = 1.53 Cum</p> <p>Total:- 9.87 Cum 8.95</p>	
		36884 33430.00
3	<p>Providing /Laying plain/reinforced cement concrete in Sub Structure complete as per drawing and technical specifications clause 802, 804, 805, 806, 807,1202 & 1203 PCC grade M-15 (1:2^{1/2} :5) nominal mix. Using 40mm down size aggregate.</p> <p>Abutment 1st step = $2 \times 6.80 \times 2.37 \times 0.40$ = 12.89 Cum</p> <p>2nd step = $2 \times 6.60 \times 2.17 \times 0.40$ = 11.46 Cum</p> <p>3rd step = $2 \times 6.20 \times 1.97 \times 0.60$ = 14.66 Cum</p> <p>4th step = $2 \times 6.00 \times \frac{1.47 + 0.70}{2} \times 2.30$ = 29.95 Cum</p> <p>Dirt Wall = $2 \times 6.00 \times 0.40 \times 0.44$ = 2.11 Cum</p> <p>Wing Wall 1st Step = $4 \times 0.60 \times 2.21 \times 0.40$ = 2.12 Cum</p> <p>2nd step = $4 \times 0.70 \times 2.01 \times 0.40$ = 2.25 Cum</p> <p>3rd step = $4 \times 0.80 \times 1.81 \times 0.60$ = 3.47 Cum</p> <p>4th step = $4 \times \frac{1.00 + 1.80 \times 0.40 + 1.31}{2} \times 2.74$ = 13.11 Cum</p> <p>Approaches</p> <p>Bottom Band = $2 \times 2.50 \times \frac{1.27 + 1.35}{2} \times 0.30$ = 1.96 Cum</p> <p>Middle Band = $2 \times 2.30 \times \frac{0.93 + 1.01}{2} \times 0.30$ = 1.33 Cum</p> <p>Top Band = $2 \times 2.50 \times \frac{0.60 + 0.67}{2} \times 0.30$ = 0.952 Cum</p> <p>Vertical Band = $2 \times \frac{0.67 + 1.27}{2} \times 0.30 \times 2.40$ = 1.39 Cum</p> <p>Parapet Over Culvert = $2 \times 3.40 \times 0.60 \times 0.40$ = 1.63 Cum</p> <p>Over approaches & Wing Walls = $4 \times 1.50 \times 0.40 \times 0.60$ = 1.44 Cum</p> <p>Bed of Culvert = $6.00 \times 2.00 \times 0.30$ = 3.60 Cum</p> <p>Total:- 104.32 Cum 94.66</p>	
		426252 388279.00

210896

9	Carriage of materials by M.T from source to site of work incl. Loading/unloading complete.	HPC	BF= Rs. 187076.00
	a) Carriage of sand for an avg. distance of 115 Kms Qty. vide item No (2) 6.44 Cum x 0.48/Cum = 3.09 Cum (3) 17.36 Cum x 0.48/Cum = 8.33 Cum Total:- 11.42 Cum	892.72 @ 907.74/Cum	10195 +10366.00
	b) Carriage of Stone agg. For am avg. distance of 115 kms Qty. vide item No (2) 6.44 Cum x 0.96/Cum = 6.18 Cum (3) 17.36 Cum @ 0.96 / Cum = 16.66 Cum Total:- 22.84 Cum	25807	-26584.00
	c) Carriage of Stone Qty. vide item No. 4,5,7,8. = 30.58 cum. @1163.92/Cum 1129.92	1129.92	
	d) Carriage of Cement av. Distance of 115 kms from Kathua Qty. vide item No (2) 5.70 Cum @0.250MT/Cum = 1.425 MT (3) 17.36 Cum @ 0.275MT/Cum = 4.77 MT (7) 9.20 Cum @ 0.092MT/Cum =0.85 MT Total:- 7.045 MT	789.76 @ 741.76/MT	5564 5226.00
	D/d Cost of Available Stones from cutting Qty. Vide Item No. 9 (c) = 30.58 @ Rs. 220/Cum Total:- 343 Cost per Culvert. = 2.22 Lacs	(-) 6728.00 10489 222516.00 2.42 Lacs	241973

Assistant Executive Engineer,
PMGSY Sub-Division,
Basohli.

Executive Engineer,
PMGSY Division
Kathua .

2.0 RCC Culvert

4	<p>Providing /Laying plain/reinforced cement concrete in superstructure as per drawing and technical specification clauses 800,1205.4 and 1205 RCC M-25 grade (1:1.5 :3) nominal mix (Using 20 mm down size aggregate.)</p> <p>Slab = 1 x 6.00 x 2.60 x 0.24 = 3.74 Cum</p> <p>Bed Plate = 2 x 6.00 x 0.20 x 0.30 = 0.72 Cum</p>	<p>Total: <u>4.46 Cum</u> <u>4.05</u></p> <p><u>5812</u> @ 5367.00/Cum <u>25922</u></p>	23937.00
5	<p>Supplying fitting HYSD bar reinforcement in superstructure complete as per drawing and technical specification clauses 1002,1010 and 1202.</p> <p>Oty. Vide Item No (4) 4.46 Cum @ 1Qty/Cum = 4.46 Qtl.</p>	<p>= 0.45 MT <u>0.408</u></p> <p><u>74715</u> @ 73403.00/MT <u>33622</u></p>	33031.00
6	<p>Polygonal /random Rubble masonry uncoursed /brought to course laid dry with nallah stone in sub-structure inc. cost of through/Bond stones.</p> <p>= 2 x 2.50 x 0.60 + 1.35 x 3.00 = 14.62 Cum</p> <p>D/d Qty. vide item No (3) marked "A" = (-)5.63</p>	<p>8.99 Cum <u>8.16</u></p> <p>@ 1626.00Cum <u>14618.00</u></p> <p><u>1974.15</u></p>	17748
7	<p>Back filling with stones behind abutment, wing walls and return walls complete as per drawing and technical specification clause 1204.3.8</p> <p>2 x 2.50 x 1/2 x 1.50x3.0 = 11.25 Cum <u>10.20</u></p>	<p>659 @ 510.00Cum <u>3237.00</u></p>	7414

2.0 Mtr RCC Culvert

8	Carriage of materials by M.T from source to site of work incl. Loading/unloading complete.	
a)	Carriage of sand 115 Km (112 BT +3KT) Qty. vide item No (2) 9.87 Cum @ 0.48/Cum (3) 104.32 Cum @ 0.48/Cum = 4.47 Cum (4) 4.46 Cum @ 0.45/Cum = 50.07 Cum = 2.01 Cum Total:- <u>56.82 Cum</u> @ 907.74/Cum 892.72	50724 55578.00
b)	Carriage of Stone agg. 115 Km (112 BT+3 KT) Qty. vide item No (2) 9.87 Cum @ 0.96/Cum (3) 104.32 Cum @ 0.96 / Cum = 9.48 Cum (4) 4.46 Cum @ 0.90/Cum = 100.15 Cum = 4.01 Cum Total:- <u>113.64 Cum</u> @ 1163.92/Cum 1129.72	128404 132268.00
c)	Carriage of Cement av. Distance of 115 Km (112 BT +3 KT) Qty. vide item No (2) 9.87 Cum @ 0.250MT/Cum = 2.47 MT (3) 104.32 Cum @ 0.275MT/Cum = 28.69 MT (4) 4.46 Cum @ 0.40 MT/Cum = 1.78 MT Total:- <u>32.94 MT</u> @ 741.76/MT 789.76	26015 24434.00
d)	Carriage of Steel av. Distance of 115 Km (112 BT + 3 KT) Qty. vide item No (5) 4.46 Qtl. or 0.45 MT 811.46 @ 755.46/MT 365 340.00 Total:- <u>729586.00</u> D/d Cost of Stone Available from Rock at Site Qty. Vide Item No 8.e = 20.24 Cum @ Rs. 220.00/Cum (-)4553.00 6942 Cost Per Culvert:- <u>725133.00</u> 779093 Say Rs. 7.25 Lacs 7.79	784035


Assistant Executive Engineer,
PMGSY Sub-Division,
Basohli


Executive Engineer,
PMGSY Division
Kathua

TYPICAL ESTIMATE FOR THE CONSTRUCTION OF 3.0 MTR. SPAN RCC CULVERT FOR CONSTRUCTION OF ROAD FROM TOWARA TO DODLA IN PMGSY DIVISION KATHUA.

S.No.	Particulars	Amount
1	Earth work in excavation for structures as per drawing & Technical specifications clause - 305.1 including setting out, constt. of shoring and bracing, removal of stumps and other deleterious material and disposal upto lead of 50mtr.dressing of sides and bottom and back filling in trenches with excavation suitable material in 70% Soil, 20% ordinary rock,10% hard rock. Abutments = $1 \times 9.50 \times 8.50$ (av) $\times 1.80$ (av) = 145.35 m^3 Return Walls = $2 \times 2 \times 4.0 \times 3.50 \times 1.80$ = 100.80 m^3 Total = 246.15 m^3 @ Rs.243.60/ m^3 159.08 363.00	89352 Rs59962/-
2.	Providing concrete for plain / cement concrete grade M-10 (1:3:6) in open foundation complete as per drawings and technical specifications clause-802,803,1202, & 1203 Abutment = $1 \times 7.20 \times 7.0 \times 0.20$ = 10.08 m^3 Return Wall= $4 \times 3.20 \times 2.75 \times 0.20$ = 7.04 m^3 Under Flooring = $1 \times 5.20 \times 2.80 \times 0.20$ = 2.92 m^3 Total = 20.03 m^3 12.95 @ Rs.3387/ m^3 3737	74852 Rs.68519/-
3.	Plain cement concrete grade M - 15 in sub-structure complete as per drawings and technical specifications clauses - 802,804,805,806,807,1202 and 1204. Abutment 1 st -Step = $1 \times 7.00 \times 6.80 \times 0.20$ = 9.52 m^3 2 nd -Step = $2 \times 6.80 \times 2.50 \times 0.20$ = 6.80 m^3 3 rd -Step = $2 \times 6.60 \times 2.40 \times 0.20$ = 6.33 m^3 4 th -Step = $2 \times 6.40 \times 2.30 \times 0.20$ = 5.88 m^3 5 th -Step = $2 \times 6.20 \times 2.20 \times 0.20$ = 5.46 m^3 6 th -Step = $2 \times 6.10 \times 2.10 \times 0.20$ = 5.12 m^3 7 th -Step = $2 \times 6.00 \times 2.0 \times 0.20$ = 4.80 m^3 Above G.L = $2 \times 6.00 \times \underline{0.70 + 1.70} \times 3.0$ = 43.20 m^3 2	
	Return Wall up-to G.L $= 4 \times 3.10 \times \underline{2.55 + 1.65} \times 1.40 = 36.45 \text{ m}^3$ 2 Above G.L = $4 \times \underline{4.30 + 3.30} \times \underline{0.45 + 1.65} \times 3.60 = 57.47 \text{ m}^3$ 2 $4 \times 4.30 \times 0.45 \times 0.15 = 1.16 \text{ m}^3$ Drop & C/wall = $2 \times \underline{3.0 + 1.60} \times 0.40 \times 1.40 = 2.58 \text{ m}^3$ 2 Total = 184.77 m^3 119.42 @Rs3722/- m^3 40 86	754970 Rs 687714/-

4.	Providing and Laying reinforced cement concrete in superstructure in (RCC grade M - 25)		
	RCC Slab = $1 \times 6.0 \times 4.40 \times 0.30$ = 7.92 m ³		
	Bed plate = $2 \times 6.0 \times 0.70 \times 0.30$ = 2.52 m ³		
	Para pits/ Wheel guards = $2 \times 4.40 \times 0.45 \times 0.115$ = 0.46 m ³		
	$2 \times 4.40 \times 0.25 + 0.45 \times 0.485 = 1.49 \text{ m}^3$		
	2 Total = 12.39 m ³ 8.00 72011		
5.	Supplying, fitting and placing HYSD bar reinforcement in superstructure complete. Qty. vide item No.4 = 13.00 m ³ @ 1.20 Qtl./ m ³	5812 @ Rs.5367 / m ³	Rs.66497/-
	. = 1.56 MT 1.00		116555
		@ Rs.73403/MT.	Rs.414509/-
		74715	
6.	Providing concrete for plain/ reinforced concrete in open foundations complete as per drawings and technical specifications clause 802,803,1202&1203. PCC grade M-20, Nominal Mix (1:2:4).		
	Bed of culvert 1 x 6.0 x 3.00 x 0.10 1.16	= 1.80 m ³	7947
		@ Rs.4059 / m ³	Rs.7306/-
		4415	
7.	Back filling with stones behind abutment, wing wall and return wall complete as per drawing and technical specification clause 1204.3.8.		
	Behind abutment = $2 \times 5.10 \times 0.60 \times 3.0$ = 18.36 m ³		
	Return wall = $2 \times 2 \times 3.10 \times 0.60 \times 3.60$ = 26.78 m ³		
	Total = 45.14 m ³ 29.17 29747		
		@ Rs.5107 / m ³	Rs.25021/-
		659	
8.	Providing and laying of boulder apron laid in wire crates with 4mm Ø G.I. wire confirming to 1S: 280 and 1S: 4826 in 100 mm x 100mm mesh (woven diagonally) including 10 % extra for laps and joints laid with stones boulders weight not less than 25 Kg. each.	5.58	
	1 x 6.00 x 1.20 x 1.20 = 8.64 m ³		14818
		@ Rs.588 / m ³	Rs.13720/-
		1715	
9.	Providing and laying pitching on horizontal laid over prepared filter media as per drawing and technical specification clause 1302.	1.88	
	Soiling under flooring 1 x 5.20 x 2.80 x 0.20 = 2.91 m ³		2305
		@ Rs.613 / m ³	Rs.1783/-
		792	
10.	Carriage of the following material by M.T. including loading, unloading & stacking complete at site.		
(i)	Sand for an Av. Distance 115Km (112BT+3KT)		
	Qty. vide item No.2 = 20.03 m ³ @ 0.47 / m ³ = 9.41 m ³		
	Qty. vide item No.3 = 184.77 m ³ @ 0.45 / m ³ = 83.14 m ³		
	Qty. vide item No.4 = 12.39 m ³ @ 0.45 / m ³ = 5.57 m ³		
	Qty. vide item No.6 = 1.80 m ³ @ 0.45 / m ³ = 0.81 m ³		
	Total = 98.12 m ³		87594
	@ Rs.907.72 / m ³		Rs.89065/-
	892.72		

(ii)	Stone aggregate for 115 Km (112BT+3KT)		
	Qty. vide item No.2 = 20.03 m^3 @ $0.94 / \text{m}^3$ = 18.82 m^3		
	Qty. vide item No.3 = 184.77 m^3 @ $0.90 / \text{m}^3$ = 166.29 m^3		
	Qty. vide item No.4 = 12.39 m^3 @ $0.90 / \text{m}^3$ = 11.15 m^3		
	Qty. vide item No.6 = 1.80 m^3 @ $0.90 / \text{m}^3$ = 1.62 m^3		
		= 197.88 m^3	$22358/-$
		@ $\text{Rs} 1163.92 / \text{m}^3$	$\text{Rs.} 230316/-$
		1129.92	
(iii)	Cement for an av. Distance 115 Km (112BT+3KT)		
	Qty. vide item No.2 = 20.03 m^3 @ $0.22 \text{ MT} / \text{m}^3$ = 4.40 MT		
	Qty. vide item No.3 = 184.77 m^3 @ $0.26 \text{ MT} / \text{m}^3$ = 48.04 MT		
	Qty. vide item No.4 = 12.39 m^3 @ $0.40 \text{ MT} / \text{m}^3$ = 4.95 MT		
	Qty. vide item No.6 = 1.80 m^3 @ $0.32 \text{ MT} / \text{m}^3$ = 0.57 MT		
		= 57.96 MT	45774
		@ $\text{Rs.} 741.76 / \text{MT}$	$\text{Rs.} 42992/-$
		789.76	
(iv)	Steel for an av. Distance 115 Km (112BT+3KT) .		1266
	Qty. Vide item No.5 = 1.56 MT @ $\text{Rs.} 755.46 / \text{MT}$		$\text{Rs.} 1178/-$
		811.46	1520780
			$\text{Total} = \text{Rs.} 1406582/-$
	Deduct cost of stone item no. 7 to 9 = 56.59×220.00	343	$= (\text{Rs.} 12472/-) 19410$
			$= \text{Rs.} 1394110/-$
			1501370

Say Rs 13.94 Lacs

15.01


Asstt. Executive Engineer,
PMGSY Sub- Division,
Basohli


Executive Engineer,
PMGSY Division,
Kathua

Detailed Estimate for the Construction of 6.00 mt. Long Pucca
Scupper / Flush causeway for Construction of road from Towara
to Dodla in PMGSY Division Kathua

