GOVT. OF JAMMU AND KASHMIR

Public Works Department (Roads and Buildings)

Jammu

APPLICATION FOR ADMINISTRATIVE APPROVAL

NAME OF WORK :- **Construction of 27 mtr. span (Double Lane) R.C.C. T-Beam Bridge over Sugal Khad at Gunni on Manu Hatli road including 5.00 km. approaches in Basohli Constituency (Under C.R.F)**

ESTIMATED COST : RS.1075.00 Lacs.

DISTRICT : KATHUA

O/C

UNION TERRITORY OF JAMMU AND KASHMIR

OFFICE OF THE CHIEF ENGINEER PW(R&B) DEPARTMENT JAMMU

Lok Nirman Bhawan, Rail Head Complex, Jammu (Tawi) 180012
Phone No. 0191-2471288, Fax No. 0191-2543866
(E-mail: cejammu@gmail.com)

The Superintending Engineer
PWD (R&B) Jammu – Kathua Circle
Jammu

Order No: - 532 of October 2021

Subject: - Technical Sanction for Design and Construction of 2" m span double lane motorable Steel Girder Bridge over Sugal Khad at Gonni including Construction of approach road by way of earthwork in cutting / filling, S-drainage works, Protection works and providing / laying of WBM Gr-II, 150 m thick 75mm thick Wet Mix 25 mm thick SDBC over 50 mm thick BM (under CRF)

Ref: - Scheme stands sanctioned by Ministry of Road, Transport & Highways under Job no CPT IM/J-2017-18-250 dated 03/2018

Design Vetting: Design of the Bridge by the consultant i.e Building Designers Associates, Nanak Nagar Jammu and duly vetted by the Associate Professor Civil Engineering Department NIT Srinagar vide No. NIT/CIVIL/20/1340 dated 19.03.2020

In reference to your office recommendation vide letter no SE/DB/9030-31 dated 11.10.2021 the Technical Sanction to the estimate of above referred work amounting to Rs.7,16,94,031/- (Rupees Seven Crore Sixteen Lacs Thirty Nine Thousand Thirty One only) is hereby conveyed subject to following conditions:-

1. Work has been executed as per standard specification on which rate allotment has been made.
2. Rates allotted / provided in the estimate are certified to be the reasonable for such type of work by the Executive Engineer.
3. Technical sanction shall not be construed as any approval and proper rate analysis/tender rate/ sanction schedule of rate shall be followed to ensure reasonability/ rationality of rates.
4. The expenditure is strictly restrict to the allotment made for this work and no liability created in any case.
5. The Expenditure be made upto the extent of budgetary provisions only.
6. The Expenditure be incurred only after drawl of agreement and within its provisions.
7. The total Expenditure does not exceed over and above the approved AA cost.
8. The expenditure on this account is debited to the Head of accounts under which the funds have been released.
9. Work has been executed strictly as per approved design and drawings.
10. All quality control tests are conducted.
11. No change in proposals / specifications envisaged in the detailed estimate technically sanctioned shall be made without prior approval of competent authority.
12. Rates provided as lower market rates (LMR) shall not be construed as approved rates. Executive Engineer shall follow the codal procedure while such payments.

(DILMANZOOR HUSSAIN)
CHIEF ENGINEER
PW(R&B) DEPARTMENT,
JAMMU

No: - CE/DB/
Dated: - /10/2021

Copy to the: -

1. Executive Engineer PWD (R&B) Division Basohli for information.

(T.S)

F. No. RW/NH-12037/34/2003/J&K/NH-1/Zone-II(CRF)
Government of India
Ministry of Road Transport &Highways
(Zone-II)
Transport Bhawan, 1, Parliament Street, New Delhi-110001

Dated: .03.2018

To,

The Secretary,
Government of Jammu & Kashmir
Public Works Department (PWD),
Srinagar, Jammu & Kashmir

Subject: Sanction of Central Road Fund (CRF) projects (67 Nos.) in the State of Jammu & Kashmir for the year 2017-18-Administrative Approval.

Sir,

I am directed to refer to State PWD letter dated 06.04.2018 forwarding therein the priority list of works under CRF for Jammu & Kashmir during current financial year and to convey the Administrative Approval of the President for an amount of Rs.1047.07 crore (Rupees one thousand forty seven crore & seven lakh only) for the following 67 works along-with their job Nos. subject to satisfying the criteria required as per CRF Rules regarding length, category of the road, encumbrance free availability of land etc.-

Sr No	Name of the road	District	Category of road	Length (km)	Cost (Rs. in Crore)	Job Nos.
1	2 lane bridge over river Chenab	Ramban	MDR	Bridge	41	CRF-J&K-2017-18-223
2	Construction of 207 mtr span Prestressed concrete Motorable Bridge dauble lane with foot path over River Chebnab at Ramban	Ramban	MDR	Bridge	41.78	CRF-J&K-2017-18-224
3	Ramnagar to Basantgarh (Phase-II)	Udham-pur	ODR	11	18	CRF-J&K-2017-18-225
4	Jhajjar Kotli to badsoo connecting Dansal via Shaddali	Jammu	ODR	10	15	CRF-J&K-2017-18-226
5	Kotli Matwar road and link Mawa to Talli Ghat	Jammu	ODR	10.7	11.53	CRF-J&K-2017-18-227
6	Improvement / upgradation of road from RS Pura to Salehar via Chack-i-Islam	Jammu	MDR	13.5	14	CRF-J&K-2017-18-228
7	Construction of 200m span double lane prestressed cement bridge over Manawar on Baldob to	Jammu	ODR	Bridge	15	CRF-J&K-2017-18-229

(A.A.A accorded)

	Thakkar road in Block Khour					
8	Widening / improvement of road from Marh to Baba Talab via Jaffra Chak and to Halqa via Hira Chak Makhyala upto Gadla and allied links up to Kana Chak in Block Marh	Jammu	MDR	18	19.95	CRF-J&K-2017-18-230
9	Construction of 250m double lane bridge over Nallah Aik connecting Sai Fagla Mule Chak in Suchetgarh Tehsil Chakroi	Jammu	ODR	Bridge	25.75	CRF-J&K-2017-18-231
10	Construction / upgradation of Samba Sumb Goran road km 11th to 20th double lane	Samba	MDR	10	12	CRF-J&K-2017-18-232
11	Upgradation of road from Baba Chamiyal to NH via Baba Sidh Goria Swankha (intermediate lane)	Samba	MDR	10	8	CRF-J&K-2017-18-233
12	Improvement / upgradation of road Vijaypur - Ramgarh to SM Pura (double lane)	Samba	MDR	15	18	CRF-J&K-2017-18-234
13	Construction / upgradation of road from Shah Batode to Utterbehani via Sarna Chilla Danga and lovely km 11th to 20th single lane	Samba	MDR	10	9	CRF-J&K-2017-18-235
14	Construction of link road from Tanta to Draman via Kunthal	Doda	ODR	12	8	CRF-J&K-2017-18-236
15	Construction of link road from Gai Dessa to Bhatta via Mangalthatha and Dewalkumd	Doda	ODR	10	7	CRF-J&K-2017-18-237
16	Construction of road from Humbal to Dedni	Doda	ODR	10	14.27	CRF-J&K-2017-18-238
17	Construction of 125m single lane steel girder through type motorable bridge over river Chenab at Sui Gwari connecting Jodhpur	Doda	ODR	Bridge	17.96	CRF-J&K-2017-18-239
18	Construction of link road from Padyarna to Pullar from km 3rd to km 12th Nagseni (new constn) Phase I upto shingle status.	Kishtwar	ODR	10	14.75	CRF-J&K-2017-18-240

19	Construction of 60m span Nonial Manjar bridge at Nowshera	Rajouri	ODR	Bridge		11.5	CRF-J&K-2017-18-243
20	Construction of 50m span motorable bridge at Dhaleri over Dhaleri Nallah @ Darhal	Rajouri	MDR	Bridge		4	CRF-J&K-2017-18-247
21	Construction of road from Darkeri to Dhaleri via Sauni Samrote Galla.	Rajouri	ODR	12		16	CRF-J&K-2017-18-243
22	Construction of 100m span motorable bridge including approach road over Nowshera tawi	Rajouri	ODR	Bridge		14	CRF-J&K-2017-18-244
23	Construction of 65m & 80m span prestressed concrete motorable bridge with 1.2m wide walk way on both side over Mendhar Nalla including approaches, cross drainage and protection works on upstream/ downstream on Mendhar town	Poonch	ODR	Bridge	13.4		CRF-J&K-2017-18-242
24	Improvement / upgradation of road from Chandak to Budha Amarnath	Poonch	ODR	12.5	11.66		CRF-J&K-2017-18-246
25	Construction of road from Bedar to Drachar via Chamber Phase I	Poonch	ODR	10	11.9		CRF-J&K-2017-18-247
26	Road from Khah to Kharian	Rajouri	ODR	12	18		CRF-J&K-2017-18-248
27	Road from Gulhati to Shandara Shariet via Ladyal, Moriyan & Ghambir Gali part-I	Kathua	ODR	11	17		CRF-J&K-2017-18-249
28	Const of bridge over Sugal Khad on Manu Hatli road	Kathua	MDR	Bridge	10.75		CRF-J&K-2017-18-250
29	Const of road from Galnian to Dasanoo via Kohli Kopper	Kathua	MDR	10	10		CRF-J&K-2017-18-251
30	Const of bridge over nallah Behani at Hiali	Kathua	MDR	Bridge	13.5		CRF-J&K-2017-18-252
31	Const of bridge over river Sewa nea mela ground at bani linking Dhaggar to bani Bhadorwah road	Kathua	MDR	Bridge	5.6		CRF-J&K-2017-18-253
32	Widening of Phunter to Billawar road alongwith	Kathua	MDR	10	23.62		CRF-J&K-2017-18-

10. Government of Jammu & Kashmir shall furnish the completion certificate duly vetted by Audit as soon as the works are completed and positively within a period of three months from the date of completion of the works as per Central Road Fund (State Roads) Rules, 2014 published vide Notification No. GSR 531 (E) dated 24th July, 2014.

11. Government of Jammu & Kashmir shall furnish the progress report, expenditure report and utilization certificate as specified in clause (b) of sub-rule (1) of Rule 8 of Central Road Fund (State Roads) Rules, 2014.

12. The standard design and specification of the works to be proposed shall follow the relevant guidelines, codes, Indian Roads Congress specifications as directed by the Central Government and the period of completion of projects shall be as per Sub-Rule 10 of Rule 7 of the Central Road Fund (State Roads) Rules, 2014.

13. The expenditure is debitable under the Head 3601-Roads & Bridges-Grants-in-aid to State Government (Major Head)-08-Other Transfer/Grants to States (Sub-Major Head)-08.108-Grants from Central Road Fund (Minor Head)-01-Grants for State Roads-01.00.35-Grants for Creation of Capital Assets under Demand No.81-Ministry of Road Transport & Highways for the year 2017-2018.

Yours faithfully,

(Sushil Kumar Geeva)
Under Secretary to the Government of India

Copy to:

1. The Chief Engineer (NH) PWD, Jammu & Kashmir.
2. The Accountant General, Govt. of Jammu & Kashmir.
3. The Chief Controller of Accounts, IDA Building Jamnagar House, New Delhi.
4. Principal Director of Audit, Economic & Services Ministries, AGCR Building, IP Estate, New Delhi.
5. The Regional Pay & Accounts officer, Ministry of Road Transport & Highways, 6th Floor, Kendriya Sadan, Sector 9 A, Chandigarh.
6. Section Officer, W&A Section.
7. Regional Officer, MoRT&H, Chandigarh.

(Sushil Kumar Geeva)
Under Secretary to the Government of India

Copy also to:

1. PS / OSD to Hon'ble Minister (RT&H).
2. CE (Planning) / CE (Z-II) / SE (Z-III) / AEE (Z-III) & M Section / Guard Folder.

(Ghanshyam Meena)
Section Officer
Tel:011-23716598

	Nohali	The span of the bridge is 150 MM	12.00 Crore

I will be grateful if the above bridges be taken upon

with regards,

Yours sincerely,

(CHELA SINGH)

Abdul Rehman Veeri,
Hon'ble Minister for PWD &
Secretary Affairs.

