GOVERNMENT OF JAMMU & KASHMIR

Public Works Department
(Roads & Buildings)
JAMMU PROVINCE

PROJECT APPRAISAL REPORT
FOR
CONSTRUCTION OF ROAD
FROM AMIRANAGAR TO KHAROTI, BHELAN
Linking
HANGA ROAD AT GHATI MORH
UNDER
NABARD ASSISTANCE PROGRAMME
RIDF

A.A.Cost	:	239.00 Lacs.
Length	:	3.50 kms.
District	:	DODA.

Executive Engineer,
B.C Road Division,
Bhadarwah.

Superintending Engineer,
PWD(R&B)Circle
Doda.

Chief Engineer,
PW(R&B)Deptt:
Jammu.

Project Report

Name of work: - Construction of Road from Amira Nagar to Kharoti, Bhelan linking Hanga Road at Ghati Morh.

Authority: - Chief Engineer PW (R&B) Department Jammu.

Project Orientation: - NABARD State Sector RIDF-

History & Necessity:- The Hanga-Kharoti area is vast area located towards the western side of Bhaderwah town. It is beautiful valley having lush green thick forests, terraced fields with Hanga Nallah flowing through the center of valley. The area even if located so near to the town is most backward & has remained devoid of any developmental activity due to lack of road connectivity. A road taking-off from Doda Bhaderwah Road near Domel was constructed by Forest Department for carriage of timber from the area and was later handed over to P.W.D. for improvement & development and the progress for the same is at snail's pace due to meager flow of funds. Further with the establishment of Army Station at Sarna (Domel) around first full Km. of the road, the movement of private/ public transport has been restricted on the road. The people face a lot of hardships for the movement of their vehicles with Army area and the situation becomes acute in case of emergencies.

The people of the area have represented a no. of times for providing alternate link so that their movement is free on the road.

Keeping all this in view, the present road has been proposed which besides giving an alternate link shall connect the left out villages viz: Kharoti, Bhelan, Khan Mohalla & Sarna and shall connect with the Hanga Road in Km 5th thereby serving a population of 4000 souls.

Alignment: - It has been proposed to take-off the road from Doda Bhaderwah road Km 24th near Amiranagar. The road alignment shall move in rising gradient and after passing through Khan Mohalla, Kharoti, Bhelan shall culminate at Ghati Morh with the Hanga Road. The alignment has been fixed so as to connect the maximum no. of villages. The local people have been fully involved in the fixation of alignment. No. major X-drainage is involved in the alignment. The alignment is passing through safe zones with minimum no. of C.D. works.

Physical details and Technical specifications: -

The proposed road shall have length of 3.50 kms. The road shall be constructed mostly by way of Earthwork in cutting. The overall formation width shall be 6.00 mtrs with 3.0mts as carriageway width. The walling has been proposed at valley and curve points to improve the geometrics of the road. The road has been proposed in rising gradient with a maximum of 5% grade. Proper super elevation, cross slope/camber has been proposed as per I.R.C. specifications. The back slope of cutting shall range from 1 in 6 to 1 in 12 as per terrain classification. A longitudinal kacha drain has been proposed

towards the uphill side of road the road all along. To drain off water from Nallahs and road surface requisite no of X- drainages have been proposed. The X- drainage works consist of 900mm dia H.P. Culverts. Semi- Pucca B/walls have been proposed to protect the private land/Houses and to retain the back slope. The pavement crust shall consist of WBM G-I, G-II, G-III having thickness of 250mm with 20mm thick premix carpet.

Cost:-The total cost of the project is 239.00 lacs with Rs. 68.30 lacs. as average cost per km.

Land: - Most of the land coming under the alignment is Private/State land (L = 3.50 kms). The Private Land coming in the alignment shall be acquired.

Project implementation And Management: -

The project will be completed by state P.W.D. under preview of Chief Engineer PW(R&B) Department Jammu having good organizational set up to complete the project in time.

Operation and Maintenance: -Operation and Maintenance of the road shall be carried by State P.W.D. and separate funds shall be provided annually by the J&K Govt. for the maintenance of the road.

Risk factor: -

There is no risk factor involved since it is new scheme. The sufficient labour is available in this area around the year for the early completion of the project. Besides the machinery required for the construction of road is available with State Mechanical Department/ Private Agencies and could be arranged in shortest time.

