SECTION-7: BILL OF QUANTITIES

BILL OF QUANTITIES

A: PREAMBLE

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Particular Conditions, Technical Specifications, and Drawings.

2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and `valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

3. The rates and prices bid in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.

4. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.

5. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

6. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.

7. Day work included in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in accordance with Sub-Clause 13.5 and Sub-Clause 13.6 of the General Conditions.

8. The method of measurement of completed work for payment shall be in accordance with the Technical Specifications (Section 5 of Volume I).

9. Payment of items under Bill No. 9 – “Safety in Road Construction” shall be made only after taking and maintaining safety measures in accordance with IRC:SP:55:2001 “Guidelines on safety in road construction zones” to the satisfaction of the Engineer on completion of each designated section on proportionate basis.

B: ABBREVIATIONS

Abbreviation	**For**
Rs	Indian Rupees
LS or SUM	Lump Sum
Nr or No.	Number
Lm or m	Linear metre
KM or km	Kilometre
Hct or ha	Hectare
m^2	Square metre
m^3 or Cum	Cubic metre
KG or kg	Kilogram
T or MT	Tonne or Metric Tonne
HP	Horse Power
PS	Provisional Sum
IRC	Indian Roads Congress
MORTH Specification	Specifications for Road and Bridge Works (4th revision) issued by the Ministry of Roads Transport & Highways, Government of India
BIS	Bureau of India Standards
Prov.	Provisional
Eqpt. Hrs	Equipment hours
P.O.L.	Petroleum, Oil and Lubricants
Veh. Day	Vehicle Day
Cu cm – cucm	Cubic Centimetres
Mtr	Metre

C: WORK ITEMS

The Bill of Quantities contains the following part Bills

Widening and Strengthening of Lunawada – Khedapa Road (Lunawada – Santrapur Road SH-002 Km.130+010 to 163+800) and (Santrampur-Khedapa Road SH-152 Km 0+000 to 22+689).

1.

- GSHP-II/NCB/08

Bill	DETAILS	**Amount in Rs. for Lunawada-Santrampur road**	**Amount in Rs. for Santrampur-khedapa road**	**Total amount in Rs.**
Bill No. 1	GENERAL ITEMS			
Bill No. 2	SITE CLEARANCE AND DISMANTLING			
Bill No. 3	EARTH WORKS			
Bill No. 4	SUB-BASE, BASES AND SURFACE COURSES (NON BITUMINOUS) AND SHOULDERS			
Bill No. 5	BASE AND SURFACE COURSES (BITUMINOUS)			
Bill No. 6	STRUCTURES			
	A – CULVERTS			
	B – BRIDGES			
	C – REPAIRS AND REHABILITATION			
	D – RETAINING WALLS			
Bill No. 7	DRAINAGE AND PROTECTION WORKS			
Bill No. 8	TRAFFIC SIGNAGE AND ROAD APPURTENANCES			
Bill No. 9	SAFETY IN ROAD CONSTRUCTION ZONE			
Bill No. 10	IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT ACTION PLAN TO BE EXECUTED UNDER CIVIL WORKS CONTRAT			
Bill No. 11	DAY WORKS			
Bill No. 12	MAINTAINANCE COST			
GRAND TOTAL				