CHECK LIST

PROJECT FORMULATION : Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over Sugal Khad at Gunni on Manu Hatli road including 5.00 km. approaches in Basohli Constituency **(Under C.R.F.).**

1.	District	Kathua
2.	Index Map showing the area and proposed road/Bridge.	Enclosed
3.	Category of the road proposed to be improved whether the State highway or Major district road or otherwise;	M.D.R.
4.	Scope of the work incl. the specifications to be adopted in brief;	Yes
5.	Estimated cost of the project based on the actual requirement and realistic cost estimate along with an abstract of cost estimate;.	Enclosed
6.	Justification of the work for inclusion in the scheme,	As per Technical Report
7.	Details of last improvement work done on this road and the calendar year in which it was carried out;	No original works for last Three Years
8.	Probable starting date;.	Within 3 months of sanction
9.	Target date of completion;	19 months.
10.	A certificate regarding availability of the entire Unencumbered land needed for the project.	Enclosed

Assistant Executive Engineer
PWD(R&B) Sub Division
Basohli

Executive Engineer
PWD(R&B) Division
Basohli

Technical Report

Name of Project:-

Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over **SUGAL KHAD** at **GUNNI** on Manu Hatli road including 5.00 km. approaches in Basohli Constituency **(Under C.R.F.).**

Authority:-

Hon'ble Minister for Forests, Environment and Ecology J&K State, Ch.Lal Singh vide his D.O. letter No.PS/M/Forest/56/2016 dated 25.04.2016.

History & Necessity :

Athoon, Athialta & Domar Panchayats of Basohli Constituency are the most and remote and backward pockets of Basohli Constituency having substantial population spread over a large area and situated on both sides on the foot of lower Shivalik Hills popularly known as Mata Bala Sundri Dhar. The whole area is rugged and treacherous and is yet to be provided with road connectivity. The work of Hatli Manu road from Kathua side is progress upto RD. 17.50 kms. and with the construction of 20m span bridge over Sugal Khad, which witnesses flash floods, with 2.00 km. approaches (Left / Right) shall connect Gunni and other hamlets from a distance with Tehsil / District Headquarter Kathua and shall prove a boon for economically backward belt.

In order to alleviate the sufferings and hardships and inclusive development, it is absolutely necessary to construct 20m span RCC T-Beam bridge over Sugal Khad to provide all weather connectivity which shall increase their mobility to the towns and cities and change their perception about life and modern development, ultimately resulting in transformation into modern society having basic facilities of health, education and economic liberation.

Proposals & Specifications:-

1) The bridge shall be constructed upto Double lane status as per MORTH specifications.

2) The approach roads shall be constructed as per IRC specifications and cross-section enclosed.

3) The road shall be constructed in cutting / filling to achieve full formation width and 15cm thick WBM Grade-II and 7.5cm WBM Grade-III shall be laid over which 50mm thick BM and 25mm thick SDBC shall be laid.

4) Sufficient No. of D-Xings and pucca drain shall be constructed to drain out the rain water.

5) Requisite protection work shall also be constructed as per necessity at site.

Time and Cost:-

The said work having an estimated cost of **Rs.1075.00 lacs** shall be completed in 19 months funds subject to availability of funds well in time.

Assistant Executive Engineer
PWD(R&B) Sub Division
Mahanpur

Executive Engineer
PWD(R&B) Division
Basohli

CERTIFICATE

Name of work:- Construction of 20 Mtr. span (Double Lane) R.C.C. T-Beam Bridge over Sugal Khad at Gunni on Manu Hatli road including 5.00 km. approaches in Basohli Constituency (Under C.R.F.) .

1. The Land is free from all encumbrances.
2. Rates have been properly checked / scrutinized as per the latest SOR.
3. No work has been done on the said road during the past three years.
4. The project has not been funded under any other scheme.
5. Roads safety measures are in place as per Norms.

Sd/-
Asstt:Executive Engineer
PWD(R&B)Sub-Division
Mahanpur

Executive Engineer
PWD(R&B) Division
Basohli

Superintending Engineer
PWD(R&B)Jammu-Kathua Circle
Jammu

Chief Engineer
PW(R&B) Department
Jammu

GENERAL ABSTRACT OF COST

Name of Scheme :- Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over **SUGAL** Khad on Manu Hatli road including 5.00 km. approaches.

S.No.	Particulars	Amount (Rs. in lacs)
1	Const. of left & Right approaches for Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over **SUGAL** Khad on Manu Hatli road including approaches (Details as per Annexure 'A' attached).	819.48
2	Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over **SUGAL** Khad on Manu Hatli road including approaches (Details as per Annexure 'B' attached).	200.00
	Total:	1019.48
	Add 3% for W.C. & Contingencies	30.58
	Add 1% for Quality Assurance	10.19
	Add 1% for Devising & Quality.	10.19
	Add 0.5% for Establishment & Contingencies	5.09
	G. Total:	**1075.53**

Say Rs.1075.00 Lacs.

Sd/-
Asstt:Executive Engineer
PWD(R&B)Sub-Division
Mahanpur

Executive Engineer
PWD(R&B)Division
Basohli

Name of work:- Const. of 20mtr. span (Double Lane) R.C.C. T-Beam bridge over Sugal Khad on Manu Hatli road incl. approaches in Basohli Constituency

Name of District:- Kathua

Line Estimate		Enclosed
1	Index map showing the area and the proposed road or bridge or improvement works.	
2	Scope of the work including the specifications to be adopted in brief, the specifications for roads proposed under this CRF scheme shall be similar to those of national Highways works in terms of pavement width crust thickness and geometrics etc.	1- This Road is a part of route connecting Dhar Udhampur road & Jammu-Ptk. Road NH1A. 2- Length of proposed road/bridge 20 mtr. Span bridge incl. 2.00 km. approaches. 3- Category of road MDR (SB/MDR/ODR) 4- Width of road proposed 7.5M. existing width – Nil-- 5- PCU 3000 6- CVPD 265 7- Design Life Bridge = 100 Years, App.road = 10 years. 8- Construction Period = 19 Months 9- MSA -- 10- CBR 5 % 11- Provision as per design

Ch.0.000 to 1/000

Item	Design Crust (mm)	Existing Crust (mm)	Proposed crust (mm) Strengthening	Widening
GSB-(For Widening Portion /New Portion	--		--	--
WBM G-II	150		150	--
WMM	75		75	--
BM	50		50	--
BC	25		25	--
Total	300		300	--

3	Justification of work for inclusion in this scheme alongwith details of last improvement work done on this road and the calendar year to which it was carried out.	This road is connecting Dhar Udhampur road & Jammu-Pathankot Road NH1A. New Work
4	Probable starting date and the target date of	Probable starting date- 3 Months from date of sanction of project Probable date of competition- 19 months from date of sanction of project
5	Cost break i.e. cost of civil work and centages provision for following centages to be made in estimate.	Cost of works = 1019.48 Lacs Contingencies (3%) = 30.58 Lacs Sub Total = 1050.06 Lacs Cost of devising and quality (1%) = 10.19 Lacs Provision for quality control (1%) = 10.19 Lacs Establishment charges (0.5%) = 5.09 Lacs Total = 1075.53 Lacs (Say 10.75 Crore)

6	A certificate regarding availability of the entire unencumbered land needed for the project.	It is certified that the encumbrance free land is available in the entire length of the proposed road.
7	A certificate that the State Government ensure taking up proper Maintenance and Repair (M&R) of the project roads after it is developed under this scheme.	It is certified that the State Government will take up proper Maintenance / Repair (M&R) of the proposed road after it is developed under this scheme
8	The project-wise details of previous approved ongoing project, indicating their approved cost dates of approval accorded by the Central Government. Technical and Financial sanction accorded by the executive agencies dated of award of works. Status of progress of works (both physical and financial alongwith funds released and pending Utilization Certificates if any alongwith reasons for delay (If any), etc.	Details of ongoing project under CRF as follows
		1- Name of work: --
		2- Approved crust: --
		3- Ref. of Technical sanction: --
		4- Date and award of work: --
		5- Progress of work- Physical - % age Financial Rs._____Crores No ongoing projects
		6- Fund Released: --
		7- Pending utilization certificate: --
		8- Reason for delay (if any): --
9	A certificate intimating de-sanctioning of the approved projects which have not been technically and financially sanctioned and accorded within the specified time-line as per sub rule (4) of rule 7 alongwith details thereof and if such projects have not been de-sanctioned already proposal of request for de-sanctioned of such projects accordingly the proposals.	It is certified that no such project under CRF has been De-sanctioned.

Executive Engineer
PWD(R&B) Division
Basohli

Superintending Engineer
PWD(R&B)Jammu-Kathua Circle
Jammu

Chief Engineer
PW(R&B) Department
Jammu

ANNEXURE-'A'

Name of Work:- Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over SUGAL Khad on Manu Hatli road including 5.00 km. approaches.

S.No	Particulars	Qty.	Unit	Rate	Amount (in Lacs)
1(a)	Excavation for roadway in soil by mechanical means including Cutting and pushing the earth to site of embankment upto a distance of 100 metres (average lead 50 metres), including trimming bottom and side slopes in accordance with requirements of lines,grades and cross sections. (All kinds of soil) = 20%	12537.99	Cum	130.00	16.30
1(b)	Excavation for roadway in Ordinary rock by mechanical means including Cutting and pushing the earth to site of embankment upto a distance of 100 metres (average lead 50 metres), including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections. (Ordinary Rock)=40%	25075.80	Cum	173.00	43.38
1©	Excavation for roadway in hard rock by mechanical means including Cutting and pushing the earth to site of embankment upto a distance of 100 metres (average lead 50 metres), including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections. (Hard Rock)=40%	25075.80	Cum	799.00	200.35
2	Earth work in excavation by Mannual means in trenches for foundations, drains, pipes ,cables etc. (Not exceeding 1.5 mts in width) & for shafts, wells, cesspits & the like not exceeding10 sqm on plan, depth upto 1.5 mts including disposal of excavated earth upto 50 mts from cutting edge, disposed earth is to be leveled & neatly dressed in all kinds of soil.	6959.84	Cum	357.20	24.84

3	Providing and laying in position cement conc. of specified grade excl. the cost of centering and shuttering – All work upto plinth level 1 : 4 : 8 (1 cement : 4 coarse sand : 8 graded stone agg. 40 mm nominal size) Crushed.	1018.94	Cum	4220.00	43.00
4	Providing and laying in position cement conc. of specified grade excl. the cost of centering and shuttering – All work upto plinth level 1:3:6 (1 cement :3 coarse sand :6 graded stone agg. 20mm nominal size) Crushed	5753.74	Cum	4621.00	265.88
5	Providing and laying DPC (coping) 50 mm thick with cement Conc. 1:2:4 (1 cement : 2 C.stone:4 graded stone Agg. 20 mmNominal size) (Crushed)	42.25	Cum	5350.00	2.26
6	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering , shuttering, finishing and reinforcement all work upto plinth level 1:1.5:3 (1 cement :1.5 coarse sand : 3 graded stone agg. 20 mm nominal size)	277.32	Cum	6065.00	16.81
7	Reinforcement for RCC Work incl. straightening, cutting,bending and placing in position all Comp. cold twisted Bar	61798.00	Kg.	77.00	47.58
8	Providing and Laying WBM Grade-II with specified stone agg. stone screening and binding material incl. screening , sorting, spreading to template and consolidation with Power Road Rollerof 8 to 10 tonne capacity etc. complete (Payment for stone agg., screenings, kankar, moorum and red bajri etc. to be madeseparately). Base course with 63mm to 45mm size including stone screening 13.2mm size	2100.00	Cum	1395.00	29.30
9	Providing and Laying WBM Grade-III with specified stone agg. stone screening and binding material incl. screening , sorting, spreading to template and consolidation with Power Road Roller of 8 to 10 tonne capacity etc. complete. (Payment for stone agg., screenings, kankar, moorum and red bajri etc. to be made separately.) Base course with 53mm to 22.4mm size including stone screening 11.2mm size.	1400.00	Cum	1571.00	21.99

10	Providing & laying 50mm thick Bituminous macadam base using Hot Mix Plan and Paver finisher including cost of bituminous.	700.00	Cum	9000.00	63.00
11	Providing and laying 25 mm thick semi dense premix carpetsurfacing including cost of bitumen with Hot mix Plant and paver Finisher.	14000.00	Sqm	310.00	43.40
				Total:	**819.40**

Assistant Executive Engineer
PWD (R&B) Sub-Division
Mahanpur

Executive Engineer
PWD(R&B)Division
Basohli

ANNEXURE-'B'

Name of Scheme :- Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over **SUGAL** Khad on Manu Hatli road including 5.00 km. approaches.