Sr. No.	Description	Amount (in Rs.)
1.	<p>Earthwork in excavation for structures as per drawing and technical specification clause 305.1 including setting out construction of shoring & bracing, removal of stumps and other deleterious material and disposal up to a lead of 50 Mtr. Dressing of sides and bottoms and back filling in trenches with excavated suitable material.</p> <p>Ordinary soil 70%, Ordinary rock 20%, Hard rock 10%</p> <p>Drop wall $1 \times 6.0 \times 2.15 \times \frac{1.50 + 1.08}{2} = 16.64 \text{ M}^3$</p> <p>Curtain Wall $1 \times 7 \times 1.30 \times \frac{0.70 + 1.50}{2} = 10.01 \text{ M}^3$</p> <p>Approach Wall $2 \times 4.20 \times 1.60 \times \frac{1.50 + 2.30}{2} = 25.54 \text{ M}^3$</p> <p>End Wall $2 \times 4.80 \times 0.70 \times 0.80 = \frac{5.38}{T} \text{ M}^3$ $T = 57.57 \text{ M}^3$</p> <p style="text-align: right;">363 $@ 243.60/\text{M}^3$</p>	20292 14024.00
2.	<p>Providing / Laying concrete for Plain / reinforced concrete in open foundation complete as per drawing and technical specification clause 802, 803, 1202 & 1203 PCC grade M-10 (1:3:6 nominal mix) using 40mm down size aggregate.</p> <p>Drop wall $1 \times 6.0 \times 2.13 \times 0.10 = 1.28 \text{ M}^3$</p> <p>Curtain wall $1 \times 7.0 \times 1.30 \times 0.10 = 0.91 \text{ M}^3$</p> <p>Approach wall $2 \times 4.20 \times 1.54 \times 0.10 = 1.30 \text{ M}^3$</p> <p>End walls $2 \times 4.80 \times 0.80 \times 0.10 = 0.77 \text{ M}^3$</p> <p>Below Flooring $1 \times 4.80 \times 5.30 \times 0.15 = 3.82 \text{ M}^3$</p> <p style="text-align: right;">$T = 8.08 \text{ M}^3$ 3737 $@ 3387.00/\text{M}^3$</p>	30195 27367.00
3.	<p>Providing / Laying concrete for plain / reinforced concrete in open Sub-structure complete as per drawing and technical specifications clause 802, 804, 805, 806, 807, 1202 & 1203 PCC grade M-15 [1:2:5:5] Nominal mix (using 40mm down size aggregate).</p> <p>Drop wall $1 \times 6.0 \times \frac{0.65 + 1.93}{2} \times 3.80 = 29.41 \text{ M}^3$</p> <p>Curtain wall $1 \times 7.0 \times \frac{0.65 + 1.10}{2} \times 1.30 = 7.96 \text{ M}^3$</p> <p>Approach walls</p> <p>Bottom Band $2 \times 4.0 \times \frac{1.26 + 1.34}{2} \times 0.30 = 3.12 \text{ M}^3$</p> <p>Middle Band $2 \times 3.40 \times \frac{0.93 + 1.0}{2} \times 0.30 = 1.96 \text{ M}^3$</p> <p>Top Band $2 \times 4.0 \times \frac{0.60 + 0.67}{2} \times 0.30 = 1.52 \text{ M}^3$</p> <p>Vertical band $2 \times 2 \times 2.40 \times \frac{0.67 + 1.26}{2} \times 0.30 = 2.77 \text{ M}^3$</p> <p>Parapet over Approaches $4 \times 1.50 \times \frac{0.40 + 0.60}{2} \times 0.60 = 1.80 \text{ M}^3$</p> <p>End walls $2 \times 4.80 \times 0.60 \times 0.60 = \frac{3.46}{T} \text{ M}^3$ $T = 52.00 \text{ M}^3$</p> <p style="text-align: right;">4086 $@ 3722.00/\text{M}^3$</p>	9.37 " A " 212472 193544.00 234935.00 263565

6.0 Long Scupper		BF	234935.00
4.	Polygonal / Random Rubble Masonry, uncoursed / brought to course laid dry with nallah stone in sub-structure incl. cost of through / Bond stones Approaches $2 \times 4.0 \times 3.0 \times \frac{0.60+1.34}{2} = 23.28 \text{ M}^3$ D/d Qty. vide item No.(3) Marked "A" = (-) <u>9.37 M³</u> Net Qty. = <u>13.91 M³</u> 1974.15		21460
5.	Back filling with stones behind abutment wing walls and return walls complete as per drawing and technical specifications clause 1204.3.8 Behind approaches $2 \times 4.0 \times \frac{1}{2} \times 1.0 \times 3.0 = 12.00 \text{ M}^3$ Below flooring $1 \times 4.80 \text{ av.} \times 5.10 \times 0.60 = \frac{14.69}{2} \text{ M}^3$ $T = 26.69 \text{ M}^3$ 659	@ 1626.00/ M ³	22618.00
6.	R.C.C M ₂₀ Providing conc. for plain / reinforced conc. in sub-structure complete as per drawing and technical specifications clause 802, 804, 805, 806, 807, 1202, & 1204 P.C.C M ₂₀ grade 1:2:4 nominal mix (using 20mm down size aggregate). Slab $1 \times 6.50 \times 6.00 \times 0.20 = 7.80 \text{ M}^3$ 5173 @4293.00/ M ³	@ 510.00/ M ³	13612.00
7.	Supplying, fitting and placing HYSD bar reinforcement (Fe415) in sub-structure complete as per drawings and technical specifications clauses 1002, 1005, 1010, 1202. Qty. vide Item (6) = $7.80 \text{ M}^3 @ 75 \text{ Kg} / \text{M}^3$ = 585 Kg. = 0.585 M.T	74715 @ 73403.00/ MT	43708 42941.00
		Total:-	347591.00
			392671

263565

6.0 Long Scupper

392671

8.	Carriage of materials by M.T from source to site of work incl. loading, unloading complete. Sand av. distance 115 Km. from Kathua Qty. vide item No.(2) = 8.08 M ³ @ 0.48 / M ³ = 3.88 M ³ (3) = 52.00 M ³ @ 0.48 / M ³ = 24.96 M ³ (6) = 7.80 M ³ @ 0.45 / M ³ = 3.51 M ³ T = <u>32.35 M³</u>	BF	347591.00
c)	Stone agg. for an av. distance 115 kms from Kathua Qty. vide item No.(2) = 8.08 M ³ @ 0.96 / M ³ = 7.76 M ³ (3) = 52.00 M ³ @ 0.96 / M ³ = 49.92 M ³ (6) = 7.80 M ³ @ 0.90 / M ³ = 7.02 M ³ T = <u>64.70 M³</u>	292.72 @ 907.72 / M ³	29365.00
d)	Cement for av. distance 115 Kms from Kathua Qty. vide item No.(2) = 8.08 M ³ @ 0.25 MT / M ³ = 2.02 MT Qty. vide item No.(3) = 52.00 M ³ @ 0.275 MT / M ³ = 14.30 MT Qty. vide item No.(6) = 7.80 M ³ @ 0.35 MT / M ³ = 2.73 MT T = <u>19.05 MT</u>	1129.92 @ 1163.92 / M ³	75306.00
e)	Steel av. distance 115 Km. from Kathua Qty. vide item No.(7) = 0.585 MT	789.76 @ 741.76 / MT	14131.00
G. Total =		510176	466835.00
D/D Cost of Stone Available from Rock at Site Qty Vide Item No. 8c = 40.60 Cum @ Rs 220.00/Cum		13926	(-) 8932.00
Cost of 6.0 mtr long scupper =		343	496250
			457903.00
Say Rs. 4.57 Lacs			

82708

Cost per RMT = 76317.00

Rs. = 0.76317 lacs/Rmt

0.83

4.96

Assistant Executive Engineer,
PMGSY Sub-Division ,
Basohli

Executive Engineer,
PMGSY Division
Kathua

Detailed Estimate for the Construction of Pucca Masonry Edge
Wall for construction of road from Towara to Dodla in PMGSY Division
Kathua

Sr. No.	Description	Amount
1	<p>Earthwork in excavation for structures as per drawing and technical specifications clause 305.1 including setting out construction of shoring & bracing, removal of stumps and other deleterious materials and disposal up to a lead of 50 Mtr. dressing of sides and bottoms and back filling in trenches with excavated suitable material.</p> <p>Ordinary Soil 70%, Ordinary Rock 20%, Hard Rock 10%</p> $= 1 \times 10.0 \times \frac{1}{2} \times (0.30 + 0.20) \times 0.85 = 2.12 \text{ M}^3$	
2	<p>Providing / Laying for Plain /reinforced concrete in open foundation complete as per drawing and technical specifications clause 802,803, 1202 & 1203 PCC grade M-10 grade (1:3:6 nominal mix).</p> $1 \times 10.0 \times 0.10 \times 0.10 = 1.00 \text{ Cum}$	363 @ 243.60 / M ³ 770 -516.00
3	<p>Polygonal/Random Rubber Masonry, Uncoursed/brought to course, in 1 cement :6 fine sand mortar, with nallah stone, in foundation and plinth, including leveling up at specified levels with M-5 nominal mix (mix side of stone aggregates : 20mm nominal) concrete; including cost of through/bond stones.</p> $= 1 \times 10.0 \times \frac{1}{2} \times (0.85 + 0.60) \times 1 = 7.25 \text{ M}^3$	3737 @ 3387.00 / Cum. 3737 -3387.00
4	<p>Back filling with stones behind abutment, wing walls and return walls complete as per drawings & technical specifications clause 1204.3.8</p> $= 1 \times 10 \times \frac{1}{2} (0.50 + 0.20) \times 0.70 = 2.45 \text{ M}^3$	2938.68 @ 2647 / M ³ 21305 -49191.00
5	<p>Providing concrete for Plain / in foundation complete as per Drawing / Technical Specifications clause 802, 803, 1202 & 1203 P.C.C Grade M15 (Nominal mix 1:2 ½ : 5) (using 40mm down size aggregate).</p> $= 1 \times 10.0 \times 0.60 \times 0.05 = 0.30 \text{ M}^3$	659 @ 510.00 - M ³ 1615 -1249.00
	Total:-	-25399.00- 28586

6	Carriage of material by M.T from source to site of work incl. loading unloading complete	
a)	Carriage of sand 115 kms	
a)	Qty. Vide item No.	
(2)	1.00 Cum @ 0.48 / Cum = 0.48 Cum	
(3)	7.25 Cum @ 0.35/ Cum = 2.54 Cum	
(5)	0.30 Cum @ 0.45 /Cum = 0.135 Cum	
	Total = 6.15 Cum	892.72
		@ 907.72/ Cum
		5490
		-5582.00
b)	Carriage of stone agg. for an av. Distance of 115 kms	
Qty. Vide item No.		
(2)	1.00 Cum @ 0.96 / Cum = 0.96 Cum	
(5)	0.30 Cum @ 0.96/ Cum = 0.29 Cum	
	Total = 1.25 cum	1129.92
		@1163.92/ Cum
		1412
		-1455.00
d)	Carriage of cement av. distance of 115 kms	
Qty vide item No.		
(2)	1.0 cum @ 0.250 MT / Cum = 0.25 MT	
(3)	7.25 Cum @ 0.092 MT / Cum = 0.67 MT	
(5)	0.30 Cum @ 0.275 MT/ Cum = 0.08 MT	
	T = 1.00 MT	789.76
		@741.76/MT
		790
		-742.00
	Total Cost =	33178.00
		36278
D/d Cost of Available Stones from Cutting at Site		(-2134.00
Qty. Vide Item No. 6 C = 9.70 Cum @ Rs. 220.00/Cum		3327
	343	Net Total:-
		-31044.00
		-31951
	Cost per Rmt. = 3104.00	
		3295

EXECUTIVE ENGINEER
PMGSY D.A. KATHUA

**DETAILED ESTIMATE FOR THE CONSTRUCTION OF BREAST WALL (2.55 MT. HEIGHT for
construction of road from Towara to Dodla IN PMGSY Division Kathua**

S.No	Particulars of Items	Amount
1.	<p>Earthwork in excavation for structures as per drawing and technical specifications clause 305.1 including setting out construction of shoring & bracing, removal of stumps and other deleterious material and disposal up to a lead of 50Mtr. Dressing of sides and bottoms and back filling in trenches with excavated suitable material.</p> <p>Ordinary Soil 70% Ordinary Rock 20%, Hard Rock 10%</p> <p>$1 \times 10.0 \times 0.75 \times 1.75 = 6.56 \text{ Cum}$</p> <p>Drain = $1 \times 10.0 \times (0.75 + 0.98) \times 1 = 8.65 \text{ Cum}$</p> <p>$2$</p> <p>Edge = $1 \times 10.0 \times (0.25 \times 0.85) \times 0.82 = 4.51 \text{ Cum}$</p> <p>$2$</p> <p>$T = 19.72 \text{ Cum}$</p>	<p>363 @ 243.60/M³</p> <p>7158 -4804.00</p>
2.	<p>Providing / Laying for Plain / reinforced concrete in open foundation complete as per drawing and technical specifications clause 802, 803, 1202 & 1203 PCC grade M-10 (1:3:6 nominal mix).</p> <p>$1 \times 10 \times 0.98 \times 0.10 = 0.98 \text{ Cum}$</p> <p>Drain = $10 \times 0.825 \times 0.10 = 0.825 \text{ Cum}$</p> <p>$T = 1.80 \text{ Cum}$</p>	<p>3737 @ 3387.00/Cum.</p> <p>6727 -6097.00</p>
3.	<p>Stone Masonry in cement mortar for sub-structure complete as per drawing and technical specifications clause 702, 704, 1202, 1204 in cement mortar 1:6</p> <p>B.Band $1 \times 10 \times (0.88 + 0.78) \times 0.60 = 4.98 \text{ Cum}$</p> <p>$2$</p> <p>T Band $1 \times 10 \times (0.45 + 0.53) \times 0.45 = 2.20 \text{ Cum}$</p> <p>$2$</p> <p>V Band $4 \times 0.45 \times (0.78 + 0.53) \times 1.50 = 1.76 \text{ Cum}$</p> <p>$2$</p> <p>$T = 8.94 \text{ Cum}$</p>	<p>2932.68 @ 2647.00/Cum</p> <p>26272 -23664.00</p>
4.	<p>R.R Masonry laid dry for sub-structure complete as per drawing and technical specifications clause 702, 704, 1202 & 1204</p> <p>$1 \times 10 \times (0.45 + 0.88) \times 2.55 = 16.95 \text{ / Cum}$</p> <p>$2$</p> <p>Deduct Pacca Masonry vide item (3) = (-) 8.94 Cum</p> <p>Net = 8.01 Cum</p>	<p>1974.15 @ 1626.00/Cum</p> <p>15813 -13024.00</p>
5.	<p>Providing / Laying Plain / reinforced cement concrete in Sub Structure complete as per drawing and technical specifications clause 802, 804, 805, 806, 807, 1202 & 1204 PCC grade M-20 [1:2:4] Nominal mix</p> <p>$1 \times 10 \times 0.45 \times 0.05 = 0.225 \text{ Cum}$</p> <p>Drain = $10 \times 0.60 \times 0.05 = 0.30 \text{ Cum}$</p> <p>$T = 0.525 \text{ Cum}$</p>	<p>4670 @ 4293.00/Cum</p> <p>2452 -2254.00</p>
6	<p>Providing concrete for plain / reinforced concrete in open foundations complete as per drawings & Technical specifications Clause 802, 803, 1202 & 1203 (P.C.C Grade M-15 Nominal mix 1:2.5:5)</p> <p>Drain Edge : $10.0 \times 0.225 \times 0.60 = 1.35 \text{ Cum}$</p>	<p>3863 @ 3519.00 / Cum</p> <p>5215 -4751.00</p>
		<p>Total:-</p> <p>63637</p>

2.55 B/Wall

BF Rs. 54594.00

63637

7.	Carriage of material by M.T from source to site of work incl. loading unloading complete	
a)	Carriage of sand 115 Kms	
a)	Qty. Vide item No.	
(2)	1.80 Cum @ 0.462 / Cum = 0.78 Cum	
(3)	8.94 Cum @ 0.35/ Cum = 3.12 Cum	
(5)	0.525 Cum @ 0.45 /Cum = 0.23 Cum	
(6)	1.35 Cum @ 0.48 / Cum = 0.64 Cum	
	Total = 4.82 Cum	
		892.72
		@907.72/Cum
		4303
		-4375.00
b)	Carriage of stone agg. for an av. Distance of 115 kms	
Qty.	Vide item No.	
(2)	1.80 Cum @ 0.924 / Cum = 1.66 Cum	
(5)	0.525 Cum @ 0.96/ Cum = 0.50 Cum	
(6)	1.35 Cum @ 0.90 / cum = 1.21 Cum	
	Total = 3.37 cum	
		1129.92
		@1163.92/Cum
		3808
		-3922.00
c)	Carriage of cement av. distance of 115 kms	
Qty	vide item No.	
(2)	1.80 cum @ 0.250 MT / Cum = 0.465 MT	
(3)	8.94 Cum @ 0.092 MT / Cum = 0.822 MT	
(5)	0.525 Cum @ 0.33 MT/ Cum = 0.173 MT	
(6)	1.35 Cum @ 0.275 MT/Cum = 0.371 MT	
	T = 1.831 MT	
		789.76
		@741.76/MT
		1446
		-1358.00
	Total:-	64249.00
		73194
	Deduct Cost of stone available from Rock at site	
Qty.	Vide Item No. 7 C = 16.95 Cum	(-) 3729.00
		5814
		343
	Total Cost of 10.0 RM Length =	-60520.00
		67380
	Cost per RM =	-6052.00
		6738


 Asstt. Executive Engineer
 PMGSY Sub-Division
 Basohli.


 Executive Engineer
 PMGSY Division
 Kathua.