Benefits and Justification: -

The project envisages the construction of 3.50 kms of road length in Bhaderwah Block of Doda Distt. which shall connect several villages having population more than 4000 souls.

Increase in Agricultural Production: -

The farmers in the area grow crops like wheat, Maize, Rice, pulses, fruits and vegetables and by getting regular and better transportation it is expected that agricultural product will increase sustainability and farmers will be able to sell their yield to far-off areas and shall get better realization of the products.

Saving in wastage: -The construction will facilitate transportation of marketable surplus to the near by markets resulting in saving in wastage of products.

Saving in Travel Time: -The population of villages using this road is 4,000 souls assuming that only 10% of the population are engaged in labour marketing activities, with the construction of this road it is expected that travel time shall be reduced by 4 minutes per km.

Better Education Facilities: - By the construction of this road the area could avail better education and medical facilities available at Doda/Bhadarwah.

Saving in Vehicle Operating Facilities: -

As per survey conducted by the department; the volume of traffic has been conversion factor, which is as under:

S.No.	Vehicle Type	No/day.	Factor	PCU/day
1.	Motorcycle/Scooter	30	0.50	15.00
2.	Passenger Car/Van/Sumo	20	1.00	20.00
3.	Truck/Bus/Tipper	10	3.00	30.00
4.	Agriculture Tractor	4	4.50	18.00

Total = 83.00

Generation of Additional Employment: -

The construction of road will provide direct employment to landless and backward people and all the skilled labour shall get employment opportunities as the people of the area are mostly labour class and depend heavily on developmental activities in the area. During the implementation period of two (2) years about 80,000 man-days are expected to be generated. The maintenance of the road will also result in employment opportunities.

Estimated Cost & Time of Completion:- The estimated cost of the scheme is **Rs. 239.00 Lacs.** The Department shall complete the work within the anticipated premium envisaged in the Detailed Project Report in a period of two years subject to availability of funds.

AEE
HQ Sub-Division
Bhadarwah.

Executive Engineer
B.C. Road Division
Bhadarwah.

GENERAL ABSTRACT OF COST.

Name of the work: - Construction of Road from Amira Nagar via Kharoti, Bhelan linking Hanga Road at Ghati Morh.

(up to B.T. Status)

S.No.	Description of Items.	Qty.	Rate	Amount.
1.	Earthwork in Excavation (as per estimate enclosed)	39046	127.30	Rs.49.70 lacs.
2.	Drainage Crossings:			
	(a) R.C.C. Culverts 1.5 mtrs span	5 Nos.	Rs. 4.33 lacs/each.	Rs. 21.65 lacs.
	(b) 900 mmΦH.P. Culverts	12 Nos.	Rs. 1.33 lacs/each.	Rs. 15.96 lacs.
3.	Protection Works:			
	(a) Retaining wall: 4.0 mtrs ht.	300 mtrs.	Rs. 12350/mtr.	Rs. 37.00 lacs.
	(b) Retaining wall: 3.0 mtrs ht.	200 mtrs.	Rs. 8670/mtr.	Rs. 17.34 lacs.
	(c) Edge wall : 1.0 mtrs ht.	500 mtrs.	Rs. 1140/mtr.	Rs. 5.70 lacs
	(d) Breast wall : 2.0 mtrs ht.	500 mtrs.	Rs. 4000/mtr.	Rs. 20.00 lacs.
4.	100mm thick WBM Grade 1st	11550.00	Rs. 110.00	Rs. 12.71 lacs.
	75 mm thick Grade 2nd	11550.00	Rs.73.00	Rs. 8.43 lacs.
	75 mm thick Grade 3rd	11550.00	Rs. 86.00	Rs. 9.93 lacs.
5.	Premixing 20mm thick open graded	11550.00	Rs.271.00	Rs. 31.30 lacs
	Total			*Rs. 229.72 lacs..*
	Add 3% for W.C & Contingencies.			Rs. 6.89 lacs.
	Add 1% for Quality Control			Rs. 2.29 lacs.
	G. Total			*Rs. 238.90 lacs.*

Say Rs. 239.00 lacs.

Assistant Executive Engineer,
Bhadarwah Sub-Division.
Bhadarwah.

Executive Engineer,
B.C. Road Division,
Bhadarwah

Executive Engineer
Bhadarwah Chamba Road Division

RURAL INFRA-STRUCTURE DEVELOPMENT FUND
CONSTRUCTION OF BRIDGES IN BHADARWAH CONSTITUENCY
(DISTRICT DODA).