Span of Bridge = 100 Mtr.					
S.No.	**Particulars**	**Span**	**Unit**	**Rate (Lacs / RMT)**	**Amount (Rs. in lacs)**
1	Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over **SUGAL** Khad on Manu Hatli road including 2.00 km. approaches.	20.00	Mtr.	10.00	200.00
				Total:	200.00

Asstt:Executive Engineer
PWD(R&B)Sub-Division
Mahanpur

Executive Engineer
PWD(R&B)Division
Basohli

Detail of quantities for Construction of 20 mtr. span (Double Lane) R.C.C. T-Beam Bridge over Surgal Khad at Gunni including 5.00 km. approaches.

S. No.	Particulars	Qty.

1- Excavation for roadway in soil by mechanical means including Cutting and pushing the earth to site of embankment upto a distance of 100 metres (average lead 50 metres), including trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections. All kinds of soil = 20%, Ordinary rock=40%, Hard rock =40%.

Qty. as per E/ work chart = **62689.50 cum**

2. Earth work in excavation by manual means in trenches for foundations, drains, pipes ,cables etc. (Not exceeding 1.5 mts in width) & for shafts, wells, cesspits & the like not exceeding 10 sqm on plan, depth upto 1.5 mts including disposal of excavated earth upto 50 mts from cutting edge, disposed earth is to be leveled & neatly dressed in all kinds of soil

D-crossings :-

1.00 mtr span RCC Culvert = 65.52x3x2 = 393.12 cum
2.00 mtr span RCC Culvert = 151.92x2x2 = 607.68 cum
3.00 mtr span RCC Culvert = 177.44x8x2 = 2839.04 cum
Breast Wall :- 800 x 1.95 = 1560.00 cum
R-wall :- 610 x 1.80 = 1098.00 cum
Pucca Drain :- 1000 x 4.62 = 462.00 cum
10 **Total** **= 6959.84 cum**

3. Providing and laying in position cement conc. of specified grade excl. the cost of centering and shuttering – All work upto plinth level 1 : 4 : 8 (1 cement : 4 coarse sand : 8 graded stone agg. 45 mm nominal size) Crushed.

D-crossings :-

1 mtr span RCC Culvert = 11.13x3x2 = 66.78 cum
2.00 mtr span RCC Culvert = 18.308x2x2 = 73.22 cum
3.00 mtr span RCC Culvert = 22.166x8x2 = 354.64 cum
Breast Wall :- 800 x 0.29 = 232.00 cum
R/wall : 610 x 0.33 = 201.30 cum
Pucca Drain :- 1000x 0.91 = 91.00 cum
10 **Total** **= 1018.94 cum**

4. Providing and laying in position cement conc. of specified grade excl. the cost of centering and shuttering – All work upto plinth level 1:3:6 (1 cement :3 coarse sand :6 graded stone agg. 20mm nominal size) Crushed

S. No.	Particulars	Qty.

D-crossings :-

1.00 mtr span RCC Culvert = 69.285x3x2 = 415.71 cum
2.00 mtr span RCC Culvert = 126.736x2x2 = 506.94 cum
3.00 mtr span RCC Culvert = 109.756x8x2 = 1756.096 cum
Breast Wall :- 800x1.46 = 1168.00 cum
R/wall : 610x2.85 = 1738.50 cum
Pucca Drain :- 1000 x 1.685 = 168.50 cum
10 **Total** **= 5753.74 cum**

5. Providing and laying DPC (coping) 50 mm thick with cement Conc. 1:2:4 (1 cement : 2 C.stone:4 graded stone Agg. 20 mm Nominal size) (Crushed)

1.00 mtr span RCC Culvert = 10.0x0.05x3x1x2 = 3.00 cum
2.00 mtr span RCC Culvert = 10.00x0.05x2x2x2 = 4.00 cum
3.00 mtr span RCC Culvert = 10.00x0.05x8x3x2 = 24.00 cum
Pucca Drain = 1000 x 0.225x0.05 = 11.25 cum
Total **= 42.25 cum**

6. Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering , shuttering, finishing and reinforcement all work upto plinth level 1:1.5:3 (1 cement :1.5 coarse sand : 3 graded stone agg. 20 mm nominal size)

D-crossings :-

1.00mtr span RCC Culvert = 7.415x3x2 = 44.46 cum
2.00mtr span RCC Culvert = 9.496x2x2 = 37.98 cum
3.00 mtr span RCC Culvert = 12.18x8x2 = 194.88 cum

Total **= 277.32 cum**

7. Reinforcement for RCC Work incl. straightening, cutting, bending and placing in position all Comp. cold twisted Bar

1.0 mtr span RCC culvert = 927x3 kgx2 = 5562.00 kg
2.00 mtr span RCC Culvert = 1187x2 kgx2 = 4748.00 kg
3.00 mtr span RCC Culvert = 3218.10x8 kgx2 = 51488.00 kg

Total **= 61798.00 Kg**

8. Providing and Laying WBM Grade-II with specified stone agg. stone screening and binding material incl. screening , sorting, spreading to template and consolidation with Power Road Roller of 8 to 10 tonne capacity etc. complete (Payment for stone agg., screenings, kankar, moorum and red bajri etc. to be made separately). Base course with 3mm to 45 mm size including stone screening 13.2mm size

= 1x 2000 x7.00 = 14000.00 Sqm

14000.00 x 0.15 **= 2100.00 cum**

S. No.	Particulars	Qty.
9.	Providing and Laying WBM Grade-III with specified stone agg. stone screening and binding material incl. screening , sorting, spreading to template and consolidation with Power Road Roller of 8 to 10 tonne capacity etc. complete (Payment for stone agg., screenings, kankar, moorum and red bajri etc. to be made separately). Base course with 53mm to 22.4 mm size including stone screening 11.2mm size.	
	= 1x 2000 x7.00 = 14000.00 Sqm	
	14000.00 x 0.10	**= 1400.00 cum**
10.	Providing and laying 50 mm thick Bituminous macadam base course using Hot Mix Plant and paver finisher including cost of bitumen.	
	1x 2000 x7.00 = 14000.00 Sqm	
	14000.00 x 0.05	**= 700.00 cum**
11.	Providing and laying 25 mm thick semi dense premix carpet surfacing including cost of bitumen with Hot mix Plant and paver Finisher.	
	1x 2000 x 7.00 = 14000.00 Sqm	
		= 14000.00 Sqm

Assistant Executive Engineer
PWD (R&B) Sub-Division
Mahanpur

Executive Engineer
PWD(R&B)Division
Basohli

ANALYSIS OF RATES

Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres. Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m					
Unit = cum					
Taking output = 360 cum					
a) Labour					
Mate	day	0.080	350.00	28.00	L-12
Mazdoor	day	2.000	300.00	600.00	L-13
b) Machinery					
Hydraulic excavator 0.9 cum bucket capacity @ 60 cum per hour	hour	6.000	3000.00	18000.00	P&M-026
Tipper 5.5 cum capacity, 4 trips per hour.	hour	16.000	700.00	11200.00	P&M-048
				7300.00	
c) Overhead charges @ 10 on (a+b)				3712.80	
d) Contractor's profit @ 10 on (a+b+c)				6126.12	
Cost for 360 cum = a+b+c+d				46966.92	
Rate per cum = (a+b+c+d)/360				130.46	
			say	*130.00*	

Executive Engineer
PWD (R&B) Division
Basohli

Excavation in Ordinary Rock using Hydraulic Excavator CK-90 and Tippers with Disposal upto 1000 metres. Excavation for roadway in ordinary rock with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, transporting to embankment site within all lifts and lead upto 1000 m, trimming bottom and side slopes in accordance with requirements of lines, grades and cross sections.					
Unit = cum					
Taking output = 240 cum					
a) Labour					
Male	day	0.080	350.00	28.00	L-12
Mazdoor	day	2.000	300.00	600.00	L-13
b) Machinery					
Hydraulic Excavator 0.90 cum bucket capacity @ 36 cum per hour	hour	6.000	3000.00	18000.00	P&M-026
Tipper 5.5 cum capacity, 4 trips per hour.	hour	11.000	700.00	7700.00	P&M-048
				6425.00	
c) Overhead charges @ 10 on (a+b)				3275.30	
d) Contractor's profit @ 10 on (a+b+c)				5404.25	
Cost for 240 cum = a+b+c+d				41432.55	
Rate per cum = (a+b+c+d)/240				172.64	
			say	*173.00*	

Executive Engineer
PWD (R&B) Division
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Excavation in Hard Rock (requiring blasting) with disposal upto 1000 metres					
Excavation for roadway in hard rock (requiring blasting) by drilling, blasting and breaking, trimming of bottom and side slopes in accordance with requirements of lines, grades and cross sections, loading and disposal of cut road with in all lifts and leads upto 1000 metres					
Unit = cum					
Taking output = 180 cum					
a) Labour					
Male	day	0.220	400.00	88.00	L-12
Mazdoor	day	3.000	350.00	1050.00	L-13
Driller	day	2.000	500.00	1000.00	L-06
Blaster	day	0.250	500.00	125.00	L-03
b) Machinery					
Dozer, 80 HP @ 30 cum per hour	hour	6.000	4000.00	24000.00	P&M-014
Air compressor, 250 cfm with 2 jack hammer	hour	6.000	700.00	4200.00	P&M-001
Front end loader 1 cum bucket capacity	hour	6.000	2000.00	12000.00	P&M-017
Tipper 10 tonne capacity	hour	11.250	700.00	7875.00	P&M-048
c) Materials					
Gelatin 80 per cent	kg	63.000	100.00	6300.00	M-104
Electric Detonators @ 1 detonator for 2 gelatin sticks of 125 gms each	each	252.000	140.00	35280.00	M-094 /100
Credit for excavated rock found suitable for use @ 50 per cent quantity blasted	cum	90.000	300.00	27000.00	M-089
d) Overhead charges @ 10 on (a+b+c)				11891.80	
e) Contractor's profit @ 10 on (a+b+c+d)				13080.98	
Cost for 180 cum = a+b+c+d+e				143890.78	
Rate per cum = (a+b+c+d+e)/180				799.39	
			say	*799.00*	

Executive Engineer
PWD (R&B) Division
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301	**Excavation in Hill Area in Soil by Mechanical Means** Excavation in soil in hilly area by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with all lifts and lead upto 1000 metres. *Unit = cum* *Taking output = 260 cum*					
	a) **Labour**					
	Mate	day	0.240	350.00	84.00	L-12
	Mazdoor for trimming slopes and helping in excavation etc.	day	6.000	300.00	1800.00	L-13
	b) **Machinery**					
	Dozer 80 HP (D-80 A 12)@ 43.28 cum per hour	hour	6.000	3800.00	22800.00	P&M-014
	Front end loader	hour	6.000	800.00	4800.00	P&M-017
	Tipper 5.5cum capacity, 4 trips per hour.	hour	12.000	700.00	8400.00	P&M-048
					9000.00	
	c) **Overhead charges @ 10 on (a+b)**				4688.40	
	d) **Contractor's profit @ 10 on (a+b+c)**				7735.86	
	Cost for 260 cum = a+b+c+d				59308.26	
	Rate per cum = (a+b+c+d)/260				228.11	
				say	*228.00*	