DETAILED ESTIMATE FOR THE CONSTRUCTION OF BREAST WALL (1.50 MT.
HEIGHT for construction of road from Towara to Dodla IN PMGSY Division Kathua

S.No	Particulars of Items	Amount
1.	<p>Earthwork in excavation for structures as per drawing and technical specifications clause 305.1 including setting out construction of shoring & bracing, removal of stumps and other deleterious material and disposal up to a lead of 50Mtr. Dressing of sides and bottoms Ordinary Soil 70% Ordinary Rock 20%, Hard Rock 10%</p> <p>1 X 10.00 X 0.80 X 1.60 = 12.80 m³ Drain = 1 x 10.0 x 1/2 x 0.825 x 0.60 = 2.47 Cum Total: = 15.27 Cum</p>	363 @243.60 /M ³ 5543 -3720.00
2.	<p>Providing / Laying for Plain /reinforced concrete in open foundation complete as per drawing and technical specifications clause 802,803, 1202 & 1203 PCC grade M-10 grade (1:3:6 nominal mix).</p> <p>1 x 10 x 0.70 x 0.10 = 070 Cum Drain = 10 X 0.825 X 0.10 = 0.825 Cum T = 1.52 Cum</p>	3737 @3387.00 /Cum. 5680 -5148.00
3.	<p>Stone Masonry in cement mortar for sub-structure complete as per drawing and technical specifications clause 702,704, 1202, 1204 in cement mortar 1:6</p> <p>B.Band 1 x 10 (0.60 + 070) x 0.60 = 3.90 Cum 2 T Band 1 x 10 x (0.45+0.53) X 0.45 = 2.20 Cum 2 V Band 4 x 0.45 x (0.60+0.53) x 0.45 = 0.46 Cum 2 Total = 6.56 Cum</p>	2938.68 @2647.00 /Cum 19278 -17364.00
4.	<p>R.R Masonry laid dry for sub-structure & brought to course complete as per drawing and technical specifications clause 702,704, 1202 & 1204</p> <p>1 x 10 x (0.45 + 0.70) x 1.50 = 8.62 / Cum 2 Deduct Pacca Masonry vide item (3) = (-) 6.56 Cum Net = 2.06m³ Cum</p>	1974.15 @1626/Cum 4067 -3350.00
5.	<p>Providing / Laying Plain / reinforced cement concrete in Sub Structure complete as per drawing and technical specifications clause 802,804, 805, 806, 807,1202 & 1204 PCC grade M-20 [1:2:4] Nominal mix</p> <p>1 x 10 x 0.45 x 0.05 = 0.225 Cum Drain = 10 X 0.60 X 0.05 = 0.30 Cum T = 0.525 Cum</p>	4670 @4293.00 /Cum 2452 -2254.00
6.	<p>Providing concrete for plain / reinforced concrete in open foundations complete as per drawings & Technical specifications Clause 802, 803, 1202 & 1203 (P.C.C Grade M-15 Nominal mix 1:2.5:5)</p> <p>Drain Edge : 10.0 X 0.225 X 0.60 = 1.35 Cum</p>	3863 @3519.00/ Cum 5215 -4751.00
		Total:-
		42235

1.50 B/Wall

42235

BF Rs. 36587.00

7	Carriage of material by M.T from source to site of work incl. loading unloading complete	
a)	Carriage of sand 115 kms	
a)	Qty. Vide item No.	
(2)	1.52 Cum @ 0.462 / Cum = 0.70 Cum	
(3)	6.56 Cum @ 0.35/ Cum = 2.30 Cum	
(5)	0.525 Cum @ 0.45 /Cum = 0.24 Cum	
(6)	1.35 Cum @ 0.48/Cum = 0.64 Cum	
	Total = 3.88 Cum	892.72
		@907.72/ Cum
b)	Carriage of stone agg. for an av. Distance of 115 kms	3464
Qty.	Vide item No.	-3522.00
(2)	1.52 Cum @ 0.924 / Cum = 0.500 Cum	
(5)	0.525 Cum @ 0.96/ Cum = 0.50 Cum	
(6)	1.35 Cum @ 0.96/Cum = 1.29 Cum	
	Total = 3.20 cum	1129.92
		@1163.92/ Cum
c)	Carriage of cement av. distance of 115 kms	3616
Qty	vide item No.	-3725.00
(2)	1.52 cum @ 0.250 MT / Cum = 0.38 MT	
(3)	6.56 Cum @ 0.092 MT / Cum = 0.604 MT	
(5)	0.525 Cum @ 0.33 MT/ Cum = 0.17 MT	
(6)	1.35 Cum @ 0.275 MT/Cum = 0.37 MT	
	T = 1.53 MT	789.76
		@741.76/MT
	Total Cost of 10.0 RM Length =	1208
		-44969.00
	D/d Cost of Stone Available from Rock at Site	50523
	Qty. Vide Item No. 7 C = 8.62 Cum @ Rs. 220.00/Cum	(-1896.00)
		2957
	Net Total:-	345
		-43073.00
	Cost per Rmt. = 4307.00	47566
		4757

Asstt. Executive Engineer
 PMGSY Sub-Division
 Basohli.

Executive Engineer
 PMGSY Division,
 Kathua.

Detailed Estimate for the Construction of 4 Mtr. Height R/wall for construction of road from Towara to Dodla in PMGSY Division Kathua.

Sr. No.	Description	Amount
1.	Earthwork in excavation for structures as per drawing and technical specifications clause 305.1 including setting out construction of shoring & bracing, removal of stumps and other deleterious materials and disposal up to a lead of 50 Mtr. Dressing of sides and bottoms and back filling in trenches with excavated suitable material. Ordinary Soil 70%, Ordinary Rock 20%, Hard Rock 10% $1 \times 10.0 \times 1.78 \text{ M}^2$ (As per Drawing) = 17.80 M^3	6461
2.	Providing / Laying for Plain / reinforced concrete in open foundations complete as per drawing and technical specifications clause 802, 803, 1202 & 1203 PCC grade M-10 (1:3:6 nominal mix). $1 \times 10.00 \times 1.80 \times 0.20 = 3.60 \text{ M}^3$	4336.00
3.	Polygonal Rubble masonry brought to course in sand mortar with nallah stone in substructure, incl. leveling up at specified levels with M-5 nominal mix (size of stone agg. 20mm nominal) conc. incl. cost of through / Bond stones. Bottom Band $1 \times 10 \times (1.60 + 1.45) \times 0.60 = 9.15 \text{ M}^3$ Middle Band $3 \times 2.53 \times (1.17 + 1.02) \times 0.60 = 4.98 \text{ M}^3$ Top Band $1 \times 10 \times (0.75 + 0.60) \times 0.60 = 4.05 \text{ M}^3$ V.B $4 \times 0.60 \times (0.70 + 1.45) \times 3.40 = 8.77 \text{ M}^3$ $\overline{26.95} \quad -(A)$ Parapets $N/5 \times 1.50 \times (0.60 + 0.45) \times 0.60 = 2.36 \text{ M}^3$ $\overline{2}$ $T = \overline{29.16} \text{ M}^3 \quad 2938.68$ $\overline{\text{@ Rs.2647.00 / M}^3} \quad 77187.00$	13453 42193.00
4.	Polygonal Rubble masonry brought to course, laid dry, with nallah stone, in substructure, incl. cost of through / Bond stones. $1 \times 10.0 \times (1.60 + 0.60) \times 4.0 = 44.0 \text{ M}^3$ A/d Pucca Masonry Qty. vide item No.(3)(A) = 26.80 Net $= 17.20 \text{ M}^3 \quad 1974.15$ $\overline{\text{@ 1626.00 / M}^3} \quad 33955$	77187.00
5.	Providing / Laying Plain / reinforced cement conc. in substructure complete as per drawings and technical specifications clause 802, 804, 805, 806, 807, 1202 & 1204 in P.C.C grade M-20 (1:2:4) nominal mix $1 \times 10.0 \times 0.60 = 6 \times 0.05 = 0.30 \text{ M}^3$	1401 1288.00
6.	Backfilling with stones behind abutment, wing walls and return walls complete as per drawings and technical specifications clause 1204.3.8 $1 \times 10.0 \times (0.60 + 0.15) \times 2.50 = 9.37 \text{ M}^3$	659 4779.00
		Total:- 127750.00 147137

147137

	4Mtr. R/Wall	BF=	127750.00
7	Carriage of materials by M.T from source to site of work incl. loading/unloading complete.		
a)	Carriages of Sand 115 kms Qty. vide item No.(2) $3.60 \text{ M}^3 \times 0.47 / \text{M}^3 = 1.69 \text{ M}^3$ (3) $29.16 \text{ M}^3 @ 0.38 / \text{M}^3 = 11.08 \text{ M}^3$ (5) $0.30 \text{ M}^3 @ 0.45 / \text{M}^3 = 0.13 \text{ M}^3$ $T = 12.90 \text{ M}^3 892.72$ $@ 907.72 / \text{M}^3$	11516 11710.00	
b)	Carriage of Stone agg. 115 kms Qty. vide item No.(2) $3.60 \text{ M}^3 @ 0.91 / \text{M}^3 = 3.20 \text{ M}^3$ (5) $0.30 \text{ M}^3 @ 0.89 / \text{M}^3 = 0.26 \text{ M}^3$ $T = 3.46 \text{ M}^3 1129.92$ $@ 1163.92 / \text{M}^3$	3910 4027.00	
c)	Carriage of cement av. 115 kms Qty. vide item No.(2) $= 3.60 \text{ M}^3 @ 0.250 / \text{MT} / \text{M}^3 = 0.90 \text{ MT}$ (3) $= 29.16 \text{ M}^3 @ 0.092 / \text{MT} / \text{M}^3 = 2.68 \text{ MT}$ (5) $= 0.30 \text{ M}^3 @ 0.33 \text{ MT} / \text{M}^3 = 0.09 \text{ MT}$ $T = 3.679 \text{ MT}$ 789.76 $@ 741.76 / \text{MT}$	2906 2729.00	
	Cost of 10.0 M Length:	165469 146216.00	
	D/d Cost of Available Stones from Cutting Qty. Vide Item No 7(c) = 55.73 @ 220/Cum	(-) 12261.00 19115 343	
	Cost per one RM Length =	146354 133955.00	
	Say Rs.	13995.00 14635	


Asstt. Executive Engineer
PMGSY Sub-Division
Basohli.


Executive Engineer
PMGSY Division
Kathua.

Detailed Estimate for the Construction of Semi Pucca R/wall of Av.
Height 3.0m for construction of road from Towara to Dodla in PMGSY
Division Kathua

Sr. No.	Description	Amount
1.	Earthwork in excavation for structures as per drawing and technical specifications clause 305.1 including setting out construction of and disposal up to a lead of 50 Mtr. Dressing of sides and bottoms Ordinary Soil 70%, Ordinary Rock 20%, Hard Rock 10% $1 \times 10.0 \times 1.467 \text{ M}^2$ (As per Drawing) = 14.67 M^3	363 5325
2.	Providing / Laying concrete for Plain / reinforced concrete in open foundations complete as per drawing and technical specifications clause 802, 803, 1202 & 1203 PCC grade M-10 (1:3:6 nominal mix). $1 \times 10.00 \times 1.45 \times 0.10 = 1.45 \text{ M}^3$	@ 243.60 / M^3 5419 4911.00
3.	Polygonal Rubble masonry brought to course in 1 cement : 6 fine sand mortar with nallah stone in substructure, incl. leveling up at specified levels with M-5 nominal mix (mix size of stone agg. 20mm nominal) conc. incl. cost of through / Bond stones. Bottom Band $1 \times 10 \times \frac{(1.20 + 1.35)}{2} \times 0.60 = 7.65 \text{ M}^3$ Top Band $1 \times 10 \times \frac{(0.75 + 0.60)}{2} \times 0.60 = 4.05 \text{ M}^3$ V.B $4 \times 0.60 \times \frac{(0.75 + 1.20)}{2} \times 1.80 = 4.21 \text{ M}^3$ $\overline{15.91 \text{ M}^3}$ --(A)	
	Parapets :- $5 \times 1.50 \times \frac{(0.60 + 0.45)}{2} \times 0.60 = 2.36 \text{ M}^3$ $T = \overline{18.27 \text{ M}^3}$ 2938.68 @ Rs.2647.00 / M^3	53690 48361.00
4.	Polygonal Rubble masonry brought to course, laid dry, with nallah stone, in substructure, incl. cost of through / Bond stones. $1 \times 10.0 \times \frac{(1.35 + 0.60)}{2} \times 3.0 = 29.25 \text{ M}^3$ Deduct Pacca Masonary Qty. vide item No.(3)(A) = 15.91 M^3 = 13.34 M^3 Net 1974.15 @ 1626.00 / M^3	26335 21691.00
5.	Providing / Laying for Plain / reinforced cement conc. in substructure complete as per drawings and technical specifications clause 802, 804, 805, 806, 807, 1202 & 1204 in P.C.C grade M-20 (1:2:4) nominal mix $1 \times 10.0 \times 0.60 = 6 \times 0.05 = 0.30 \text{ M}^3$	4670 1401 @ Rs.4293.00 / M^3 1288.00
6.	Backfilling behind with stones abutment, wing walls and return walls complete as per drawings and technical specifications clause 1204.3.8 $1 \times 10.0 \times \frac{(0.60 + 0.15)}{2} \times 3.00 = 11.25 \text{ M}^3$	659 7414 @ 510.00 / M^3 5737.00
		Total:- 85562.00

90584

R/Wall Av. 3.0 Mtr.

B/F = Rs 85562.00

Carriage of materials by M.T from source to site of work incl. loading/unloading complete.	
Carriages of Sand 115 kms	
a) Qty. vide item No.(2) $1.45 \text{ M}^3 \times 0.462 / \text{M}^3$ = 0.66 M^3 $(3) 18.27 \text{ M}^3 @ 0.35 / \text{M}^3$ = 6.39 M^3 $(5) 0.30 \text{ M}^3 @ 0.448 / \text{M}^3$ = 0.134 M^3 $T = 7.18 \text{ M}^3$ 892.72 $@ 907.72 / \text{M}^3$	6410 -8517.00
b) Carriage of Stone agg. 115 Kms Qty. vide item No.(2) $1.45 \text{ M}^3 @ 0.924 / \text{M}^3$ = 1.33 M^3 $(5) 0.30 \text{ M}^3 @ 0.896 / \text{M}^3$ = 0.26 M^3 $T = 1.59 \text{ M}^3$ 1129.92 $@ 1163.92 / \text{M}^3$	1797 -1851.00
c) Carriage of cement av. 115 kms Qty. vide item No.(2) = $1.45 \text{ M}^3 @ 0.25 / \text{MT} / \text{M}^3$ = 0.362 MT $(3) = 18.27 \text{ M}^3 @ 0.092 / \text{MT} / \text{M}^3$ = 1.68 MT $(5) = 0.30 \text{ M}^3 @ 0.33 \text{ MT} / \text{M}^3$ = 0.09 MT $T = 2.141 \text{ MT}$	1691 -1588.00
Total:-	109482 -9551.00
D/d Cost of Available Stones from cutting Qty. Vide Item No 7(c)= 42.86 @ Rs. 220/Cum	14701 (-)9429.00
343 Net Total =	94781 -86089.00
Cost per one RM Length =	947810 -8609.00
	Say Rs. 8609.00 9478


Asstt. Executive Engineer
PMGSY Sub-Division
Basohli.


Executive Engineer

PMGSY Division
Kathua.

12

Land Requirement

12.1

General

The project road is a new connectivity road. The existing Right of Way (ROW) is varying from 6.0 m to 12.0 m.

12.2

Proposed ROW

The width of carriageway has been considered as 3.00 m in accordance with the IRC-SP 20: 2002. The total roadway width is limited to 6.0 m with 1.20 m earthen shoulder on either side of carriage way. The proposed ROW generally varies from 12 m depending upon the embankment height and the proposed ROW is even less than 9 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

there are 14 nos. electric poles and 500 mt. PHE pipeline falling in the alignment of road from Towara to Dodla that are causing hindrance and need to be shifted out of the alignment.

S. No.	Utility Type	Quantity	Estimated rate	Estimated cost
1	Electric poles	14 nos.	Rs. 50000/ pole	Rs. 700000
2	PHE pipe line	560 mt.	Rs. 500/ mt.	Rs. 280000

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 200 m stones
- Delineators and object markers
- Guard posts, crash barriers and speed breakers
- Median and footpath barriers

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 marking are included in contract drawings.

14.1.2 Cautionary, Mandatory and informative signs

Cautionary, informative and mandatory signs are provided depending upon the situation and function they perform in accordance with the IRC:67:-2001 guidelines for road signs.

14.1.3 Kilometer stone and hectometer stones

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

The details of 200 m stones conform to IRC:26:1967. 200M stones are located on the same side of the road as the KM stones. The inscription on the road shall be numerals 2, 4, 6 and 8 marked in an ascending order in the direction of increasing Kilometerage away from the starting location. Given table gives the detail of KM stones 5th KM stone and boundary pillars provided.

Details of KM stone and boundary pillars.

Sr. No	Name of road	Chainage	5 th KM stone (nos)	KM stone (Nos.)	200 m Stone (nos)	Boundary stone (nos.)