1. Name of Scheme	:	Const. of Road from Amira Nagar via Kharoti Bhalan Linking Hanga Road at Ghatt Moh.
2. Location	:	Northern side of BDW. Town some 7.0 Kms away.
3. Objective	:	To give connectivity to vill: Khan Mohalla, Kharoti, Bhalan and Hanga.
4. Total Cost of Project	:	239.00 Lacs
5. Exp. incurred by State Govt by end of 03/2009.	:	-
6. Balance amount required for construction of the Project	:	239.00 Lacs
7. Financial assistance sought by J&K Govt.	:	215.00 Lacs
8. Amount of J&K Share	:	24.00 Lacs
9. Expected period of completion	:	Two years

Location (Index map annexed)

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GENERAL ABSTRACT OF COST.

Name of the work: - Construction of Road from Amira Nagar via Kharoti, Bhelan linking Hanga Road at Ghati Morh.

(up to B.T. Status)

S.No.	*Description of Items.*	*Qty.*	*Rate*	*Amount.*
1.	Earthwork in Excavation (as per estimate enclosed)	39046	127.30	Rs.49.70 lacs.
2.	Drainage Crossings: (a) R.C.C. Culverts 1.5 mtrs span (b) 900 mmΦH.P. Culverts	 5 Nos. 12 Nos.	 Rs. 4.33 lacs/each. Rs. 1.33 lacs/each.	 Rs. 21.65 lacs. Rs. 15.96 lacs.
3.	Protection Works: (a) Retaining wall: 4.0 mtrs ht. (b) Retaining wall: 3.0 mtrs ht. (c) Edge wall : 1.0 mtrs ht. (d) Breast wall : 2.0 mtrs ht.	 300 mtrs. 200 mtrs. 500 mtrs. 500 mtrs.	 Rs. 12350/mtr. Rs. 8670/mtr. Rs. 1140/mtr. Rs. 4000/mtr.	 Rs. 37.00 lacs. Rs. 17.34 lacs. Rs. 5.70 lacs Rs. 20.00 lacs.
4.	100mm thick WBM Grade 1st 75 mm thick Grade 2nd 75 mm thick Grade 3rd	11550.00 11550.00 11550.00	Rs. 110.00 Rs.73.00 Rs. 86.00	Rs. 12.71 lacs. Rs. 8.43 lacs. Rs. 9.93 lacs.
5.	Premixing 20mm thick open graded	11550.00	Rs.271.00	Rs. 31.30 lacs
	Total			***Rs. 229.72 lacs..***
	Add 3% for W.C & Contingencies.			Rs. 6.89 lacs.
	Add 1% for Quality Control			Rs. 2.29 lacs.
	G. Total			***Rs. 238.90 lacs.***

Say Rs. 239.00 lacs.

Assistant Executive Engineer,
Bhadarwah Sub-Division.
Bhadarwah.

Executive Engineer,
B.C. Road Division,
Bhadarwah.

Distt. Superintending Engineer
PWD R&B (Circle)
Doda

Estimate for Construction of Road from Amira Nagar via Kharoti, Bhelan linking Hanga Road at Ghati Morh.

S.No.	*Description of Items*	*Amount.*
1.	Earth work in excavation over areas (exceeding 30cms in depth , 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth and lift up to 1.5m, disposed earth to be leveled and neatly dressed. In 70% all kind of soil, 20% Ordinary rock & 10% in hard rock by blasting. (i) All kind of Soil @ 70% = 27332.20 cum @ Rs. 82.35/cum	Rs. 2250806.00
	(ii) Ordinary Rock @ 20% = 7809.20 cum @ Rs.129.30/cum	Rs. 1009729.00
	(iii) Hard Rock @ 10% = 3904.60 cum @ Rs.182.25/cum	Rs. 711418.00
	Total	***Rs. 3971953.00***
	Add 25% above	Rs. 992988.00
	G. Total	***Rs. 4964941.00***

Say Rs.49.64 lacs.

Assistant Executive Engineer,
Bhadarwah Sub-Division,
Bhadarwah.

Executive Engineer,
B.C. Road Division,
Bhadarwah.

Name of work:- Construction of Road from Amira Nagar via Kharoti, Bhelan linking Hanga Road at Ghati Morh.