Executive Engineer
PWD (R&B) Division
Basohli

301	**Excavation in Hilly Area in Ordinary Rock by Mechanical Means not Requiring Blasting.**					
	Excavation in hilly area in ordinary rock not requiring blasting by mechanical means including cutting and trimming of slopes and disposal of cut material with all lift and lead upto 1000 metres.					
	Unit = cum					
	Taking output = 170 cum					
	a) Labour					
	Mate	day	0.320	350.00	112.00	L-12
	Mazdoor	day	8.000	300.00	2400.00	L-13
	b) Machinery					
	Dozer 80 HP (D-80 A 12)@ 28.32 cum per hour	hour	6.000	3800.00	22800.00	P&M-014
	Front end loader	hour	7.000	800.00	5600.00	P&M-017
	Tipper 5.5cum capacity, 4 trips per hour.	hour	7.000	700.00	4900.00	P&M-048
					8325.00	
	c) Overhead charges @ 10 on (a+b)				4413.70	
	d) Contractor's profit @ 10 on (a+b+c)				7282.61	
	Cost for 170 cum = a+b+c+d				55833.31	
	Rate per cum = (a+b+c+d)/170				328.43	
				say	*328.00*	

Executive Engineer
PWD (R&B) Division
& Basohli

Excavation in Hilly Areas in Hard Rock Requiring Blasting					
Excavation in hilly areas in hard rock requiring blasting, by mechanical means including trimming of slopes and disposal of cut material with all lifts and lead upto 1000 metres.					
Unit = cum					
Taking output = 170 cum					
a) Labour					
Mate	day	0.490	400.00	196.00	
Mazdoor	day	10.000	350.00	3500.00	
Driller	day	2.000	500.00	1000.00	
Blaster	day	0.250	500.00	125.00	
b) Machinery					
Dozer 80 HP (D-80 A 12)@ 28.32 cum per hour	hour	6.000	3800.00	22800.00	
Air compressor 250 cfm with two jack hammer @ 20 cum per hour	hour	5.000	700.00	3500.00	
Front end loader	hour	7.000	2000.00	14000.00	
Tipper 5.5cum capacity, 4 trips per hour.	hour	7.000	700.00	4900.00	
c) Materials					
Gelatine 80 per cent	kg	35.000	300.00	10500.00	
Electric Detonators @ 1 Detonator for 2 Gelatine sticks of 125 gms each	each	140.000	20.00	2800.00	
d) Overhead charges @ 10 on (a+b+c)				6332.10	
e) Contractor's profit @ 10 on (a+b+c+d)				6965.31	
Cost for 170 cum = a+b+c+d+e				76618.41	
Rate per cum = (a+b+c+d+e)/170				450.70	
			say	451.00	

Executive Engineer
PWD (R&B) Division
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	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
	PCC 1:3:6 in Foundation					
	Plain cement concrete 1:4:8 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.					
	Unit = cum					
	Taking output = 15 cum					
	a) Labour					
	Mate	day	0.64	400.00	256.00	L-12
	Mason	day	1.00	600.00	600.00	L-11
	Mazdoor	day	15.00	350.00	5250.00	L-13
	b) Material					
	40 mm Aggregate	cum	13.50	650.00	8775.00	M-055
	coarse Sand	cum	6.75	600.00	4050.00	M-005
	cement	tonne	2.90	9000.00	26100.00	M-081
	Cost of water	KL	18.00	150.00	2700.00	M-189
	c) Machinery					
	Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	200.00	1200.00	P&M-009
	Generator 33 KVA	hour	6.00	500.00	3000.00	P&M-079
	Water tanker 6 KL capacity	hour	2.00	200.00	400.00	P&M-060
	d) Overhead charges @ 10 on (a+b+c)				5233.00	
	e) Contractor's profit @ 10 on (a+b+c+d)				5756.00	
	Cost for 15 cum = a+b+c+d+e				63320.00	
	Rate per cum = (a+b+c+d+e)/15				4221.33	
				say	*4220.00*	
Note	Vibrator is a part of minor T & P which is already included in overhead charges of the contractor.					

Executive Engineer
PWD (R&B) Division
Basohli

	Description	Unit	Quantity	Rate Rs	Cost Rs	Remarks/ Input ref.
P	**PCC 1:3:6 in Foundation** Plain cement concrete 1:3:6 nominal mix in foundation with crushed stone aggregate 40 mm nominal size mechanically mixed, placed in foundation and compacted by vibration including curing for 14 days.					
	Unit = cum					
	Taking output = 15 cum					
	a) Labour					
	Mate	day	0.64	400.00	256.00	L-12
	Mason	day	1.00	600.00	600.00	L-11
	Mazdoor	day	15.00	350.00	5250.00	L-13
	b) Material					
	40 mm Aggregate	cum	13.50	650.00	8775.00	M-055
	coarse Sand	cum	6.75	600.00	4050.00	M-005
	cement	tonne	3.45	9000.00	31050.00	M-081
	Cost of water	KL	18.00	150.00	2700.00	M-189
	c) Machinery					
	Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	200.00	1200.00	P&M-009
	Generator 33 KVA	hour	6.00	500.00	3000.00	P&M-079
	Water tanker 6 KL capacity	hour	2.00	200.00	400.00	P&M-060
	d) Overhead charges @ 10 on (a+b+c)				5728.10	
	e) Contractor's profit @ 10 on (a+b+c+d)				6300.91	
	Cost for 15 cum = a+b+c+d+e				69310.01	
	Rate per cum = (a+b+c+d+e)/15				4620.67	
				say	*4621.00*	
Note	Vibrator is a part of minor T & P which is already included in overhead charges of the contractor.					

Executive Engineer
PWD (R&B) Division
Basohli

	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.					
A	PCC Grade M15					
	Unit = cum					
	Taking output = 15 cum					
	a) Material					
	Cement	tonne	4.13	9000.00	37170.00	M-081
	Coarse sand	cum	6.75	600.00	4050.00	M-005
	40 mm Aggregate	cum	8.10	650.00	5265.00	M-055
	20 mm Aggregate	cum	4.05	700.00	2835.00	M-053
	10 mm Aggregate	cum	1.35	600.00	810.00	M-051
	b) Labour					
	Mate	day	0.86	400.00	344.00	L-12
	Mason	day	1.50	600.00	900.00	L-11
	Mazdoor	day	20.00	350.00	7000.00	L-13
	c) Machinery					
	Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	200.00	1200.00	P&M-009
	Generator 63 KVA	hour	6.00	700.00	4200.00	P&M-019
	Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		*4252.00*			
	d) Formwork @ 4 per cent on cost of concrete i.e. cost of material, labour and machinery				2550.96	
	e) Overhead charges @ 10 on (a+b+c+d)				6632.50	
	f) Contractor's profit @ 10 on (a+b+c+d+e)				7295.75	
	Cost for 15 cum = a+b+c+d+e+f				80253.20	
	Rate per cum = (a+b+c+d+e+f)/15				5350.21	
				say	*5350.00*	
Note	Needle Vibrator is an item of minor T & P which is already included in overhead charges. Hence not added in rate analysis of cement concrete works.					

Executive Engineer
PWD (R&B) Division
Basohli

RCC Grade M20					
Using Concrete Mixer					
Unit : cum					
Per day output = 15 cum					
a) Material					
Cement	tonne	5.21	9000.00	46890.00	M-081
Coarse sand	cum	6.75	600.00	4050.00	M-005
20 mm Aggregate	cum	8.10	700.00	5670.00	M-053
40 mm Aggregate	cum	5.40	600.00	3240.00	M-051
b) Labour					
Mate	day	0.86	400.00	344.00	L-12
Mason	day	1.50	600.00	900.00	L-11
Mazdoor	day	20.00	350.00	7000.00	L-13
c) Machinery					
Concrete mixer (cap. 0.40/0.28 cum)	hour	6.00	200.00	1200.00	P&M-009
Generator 33 KVA	hour	6.00	500.00	3000.00	P&M-079
Per Cum Basic Cost of Labour, Material & Machinery (a+b+c)		*4820.00*			
d) Formwork @ 4 per cent on (a+b+c)				2891.76	
e) Overhead charges @ 10 on (a+b+c+d)				7518.58	
f) Contractor's profit @ 10 on (a+b+c+d+e)				8270.43	
Cost for 15 cum = a+b+c+d+e+f				90974.77	
Rate per cum = (a+b+c+d+e+f)/15				6064.98	
			say	*6065.00*	

Executive Engineer
PWD (R&B) Division
Basohli

1000	Supplying, fitting and placing HYSD bar reinforcement in super-structure complete as per drawing and technical specifications *Unit = 1 MT* *Taking output = 1 MT*					
	a) Material					
	HYSD bars including 5 per cent for laps and wastage	tonne	1.05	55000.00	57750.00	M-082
	Binding wire	Kg	8.00	100.00	800.00	M-072
	b) Labour for cutting, bending, tying and placing in position					
	Male	day	0.44	400.00	176.00	L-12
	Blacksmith	day	3.00	600.00	1800.00	L-02
	Mazdoor	day	8.00	350.00	2800.00	L-13
	Basic Cost of Labour & Material (a+b)		63326.00			
	c) Overhead charges @ 10 on (a+b)				6332.60	
	d) Contractor's profit @ 10 on (a+b+c)				6965.86	
	Rate per MT = a+b+c+d				76624.46	
				say	*76624.00*	

say Rs 77/kg

Executive Engineer
PWD (R&B) Division
Q Basohli

404	Water Bound Macadam Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with 3 wheeled steel/ vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/ binding Materials to fill up the interstices of coarse aggregate, watering and compacting to the required density.					
A	By Manual Means *Unit = cum* *Taking output = 360 cum*					
	a) Labour					
	Mate	day	10.080	400.00	4032.00	L-12
	Mazdoor skilled	day	2.000	400.00	800.00	L-15
	Mazdoor	day	250.000	350.00	87500.00	L-13
	b) Machinery					
	Vibratory roller 8 - 10 tonne @ 60cum per hour	hour	6.000	1800.00	10800.00	P&M-059
	or					
	Smooth 3 wheeled steel roller @ 30cum/hour	hour	12.000			
	Water tanker 6 KL capacity	hour	24.000	200.00	4800.00	P&M-060
(ii)	Grading-II Aggregate					
	Grading-II 63 mm to 45 mm mm@ 0.91 cum per 10 sqm for compacted thickness of 75 mm	cum	435.600	500.00	217800.00	M-038
	Stone Screening					
	Type A 13.2 mm for grading-II@ 0.12 cum per 10 sqm	cum	57.600		0.00	M-052
	OR					
	Crushable type such as Moorum or Gravel for grading II &III @ 0.22 cum per 10 sqm	cum	105.590		0.00	M-007
	OR					
	Type B11.2 mm for grading-III @ 0.18 cum per 10 sqm	cum	86.400	600.00	51840.00	M-051
	Binding material					

	Binding Material @ 0.06cum per 10 sqm for grading II material	cum	28.800	550.00	15840.00	M-007
	Cost of water	KL	144.000	150.00	21600.00	M-189
					415012.00	
(a)	Using Scrining Crushable type such as Moorum or Gravel					
	d) Overhead charges @ 10 on (a+b+c)				41501.20	
	e) Contractor's profit @ 10 on (a+b+c+d)				45651.32	
	Cost for 360 cum = a+b+c+d+e				502164.52	
	Rate per cum = (a+b+c+d+e)/360				1394.90	
				say	*1395.00*	

Executive Engineer
PWD (R&B) Divn
Basohli

Wet Mix Macadam					
Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density.					
Unit = cum					
Taking output = 225 cum (495 tonnes)					
a) **Labour**					
Male	day	0.480	400.00	192.00	L-12
Mazdoor skilled	day	2.000	400.00	800.00	L-15
Mazdoor	day	10.000	350.00	3500.00	L-13
b) **Machinery**					
Wet mix plant of 75 tonne hourly capacity	hour	9.000	2200.00	19800.00	P&M-094
Electric generator 125 KVA	hour	6.000	700.00	4200.00	P&M-018
Front end loader 1 cum capacity	hour	6.000	2000.00	12000.00	P&M-017
Paver finisher	hour	6.000	1500.00	9000.00	P&M-035
Vibratory roller 8 - 10 tonne	hour	6x0.65	1800.00	7020.00	P&M-059
or					
Smooth 3 wheeled steel roller @ 8-10 tonnes.	hour	12.000			
Water tanker 6 KL capacity	hour	3.000	200.00	600.00	P&M-060
Tipper	tonne.km	495 x L	10.00	74250.00	Lead =15 km & P&M-058
Add 10 per cent of cost of carriage to cover cost of loading and unloading				7425.00	
c) **Material (Table 400-11)**					
45 mm to 22.4 mm@ 30 per cent	cum	89.100	575.00	51232.50	M-034
22.4 mm to 2.36 mm @ 40 per cent	cum	118.800	500.00	59400.00	M-031
2.36 mm to 75 micron@ 30 per cent	cum	89.100	450.00	40095.00	M-022
Cost of water	KL	18.000	150.00	2700.00	M-189
d) **Overhead charges @ 10 on (a+b+c)**				29221.45	
e) **Contractor's profit @ 10 on (a+b+c+d)**				32143.60	
Cost for 225 cum = a+b+c+d+e				353579.55	
Rate per cum = (a+b+c+d+e)/225				1571.46	
			say	*1571.00*	