Checklist for Road Safety Measures

Road Safety Checklist

- c) A minimum 100 mm thickness of pavement GSB layer constructed to the full roadway width
- a) 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.
- l) If a shoulder obstruction cannot be removed, hazard markers are installed to mark the Obstruction
- f) 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 (C) structures.
- n) Hazard markers are installed at any discontinuity in the shoulder
- e) 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).

DETAILED ESTIMATE FOR PROVIDING AND FIXING OF TRAFFIC SIGNS, MARKINGS AND OTHER ROADS APPURTENANCES FOR ROAD FROM TOWARA TO DODLA.(Length=3.500Km)

S.No.	Particulars	Amount
1.	Providing and fixing of retro-reflectorised cautionary, mandatory and informative sign as per IRC 67 made of encapsulated lens type reflective sheeting vide clause 1701.2.3 fixed over aluminum sheeting 1.5mm thick supported on G.I pipes 50 mm dia firmly fixed to the ground by means of properly designed formulation with M-15 grade cement concrete 450mm X 450 mm X 600 mm below ground level as per drawings and Technical Specification Clause 1701. at 3/km = 11 Nos. at Rs. 140/- = 2822	31042 Rs. 140/-
2.	Providing and erecting direction and place identification retro-reflectorised sign as per I.R.C:67 made of encapsulated lens type reflective sheeting vide clause 1701.2.3. fixed over aluminum sheeting 2mm thick with area not exceeding 0.9 Sqm supported on 2 inch dia G.I pipe firmly fixed to the ground by means of properly designed foundation with M-15 grade cement concrete 450 x 450 x 600mm below ground level as per approved drawing and Technical Specification Clause 1701. Size= 4' x 2'-6" =10 Sft. = 0.92 m ² For 3.500km 10 x 0.92 = 9.2 m ² at 4530/m ² 3068	28226 Rs. 4530/-
3.	Reinforced cement concrete M-15 grade kilometer stone/local stone of standard design as per I.R.C:8 fixing in position including painting and printing etc. as per drawing and Technical Specification Clause 1703. i) Ordinary kilometer stone (precast) for 3.500Km =4Nos. at 1369.00/ Nos. 1903	Rs.5476/- 7612
	ii) 200 m stone (Precast) for 3.500km = 14Nos. at 365/ Nos. 463	Rs.5440/- 6482
i.	Reinforced cement concrete M-15 grade boundary pillars/ local stone of standard design as per I.R.C:15. fixed in position including finishing and lettering but	

excluding painting as per drawing and Technical specification clause 1704.

For 3.500 Km = 70 Nos. @ Rs. 308.00/ No. =

436

30520
Rs. 24560/-

5. Providing and fixing typical PMGSY Citizen informative board

1 No. @ Rs. 40000/- (L.S)

14450

Total =

14450

Rs. 40000/-

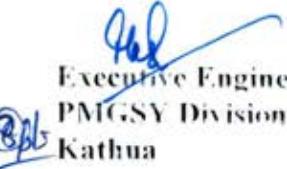
Rs. 444/-

118332

Say Rs. 0.72 Lacs

1.18


Asstt. Executive Engineer,
PMGSY Sub-Division,
Basohli.


Executive Engineer,
PMGSY Division,
Kathua
⑧pl

15.2 Specification

15.2.1 General

The "Specification for Rural Roads" published by IRC on behalf of the Ministry of Rural Development, Govt. of India has been followed.

15.2.2 Construction Equipment

Construction by manual means and simple tools has been considered for the project as per the guideline of NRRDA. For handling of bulk materials like spreading of aggregates in sub base & base courses by mix-in-place method, use of motor grader & tractor-towed rotavator has been allowed in line with the schedule of rate for PMGSY work. Compaction of all items shall be done by ordinary smooth wheeled roller if the thickness of the compacted layer does not exceed 100 mm. It is also considered that, hot mix plant of medium type & capacity with separate dryer arrangement for aggregate shall be used for bituminous surfacing work that can be easily shifted. A self-propelled or towed bitumen pressure sprayer shall be used for spraying the materials in narrow strips with a pressure hand sprayer. Now the vibratory rollers are also being used for rapid progress.

For structural works, concrete shall be mixed in a mechanical mixer fitted with water measuring device.

The excavation shall be done manually or mechanically using suitable medium size excavators.

15.3 Construction Methods

15.3.1 Preparation for Earthwork

After setting out existing ground shall be scarified to a minimum depth of 150 mm and leveled manually and compacted with ordinary roller to receive the first layer of earthwork. In filling area, existing embankment will be generally widened on both sides as per the alignment plan. Continuous horizontal bench, each at least 300 mm wide shall be cut on the existing slopes for bonding with the fresh embankment/ subgrade material as per CI 301.7.

15.3.2 Embankment work

Material from borrow pits will be used for embankment construction as well as the approved material deposited at site from roadway cutting and excavation of drain & foundation may be used. Layer of the earth shall be laid in not more than 25 cm (loose) thick layers & compacted each layer of the soil up to 30 cm below the subgrade level at OMC to meet 97% of Standard Proctor Density.

Material for embankment and sub-grade shall satisfy the requirements of Table 300-1 and 300-2 as per the Specification for Rural Roads.

15.3.3 Sub-grade

Material from borrow pits will be used for construction of top 30 cm as sub-grade. Soil in these sections is quite good for road construction. Top 30 cm upto the subgrade level and shoulder at OMC to meet 100 % of Standard Proctor Density by proper control of moisture and by required compaction with a smooth wheeled roller.

15.3.4 Sub-base

Sub base material in the form of stone aggregates and sand as available in the area to be used in GSB Grade II layer.

15.3.5 Base

Stone aggregates will be used in base course. 63 mm to 45 mm size (Grading 2) aggregate as been proposed for the bottom layer and 53 mm to 22.4 mm (Grading 3) size has been proposed for the top layer.

15.3.6 Shoulder

Earthen shoulder shall be constructed in layers and compacted to 100% of Proctor's Density. First layer of shoulder shall be laid after the sub-base layer is laid. Thereafter earth layer shall be laid with base layer of pavement and compacted.

15.3.7 Surfacing

Slow setting bitumen emulsion will be applied as primer on water bound layer. Emulsion shall be sprayed on surface with pressure distributor. Rapid setting bituminous emulsion shall be used for Tack coat.

Premixed carpet and mixed with equivalent viscosity grade bitumen shall be laid as surfacing course. 6 mm thick Type B seal coat is considered for sealing of the premixed carpet.

15.3.8 Structural Works

Following grades of concrete are proposed for Structural works and comply with MORD and IRC specifications:

- Concrete in superstructure of slab culvert – M-25 (RCC)
- Concrete in abutment cap, dirt wall of slab culverts – M-25 (RCC)
- Concrete in abutment, return wall, headwall – M-15 (RCC)
- Concrete below abutment, return wall, headwall – M10 (RCC)

Environmental Issues

16.1 Alignment

The proposed road has planned to be designed considering the impact on environment. Proposed road alignment follows existing pathway to the maximum extent so that huge land acquisition is not necessary for construction of the project road. Proposed road, when completed, will be an addition to the aesthetics of this rural area.

16.2 Environmental Sensitive Area (National Park, Wild Life Sanctuary, Protected /Reserve Forest, Wet land etc.)

The alignment will be finalise avoiding the environmental sensitive area such as National Park, Wild Life Sanctuary, Protected /Reserve Forest, Wet land etc. It is also necessary to maintain the minimum distance of 500 m of the project road from environmental sensitive area.

16.3 Construction Camp

Construction camps will be established away from forest area/water body. The minimum facilities such as water supply, sanitation, storm water drainage, solid waste management and first aid box will be provided during the construction period of the project. Necessary provision for rehabilitation or restoration after the completion of construction phase will be done.

16.4 Permit / Clearance required prior to commencing of civil work

- No objection Certificate- This will be taken by PIU from SPCB.
- Forest Department- If the project road passing thorough forest land and acquisition of the same is involved and it will be taken by PIU from Forest Department.
- Consent to establish (CFE) and Consent to Operate (CFO) - This is required for Plant Hot Mix Plant, WMM Plant, Batching Plant required for the project and the same will be taken by the Contractor from SPCB.
- Lease from Mines & Geology- This will be taken by the Contractor for new Stone Quarry required for the project.

16.5 Borrow area

The filling soil will have to be procured from borrow pit. Borrow area will be so excavated that the lands can reused as agricultural field. The depth of borrow pit shall not exceed 450 mm (150 mm top soil included). The top soil shall be stripped and stacked and shall be spread back on the land. As far as possible the borrow pits shall not be dug close to the road embankment. The Redevelopment of borrow area will be done before closure of the same and it will be as per agreement between landowner and the Contractor.

Erosion Control

Turfing of the embankment slopes and earthen shoulder to prevent erosion of slopes of the embankment, rain cuts and erosion of shoulder is being suggested.

Drainage

Suitable cross drainage structures have been provided on the basis of hydrological survey of the area. So, there will be no obstruction to the natural drainage of the area. Road side drainage is also duly considered in a manner so that surface water is led to the low points and is drained through the CD structures.

16.8 Use of Material

Cut back bitumen is not proposed in the project to avoid contamination with Kerosene. Bitumen emulsion is proposed for primer coat and tack coat.

17 Analysis of Rates

17.1 General

Rates for various items of works of the project have been derived from the "Schedule of Rates August 2012 for road works, culvert works & Carriage etc. The rates of different items have been worked out inclusive of all labour charges, hire charges of Tools and Plants, Machineries and all other cost estimates for the item of work, overhead and contractor's profit @ 12.5% and 1% cess on these.

17.2 Basic Rate of Material

The basic rates for stone materials and river bed materials have been taken from Geological and Mining deptt of J&K Govt. For bituminous materials, basic rate at Jammu for equivalent viscosity grade of bitumen and for emulsion the basic rate of Jammu has been considered as suggested. Basic rate of other materials like coarse and fine sand, are as per the latest from Geological and Mining Deptt of J&K Govt. and for cement from supplier of cement on whole sale rate. Basic rate of steel materials at rail head of J&K has been considered in analysis.

17.3 Lead for Materials

For stone aggregates and sand, lead from source to work site is calculated from the district map and block level map of core network and finalizing the same in discussion with PIU. The supply of different materials to worksite is by road. Lead for bituminous and steel materials are similarly obtained using SOR.

18 Cost Estimate

18.1 General

Cost Estimate of project has been arrived on the following basis

- a) Selection of items of work
- b) Estimation of item wise quantities
- c) Analysis of Rates

18.2 Estimation of Quantities

All the relevant road and structure work items will be identified as per survey, design and drawings. Following major item of works considered are given below:

- a) Site Clearance, dismantling and Earthwork.
- b) Cross Drainage structure works
- c) Utility relocation
- d) Maintenance works
- e) Pavement works
- f) Drainage and protective works
- g) Road safety and furniture

Quantity of earth work will be derived from the proposed cross section drawings. Earthwork tables are attached in the DPR.

18.3 Abstract of Cost

Unit rates will be derived by using the "Schedule of Rates for Road Works, Culvert Works and Carriage etc. The abstract of cost estimate is given in the DPR.

18.4 Maintenance

Cost of Annual Maintenance for five years after completion of project will be estimated as per MGSY Guidelines. Maintenance Chart is attached in the DPR.

19 Construction Program

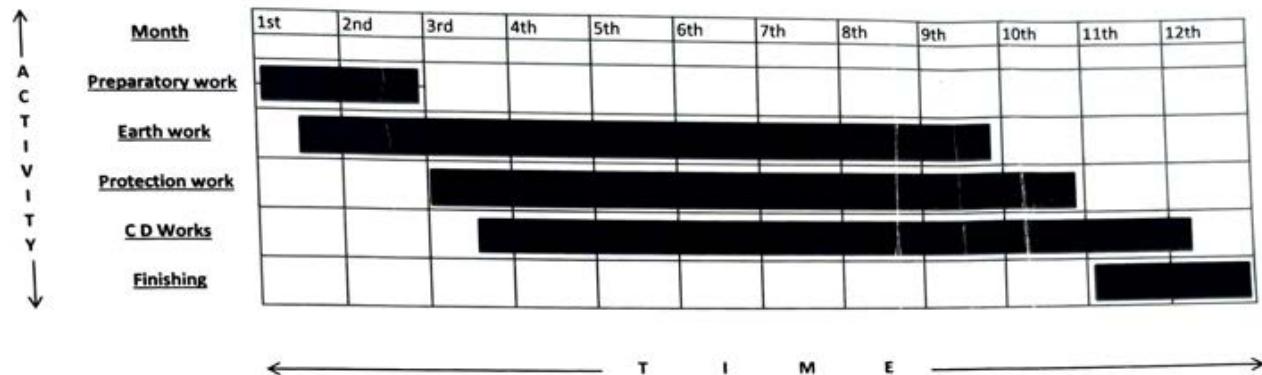
19.1 General

This is a high rainfall area and rainy season extends from July to September. However the construction program is based for a total working period of 12 months, considering the program set out by MORD.

BAR CHART FOR CONSTRUCTION OF ROAD FROM TOWARA TO DODLA IN PMGSY KATHUA

Length = 3.500 km

Package no. = JK 07 - 119




Asstt. Executive Engineer
PMGSY Sub Division
Basohli


Executive Engineer
PMGSY Division
Kathua

PRADHAN MANTRI GRAM SADAK YOJANA (P.M.G.S.Y)
PACKAGE SUMMARY

PACKAGE: JK 67-119

Length of road:- 3.500 Km.

Road from:- Towara to Dodla
Block:- Basohli
District:- Kathua

S. No.	Name of the Block	Name of the Road		Type of Proposals N/U	Proposed Length Km	Cost. Of Earthwork (Lacs)	No. of CD Works	Cost. Of CD works (incl. Protection works and side drain) Rs. (lacs)	Total Estimated cost Rs (Lacs)	Average Cost per Km. Rs. (lacs)
		From	To							
1	2	3	4	5	6	7	8	9	10	11
	Basohli	Towara	Dodla	N	3.500	01.33 88.32	22.19	303.34	400.16 281.52	114.33

Traffic Signs and Logo Board = 0.38 Lacs

Cost of Preparation of DPR = 0.74 Lacs

Total Cost = 400.88 Lacs 285.72 lacs in 81.63 lacs / km

N-New Connectivity

Prepared by :

Signature :

Name :

Designation :

Checked by:

Signature:

Name:

Designation:

Technical Scrutiny

Done by:

Signature:

Name :

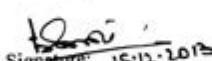


Asstt. Ex. Engineer
PMGSY Sub-Division
Basohli



Executive Engineer
PMGSY Division
Kathua

Coordinator:
STA



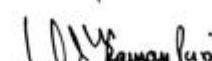
Signature: 15-12-2013
Name: Dr. S.K. Gupta

Scrutinized by:

Signature:

Name:

Designation:



Superintending Engineer
PMGSY Circle
Jammu

PROFOMA-C

PRADHAN MANTRI GRAM SADAK YOJANA

CHECK LIST FOR P.I.U. & S.T.A(For Individual Road Works)

To be filled by PIU

District :- Kathua

1 Location
2 Package No.
3 Name of the Road
4 Total Length (Km):-3.500
5 Estimated Cost Rs. ~~402.08~~ Lacs
285.72

State :- J&K

JK07 - 119.

From: Towara

In Built up area:- 0.400 Km

To Dodla

In open area:-3.100 Km

Average Cost <i>81.63</i>		
Item	Total Cost in Rs.	Cost per Km lakhs
Flexible Pavement	82.32	
Rigid Pavement <i>DN + CD</i>	196.20	
Others	1.20	
Total	402.08 Lacs <i>285.72</i> Lacs	114.88 lacs <i>81.63 lacs/km</i>

6. Type of Proposal **New Connectivity / Up gradation** **New Connectivity**

If the proposed road is a New Connectivity

Is the road a part of core network

Yes/ No

If Yes through Route/ Link Route No.

T

or

L 0 3 0

Name of the unconnected target habitation

Dodla

(s) (to be cross checked with CN - 6)

789 - 455 souls

Population sub served by the proposed road

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/ No

Does the proposed road connect the un-connected habitation to

(A) (B)

- a) Another Habitation having all weather road

RR MDR SH NH

- b) Directly to an All-weather road

Yes / No

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

Yes / No

- If the Proposal is for Up-gradation

Yes / No

- Is the road apart of the core network

Yes / No

- Is it associated Through Route or not

Yes / No

- PCI value

Yes / No

- Age of road

Yes / No

Is it certified that there are no other un-connected eligible habitations in the District.

Yes / No

7 a) Whether the proposed road has the desired carriageway width,

In the Built Up Area (m) In the Open Area (m)

Roadway width and road land width (RL.W)

3.00 ✓

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

6.00

a) Carriageway

12.00

b) Roadways

c) Road land width

INDEX MAP (NOT TO SCALE :- Attached

Enroute Habitations Name/Chainage



H1

H2

H3

CD1

CD2

CD3

Dodla
Target
Habitation
Name

Name of road :- Towara to Dodla

Cross section details: -

a) Cross section of the existing road showing different component layers.

b) Cross section of the proposed road showing different component layers
(Should be as per Actual Provisions of DPR)

Base year traffic volume											
With & year of traffic volume											
Motorised Traffic									Non Motorised Traffic		
Cars, Jeep, Vans, three wheelers	Motorized two wheelers	Light commercial vehicle	Trucks			Agricultural tractors, Trailers			Buses	Cycle	Cycle Rickshaw
			L	U	OL	L	U	O L	L	U	O L
1											
2											
3											
age										SW C	Num

in the year of Traffic count =

Growth rate adopted (%) =

Year Traffic AADT (T) =

Life =

Number of harvesting seasons =

Number of days in each harvesting season (t) =

Number of (n) assumed =

Cumulative ESAL =
Traffic category =

Sub grade CBR (for Different Sections) =

Age	•	•	•	Cost Rs. In lacs	Cost / Km (Rs)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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95					
96					
97					
98					
99					
100					

General costs
Cost of preparation of DPR, survey work, & setting out.