EARTHWORK CHART

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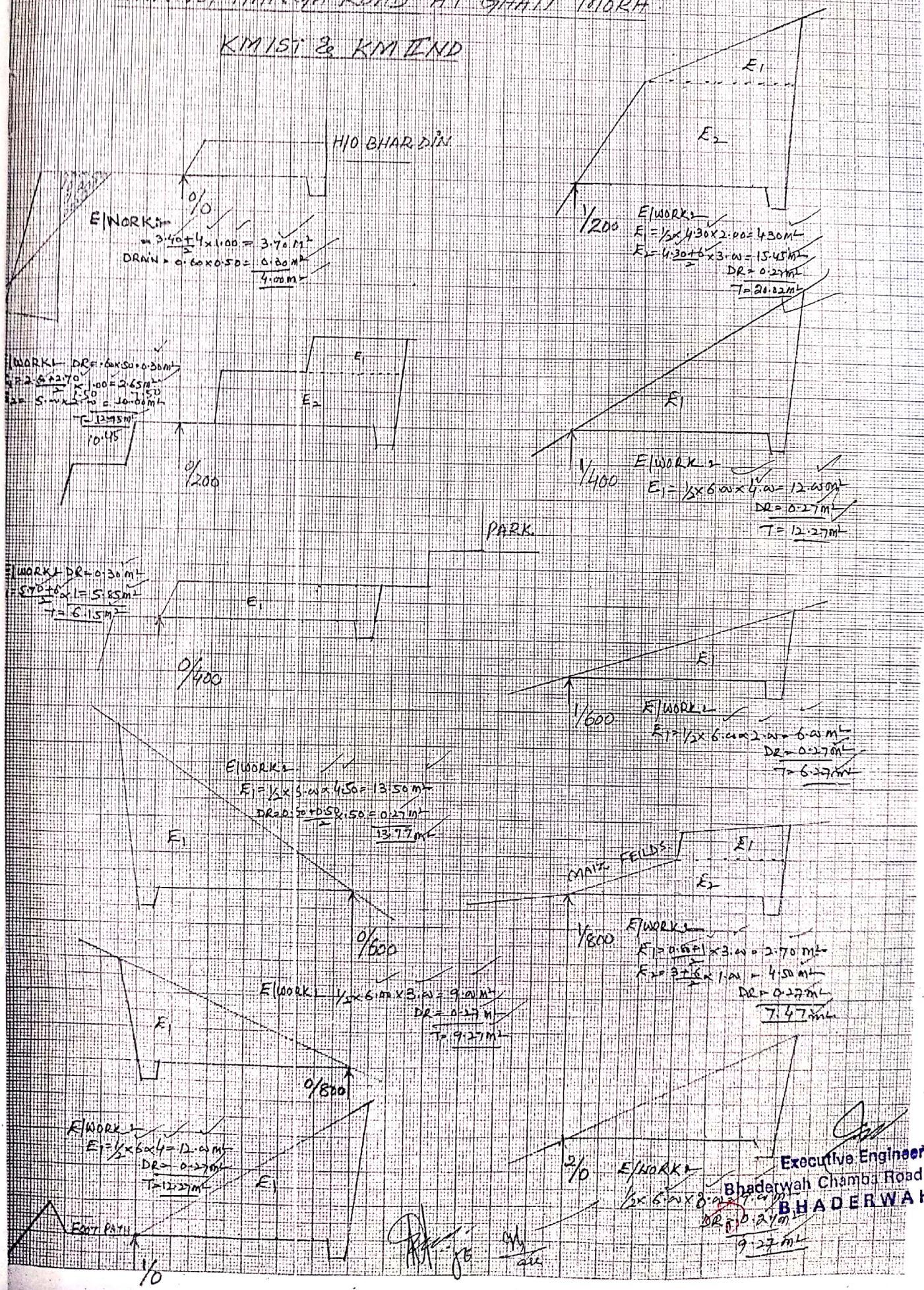
R.D's	Sec. Area	Total Area	Mean Area	Length	Qty	Classification
Km 1st						
2	4.00	--	--	--	--	
200	10.45	14.45	7.22	200	1445.00	
400	6.15	16.60	8.30	200	1660.00	
600	13.77	19.92	9.96	200	1992.00	
800	9.27	23.04	11.52	200	2304.00	
1000	12.27	21.54	10.77	200	2154.00	
Km 2nd						
200	20.02	32.29	16.14	200	3228.00	
400	12.27	32.29	16.15	200	3230.00	
600	6.27	18.54	9.27	200	1854.00	
800	7.47	13.74	6.87	200	1374.00	
1000	9.27	16.74	8.37	200	1674.00	
Km 3rd						
200	9.27	18.54	9.27	200	1854.00	
400	13.69	22.96	11.48	200	2296.00	
600	13.77	27.46	13.73	200	2746.00	
800	17.37	31.14	15.57	200	3114.00	
1000	9.27	26.64	13.32	200	2664.00	
Km 4th						
200	14.07	23.34	11.67	200	2334.00	
400	9.27	23.34	11.67	200	2334.00	
500	6.52	15.79	7.89	100	789.00	
					39046.00 m^3	