Rs. in Words_____

2 Bidders shall price the Bill of Quantities in Indian currency only.

SECTION-I LUNAWADA – SANTRAMPUR

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
1			**GENERAL ITEMS**					
1.02			Supply of master video cassettes of important site activities with four copies complete as per Technical Specifications clause 126	Set	12.00			
1.03			Construction of temporary diversion for passage of traffic, complete as per Technical Specifications Section Clause 112.3. (separate items are given for CD/ bridge work diversions)	Lm	2500.00			
			Total General Items carried to Grand Summary					
2			**SITE CLEARANCE AND DISMANTLING**					
2.01			Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned complete as per technical specification clause 201 or as directed by the Engineer.	ha	52.34			
2.02			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, disposal of unserviceable as well serviceable material with all leads and lifts beyond the ROW complete as per technical specification clause 202.					
	a)		Plain cement concrete	Cum	10.00			
	b)		Reinforced cement concrete	Cum	10.00			
	c)		Stone / Brick masonry structures	Cum	10.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	d)		Guide/Hand rails / Fencing / kerb / NP3 Pipes / NP4 Pipes	Lm	50.00			
	e)		Kilometre stone	Nr	27.00			
	f)		5 km stone	Nr	7.00			
	g)		Hectometre / Boundary stones	Nr	135.00			
	h)		Utilities	Nr	10.00			
	i)		Bituminous Pavement	Cum	28321.02			
	j)		Non- Bituminous Pavement	Cum	41223.28			
2.03			Cutting of trees from 300mm and above girth size, the work shall consist of cutting of all such trees as per the direction of the Engineer and further as per duly approved plan by the Forest Department. This shall include duly approved stacking, transport and final handing over to Forest Department with all leads and lifts. Work to comply strictly in accordance with Technical Specifications Clause 201.					
	a)		above 300mm to 600mm girth	Nr	317			
	b)		above 600mm to 900mm girth	Nr	633			
	c)		above 900mm to 1800mm girth	Nr	554			
	d)		above 1800m	Nr	79			
2.04			Removal of tree stumps and roots, disposal and filling of pits complete as per Technical Specifications Clause 201. The work shall follow the directions of the Engineer and further approval of plan by the Forest Department, where necessary. This shall include all leads and lifts.					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	a)		above 300mm to 600mm girth	Nr	317			
	b)		above 600mm to 900mm girth	Nr	633			
	c)		above 900mm to 1800mm girth	Nr	554			
	d)		above 1800mm	Nr	79			
			Total Site Clearance and Dismantling carried to Grand Summary					
3			**EARTH WORKS**					
3.01			Roadway excavation necessary for construction of roadway 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 leads and lifts upto 1000 m complete as per technical specification clause 301 and 305.					
	b)		Ordinary soil / Hard soil	Cum	262010.05			
	e)		Loosening and re-compacting the original ground/ sub-grade up to the required depths as directed by the Engineer and as per Technical Specifications Clause 301 & 305	Cum	6000.00			
3.02			Construction of embankment with approved material obtained from borrow area with all lifts and leads, transporting to site, spreading, grading to required slope and compacting complete as per drawings and technical specification clause 305.	Cum	50159.06			
3.04			Construction of subgrade and Earthen shoulder with approved material obtained from borrow area with all lifts & leads, transporting to site, spreading, grading to required slope and compacted complete as per drawings and technical specification clause 305.	Cum	266755.09			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
3.08			Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted complete as per drawings and technical specification clause 407.	Cum	597.00			
			Total Earth Works carried to Grand Summary					
4			**SUB-BASE, BASE COURSES (NON-BITUMINOUS) AND SHOULDERS**					
4.01			Constructing Hard shoulder with Naturally obtained Granular sub-base (GSB) complete as per drawings and Technical Specification Clause 401 (Grading I, Table 400-1)	Cum.	90918.61			
4.02			Construction of granular sub-base with crushed stone aggregated only, by mixing material in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per technical specification clause 401					
	a)		As per Table 400-1, Close-Graded Grading I	Cum	69954.16			
	b)		As per Table 400-2, Coarse- Graded Grading I	Cum	74043.37			
4.03			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 complete as per drawing and technical specification clause 406.					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	a)		Mechanically laid base (Spread by motor grader) including profile corrective course and access roads if applicable	Cum	19328.97			
	b)		Mechanically laid base (laid by Electronic Sensor Paver)	Cum	50867.21			
			Total Sub-Base, Base Courses (Non-Bituminous) and Shoulders carried to Grand Summary					
5			**BASE AND SURFACE COURSES (BITUMINOUS)**					