Improvement Components

Description of layer	Thickness in mm	Quantity	Cost (Rs in lacs)	Cost / Km (Rs)
Earth work :- In Excavation / Cutting	---	51320.938	90.6 87.60	
Earth work :- In filling (Bankment)	---	1248.255	0.72	--
String and Grubbing	---	--	--	--
Walls (if not considered in the earth)	---	--	--	--
Soil sub- base				--
Aggregate mix	---	--	--	--
(Gr. 11)	--	--	--	
(Gr. 111)				
Bituminous Layers				
Emulsion coat				
Asphalt coat				
PC				
Coat		--		
M / B B M				
Surface dressing				
Cement Concrete Road				
Cement Quality Concrete (M 30)				

CD works

No. of CD work exist - nil

Do they require any improvement – specify the nature of improvement proposed
if yes their number and cost of improvement

1000mm dia. HPC	10nos. -	31.46 20.20
2.0mtr span RCC culvert	3nos. -	23.37 21.21
3.0mtr span RCC culvert	1no. -	15.81 9.70
Scupper (5nos.)	50mtr.	41.50 41.35
	<u>19 nos</u>	

Total cost of proposed CD works

111.34 lacs
92.46 -

Protection works R/Wall=1100m, E/wall =700 m, B/wall=700 m	Cost in Rs	Cost / Km (Rs)
	107.50 lacs	

103.74

Service side drains (if provided)	Length :-	0.38	
and Logo, other road furniture		118 lacs	
other provisions (Please specify) "Maintenance Cost"		0.7 lacs	
Duration of DPR		402.08 lacs	
Total cost of the project (Rs)		<u>285.72 lacs</u>	<u>₹ 81.63 lac/km</u>

of the road

5 year Routine Maintenance

Year	Cost in lacs	% cost	Cost / Km
I		0.6	
II		0.9	
III		1.2	
IV		1.5	
V		1.8	
Total Maintenance cost		6.0	

Whether the road has Geometrics as per Rural Roads Manual RRM / Circulars of NRRDS

Yes

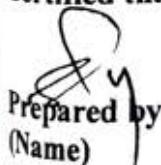
Whether C D works/ Protection Works are provided as per RRM/ Circulars of NRRDS/ Respective codes.

Yes

Whether the cost Estimates are as per standard data analysis and S.S.R
ources and the lead distances of material are as under

Material	Source	Lead Distance (in kms)	Material	Source	Lead Distance (in kms)
Earth			Cement	Kathua	115
Murrum			Emulsion	--	--
Aggregate	Kathua	115	Bitumen	Jammu	200
Sand	Kathua	115	Steel	Kathua	115

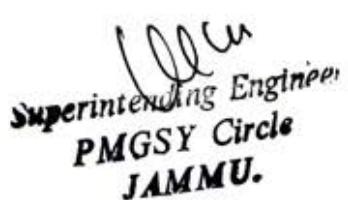
Certified that information provided is true


Prepared by
(Name)

Checked by



Scrutinized by


Superintending Engineer
PMGSY Circle
JAMMU.

Counter Signatures of
Co-ordinator STA: 

Name of the STA:

GSET Jammu.

TOWARD TO DODLA

15	If the proposal is for new connectivity	Yes / No
	▪ Have you satisfy 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	Yes / No
16	Are you satisfied width the following	
	▪ Engineering Survey	Yes / No
	▪ Soil Material Investigation	Yes / No
	▪ Traffic Survey / Estimation	Yes / No
	▪ Hydraulic Studies	Yes / No
17	Is the design of the following elements as per roads Manual:	
	▪ Alignment & Geometric	Yes / No
	▪ Pavement Design	Yes / No
	▪ CD Work and protection Measures	Yes / No
	▪ Side Drains	Yes / No
	▪ Drainage Layers	Yes / No
18	Does the estimation confirm to standard rate analysis and SSR	Yes / No
19	Does the proposal have provision for	
	▪ PMGSY Logo Sign Boards	Yes / No
	▪ Km / Hm Stones	Yes / No
	▪ Guard Stones (where necessary)	Yes / No
	▪ Traffic Sign board (as per necessary)	Yes / No
	▪ 5 year routine maintenance, estimate on lump-sum basis	Yes / No
20	Specific Remarks, if any by STA	stage - I

Certified that the Design and Estimation for the proposed roads work are based on the Data and SSR provided by Engineers. The Proposal may be cleared.

Technical Scrutiny
Done by

Coordinator
S.T.A.

Signature :

Signature 15-12-2017

Name

Name Dr. L.K. Gupta.

Name of the STA:

GCBT Jammu.

TOWARD TO DODLA

15	If the proposal is for new connectivity	Yes / No
	▪ Have you satisfy 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	Yes / No
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	▪ Engineering Survey	Yes / No
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	▪ Alignment & Geometric	Yes / No
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	▪ Km / Hm Stones	Yes / No
	▪ Guard Stones (where necessary)	Yes / No
	▪ Traffic Sign board (as per necessary)	Yes / No
	▪ 5 year routine maintenance, estimate on lump-sum basis	Yes / No
20	Specific Remarks, if any by STA	

Certified that the Design and Estimation for the proposed roads work are based on the Data and SSR provided by Engineers. The Proposal may be cleared.

Technical Scrutiny
Done by

Coordinator
S.T.A.

Signature :

Signature 15.12.2017

Name

Name Dr. L.K. Gupta.

State J & K
Dist From Towara to Dodia

District : Kathua

Format F-8

Package No. JK 01 - 119

Material	Source	Lead in Km
Aggregate	Kathua	115
Luminous	Jammu	200
ment	Kathua	115
gel	Kathua	115
nd	Kathua	115
Other	-	-

Analysis of Rates

No	S. No. as per MORD SDB for Rural Roads	Description	Units	Qty.	Rate (Rs.)	Amount (Rs.)
	A-Construction Activities					
					Total	
	B-Maintenance Activities (year wise)					
					Total	

Rate analysis shall cover all the items such as Site clearance Earth work drainage, Granular sub base and surface course, CD works for sign PMGSY and logos maintenance activities

Where local material is used at site and the specificatio and rate analysis are not found in BOS and SDB for Rural road, the analysis and nomenclature of item can be suitablu used based on other standard such as PWD Schedule or rate assesment based on failed observational completed items rates including lead for carriage of material should be shown.

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

(i) Certified that the Land width for the Road is available and that no additional Land is required.

Certified that land width for the Road is likely to be available as certified by the Panchayat.

(ii) Certified that no forest land is involved along the entire road way.

Certified that the case for permission under Forest conservation Act has been referred to the Forest Department on (Date).

Further, that the DPR has been checked at site by


EE 
Executive Engineer
PMGSY Division

SN. Karthik
 On date: _____
 DPR site summary in Form F


Executive Engineer
Head of PIU

LIST OF DPRS VERIFIED ON GROUND:

#	DPRs seen on ground by	DPR No.	% of total number
1	AE		
2	EE		
3	SE		

Community Consultation Checklist – Engineering

Question	Yes	No	N/a
1. Are there any flood prone areas on the road?			
If yes:			
1.1 Are locations specified and inspected?			
1.2. Is high flood level specified for each stretch?			
1.3 Are locations specified and inspected?			
2. Are there any locations on the road where irrigation ducts need to be provided?			
If yes:			
2.1 Are locations specified and inspected?			
3. Can the road be used as a shortcut by through traffic?			
4. Does the road lead to any quarries, mining areas, brick kilns, logging areas, tourist attractions etc.?			
5. Are there plans to build new schools, hospitals, temples etc			
6. Is there potential for double connectivity?			
If yes on any of 3-6:			
6.1 Is information on location, size and nature of additional traffic generators and specific routes obtained?			
7. Is there a need for deviations from existing track?			
If yes:			
7.1 Were the proposals for deviation shown on site and explained to the community?			
7.2 Is the land availability checked?			
7.3 If there is a need for donation, were the owners consulted regarding their agreement to donate the land?			
8. Is there a need for speed breakers?			
If yes:			
8.1 Is location and rational for speed breakers identified?			
8.2 Is rationale verified and checked on site?			
8.3 Are alternative or additional locations discussed?			
9. Are all existing intersections checked with the community on site?			
9.1 Is the use of intersecting roads identified (e.g. school children, farm machinery, etc.)?			
10. Are proposed culvert locations verified with the community?			
10.1 Is there a need for additional culverts?			
10.2 If yes, are locations identified?			
M			
11.1 If yes, are locations identified?			
For DPR consultant	For PIU	For PIC	

ABSTRACT OF QUANTITIES

Name of the Road:- Construction of Road from "TOWARA TO DODLA" Under "Bharat Nirman"
 (P.M.G.S.Y) (Length = 03.500 Kms)

#	Km	RD's	Total Quantity (Cum)	Quantity of Earth Work			Fixed Classification			Earth Filling (Cum)
				Ordinary Soil (Cum)	Soft Rock (Cum)	Hard Rock (Cum)	Ordinary Soil	Soft Rock	Hard Rock	
1	1 st	0-500	7239.473	3981.711	2171.842	1085.92	55%	30%	15%	708.75
		500-1000	6621.427	3972.857	1324.285	1324.285	60%	20%	20%	
2	2 nd	0-500	5495.381	3297.229	1373.845	824.307	60%	25%	15%	272.875
		0-1000	7631.119	3815.560	2289.336	1526.223	50%	30%	20%	
3	3 rd	0-500	9116.628	5925.81	1823.326	1367.492	65%	20%	15%	153.13
		0-1000	7489.472	4493.684	1497.894	1497.894	60%	20%	20%	
4	4 th	0-500	7727.438	4250.091	1931.860	1545.487	55%	25%	20%	113.50
Total:-			51320.938	29736.942	12412.388	9171.608	-	-	-	1248.255

Assistant Executive Engineer,
 PMGSY Sub-Division,
 Basohli.


 Executive Engineer,
 PMGSY Division
 Kathua.

Earthwork chart for preparation of road from Towara to Dodla

Km - 1st

RD 0 - 1000

RD	L (m)	Cutting				Filling			
		SA	TA	MA	Qty (m ³)	SA	TA	MA	Qty (m ³)
0		13.61				0.75			
25	25	40.13	53.74	26.87	671.75	0	0.75	0.375	9.375
50	25	41.64	81.77	40.885	1022.13	0	0	0	0
75	25	54.895	96.535	48.268	1206.69	0	0	0	0
100	25	29.885	84.78	42.39	1059.75	0	0	0	0
125	25	23.6	53.485	26.743	666.563	0	0	0	0
150	25	3.135	26.735	13.368	334.188	0	0	0	0
170	25	8.22	11.355	5.6775	141.938	0	0	0	0
195	25	2.16	10.38	5.19	129.75	6.9	6.9	3.45	86.25
225	30	3.075	5.235	2.6175	78.525	3.9	10.8	5.4	162
250	25	0.745	3.82	1.91	47.75	0.54	4.44	2.22	55.5
275	25	1.32	2.065	1.0325	25.8125	0	0.54	0.27	6.75
300	25	5.595	6.915	3.4575	86.4375	0	0	0	0
325	25	12.49	18.085	9.0425	226.063	0	0	0	0
350	25	12.24	24.73	12.365	309.125	0	0	0	0
375	25	8.96	21.2	10.6	265	0	0	0	0
400	25	8.745	17.705	8.8525	221.313	0.25	0.25	0.125	3.125
425	25	6.125	14.87	7.435	185.875	0.15	0.4	0.2	5
450	25	13.365	19.49	9.745	243.625	0	0.15	0.075	1.375
475	25	3.735	17.1	8.55	213.75	0	0	0	0
500	25	4.38	8.115	4.0575	101.425	0	0	0	0
512	12	35.775	40.155	20.078	240.93	0	0	0	0
525	13	8.16	12.54	6.27	81.51	0	0	0	0
550	25	6.85	15.01	7.505	187.625	14.805	14.805	7.4025	185.063
575	25	5.26	12.11	6.055	151.375	0.35	15.155	7.5775	189.438
600	25	11.045	20.205	10.103	252.563	0	0.35	0.175	4.375
625	25	3.32	18.265	9.1325	228.313	0	0	0	0
650	25	25.69	29.01	14.505	362.625	0	0	0	0
675	25	10.87	36.56	18.28	457	0	0	0	0
700	25	32.455	43.325	21.663	541.563	0	0	0	0
725	25	7.26	39.715	19.858	496.438	0	0	0	0
750	25	22.585	29.845	14.923	373.063	0	0	0	0
775	25	18.27	40.855	20.428	510.688	0	0	0	0
800	25	10.56	28.83	14.415	360.375	0	0	0	0
825	25	13.76	24.32	12.16	304	0	0	0	0
850	25	13.66	27.42	13.71	342.75	0	0	0	0
875	25	2.76	16.42	8.21	205.25	0	0	0	0
900	25	21.58	24.34	12.17	304.25	0	0	0	0
925	25	9.63	31.21	15.605	390.125	0	0	0	0
950	25	9.645	19.275	9.6375	240.938	0	0	0	0
975	25	11.1	20.745	10.373	259.313	0	0	0	0
1000	25	15.36	26.46	13.23	330.75	0	0	0	0
				Total =	13860.9			Total =	708.75

Ass't. Executive Engineer
PMGSY Sub Division
Basohli


Executive Engineer
PMGSY Division
Kathua

Earthwork chart for preparation of road from Towara to Dodla

Km - 2nd

RD 0 - 1000

RD	L (m)	Cutting:				Filling			
		SA	TA	MA	Qty (m ³)	SA	TA	MA	Qty (m ³)
0	-	15.36	-	-	-	0	-	-	-
25	25	20.39	35.75	17.875	446.875	0	0	0	0
50	25	3.87	24.26	12.13	303.25	1.755	1.755	0.8775	21.9375
75	25	12.285	16.155	8.0775	201.938	0	1.755	0.8775	21.9375
100	25	7.56	19.845	9.9225	248.063	0	0	0	0
125	25	3.885	11.445	5.7225	143.063	0	0	0	0
150	25	6	9.885	4.9425	123.563	0	0	0	0
175	25	9.96	15.96	7.98	199.5	0	0	0	0
200	25	9.705	19.665	9.8325	245.813	0	0	0	0
225	25	29.305	39.01	19.505	487.625	0	0	0	0
250	25	13.61	42.915	21.458	536.438	0	0	0	0
275	25	13.56	27.17	13.585	339.625	0	0	0	0
300	25	22.935	36.495	18.248	456.188	0	0	0	0
325	25	4.05	26.985	13.493	337.313	0	0	0	0
350	25	5.845	9.895	4.9475	123.688	1.14	1.14	0.57	14.25
375	25	3.06	8.905	4.4525	111.313	0	1.14	0.57	14.25
400	25	14.31	17.37	8.685	217.125	0	0	0	0
425	25	4.895	19.205	9.6025	240.063	3	3	1.5	37.5
450	25	7.705	12.6	6.3	157.5	0	3	0	0
475	25	14.63	22.335	11.168	279.188	0	0	0	0
500	25	9.15	23.78	11.89	297.25	0	0	0.09	2.25
525	25	10.51	19.66	9.83	245.75	0.18	0.18	0.09	2.25
550	25	13.19	23.7	11.85	296.25	0	0.18	0.09	3.75
575	25	8.28	21.47	10.735	268.375	0.3	0.3	0.15	52.5
600	25	5.58	13.86	6.93	173.25	3.9	4.2	2.1	48.75
625	25	3.36	8.94	4.47	111.75	0	3.9	1.95	0
650	25	22.56	25.92	12.96	324	0	0	0	0
675	25	40.64	63.2	31.6	790	0	0	0	0
700	25	22.975	63.615	31.808	795.188	0	0	0	0
725	25	11.16	34.135	17.068	426.688	0	0	0	0
750	25	36.14	47.3	23.65	591.25	0	0	0	0
775	25	8.76	44.9	22.45	561.25	0	0	0	0
800	25	8.39	17.15	8.575	214.375	0	0	0	0
825	25	11.55	19.94	9.97	249.25	0.36	0.36	0.18	4.5
850	25	13.26	24.81	12.405	310.125	0	0.36	0.18	0
875	25	17.68	30.94	15.47	386.75	0	0	0	1.25
900	25	4.86	22.54	11.27	281.75	0.1	0.1	0.05	3.5
925	25	8.565	13.425	6.7125	167.813	0.18	0.28	0.14	2.25
950	25	8.12	16.685	8.3425	208.563	0	0.18	0.09	0
975	25	27.3	35.42	17.71	442.75	0	0	0	0
1000	25	35.58	62.88	31.44	786	0	0	0	0
				Total =	13126.5			Total =	272.875