Assistant Executive Engineer,
Bhadarwah Sub-Division,
Bhadarwah.

Executive Engineer,
B.C. Road Division,
Bhadarwah.

CONSTT. OF ROAD FROM AMIRA NAGAR VIA KHOROTI BHELAN LINKING HANGA ROAD AT GHATI MORH

KM 1ST & KM END



Executive Engineer
Bhaderwah Chamba Road Divisio
BHADERWAH.

Typical estimate for construction of Semi Pucca R/Wall 4.0Mtrs height.

(Length 11.00 mtrs)

S. No	Description of Items	Amount in Rupees
1	Earth work in excavation over areas (exceeding 30cm in depth, 1.5m in width as well as 10sqm. on plan) incl. disposal of excavated earth and lift upto 1.5m, disposed earth to be leveled and neatly dressed. For a lead of 25Mtrs. 50% of all kinds of soil , 30% ordinary rock , 20% Hard rock. 1/2x2.30x0.55=0.63 Sqm 2.30+3.10x0.30=0.81 Sqm 2 (3.10+2.60)/2x0.45=1.28 Sqm Total = 2.72 x11=29.92 cum @ Rs. 119.10/cum	3563.00
2	Providing and laying cement conc. 1:5:10 (1 cement: 5 Coarse sand:10 stone aggregate) 40 mm size of stone aggregate: 1x11.00x2.6x0.15=4.29 cum @ Rs.1057.45/cum	4536.00
3	Polygonal Rubble Masonry in (1 Cement: 6 Coarse Sand) Nallah in foundation and plinth incl. leveling up with cement conc. 1:6:12 mix with 20mm nominal size stone aggr. Bottom Band= 11.00x(2.3+2.6)/2x0.60= 16.17 cum Top Band = 11x(0.60 + 0.90)/2x 0.60= 4.95 cum Vertical Band= 5x(0.90+2.3)/2x2.80x0.6= 13.44 cum Total = 34.56 cum @ Rs.1059.35/cum	36611.00
4	Polygonal Random Rubble Masonry Nallah Stones laid dry in foundation and plinth with 50% available stone (09+2.3)/2x2x2.8x4.=35.84 cum @ Rs.338.45/cum	12130.00
5	Providing and Laying horizontal DPC 50 mm thick in nominal mix concrete 1:2:4 with 20mm stone aggregate: 11x0.6= 6.6 sqm @ Rs. 108.95/sqm	719.00
6	Supply & hand packed filling of stones 11x1/2x1.5x2.5= 20.62 cum @ Rs.32.15/cum	2752.00
7	Centering and shuttering Bed, 11x0.15=1.65 Sqm @ Rs.109.15 /Sqm	180.00
8	Carriage of material by MT Stone 6 K.M by M.T Qty. vide item No: 3= 34.56 cum	

	4=35.84 Cum 6=20.62 cum T= 91.02 cum @ Rs.94.65 /cum	8615.00
9	Stone Aggregate 40 mm av. distance 6 K.M. by MT Qty. vide item No: 2= 4.29 cum @ 0.89/cum=3.81 cum @ Rs 87.00/cum	331.00
10	Nallah Bajari avg. distance 10 km by MT:- Qty. vide item No: 7= 6.6 cum @ 0.045/cum=0.29 cum @ Rs.103.45 /cum	30.00
11	Sand av. distance 30 K.M. by M.T: Qty. vide item No: 2= 4.29 cum @ 0.47 /cum = 2.01 cum 3=4.18 Cum @ 0.38/cum=9.18 cum 7=6.6 cum @ 0.023/cum=0.15 cum T= 11.34/cum @ Rs.178.95 /cum	2029.00
	Total	**71496.00**
	Add. 90% above	**64346.00**
	Grand Total	**135842.00**