5.01			Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means complete as per drawings and technical specification clause 502.	Sqm	268642.00			
5.02			Providing surface dressing with aggregate using Bitumen over primed water bound macadam/ wet mix macadam complete as per Technical Specifications Clause 510					
	b)		Second Coat Surface Dressing	Sqm	12000.00			
5.03			Providing and applying tack coat with bitumen complete as per drawings and Technical Specification clause 503.					
	a)		@ 2.0 to 2.5 kg/10m2 on bituminous surface	Sqm	344447.00			
	b)		@ 2.5 to 3.0 kg/10m2 on granular surface treated with primer/hungry bituminous surface.	Sqm	268642.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
5.06			Providing and laying dense bituminous macadam 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 as per the approved mixed design, 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 complete as per drawings and technical specification clause 507.	Cum	21876.04			
5.08			Providing and laying semi dense bituminous concrete 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 as per approved mixed design, 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 complete as per drawings and Technical Specification clause 508.	Cum	7375.03			
5.10			Variation of quantity of VG 30 grade bitumen in bituminous courses as per Technical Specification Clause 507.9 and 509.9	MT	136.94			
5.11			Variation of quantity of rapid emulsion in Tack coat as per Technical Specification Clause 503.					
		a)	0.5 kg extra for normal bituminous surface	MT	16.50			
		b)	0.5 kg extra for Granular Surface	MT	13.19			
5.12			Variation of quantity of slow emulsion for prime coat as per Technical Specification clause 502.	MT	26.38			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
5.13			Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material of grading I as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2	sqm	2937.83			
5.14			Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing.	sqm	5875.65			
5.15			Providing and laying slurry seal consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface	sqm	8813.47			
5.16			Full depth repair of section in case of poor pavement complete as per drawings or as directed by the engineer	sqm	822.59			
			Total Base and Surface Courses (Bituminous) carried to Grand Summary					
6			**STRUCTURES**					
6A			**CULVERTS:**					
6A02			Excavation of foundation for culverts including preparation of foundation bed complete as per drawing and Technical Specifications Clause 304 in the following strata					
	a)		Ordinary soil / Hard soil	Cum	1124.31			
	b)		Ordinary rock / Soft rock	Cum	299.82			
	c)		Hard Rock (Blasting Prohibited)	Cum	74.95			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6A03			Providing and laying granular material for pipe bedding of Hume Pipe culverts and replacement of soft and loose patches in the bearing area of the Box structure with layers not exceeding 300 mm as per drawing and Technical Specifications Clause 2904	Cum	241.56			
6A04			Plain cement concrete in levelling course in open foundation, concrete pipe bedding and apron complete as per drawing and Technical Specifications Section 1500 and 1700					
	a)		M15 grade	Cum	97.41			
6A05			Structural concrete, for foundation slab, walls, deck slab, wing walls (single/Multiple), complete as per drawings and Technical Specifications section 1500 and 1700					
	a)		M20 grade	Cum	65.91			
	c)		M30 grade	Cum	111.82			
6A06			Plain cement concrete M20 grade in Wing wall complete as per drawing and Technical Specifications Section 1500 and 1700	Cum	87.61			
6A08			Providing and laying concrete M-15 in levelling course below approach slab as per section 1700 of Technical specifications.	Cum	61.95			
6A09			Structural concrete M-30 in approach slab as per section 1700 and 2700 of Technical specifications	Cum	123.90			
6A10			Providing and fixing in position Thermo mechanically treated (TMT) Fe-500 grade reinforcement bars as per drawings and Technical Specification Section 1000 and 1600.					
	a)		Foundation	MT	5.92			
	b)		Substructure	MT	4.60			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	c)		Superstructure	MT	1.41			
6A12			Supplying and providing Tar paper bearing for slab including rubbing down as per Technical Specification	Sqm	15.40			
6A13			Providing and fixing filler type expansion joint with 2mm thick copper plate, 20mm thick compressible fiber board, 20mm thick premoulded joint filler in expansion joint and filling joint sealant compound complete as per drawings and Technical specification section 2600.	Lm	216.31			
6A14			Back filling behind abutments, wing walls and return walls with selected granular material of approved quality complete as per drawing and Technical Specifications Clause 305	Cum	97.90			
6A15			Filter material behind abutment, wing walls and return walls complete as per drawing and Technical Specifications Clause 305	Cum	111.02			
6A16			Providing. laying and jointing RCC. NP-4 Hume Pipes for culverts or equivalent pipes under IS:458-1988, approved by the Engineer complete as per Technical Specifications section 2900					