Executive Engineer
PWD (R&B) Division
& Basohli

504	Bituminous Macadam					
	Providing and laying bituminous macadam with 100-120 TPH hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading premixed with bituminous binder, transported to site, laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled as per clauses 501.6 and 501.7 to achieve the desired compaction					
	Unit = cum					
	Taking output = 205 cum (450 tonnes)					
	a) Labour					
	Male	day	0.840	400.00	336.00	L-12
	Mazdoor working with HMP, mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction	day	16.000	500.00	8000.00	L-13
	Skilled mazdoor for checking line & levels	day	5.000	500.00	2500.00	L-15
	b) Machinery					
	Batch mix HMP 100-120 TPH @ 75 tonne per hour actual output	hour	6.000	20000.00	120000.00	P&M-021
	Mechanical broom hydraulic @ 1250 sqm per hour	hour	2.200	1000.00	2200.00	P&M-031
	Air compressor 250 cfm	hour	2.200	800.00	1760.00	P&M-001
	Paver finisher hydrostatic with sensor control @ 75 cum per hour	hour	6.000	5000.00	30000.00	P&M-034
	Generator 250 KVA	hour	6.000	5000.00	30000.00	P&M-081
	Front end loader 1 cum bucket capacity	hour	6.000	2000.00	12000.00	P&M-017
	Tipper 10 tonne capacity	tonne.km	450 x L	33.00	341550.00	Lead=23 km & P&M-058
	Add 10 per cent of cost of carriage to cover cost of loading and unloading				34155.00	
	Smooth wheeled roller 8-10 tonnes for initial break down rolling.	hour	6.00x0.65*	600.00	2340.00	P&M-044
	Vibratory roller 8 tonnes for intermediate rolling.	hour	6.00x0.65*	1800.00	7020.00	P&M-059
	Finish rolling with 6-8 tonnes smooth wheeled tandem roller.	hour	6.00x0.65*	500.00	1950.00	P&M-045
	c) Material					

	i) Bitumen@ 3.3 per cent of mix	tonne		14.850	50000.00	742500.00	M-074
	weight of mix = 205 x 2.2 = 450 tonne						
	ii) Aggregate						
	Total weight of mix = 450 tonnes						
	Weight of bitumen = 14.85 tonnes						
	Weight of aggregate = 450 -14.85 = 435.15 tonnes						
	Taking density of aggregate = 1.5 ton/cum						
	Volume of aggregate = 290.1 cum						
	*Grading I (40 mm nominal size)						
	37.5 - 25 mm 15 per cent	cum		43.510	700.00	30457.00	M-049
	25 - 10 mm 45 per cent	cum		130.550	650.00	84857.50	M-046
	10 - 5 mm 25 per cent	cum		72.530	650.00	47144.50	M-040
	5 mm and below15 per cent	cum		43.510	600.00	26106.00	M-030
	or						
	GradingII(19 mm nominal size)						
	25 - 10 mm 40 per cent	cum		116.040	input	#VALUE!	M-046
	10 - 5 mm 40 per cent	cum		116.040	input	#VALUE!	M-040
	5 mm and below 20 per cent	cum		58.020	input	#VALUE!	M-030
	* Any one of the alternative may be adopted as per approved design						
(i)	for Grading I (40 mm nominal size)						
	d) Overhead charges @ 10 on (a+b+c)					152487.60	
	e) Contractor's profit @ 10 on (a+b+c+d)					167736.36	
	Cost for 205 cum = a+b+c+d+e					1845099.96	
	Rate per cum = (a+b+c+d+e)/205 (For Grading I)					9000.49	
					say	9000.00	

Executive Engineer
PWD (R&B) Division
Basohli

ANALYSIS OF RATES

Providing and laying semi dense bituminous conc. with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder@ 4.5 to 5 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause No. 508 complete in all respects.

S.No.	Ref. to MORT& H Spec.	Description	Unit	Quantity	Rate	Cost Rs.	Remarks/ Par No.
5.4	508	**Semi Dense Bituminous Concrete**					
		Providing and laying semi dense bituminous conc. with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder@ 4.5 to 5 percent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORT&H specification clause No. 508 complete in all respects.					
		Unit = Cum					
		Taking output = 195 cum (450 tonnes)					
		a) Labour					
		Mate	Day	0.84	400.00	336.00	L-12
		Mazdoor working with HMP mechanical broom, paver, roller, asphalt cutter and assistance for setting out lines, levels and layout of construction.	Day	16.00	500.00	8000.00	L-13
		Skilled Mazdoor for checking line & levels	Day	5.00	500.00	2500.00	L-15
		b) Machinery				0.00	
		Batch mix HMP @ 75 tonne per hour	Hour	6.00	2000.00	12000.00	P&M-07
		Paver finisher hydrostatic with sensor control @ 75 cum per hour	Hour	6.00	5000.00	30000.00	P&M-04
		Generator 250KVA	Hour	6.00	5000.00	30000.00	P&M-01
		Front end loader 1 cum bucket capacity	Hour	6.00	1000.00	6000.00	P&M-07
		Tipper 10 tonne capacity	Tonne Km	10350.00	4.20	43470.00	Table 9.2 Lin 3 of 05A
		Add 10% of cost of carriage to cover cost of loading and unloading				4347.00	
		Smooth Wheeled roller 8-10 tonnes for initial break down rolling	Hour	6.00 x 0.65	600.00	2340.00	P&M-04
		Vibratory roller 8 tonnes for intermediate rolling	Hour	6.00 x 0.65	1800.00	7020.00	P&M-05
		Finish rolling with 6-8tonnes smooth wheeled tandem roller	Hour	6.00 x 0.65	500.00	1950.00	P&M-03
		c) Material					
		*Grading I: 13mm(Nominal Size)					
		i) Bitumen @4.5 percent of weight of mix	Tonne	30.00	50000.00	1500000.00	M-07.4
		ii) Aggregate					
		Total Weight of mix = 450 tonnes					
		Weight of Bitumen = 20.25 tonnes					
		Weight of aggregate = 450-20.25 = 429.75 tonnes					
		Taking density of aggregate = 1.5 ton/cum					
		Volume of aggregate = 286.50 cum					

		13.2-10 mm 20 percent	Cum	57.30	650.00	37245.00	M-044
		10-5 mm 38 percent	Cum	108.87	650.00	70765.50	M-040
		5 mm and below 15 percent	Cum	114.60	650.00	74490.00	M-030
		Filler@2percent of weight of aggregates.	tonne	8.62	650.00	5603.00	M-188
					Total	**1836066.50**	
		d) Over head charges @ 10%				183606.65	
					Total	**2019673.15**	
		e) Contractor's profit @ 10%				201967.32	
		Cost for 195 cum = (a+b+c+d+e)				2221640.47	
		Rate per cum =(a+b+c+d+e)/195(for grading I)				11393.03	

Therefore rate for 1 cum of SDBC = Rs.11393.03
Priming coat/Tack Coat for 1 cum SDBC 25 mm
Area of 1 cum SDBC = 1.00/0.025= 40.00 sqm. @ 5 KG/Sqm=20.00 kg@ Rs 50/kg =1000
Hence rate for 1cum of SDBC including Priming coat and tack coat= 11393.03+1000 = Rs 12393.03/Cum.

Say= Rs 310.00/ Sqm

Assistant Executive Engineer
PWD (R&B) Sub-Division

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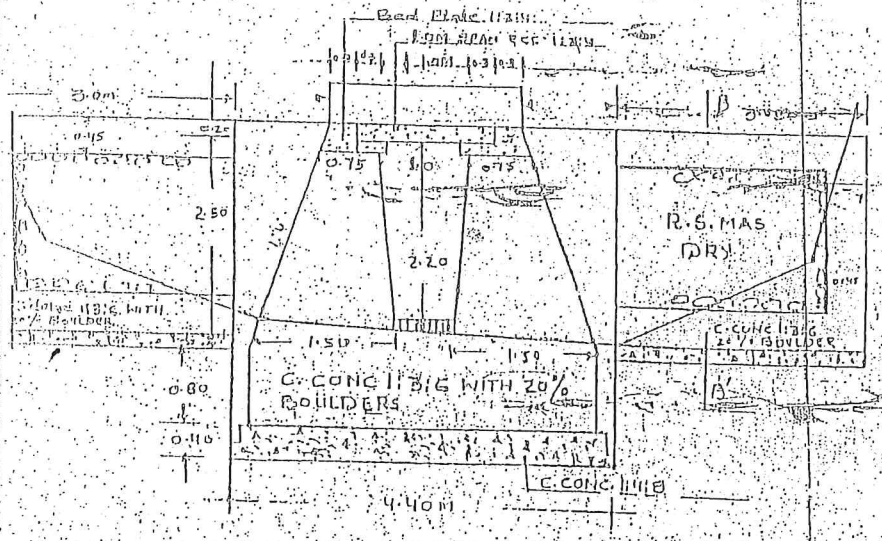
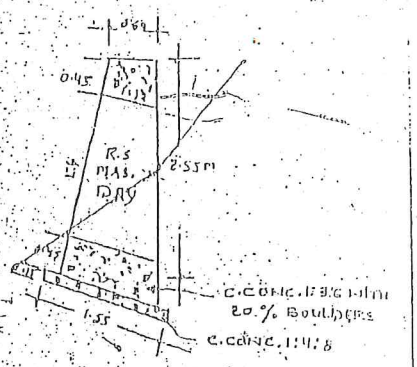
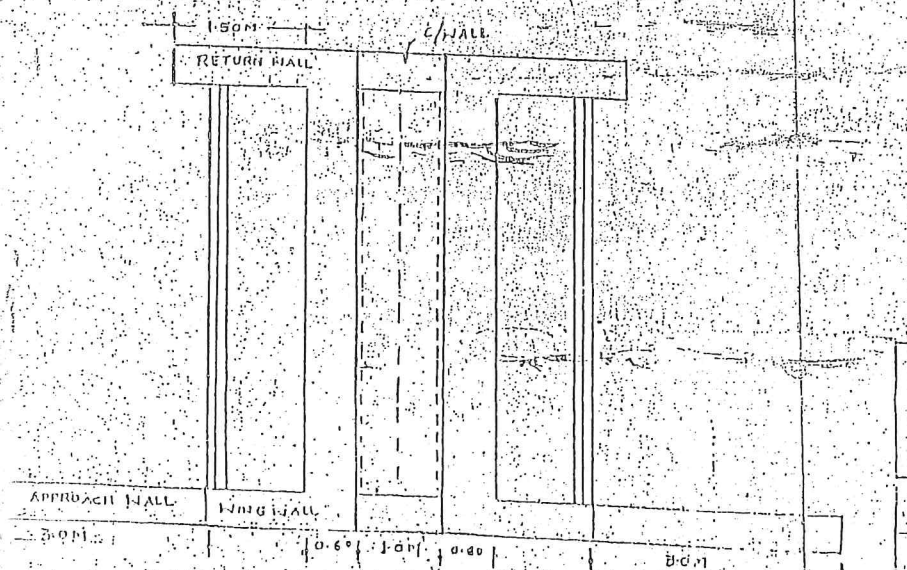
PWD (R&B) Division
Basohli



X-SECTION



X-SEC. AT BB



PLAN

SAMPLE DRAWING FOR CONST. OF 10M. SPAN R.C.C. CULVERT. (HILLY AREA)

SCALE: 1cm = 0.50m

Executive Engineer
PWD (R&B) Division
Basohli

Typical Estimate for construction of 2.00 m span RCC culvert.

S.No.	Particular of Items.	Qty.