Cost per Meter= Rs. 12349.00

Say Rs 12350.00

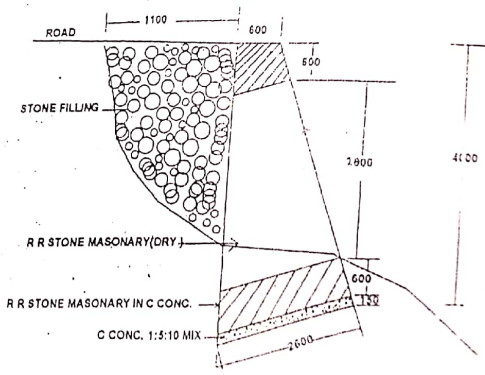
Ref.to source:

1. Nallah Bajree: Neeru Nallah.
2. Stone Agg. Local ravines
3. Stone -do-
4. Sand River Chenab

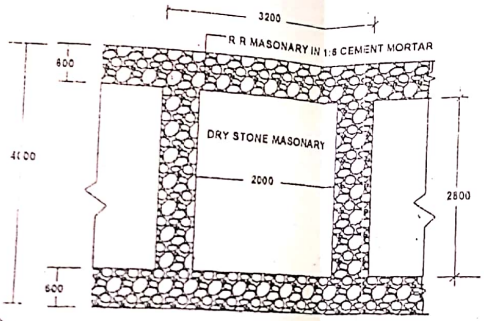
JE

Assistant Executive Engineer / AEE / T.O
P.W.D (R&B) HQ Sub Division,
BHADARWAH

Executive Engineer
B.C.Road Division
Bhaderwah



TYPICAL SECTION OF R/WALL



FRONT ELEVATION OF R/WALL

NOTES

1 THE STONE MASONARY SHALL BE IN CEMENT MORTAR 1:6 MIX.
2 THE FACE JOINTS SHALL BE NOT MORE THAN 20MM THICK .
3 THE HEIGHT OF COURSES SHALL DEPEND ON AVAILABLE SIZE OF STONE . IN NO CASE THE HEIGHT OF COURSE SHOULD BE LESS THAN 150MM.
4 THE HEARTING OR INTERIOR FILLING OF THE WALL SHALL CONSIST OF FLAT BEDDED STONE CAREFULLY LAID ON THEIR PROPER BEDS IN MORTAR.
5 THE USE OF CHIPS SHALL BE RESTRICTED TO THE FILLING OF INTERSTICS BETWEEN THE ADJACENT STONE IN HEARTING AND THESE SHALL NOT EXCEED 15 PERCENT OF THE QUANTITY OF MASONARY.
6 THE HEIGHT OF COURSES GENRALLY ADOPTED ARE 160 MM,180 MM,200MM

REF IRC S2

TYPICAL SECTIONS OF RETAINING WALL 4 M HEIGHT

Executive Engineer
Bhaderwah Chamba Road Division
BHADERWAH.