Asstt. Executive Engineer
PMGSY Sub Division
Basohli


Executive Engineer
PMGSY Division
Kathua

Earthwork chart for preparation of road from Towara to Dodla

Km - 3rd

RD 0 - 1000

RD	L (m)	Cutting				Filling			
		SA	TA	MA	Qty (m ³)	SA	TA	MA	Qty (m ³)
0	35.58	-	-	-	-	0	-	-	-
25	23.635	59.215	29.608	740.188	0	0	0	0	0
50	25.74	49.375	24.688	617.188	0	0	0	0	0
75	15.32	41.06	20.53	513.25	0.87	0.87	0.435	10.875	
100	12.29	27.61	13.805	345.125	0	0.87	0.435	10.875	
125	8.43	20.72	10.36	259	0	0	0	0	
150	10.845	19.275	9.6375	240.938	0	0	0	0	
175	6.29	17.135	8.5675	214.188	0	0	0	0	
200	14.38	20.67	10.335	258.375	0.2	0.2	0.1	2.5	
225	31.43	45.81	22.905	572.625	0	0.2	0.1	2.5	
250	14.105	45.535	22.768	569.188	0	0	0	0	
275	21.25	35.355	17.678	441.938	0	0	0	0	
300	11.63	32.88	16.44	411	0.27	0.27	0.135	3.375	
325	17.66	29.29	14.645	366.125	0	0.27	0.135	3.375	
350	6.24	23.9	11.95	298.75	3.19	3.19	1.595	39.875	
375	10.65	16.89	8.445	211.125	0	3.19	1.595	39.875	
400	13.75	24.4	12.2	305	0.315	0.315	0.1575	3.9375	
425	26.43	40.18	20.09	502.25	0	0.315	0.1575	3.9375	
450	36.18	62.61	31.305	782.625	0	0	0	0	
475	38.92	75.1	37.55	938.75	0	0	0	0	
500	3.4	42.32	21.16	529	0	0	0	0	
525	5.835	9.235	4.6175	115.438	0.25	0.25	0.125	3.125	
550	13.74	19.575	9.7875	244.688	0	0.25	0.125	3.125	
575	12.125	25.865	12.933	323.313	0	0	0	0	
600	22.02	34.145	17.073	426.813	0	0	0	0	
625	24.505	46.525	23.263	581.563	0	0	0	0	
650	11.135	35.64	17.82	445.5	0	0	0	0	
675	5.31	16.445	8.2225	205.563	0	0	0	0	
700	13.33	18.64	9.32	233	0	0	0	0	
725	14.365	27.695	13.848	346.188	0.06	0.06	0.03	0.75	
750	0	14.365	7.1825	179.563	0	0.06	0.03	0.75	
775	10.7	10.7	5.35	133.75	0.7	0.7	0.35	0.75	
800	16.06	26.76	13.38	334.5	0	0.7	0.35	8.75	
825	11.24	27.3	13.65	341.25	0.27	0.27	0.135	3.375	
850	19.49	30.73	15.365	384.125	0	0.27	0.135	3.375	
875	35.215	54.705	27.353	683.813	0	0.27	0.135	3.375	
900	14.69	49.905	24.953	623.813	0	0	0	0	
925	8.985	23.675	11.838	295.938	0	0	0	0	
950	34.375	43.36	21.68	542	0	0	0	0	
975	21.595	55.97	27.985	699.625	0	0	0	0	
1000	6.325	27.92	13.96	349	0	0	0	0	
			Total =	16606.1				Total =	153.13

Asstt. Executive Engineer
PMGSY Sub Division
Basohli

Rehman
Executive Engineer
PMGSY Division
Kathua

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY).SUMMARY SHEET.

Name of the Block.	Code	Total No. of Habitations	Unconnected Habitation				Total Eligible Habitations
			> 1000	500-1000	250-500	<250	
Basohli	JK				Total	Eligible	
For the above scheme		4			1	3	

Type of Proposal	No. of Roads	Total Length of Roads (Kms)	No. of New CD Structures	ESTIMATED COST (in Lacs)			No. of Unconnected habitations connected habitations benefited	
				Earthwork/Pavement	CD Structure from format F-6	Total (5+6) (Rs. In Lacs)	Total Villages	SC/ST Villages
1	2	3	4	5	6	7	8	9
NEW Connectivity	1	3.500	-	91.32	308.84	400.16	4	
Associated Through Route								
Up-gradation								
Other up-gradation								
Total	1	3.500	-	91.32	308.84	400.16	4	

Total = 400.16 Lacs

Traffic Signs and Logo Board = 1.18 Lacs

Cost of Preparation of DPR = 0.74 Lacs

Total Cost = 402.08 Lacs

Asstt. Ex. Engineer
PMGSY Sub-Division
Basohli

Executive Engineer
PMGSY Division
Kathua

Superintending Engineer
PMGSY Circle
Jammu

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY).
ROADS PROPOSED IN PMGSY FOR RURAL CONNECTIVITY (PAVEMENTS LAYERS)

District :- Kathua

Block:- Basohli

Name of Inhabitants Connected / Benefited	New construction (N)/ Associated Through Route(A)/ Up gradation (U)	Facilit y accesse d-d	Road Length (KM)	Existing Surface Type	Details of Thickness & cost for Pavement Layers (Rs. in Lacs.)										Road Furnit ure	Total cost for Paveme nts Rs Lacs	
					Details	Earth Work	Sub- grade Preparati on G.S.B.I	Sub- Base G.S.B.	WB M G-1	WBM G2	WBM G3	B.O. E Edgin g	Cleari ng and Grabbing	PRIM ER& TRAC K COAT	Surfac ing Dressin g P. C		
						Should ers											
From	To	N	A	U													
3	4	5	5	A	6	7	8	Thickness (mm)	--								1.18
				B				Cost(Rs) in Lacs	--								
Town	Dodla	N	--	-	d	3.500	-	Thickness (mm)									
								Cost(Rs) in Lacs									
								Thickness (mm)									
								Cost(Rs) in Lacs									
								Thickness (mm)									
								Cost(Rs) in Lacs									
								Thickness (mm)									

Asstt. Ex. Engineer
PMGSY Sub-Division
Basohli

Executive Engineer
PMGSY Division
Kathua

Superintending Engineer
PMGSY Circle
Jammu

Regan

OB EXECUTIVE DIRECTOR
PM&T INDIA

PRADHAN MANTRIGRAM SADAK YOJANA (PMGSY)
 ROADS PROPOSED IN PMGSY FOR RURAL CONNECTIVITY PAVEMENT
 District Kathua Block: Basohli
 Details of Description and cost for pavement layers

S No.	Name of the block	Name of habitation connected/benefitted			New construction (N) associated through route (A) upgradation (U)	Facility assesed	Road length (Km.)	Existing surface Type	Details	Cleaning Grubbing	E/W	Subgrade preparation	Sub base
1	2	From	To	5	6	7	8						
1	Basohli	Towara	Dodla	N	-	-	3.5	-	Thickness (mm)	-	-		
									Cost (Rs.) in lacs	91.32			
									Thickness (mm)				
									Cost (Rs.) in lacs				
									Thickness (mm)				
									Cost (Rs.) in lacs				
									Thickness (mm)				
									Cost (Rs.) in lacs				
									Thickness (mm)				
									Cost (Rs.) in lacs				
									Thickness (mm)				
									Cost (Rs.) in lacs				
									Thickness (mm)				
									Cost (Rs.) in lacs				
									Thickness (mm)				
									Cost (Rs.) in lacs				
									Thickness (mm)				
									Cost (Rs.) in lacs				

**PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)
DETAILS OF EXISTING ROADS (FOR UPGRADATION)**

Road from :- Towara to Dodla

Length of road :--3.500 Km

Barcode No:- JK

Package:-

Total = 91.32 Lacs

**Asstt. Executive Engineer,
PMGSY Sub-Division,
Basohli**

**Executive Engineer,
PMGSY, Division,
Kathua.**

**Superintending engineer,
"MGSY Circle,
Jammu.**

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)
COST FOR EARTH WORK AS PER E/W CHART

ROAD FROM : Towara to Dodla

TYPE OF WORK : - New Connectivity

BLOCK - Basohli

DISTRICT : - Kathua

TYPE OF SOIL

ROAD LENGTH- 3.500 Km

Description of Items	Length (M)	Width (M)	Height (M)	Unit	Quantity	Rate (Rs)	Amount (Rs)
	3	4	5	6	7	8	9
W in bulk excavation (Cutting)	--	--	--	Cum	29736.942	115.0	34.20
use hard soil 70 %	--	--	--	Cum	12412.398	201.0	24.95
Rock 20 %	--	--	--	Cum	9171.608	343.0	31.45
Hard rock 10 %							
Instruction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of tables 10.1 and 300.2 as per specification clause 1.50	--	--	--	Cum	1248.255.00	58.0	0.72
						Total:	91.32

Say Rs 91.32 lacs

FORMAT F-6

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)
COST ESTIMATE FOR ROADS CONSTRUCTION

Road From TOWARA to DODLA
Length of the Road (Km) : 3.500Kms

S.No	Description of Item	No.	L (m)	B (m)	D/H (m)	Quantity	Unit	District : Kathua	
								Rs (Rs)	Amount in Lacs
1	2	3	4	5	6	7	8	9	10
1	Edge Wall	--	--	--		700 Mt	RMT	03295	23.06
2	Retaining Wall	--	--	--	4.0	600 Mt	RMT	14635	87.81
3	Culvert 2m span					03 NO	NO	7.79	23.37
4	Culvert 3m span					01 NO	NO	5.01	15.01
5	Scupper	05				50 Mt	RMT	0.83	41.50
6	Breast Wall	--	--	--	2.55	300 Mt	RMT	06738	20.21
7	Breast wall	--	--	--	1.50	400 Mt.	RMT	04757	19.03
8	1000mm dia HPC					13 NO	NO	2.42	31.46
9	Retaining Wall				3.0	500 Mt	RMT	9478	47.39
								Total:	308.84

Say = 308.84 lacs

Asstt. Executive Engineer,
PMGSY Sub- Division,
Basohli

Executive Engineer,
PMGSY, Division,
Kathua

Earthwork chart for preparation of road from Towara to Dodla

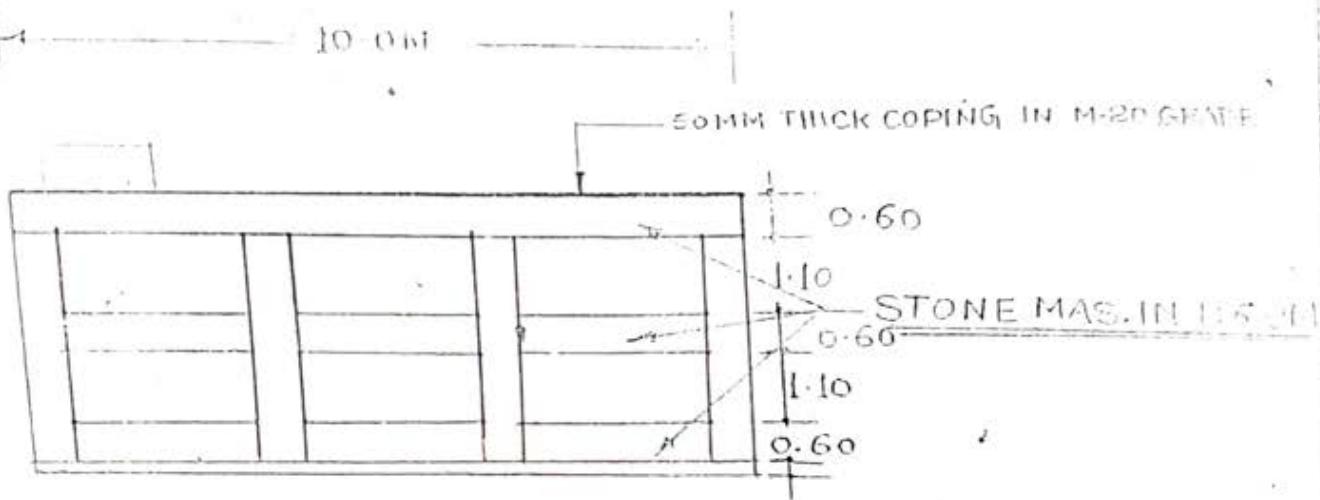
Km - 4th RD 0 - 500

RD L (m)	Cutting				Filling			
	SA	TA	MA	Qty (m ³)	SA	TA	MA	Qty (m ³)
0	6.325	-	-	-	0	-	-	-
25	8.995	15.32	7.66	191.5	0	0	0	0
50	5.74	14.735	7.3675	154.1875	4.05	4.05	2.025	50.625
75	10.005	15.745	7.8725	196.5125	0.49	4.54	2.27	56.75
100	8.92	16.925	9.4625	236.5625	0	0.49	0.245	6.125
125	12.995	21.915	10.955	273.9375	0	0	0	0
150	11.51	24.505	12.253	306.3125	0	0	0	0
175	26.305	37.815	15.908	472.6875	0	0	0	0
200	31.005	57.31	23.655	716.375	0	0	0	0
225	12.18	43.185	21.593	539.5125	0	0	0	0
250	16.655	28.835	14.415	360.4375	0	0	0	0
275	12.13	28.785	14.393	359.5125	0	0	0	0
300	8.62	20.95	10.475	261.875	0	0	0	0
325	7.03	15.85	7.925	198.125	0	0	0	0
350	6.49	13.52	6.76	169	0	0	0	0
375	14.2	20.69	10.345	258.625	0	0	0	0
400	22.14	36.34	18.17	454.25	0	0	0	0
425	11.42	33.56	16.78	419.5	0	0	0	0
450	9.365	20.785	10.393	259.8125	0	0	0	0
475	31.3	40.665	20.333	508.3125	0	0	0	0
500	77.46	108.76	54.38	1359.5	0	0	0	0
				Total = 7727.438				Total = 113.5

Asstt. Executive Engineer
PMGSY Sub Division
Basohli


Executive Engineer
PMGSY Division
Kathua

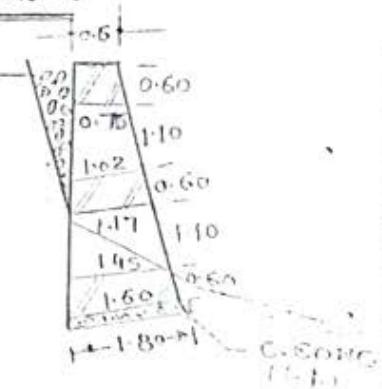
TYPICAL DRAWING FOR CONST. R/WALL. OF
AV. HEIGHT = 4.0M



TYPICAL DRAWING FOR CONST.
OF SEMI-PUCCA R/WALL

$$E[W(a)] = \frac{1.80 + 1.70}{2} \times 0.35 = 0.645 \text{ m}$$

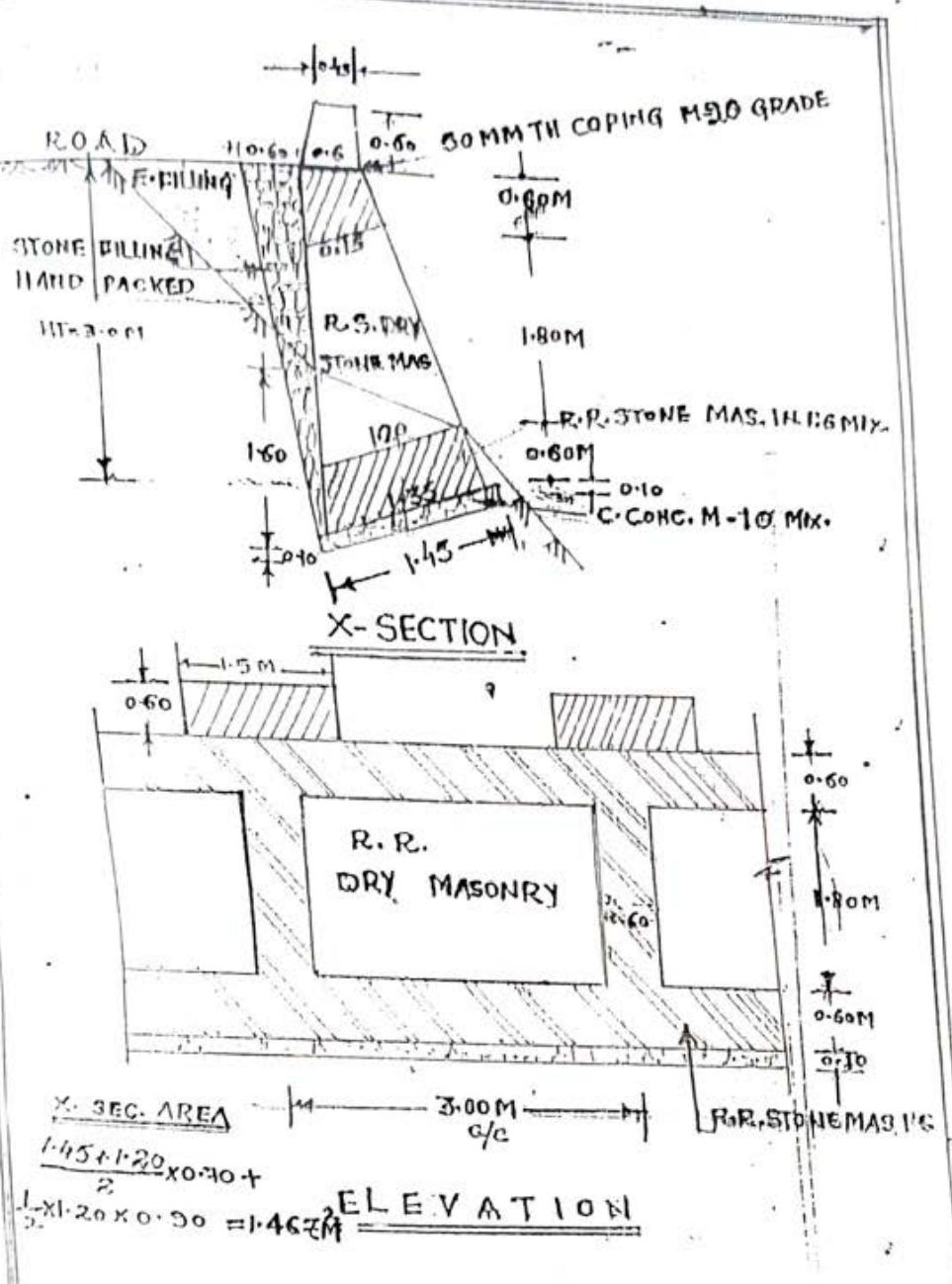
$$(b) = \frac{1.99 \times 1.20}{2} = \frac{1.14 \text{ m}^2}{1.78 \text{ m}}$$