1. Earth work in excavation by mainal means in trenches for foundations, drains, pipes ,cables etc. (Not exceeding 1.5mts in width) & for shafts, wells, cesspits & the like not exceeding 10 sqm on plan, depth upto 1.5 mts including disposal of excavated earth upto 50mts from cutting edge,disposed earth is to be levelled & neaty dressed in all kinds of soil.

Abutments 1 x 11.2 x 5.70 x 1.50 = 95.76 cum
Wing walls: 4 x 2.70 x 2.40 x 1.50 = 38.88 cum
Crates :-2 x 6.00 x 1.20 x 1.20 = 17.28 cum
} = 151.92 cum

2. Providing and laying in position cement conc. of specified grade excl. the cost of centring and shuttering – All work upto plinth level 1:4:8 (1 cement : 4 fine sand :8 graded stone agg. 40mm nominal size) Crushed

Abutment:- 1 x 11.2 x 5.70 x 0.20 =12.76 cum
Wing Walls:- 4 x 2.40 x 2.00 x 0.20 = 3.84 cum
Under floors 1 x 6.30 x 1.80 x 0.15 = 1.70 cum
} =18.308 cum

3. Providing and laying cement conc. in retaining walls, return walls, walls, (any thickness) including attached pilasters, columns,piers, abutments, pillars, posts, struts, butteresses, string or laces, courses, parapets, coping,bed blocks,anchor blocks,plain window sills,fillets etc.upto floor five level, excluding the cost of centering shuttering and finishing. 1:3:6 (1 cement :3 coarse sand :6 graded stone agg. 20 mm nominal size) Crushed.

Abutments :-
Base :- 1 x11.2 x 5.70 x 0.40 = 25.536 cum
1st Step :- 2 x 10.8 x 1.90 x 0.40 = 16.41 cum
2nd step :- 2 x 10.4 x 1.50 x 0.40 = 12.48 cum
3rd step :- $2 \times 10.0 \times \frac{0.80 + 1.30}{2} \times 1.50$ = 31.5 cum

Wings :-
1st step :- 4 x 2.00 x 2.00 x 0.40 = 6.40 cum
2nd step :- 4 x 2.20 x 1.60 x 0.40 = 5.63 cum
3rd step :- $4 \times 2.40 \times \frac{1.20 + 1.60}{2} \times 0.40$ = 5.37 cum
4th step :- $4 \times 2.80 \times \frac{0.50 + 1.20}{2} \times 1.80$ =17.13 cum

C/wall:- 2 x 1.60 x 0.60 x 0.40 = 0.76cum
Drop wall :- 2 x 1.80 x 0.60 x 0.40 = 0.86 cum
Parapets :- $2 \times 3.60 \times \frac{0.60 + 0.45}{2} \times 0.60$ =2.26 cum
2 x 7.50 x 0.40 x 0.40 = 2.40 cum

= 126.736 cum

S.No.	Particular of Items.	Qty.
4.	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering , shuttering, finishing and reinforcement all work upto plinth level 1:1.5:3 (1 cement :1.5 coarse sand :3 graded stone agg. 20 mm nominal size) Bed plate :- 2 x 10.0 x 0.40 x 0.15 = 1.2 cum Slab :- 1 x 10 x 2.80 x 0.25 = 5.25 cum Wheel guard: 2 x 3.60 x 0.30 x 0.60 = 1.297 cum	= 9.496 cum
5.	Reinforcement for RCC Work incl. straightening, cutting, bending, placing in position and binding all complete Cold twisted bars.. Qty. vide item no. 4 = 9.496 cum @ 125 kg/cum	= 1187 kg

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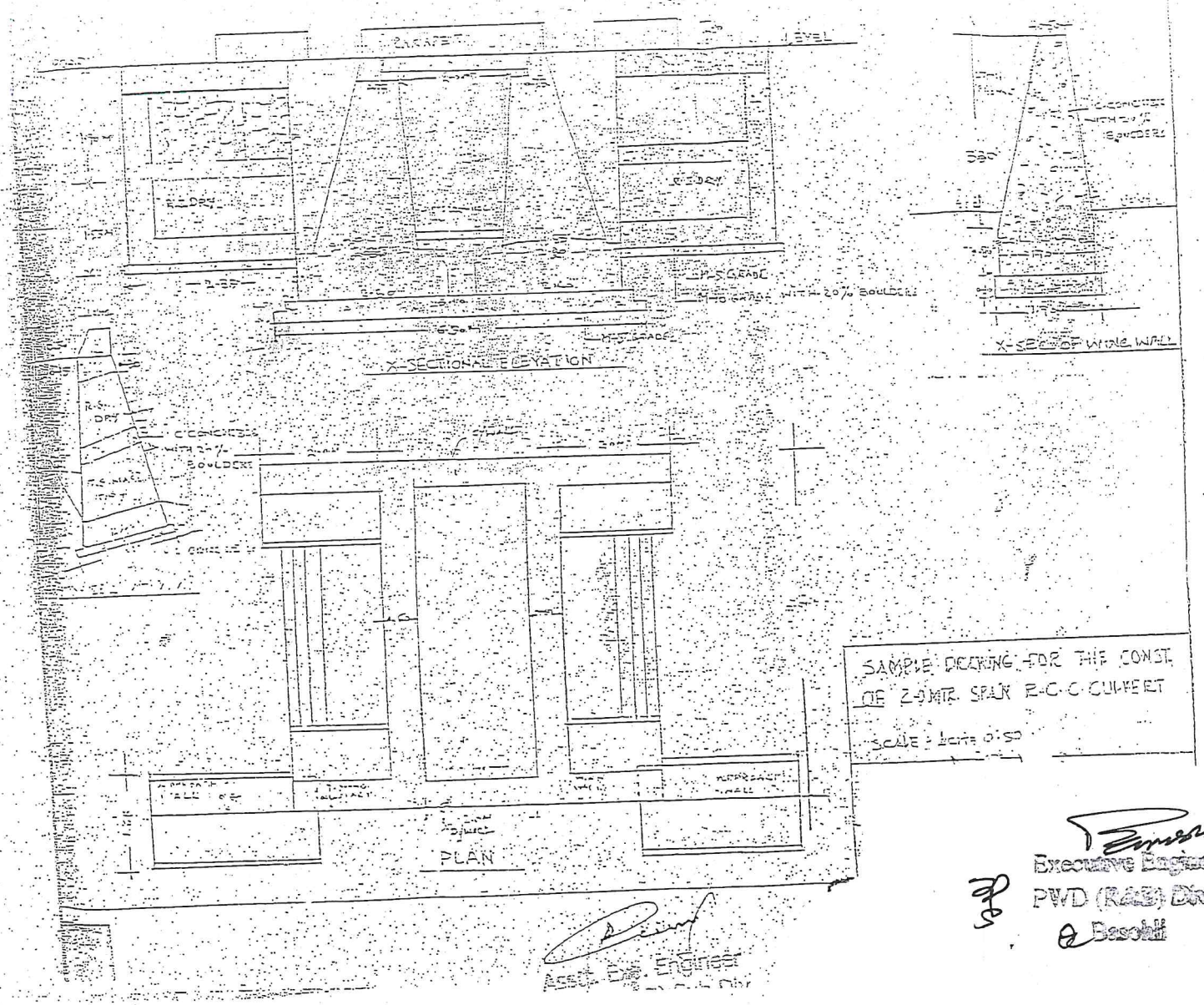
PWD (R&B) Division
Basohli


PARAPET LEVEL
R.C.C. DRY
M.S. GRADE
M.S. GRADE WITH 20% BOULDERS
C.C. CONCRETE WITH 20% BOULDERS
X-SECTIONAL ELEVATION
PLAN
X-SECTION OF WING WALL
SAMPLE DRAWING FOR THE CONST. OF 2.0 MTR. SPAN R.C.C. CULVERT
SCALE : 1cm = 1.0 SD
Executive Engineer
PWD (R&B) Division
Asstt. Exe. Engineer

Typical Estimate for construction of 3.00m span RCC culvert

S.No.	Particular of Items.	Qty
1.	Earth work in excavation by manual means in trenches for foundations, drains, pipes ,cables etc, (Not exceeding 1.5mts in width) & for shafts, wells, cesspits & the like not exceeding 10 sqm on plan, depth upto 1.5mts including disposal of excavated earth upto 50mts from cutting edge,disposed earth is to be levelled & neaty dressed in all kinds of soil. Abutments 1 x 11.20 x 7.70 x 1.70 = 133.28 cum Wing walls: 4 x 2.40 x 2.00 x 1.40 = 26.88 cum Crates :- 2 x 6.0 x 1.20 x 1.20 = 17.28 cum	= 177.44 cum
2.	Providing and laying in position cement conc. of specified grade excl. the cost of centring and shuttering – All work upto plinth level 1:4:8 (1 cement : 4 fine sand :8 graded stone agg. 40mm nominal size) Crushed Abutment:- 1 x 11.20 x 7.70 x 0.20 = 15.68 cum Wing Walls:- 4 x 2.40 x 2.00 x 0.20 = 3.84 cum Under floors 1 x 9.8 x 1.80 x 0.15 = 2.646 cum	= 22.166 cum
3.	Providing and laying cement conc. in retaining walls, return walls, walls, (any thickness) including attached pilasters, columns,piers, abutments, pillars, posts, struts, butteresses, string or laces, courses, parapets, coping,bed blocks,anchor blocks,plain window sills,fillets etc.upto floor five level, excluding the cost of centering,shuttering and finishing. 1:3:6 (1 cement :3 coarse sand :6 graded stone agg. 20 mm nominal size) Crushed . Abutments :- 1st Step :- 2 x 1.90 x 10.80 x 0.40 = 16.416 cum 2nd Step :- 2 x 1.50 x10.40 x 0.40 = 12.48 cum 3rd step :- 2 x 1.30 x 10.0 x 0.40 = 10.40 cum 4th step :- 2 x $\frac{1.20+0.80}{2}$ x 10.00 x 1.50 = 30.00 cum Wings :- 1st step :- 4 x 2.00 x 2.20 x 0.40 = 7.04 cum 2nd step :- 4 x 1.60 x 2.40 x 0.40 = 6.14 cum 3rd step :- 4 x 2.60 x $\frac{1.60+1.20}{2}$ x 0.40= 5.82 cum 4th step :- 4 x 2.80 x $\frac{1.20+0.50}{2}$ x 1.95= 18.56 cum Parapets :- 2 x 4.60 x $\frac{0.60+0.45}{2}$ x 0.60=2.90 cum	= 109.756 cum

Particular of Items.