Assistant Executive Engineer
R.W.D [illegible] Division,

Typical estimate for construction of Semi Pucca R.Wall 3.0Mtrs height

(Length 11.*00 mtrs)*

S. No	Description of Items	Amount in Rupees
1	Earth work in excavation over areas (exceeding 30cm in depth. 1.5m in width as well as 10sqm. on plan) incl. disposal of excavated earth and lift upto 1.5m, disposed earth to be leveled and neatly dressed. For a lead of 25Mtrs: 50% of all kinds of soil, 30% ordinary rock, and 20% Hard rock. 1/2x2.5x1.0=1.25 (2.5+2)/2x0.75=1.68 T=2.93x11=32.23 cum @ Rs.119.10/cum	3838.00
2	Providing and laying cement conc. 1:5:10 (1 cement: 5 Coarse sand:10 coarse aggregate stone) 40 mm size of stone aggregate: Bed, 1x11x2x0.15=3.30 cum @ Rs.1057.45 /cum	3489.00
3	Polygonal Rubble Massonary in 1 Cement : 6 Coarse Sand Nallah in foundation and plinth incl. leveling up with 1:6:12 mix size of aggregate 20 mm. Bottom Band= (1.7+2)/2x0.6x11=12.21 cum Top Band = (0.6+0.9)/2x0.6x11=4.95 cum Vertical Band= (0.9+1.7)/2x0.6x1.8x5=7.02 cum Total = 24.18 cum @ Rs.1059.35/cum	25165.00
4	Polygonal Random Rubble Masonry Nallah Stones lay dry in foundation and plinth. (0.9+1.7)/2x2x1.8x4.=18.72 cum @ Rs.388.45/cum	7272.00
5	Providing and Laying horizontal DPC 50 mm thick in nominal mix concrete 1:2:4 with 20mm stone aggregate: 11x0.6= 6.60 sqm @ Rs.108.95/sqm	719.00
6	Supply & hand packed filling of stones. 1/2x1.5x1.5x11= 12.37 cum @ Rs. 132.15/cum	1635.00
7	Centering and shuttering Bed, 11x0.15=1.65 Sqm @ 109.15 /Sqm	180.00
8	Carriage of material by MT (a) Stone 6 K.M by M.T Qty. vide item No: 3= 24.18 cum	

	4=18.72 Cum 5=12.37 cum T= 55.27 cum @ Rs. 9465/cum	5231.00
	(b) Stone Aggregate 40 mm av. distance 5 K.M .by MT Qty. vide item No: 2= 3.30 cum @ 0.89/cum=2.93 cum @ Rs.87.00/cum	255.00
	(c) Nallah Bajari avg. distance 45 km by MT: Qty. vide item No: 7= 6.6 cum @ 0.045/cum=0.29 cum @ Rs. 103.45/ cum	30.00
	(d) Sand av. distance 30 K.M by M.T: Qty. vide item No: 2= 3.30 cum @ 0.47 /cum = 1.55 cum 3=24.18 Cum @ 0.38/cum=9.18 cum 7=6.6 cum @ 0.023/cum=0.15 cum T= 10.88/cum @ Rs. 178.95 /cum	1947.00
	Total	**50211.00**
	Add. 90% above	**45190.00**
	Grand Total	**95401.00**

Cost per Meter= Rs.8672.81.00

Say Rs.8670.00/RM

Ref.to source:

1. Nallah Bajree: Neeru Nallah.
2. Stone Agg. Local ravines
3. Stone -do-
4. Sand River Chenab

JE **AEE** **T.O**

P.W.D (R&B) B.C.Road Division,
BHADARWAH

Executive Engineer
B.C.Road Division
Bhaderwah

Typical estimate for construction of Semi-Pucca Breast Wall 2.0 mtr height. **(length 11 mtr)**

S. No	Description of Items	Amount in Rupees
1	Earth work in excavation over areas (exceeding 30cm in depth. 1.5m in width as well as 10sqm. on plan) incl. disposal of excavated earth and lift upto 1.5m, disposed earth to be levelled and neatly dressed. For a lead of 25Mtrs. 1/2x0.3x0.75=0.11 sqm (0.3+1.2)/2x0.75=0.56 Sqm (1.2+1.1)/2x0.65=0.74 Sqm T= 1.41x 11 = 15.59 cum @ 82.35/cum	1284.00
2	Providing and laying cement conc. 1:5:10 (1 cement: 5 Coarse sand: 10 coarse aggregate stone) 40 mm size of stone aggregate: Bed, 1x11x1.1x0.15=1.81 cum @ 1057.45 /cum	1919.00
3	Random rubble masonry with nallah stone in foundation and plinth incl. leveling up with cement concrete 1:6:12 (1 cement: 6coarse sand: 12 graded stone agg. 20 mm nominal size) at plinth level with cement con. 1:6(1cement: 6 coarse sand) Bottom Band= (1.0+1.1)/2x0.6x11=6.93 cum Top Band = (0.6+0.7)/2x0.6x11=4.29 cum Vertical Band= (0.7+1.0)/2x0.6x0.8x5=2.04 cum Total = 13.26 cum @ Rs.1059.35/cum	14047.00
4	Dry random rubble masonry in foundation & plinth using nallah stone without bond stone (0.7+1.0)/2x2x0.8x4=5.44 @ Rs.388.45 /cum	2113.00
5	Providing and Laying horizontal DPC 50 mm thick in nominal mix concrete 1:2:4 with 20mm stone aggregate: 11x0.6= 6.60 sqm @ Rs.108.95/sqm	719.00
6	Centering and shuttering in foundation Bed, 11x0.15=1.65 Sqm @Rs.109.15 /Sqm	180.00
7	Carriage of material by MT Stone 6 K.Mtr by M.T Qty. vide item No: 3= 13.26 cum 4=5.44 Cum T= 18.70 cum @ Rs.87.90/cum	1644.00
8	Stone Aggregate 40 mm av. distance 6 KM by MT Qty. vide item No: 2= 1.81 cum @ 0.89/cum=1.61 cum @ Rs 87.00/cum	140.00
9	Nallah Bajree avg. distance 10 KM by MT : Qty. vide item No: 5= 6.6 cum @ 0.045/cum=0.29 cum @Rs 226.95 cum	30.00