SCALE: 1 CM = 1.0 M

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EXECUTIVE ENGINEER
PMGSY DIV. KATHUA

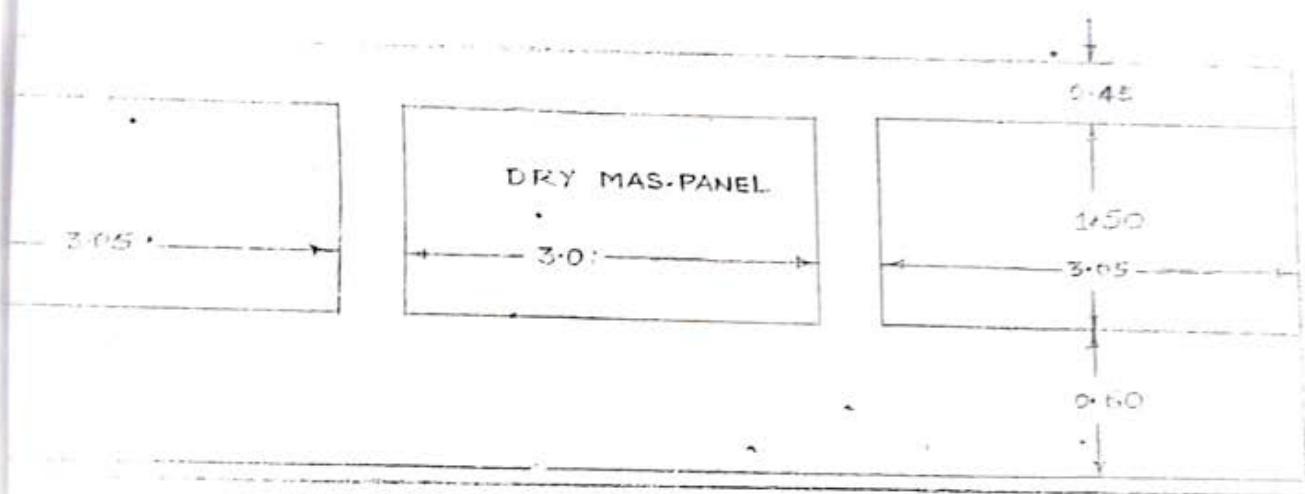
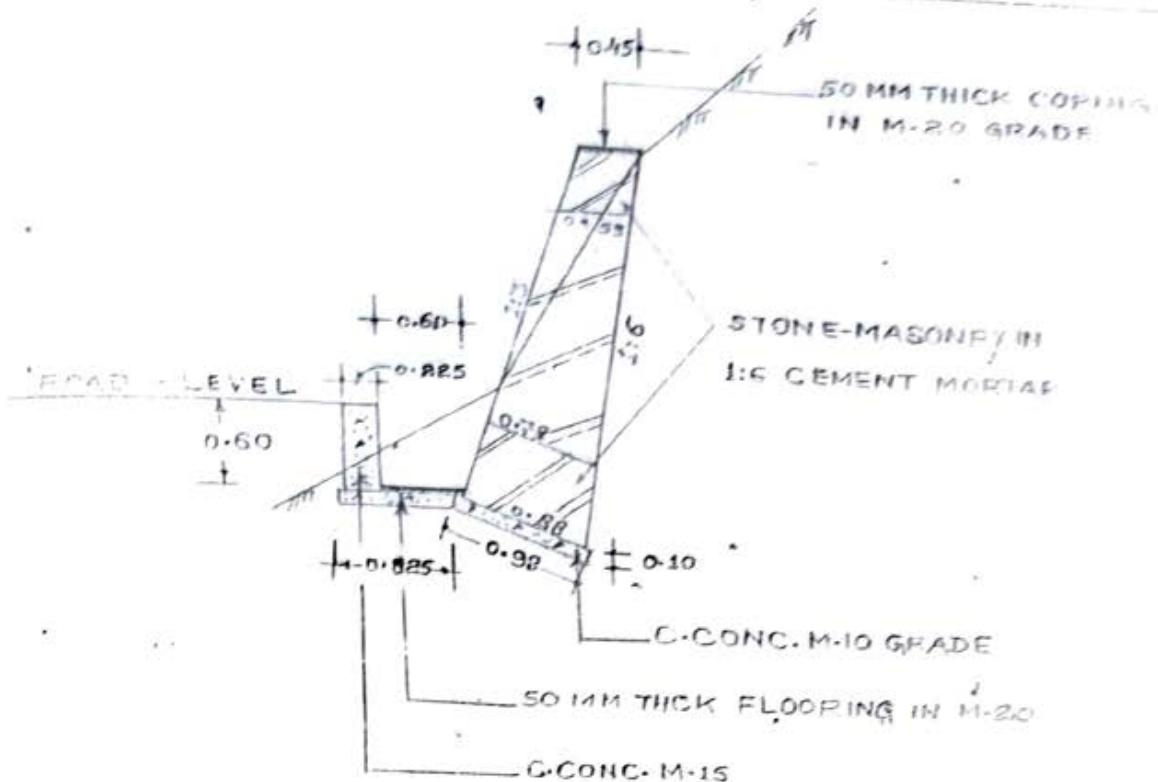


SAMPLE DRAWING FOR
CONST. OF R-WALL (HT=3MTR)

SCALE: 1CM = 50 MTR'S.

222

EXECUTIVE ENGINEER
PRINCIPAL INSTRUMEN

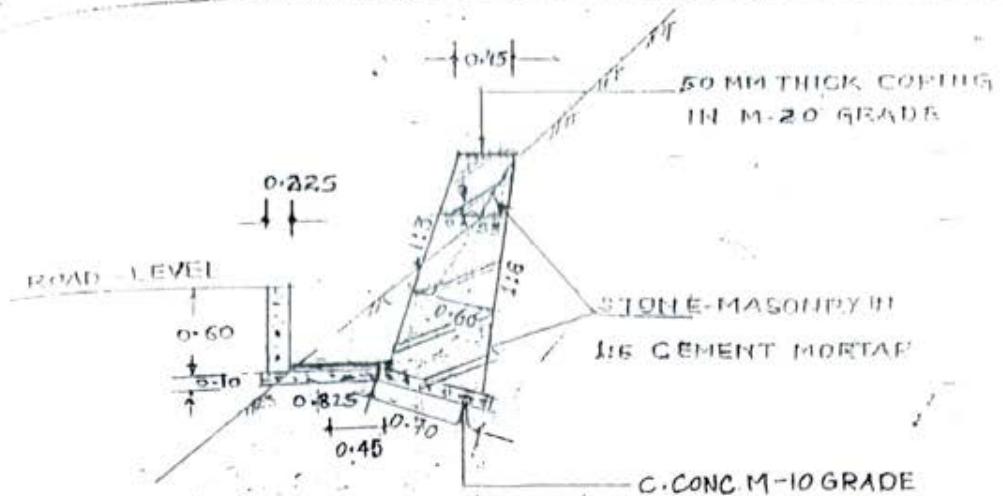


TYPICAL DRAWING FOR CONST. OF
SEMI-FUCCA BREAST WALL UNE
Bharat-Nirman. (P.M.G.S.Y.)

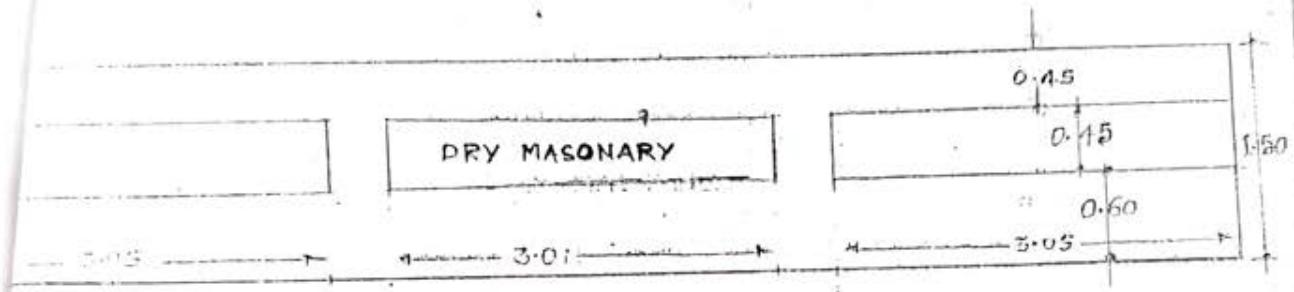
SCALE: 2 CM = 1.000

2020

 EXECUTIVE ENGINEER
PMGSY DIV. KATHUA



CROSS SECTION OF BIWALL

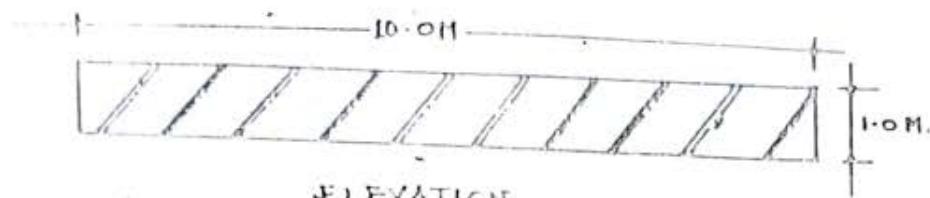


TYPICAL DRAWING FOR CONST. OF
SEMI- PUCCA BREAST WALL UNDER
BIHARAT- NITRMAN. (P.M.G.S.Y.)

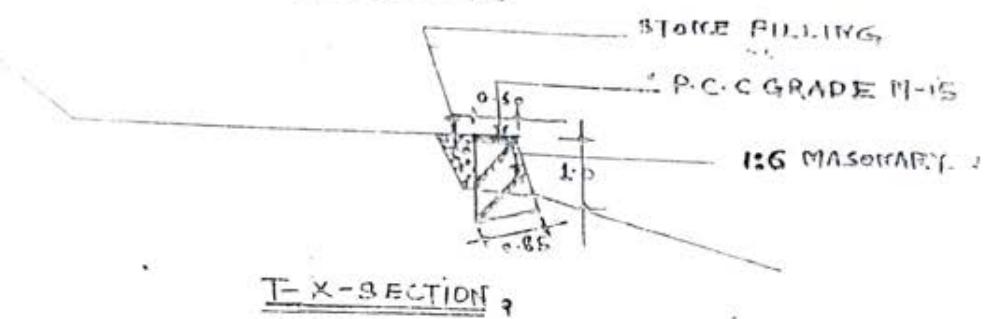
SCALE: 20CM = 1.0M


Asstt. Ex. Engr.


EXECUTIVE ENGINEER
PMGSY DIV. KATHUA



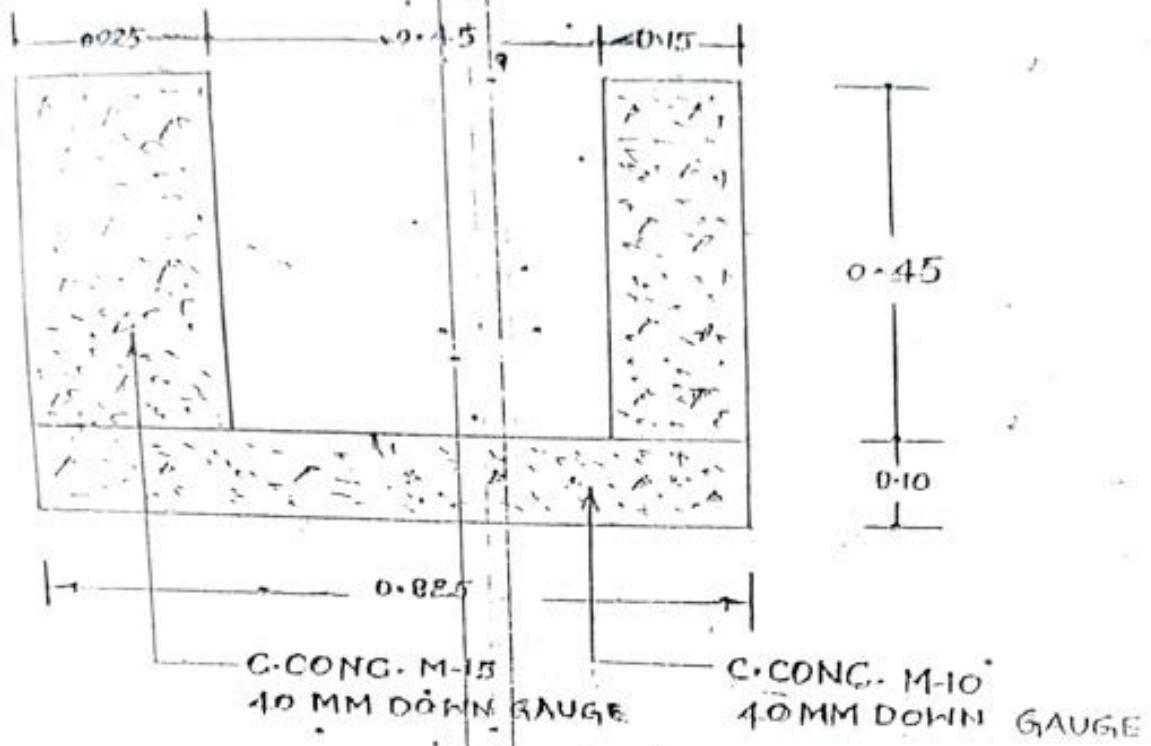
ELEVATION



T-X-SECTION

200

Ch
Spt EXECUTIVE ENGINEER
PMGSY DIV. KATHUA

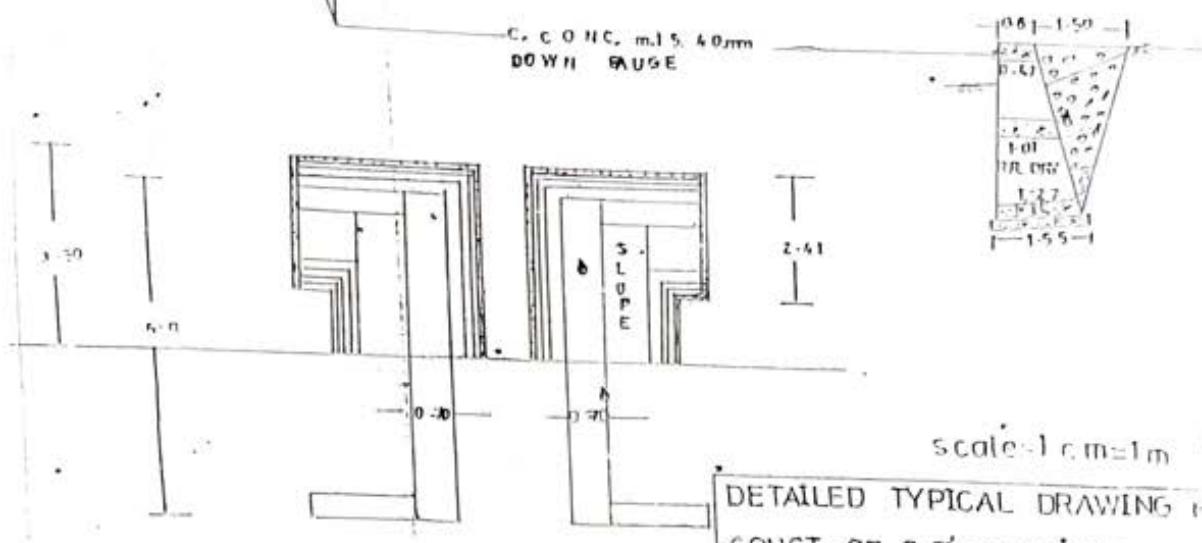
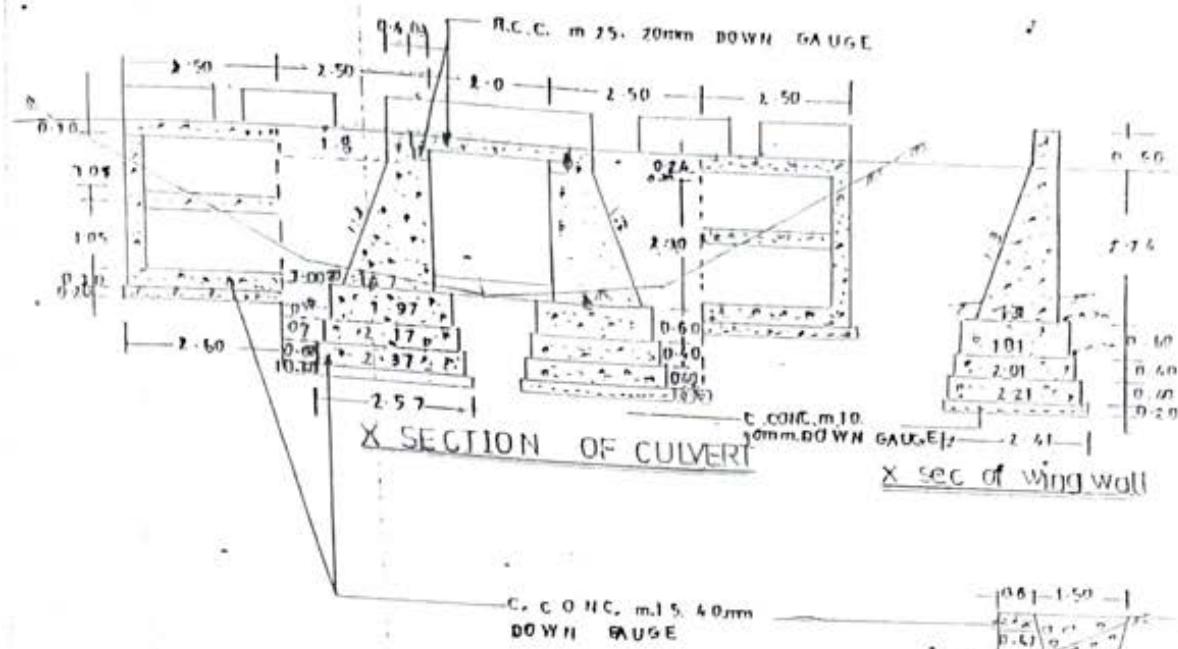


SCALE: 1CM = 1.0M

TYPICAL DRAWING FOR CONST OF
PUCCA DRAIN UNDER BHART NIRMAN.