Qty

4. Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering , shuttering, finishing and reinforcement all work upto plinth level 1:2:4 (1 cement :2 coarse sand :4 graded stone agg. 20 mm nominal size)

Raft :- 1 x 10.80 x 6.6 x 0.40 = 28.52 cum
Bed plate :- 2 x 10.0 x 0.80 x 0.15 = 2.44 cum
2 x 0.50 x 10.00 x 0.30 = 3.00 cum

= 33.912 cum

5. Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering , shuttering, finishing and reinforcement all work upto plinth level 1:1.5:3 (1 cement :1.5 coarse sand :3 graded stone agg. 20 mm nominal size)

Slab :- 1 x 3.60 x 10.00 x 0.30 = 10.8 cum
Wheel Guard :- 2 x 4.60 x 0.25 x 0.60 = 1.38 cum

=12.18 cum

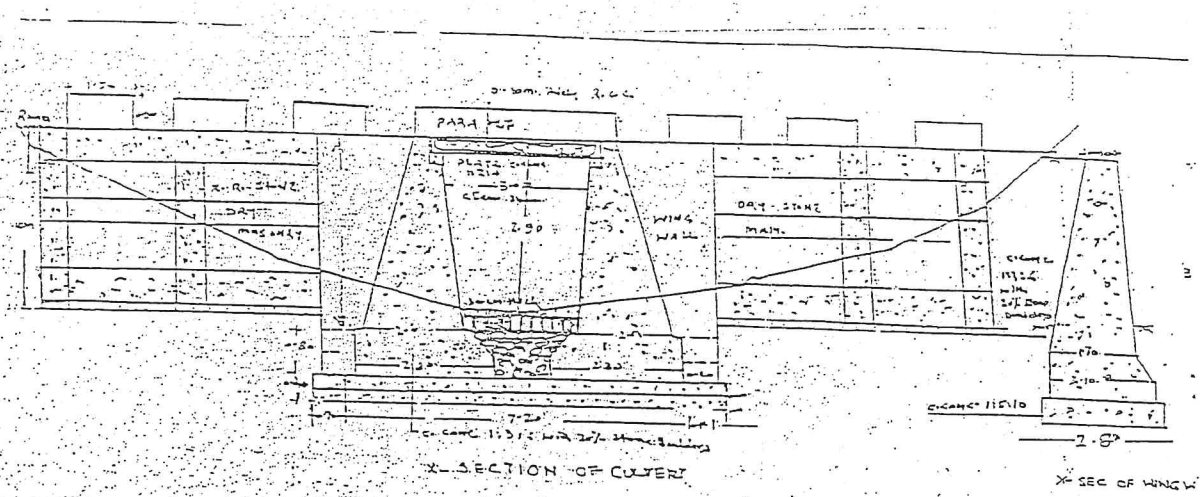
6. Reinforcement for RCC Work incl. straightening, cutting, bending, placing in position and binding all complete

Cold twisted bars..
Qty. vide item no. 4 = 33.192 cum @ Rs.50 kg/cum = 1695.00 kg
Qty. vide item no. 5 = 12.18 cum @ Rs. 125/cum = 1522.5 kg

= 3218.10 kg

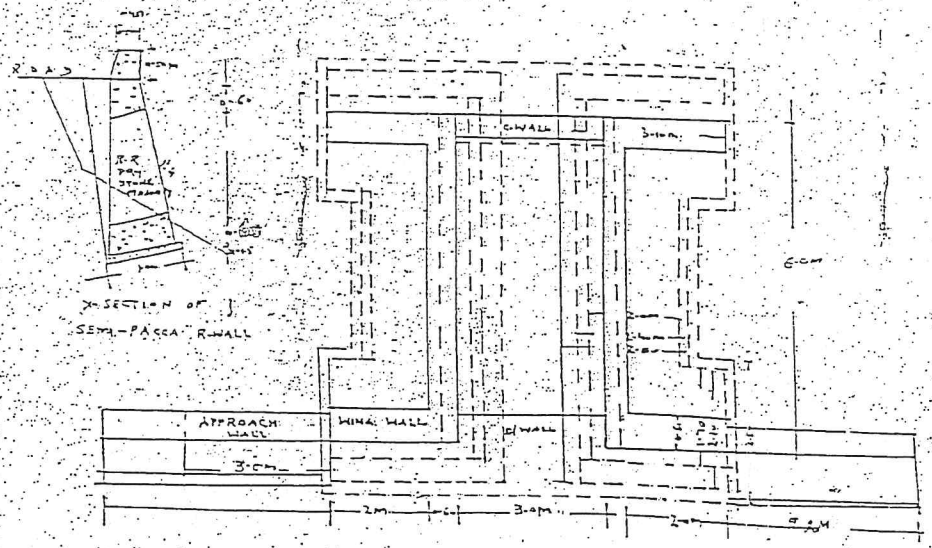
Assistant Executive Engineer
PWD (R&B) Sub-Division
Mahanpur

Executive Engineer
PWD (R&B) Division
Basohli



X-SECTION OF CULVERT

X-SEC OF WINGW



X-SECTION OF SEMI-PASCAL R.WALL

PLAN

SAMPLE DRAWING FOR THE CONST. OF 3·0 M SPAN R.C.C. CULVERT.

SCALE 1CM = 50CM

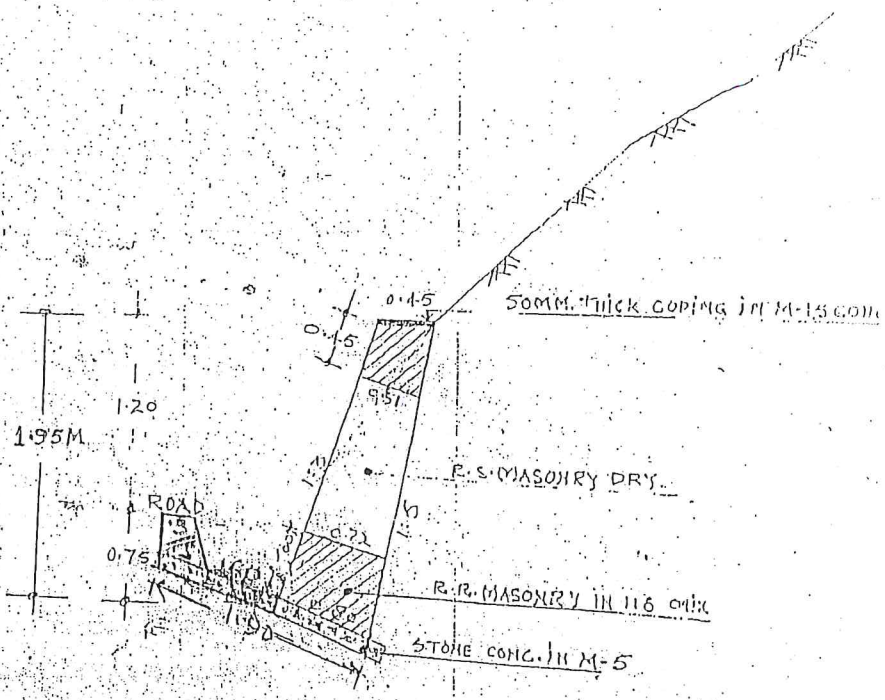
Executive Engineer
PWD (R&B) Division
Basohli

Typical Estimate for Construction of B-wall and Drain on various roads of (R&B) Division Basohli

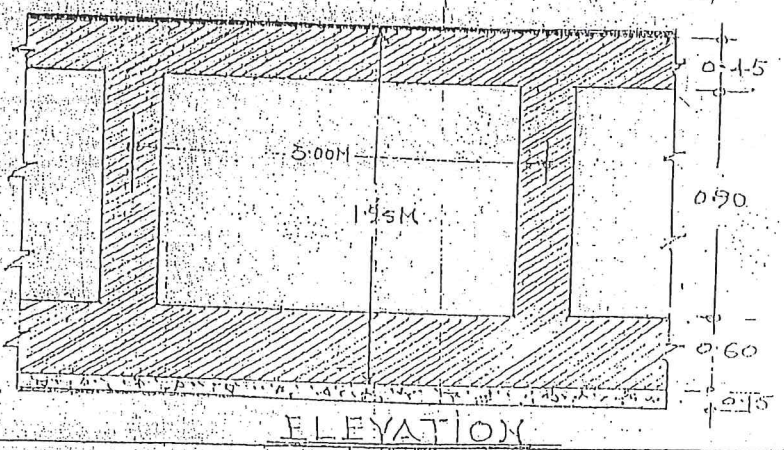
S.No.	Particulars	Qty.
1	Earthwork in excavation by manual means in foundation trenches or drains (not exceeding 1.5m in width as well as 10sqm on Plan) including dressing of sides and ramming of bottoms, lift upto 1.5m including getting out the excavated soil and disposal of surplus excavated soil as directed 25.00m from cutting edge. $1 \times 1.10 \times \frac{(1.00 + 2.55)}{2}$	1.952 cum
2	Providing and laying in position cement concrete (1 : 4 : 8) stone aggregate 40mm nominal size with nallah stone aggregate: $1 \times 1.90 \times 0.15$	0.285 cum
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering --All work upto plinth level. 1 : 3 : 6 (1 cement : 3 coarse sand : 6 graded nallah stone aggregate 20mm nominal size) $= 1 \times \frac{0.80 + 0.45}{2} \times 1.95$ $+ 1 \times \frac{0.30 + 0.50}{2} \times 0.60$	1.458 cum

Assistant Executive Engineer
PWD (R&B) Sub-Division
Mahanpur

Executive Engineer
PWD (R&B) Division
Basohli



CROSS SECTION



ELEVATION

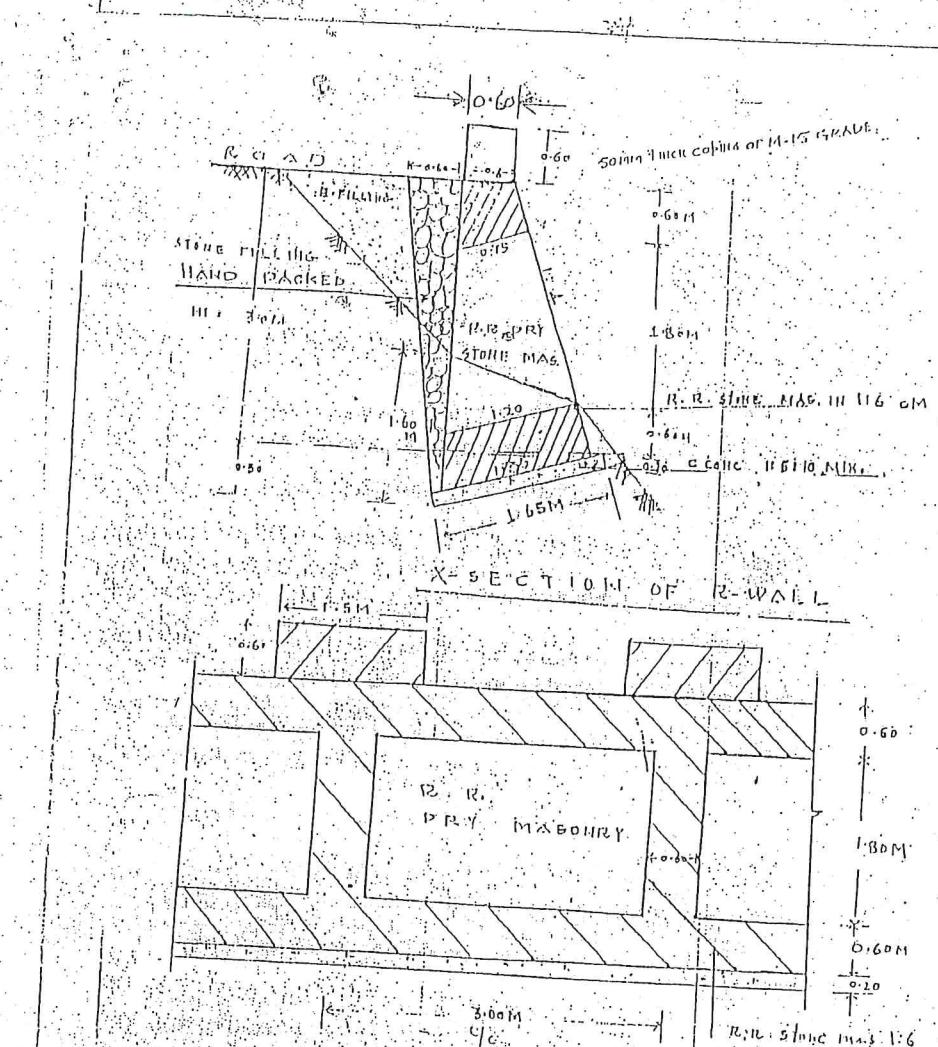
SAMPLE DRAWING FOR
CONST. OF BREAST WALL

Typical Estimate for Construction of R-wall on various roads of (R&B) Division Basohli

S.No.	Particulars	Qty.
1	Earthwork in excavation by manual means in foundation trenches or drains (not exceeding 1.5m in width as well as 10sqm on Plan) including dressing of sides and ramming of bottoms, lift upto 1.5m including getting out the excavated soil and disposal of surplus excavated soil as directed 25.00m from cutting edge. $1 \times 1.65 \times \frac{(0.6 + 1.6)}{2}$	1.815 cum
2	Providing and laying in position cement concrete (1 : 4 : 8) stone aggregate 40mm nominal size with nallah stone aggregate: 1 x 1.65 x 0.2	0.33 cum
3	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering - All work upto plinth level. 1 : 3 : 6 (1 cement : 3 coarse sand : 6 graded nallah stone aggregate 20mm nominal size) $= 1 \times \frac{1.3 + 0.60}{2} \times 3.00$	2.85 cum

Assistant Executive Engineer
PWD (R&B) Sub-Division
Mahanpur .