10	(e) Sand av. distance 30 K.M. by M.T: Qty. vide item No: 2= 1.81 cum @ 0.47 /cum = 0.85 cum 3=13.26 Cum @ 0.38/cum=5.03 cum 7=6.6 cum @ 0.023/cum=0.15 cum T= 6.03/cum @ Rs. 178.95 /cum	1079.00
	Total	**23155.00**
	Add. 90% above	**20839.00**
	Grand Total	**43994.00**

Cost per RMT= Rs. 3999.00

Say Rs. 4000.00/RM

Ref.to source

1.	Nallah Bajree:	Neeru Nallah.
2.	Stone Agg.	Local ravines
3.	Stone	-do-
4.	Sand	River Chenab

JE **AEE** **T.O**

Executive Engineer
B.C.Road Division
Bhaderwah

TYPICAL SECTION OF BWALL

FRONT ELEVATION OF BWALL

Executive Engineer
Bhadrawati Chambal Road Division
BHADERWA H.

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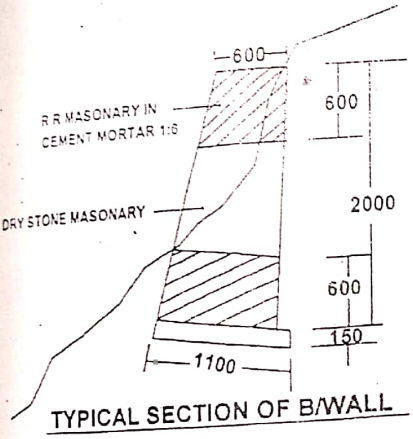
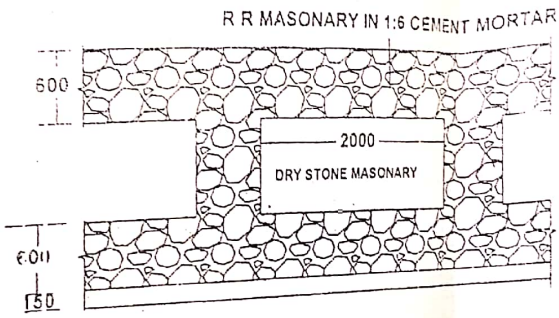


TYPICAL SECTION OF B/WALL



FRONTELEVATION OF B/WALL

NOTES

1 THE STONE MASONARY SHALL BE IN CEMENT MORTAR 1:6 MIX.
2 THE FACE JOINTS SHALL BE NOT MORE THAN 20MM THICK .
3 THE HEIGHT OF COURSES SHALL DEPEND ON AVAILABLE SIZE OF STONE . IN NO CASE THE HEIGHT OF COURSE SHOULD BE LESS THAN 150MM.
4 THE HEARTING OR INTERIOR FILLING OF THE WALL SHALL CONSIST OF FLAT BEDDED STONE CAREFULLY LAID ON THEIR PROPER BEDS IN MORTAR.
5 THE USE OF CHIPS SHALL BE RESTRICTED TO THE FILLING OF INTERSTICS BETWEEN THE ADJACENT STONE IN HEARTING AND THESE SHALL NOT EXCEED 15 PERCENT OF THE QUANTITY OF MASONARY.
6 THE HEIGHT OF COURSES GENRALLY ADOPTED ARE 150 MM,180 MM,200MM

REF IRC 52

TYPICAL SECTIONS OFBREAST WALL

JE AEE XEN

P.W.D. Division,
BHADARWAH

Executive Engineer
Bhaderwah Chamba Road Division
BHADERWAH.