S
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RBC EXECUTIVE ENGINEER
PMGSY DIV. KATHUA



DETAILED TYPICAL DRAWING NO. 1
CONST. OF 2.0m SPAN RCC
CULVERT UNDER BHARAT BHUMI

8
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aaa

Q&S EXECUTIVE ENGINEER
RMC SY DIVISION

R=17 m

E

L=3.7 m

(a) Longitudinal section



(b) transverse section

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



(a) Longitudinal section

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

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

HUMP AHEAD SIGN
(REFLECTORISED)

3.70 m
(LENGTH OF HUMP)

60.0 m

HUMP AHEAD SIGN

40.0 m



100-120 m C/L

CROSS SECTION

HUMP AHEAD SIGN

40.0 m

HUMP AHEAD SIGN

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

8


SM EXECUTIVE ENGINEER
PHOSY DIVISION
JAUJA

MAJOR ROAD
(P.G. 11)

100 m

120 m

100 m

70 m

REFLECTIONS (%)

MAJOR ROAD

BUILDING



TREE

MAJOR ROAD
AIR AD

MAJOR ROAD
AIR AD

MAJOR ROAD
(P.G. 11)

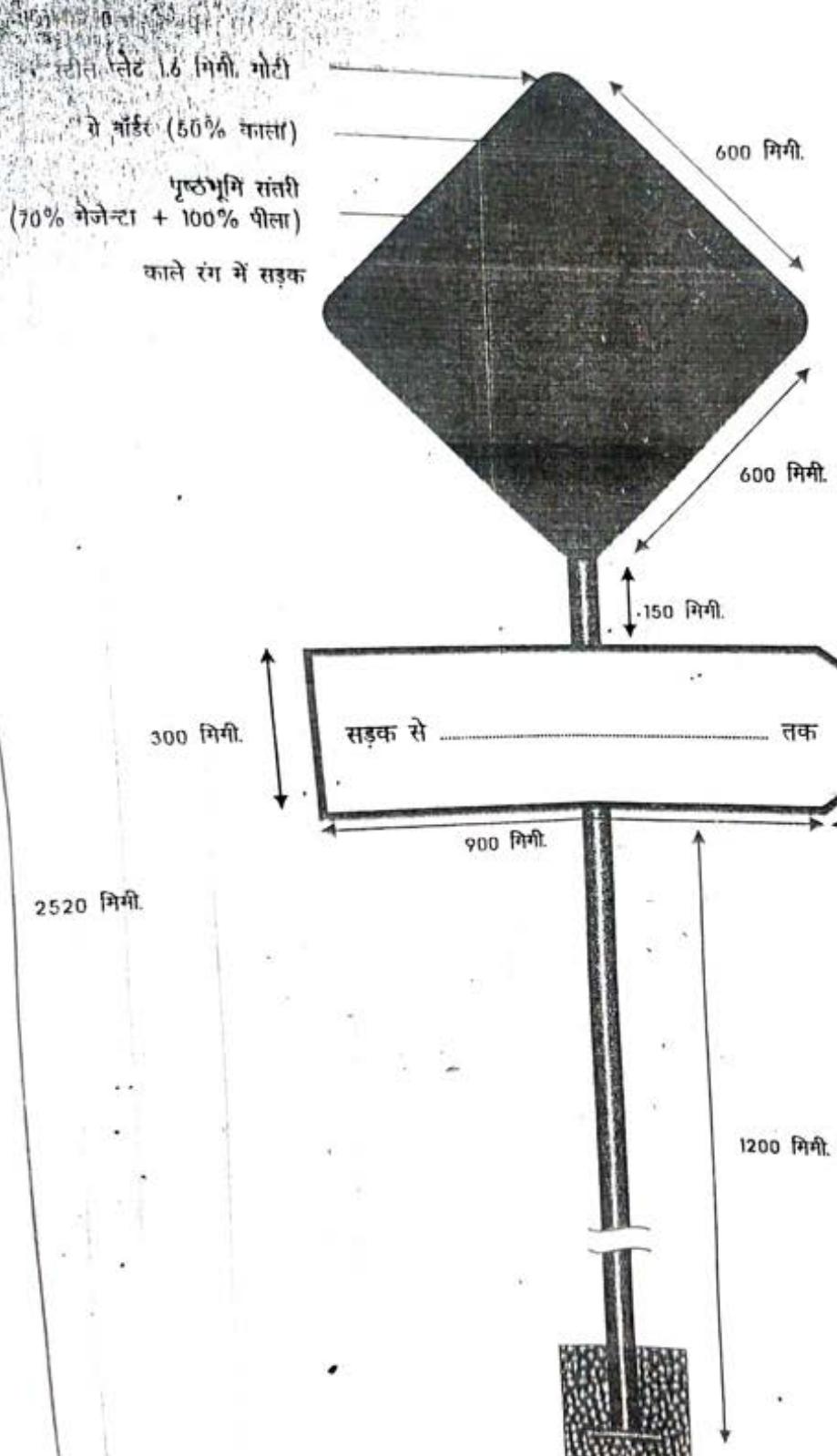
TOP

REFLECTIONS (%)

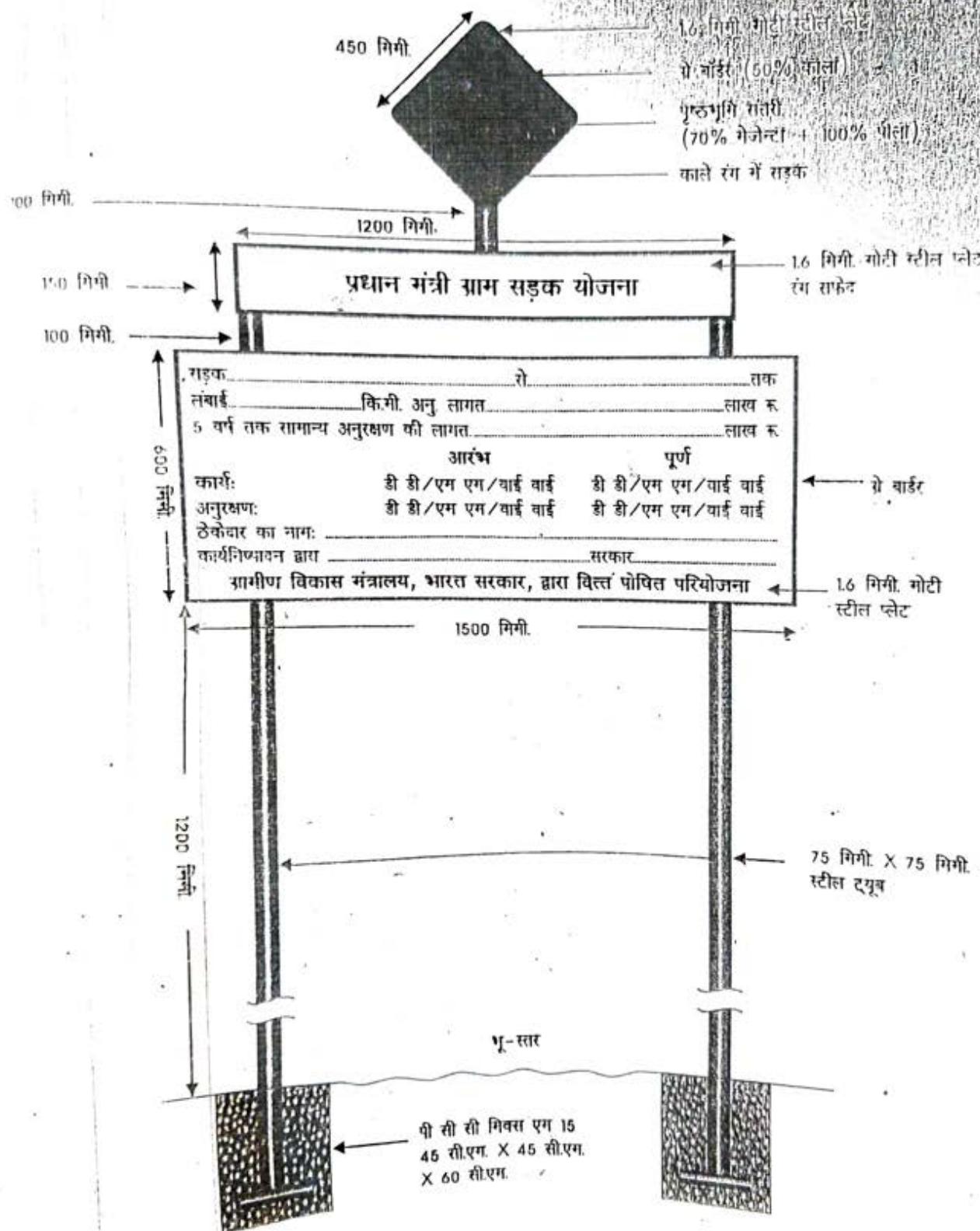
REFLECTIONS (%)

खाली चिन्ह 1: प्रवेश बिन्दु लोगो बोर्ड

स्केल 1:1 सी.एम



रेखाचित्र 2: मरव्या सूचना (बांड)



BRASSICA No. 96

रेखाचित्र 3: नागरिक सूचना बोर्ड “ए”

3

100% 400

100 निरी-हेडिंग की पढ़ी

25 मिनी. अष्टगे
त्री कर्त्तव्य

17 शिमी. अहारो
ती कर्गाई

25 मिनी उप हेलिंग को
उपर्युक्त ग्री कर्चर्ट

15 गिरी रंगीन पट्टी

635 x 870 मिमी. मुद्रण वट

(5 गिमी गोट्टे
स्टील एंड

प्रवतित या गैर प्रवति
उपित गोटाई य
री आर/जी आई गी

ऊपर अनुस
प्रिशिप्पिता

75 निम्नी. राजवेगर पर
75 निम्नी. व्यास की रटीत दग्ध

गारुद और वाम

→ युत समाई किमी, बी.टी. सड़क किमी, सीमेंट पांडीट सड़क किमी, पुलियां नग, रामें नग

→ सड़क पेवरमेंट का विवरण

1. बंधान का गिट्टी कार्प _____ घन मी. (_____ ट्रक के समन्वय) गानी डाल कर रोलर से दबापा हुआ।

3. गिट्टीकृत परत या 2 परतों में डब्ल्यूबीएम. (प्रत्येक परत 7.5 सेमी. गोटी)
 गन गी. प्रत्येक परत अलग अलग निर्वित की जावेगी।
 गिट्टी गन गी. (ट्रक के समतुल्य)
 पल्प का चूरा/मुरग गन गी. (ट्रक के समतुल्य)
 गिट्टी बुल्ली गिट्टी रोलर से दबाई जावेगी, पल्प का चूरा या मुरग डाली जावेगी, पुनः रोलर से दबाई जावेगी, पानी डाल कर रोलर से दबाई जावेगी।

200 दिन

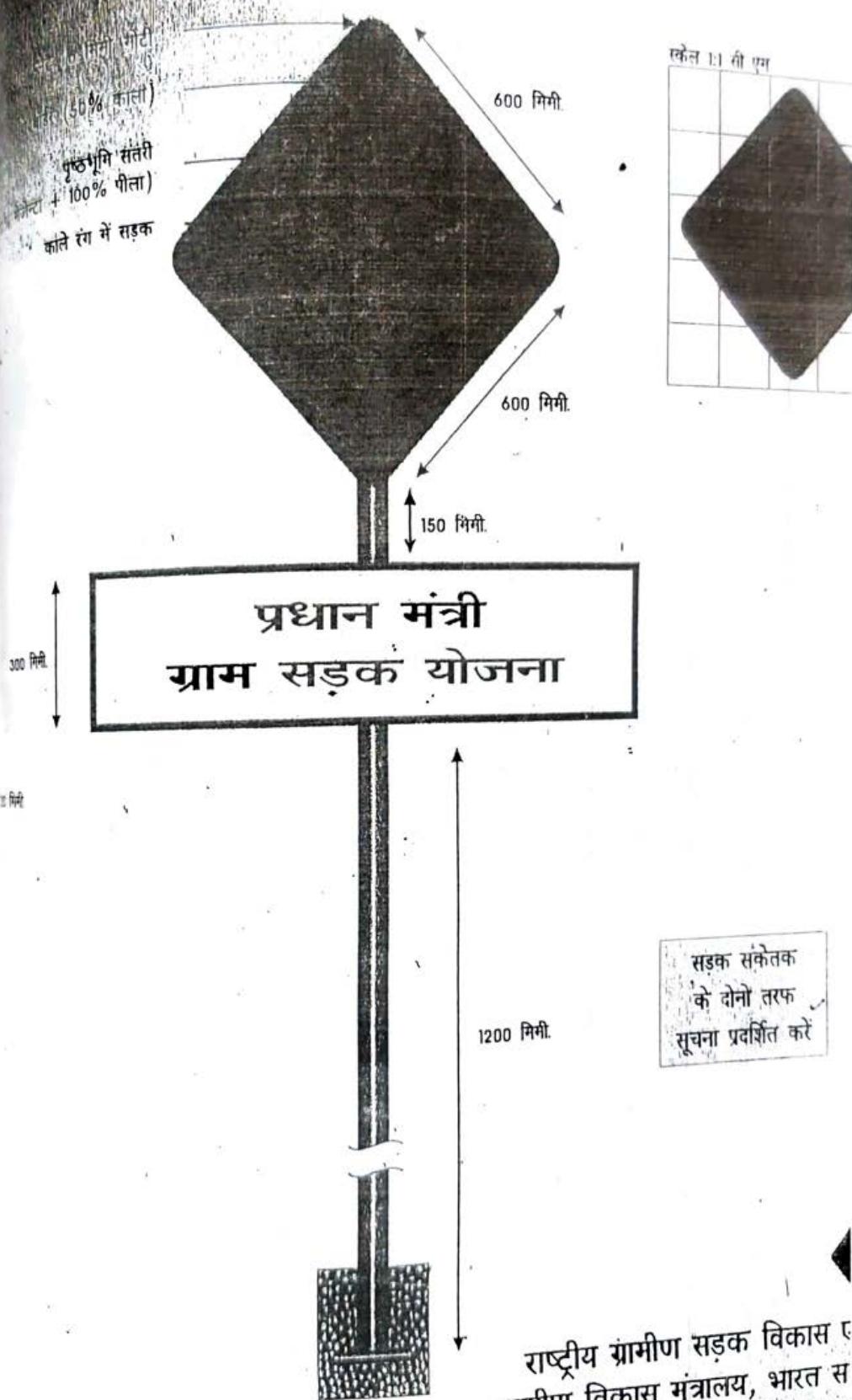
60 x 60 x 75 ਰੋਣੀ ਵੱਡੀ ਕਾਂਕੀਟ ਦੀ ਜੀਂਸ

भूगो लता

बोई 'ए

DRAWING NO: 2

रेखाचित्र 5: लोगो बोर्ड



राष्ट्रीय ग्रामीण सड़क विकास ए
ग्रामीण विकास मंत्रालय, भारत स

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ई-मेल: nrrda@pmgsy.nic.in वेबसाइट: www.pmgsy.nic.in www.pmgsyonline.in