Executive Engineer
PWD (R&B) Division
Basohli



X-SECTION OF R-WALL

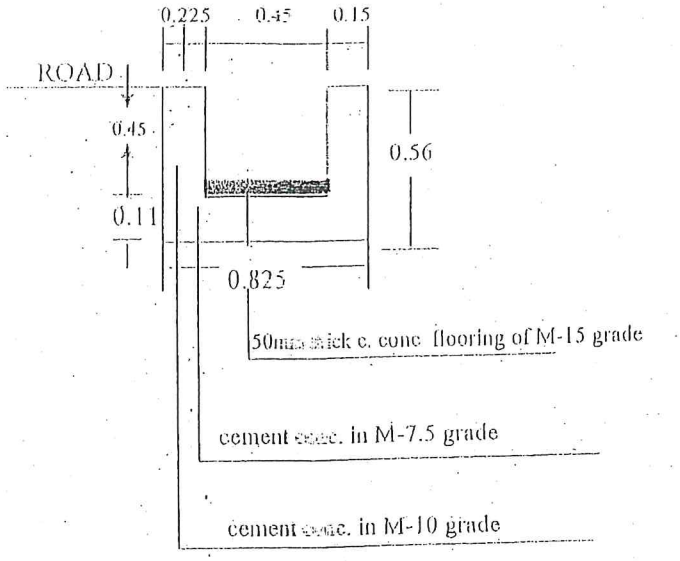
ELEVATION

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

SCALE : 1CM. = 50 MTRS.

Executive Engineer
PWD (R&B) Division
Q. Basohli

TYPICAL ESTIMATE FOR THE CONSTRUCTION OF PUCCA DRAIN ON VARIOUS ...
(R&B) DIVISION BASOHLI



S.NO.	PARTICULARS OF ITEMS	Qty.
1.	Earth work in excavation by manual means in trenches for foundations, drains,pipes ,cables etc. (Not exceeding 1.5mts in width & for shafts, wells, cesspits & the like not exceeding 10 sqm on plan, depth upto 1.5mts including disposal of excavated earth upto 50mts from cutting edge,disposed earth is to be levelled & neatly dressed in all kinds of soil 1 x 10.00 x 0.825 x 0.56	= 4.62 cum
2.	Providing and laying in position cement conc. of specified grade excl. the cost of centring and shuttering – All work upto plinth level 1:4:8 (1 cement :4 fine sand : 8 graded stone agg. 40mm nominal size.) Crushed 1 x 10.00 x 0.825 x 0.11	= 0.91 cum
3.	Providing and laying in position cement conc. of specified grade excl. the cost of centring and shuttering – All work upto plinth level 1:3:6 (1 cement :3 coarse sand :6 graded stone agg. 20mm nominal size) Crushed 1 x 10.00 x 0.225 x 0.45 = 1.01 cum 1 x 10.00 x 0.15 x 0.45 = 0.675 cum	= 1.685 cum

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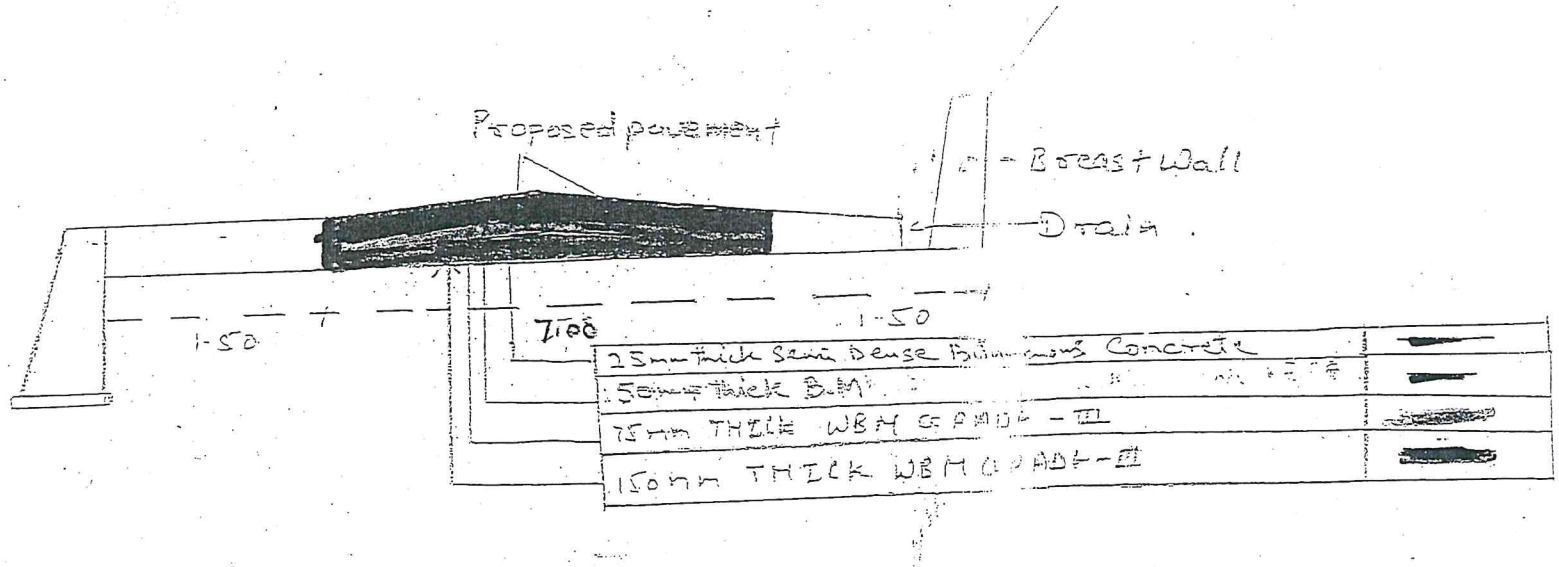
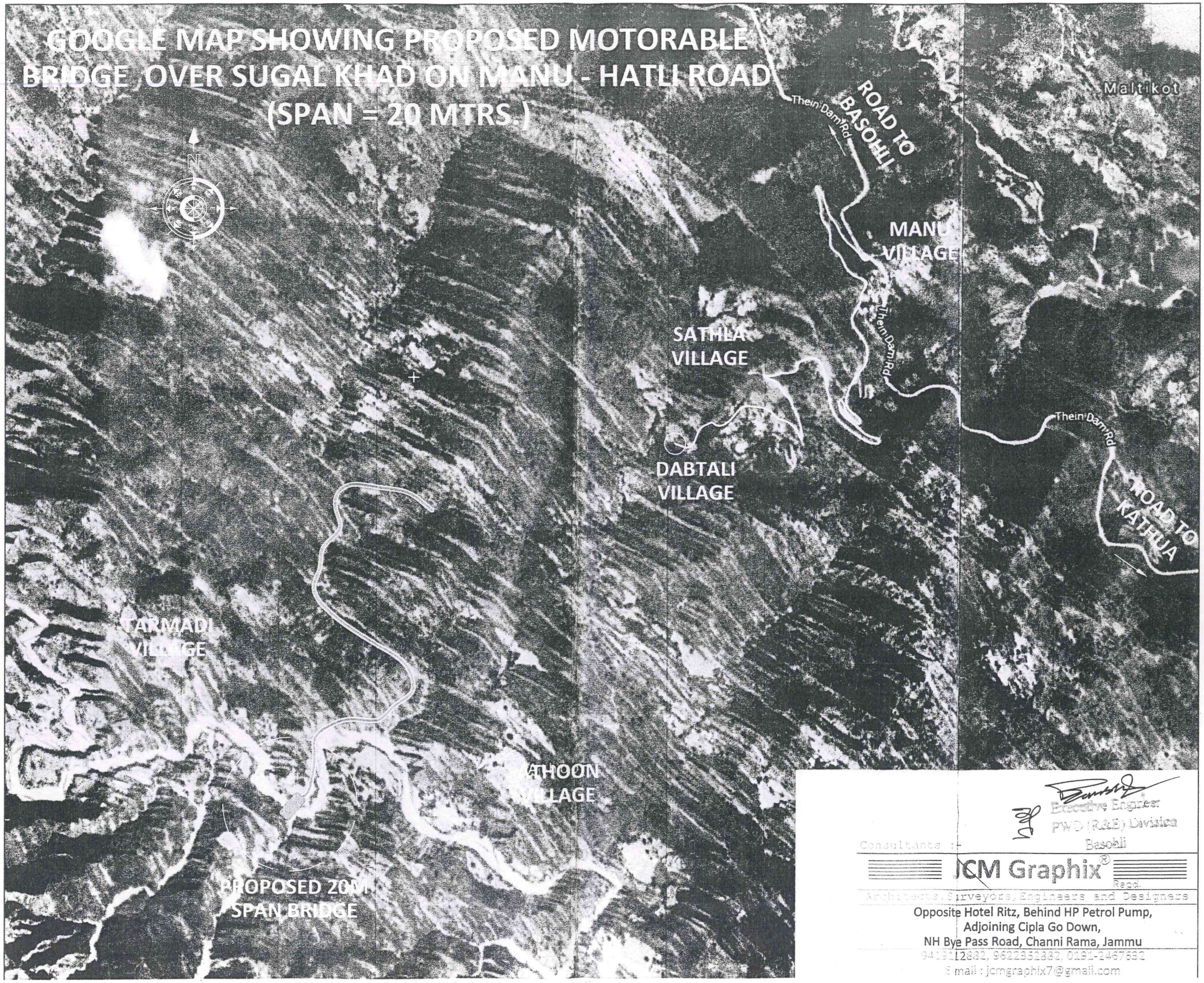


TYPICAL X-SECATION FOR CONST. OF 20 mtr. SPAN (Double lane)

RCC T-BEAM BRIDGE OVER SUGAL KHAD ON MANU HATLI ROAD

INCLUDING APPROACHES.

GOOGLE MAP SHOWING PROPOSED MOTORABLE BRIDGE OVER SUGAL KHAD ON MANU - HATLI ROAD (SPAN = 20 MTRS.)



Executive Engineer
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Basohli

Consultants :-

JCM Graphix®
Regd.
Architects, Surveyors, Engineers and Designers
Opposite Hotel Ritz, Behind HP Petrol Pump,
Adjoining Cipla Go Down,
NH Bye Pass Road, Channi Rama, Jammu
9419112882, 9622852383, 0191-2467632
E-mail : jcmgraphix7@gmail.com

GOOGLE MAP SHOWING PROPOSED MOTORABLE BRIDGE OVER SUGAL KHADDAR NALA – HATLI ROAD (SPAN – 20 MTRS)

Executive Engineer
PWD (R&B) Division
Basoli

ICM Graphix

Opposite Hotel Ritz, Behind HP Petrol Pump,
Adjoining Cipla Go Down,
NH Bye Pass Road, Channi Rama, Jammu

ROAD MAP OF DISTRICT KATHUA (J&K)

(N.T.S)

DISTRICT DODA

HIMACHAL PARDESH

DISTRICT UDHAMPUR

DISTRICT SAMBA

TO UDHAMPUR

TO DHAR

PAKISTAN

PUNJAB

BAMYAL

MADHOPUR

PATHANKOTE

SUBMERGED AREA

RAVI RIVER

UJH RIVER

BANI BLOCK

DUGGAN BLOCK

LOHAI MALHAR BLOCK

BAGGAN BLOCK

BASOHLI BLOCK

BHOOND BLOCK

BILAWAR

DHAR MAHANPUR BLOCK

BILAWAR BLOCK

GUROO SAGROTA BLOCK

MANDLI BLOCK

DINGA AMB BLOCK

MAHANPUR BLOCK

KATHUA BLOCK

KEERIAN GANDYAL BLOCK

HIRANAGAR BLOCK

BARNOTH BLOCK

MARHEEN BLOCK

NAGRI BLOCK

KATHUA

LEGEND		
S.NO	PARTICULAR	SIGN.
1.	DISTT. BOUNDRY	
2.	STATE BOUNDRY	
3.	~~INTERNATIONAL BOUNDRY~~	
4.	BLOCK BOUNDRY	
5.	DISTT. HEAD QUARTER	
6.	TEHSIL HEAD QUARTER	
7.	RIVER/NALLAH	
8.	RAILWAY LINE	
9.	ROAD NETWORK	

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