	c)		Diameter 900mm	Lm	10.00			
	e)		Diameter 1200mm	Lm	268.20			
6A17			Plain cement concrete grade M-20 in Headwall of Access Road Culverts complete as per drawing and Technical Specifications Clause 1500 and 1700	Cum	593.52			
6A18			Painting of culvert reference number complete as per Technical Specifications section 800 or as directed by the Engineer.	Sqm	20.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6A20			Providing 25 mm thick mastic asphalt over the top of the deck after applying prime coat underneath wearing course complete as per Technical Specifications Clause 2702, 503 and 515 (Cost of Prime Coat Included)	Sqm	105.60			
6A21			Providing 40 mm thick Bituminous concrete in one layer in wearing course complete as directed by the Engineer and as per Technical Specifications Clause 2702/509 (Cost of Tack Coat Included)	Cum	4.22			
6A22			Geo textiles filter membrane underneath pitching complete as per drawings and technical specification clause 2504 and as directed by the Engineer.	Sqm	543.30			
6A23			Filter media beneath the pitching/revetment on slopes for protection of embankment as per drawings and Technical Specifications clause 2504 and as directed by the Engineer	cum	81.50			
6A24			Pitching/revetment on slopes with Cement Concrete blocks in M15 grade conforming to Section 1700 complete as per drawings Technical Specifications 2504 and as directed by the Engineer.	Cum	162.99			
6A25			Providing weep holes in brick masonry / plain / reinforced concrete abutments, wing walls / return walls etc. with 100mm dia A.C. pipe, extending through the full width of structure with slope of IV:20H towards draining face including porous concrete blocks complete as per drawing and Technical Specifications clause 2706.	Nr	68.00			
6A27			750 thick flexible stone apron as per Clause No. 2503.1 of Technical Specification and as directed by the Engineer	Cum	262.41			
6A28			Curtain wall of M15 grade Plain Cement Concrete complete as per drawings and Technical Specifications section 1500 & 1700 or as directed by the Engineer	Cum	34.46			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6A29			Construction and fixing of PCC Pillar with M15 grade of concrete of size 400 x 400 x 1000 mm for inscribing Structure Number as per drawing and Technical Specification section 1500, 1700 or as directed by the Engineer	Nr	40.00			
6A30			Providing cement concrete crash barrier in M-40 grade including safety kerb, reinforcement and G.I. pipe complete as per drawing and Technical Specifications sections 1500, 1600, 1700, 2200 & clause 809.	Lm	91.60			
			Total Culverts carried to Grand Summary					
6B			**BRIDGES**					
			Foundation					
6B03			Earthwork in excavation of foundations for structures including all leads and lifts complete as per drawings and Technical specifications clause 304.					
	a)		In all types of soil	Cum	1560.49			
	b)		In soft/ordinary rock	Cum	416.13			
	c)		In hard rock (Blasting Prohibited)	Cum	104.03			
6B05			Providing & laying Plain cement concrete levelling course in foundation and fill around foundation to protect from erosion including form work but excluding the cost of reinforcement complete as per drawing and Technical Specifications sections 1500, 1700 and 2100.					
	a)		M-15 grade	Cum	186.08			
	b)		M-20 grade	Cum	1191.36			
6B17			Supplying, placing and fixing TMT Fe 500 bar reinforcement complete as per drg. and Technical specifications section 1600.					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	a)		For Foundation	MT	38.01			
	b)		For sub-structure	MT	19.94			
	c)		For super-structure	MT	16.61			
			Sub-Structure					
6B19			Providing & laying Reinforced Cement Concrete in sub-structure including form work but excluding the cost of reinforcement complete as per drg. and Technical specifications sections 1500, 1700 & 2200.					
	a)		M-20 grade	Cum	2514.05			
			Bearing					
6B20			Supply & fixing of bearings complete as per drg. and Technical specifications section 2000.					
	a)		Tar paper bearing	Sqm	46.29			
6B22			Providing & fixing of expansion joints complete as per drg. and Technical specifications section 2600					
	a)		Providing and fixing filler type expansion joint with 2mm thick copper plate, 20mm thick compressible fiber board, 20mm thick premoulded joint filler in expansion joint and filling joint sealant compound complete as per drawings and Technical specification section 2600.	Lm	264.00			
			Super Structure					
6B23			Providing & laying Reinforced Cement Concrete in super-structure including form work but excluding the cost of reinforcement complete as per drg. and Technical specifications sections 1500, 1700 & 2300.					
	a)		Solid slab					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		ii)	M-30 grade	Cum	159.06			
6B26			Providing 25 mm thick mastic asphalt over the top of the deck after applying prime coat underneath wearing course complete as per Technical Specifications Clause 2702, 503 and 515 (Cost of Prime Coat Included)	Sqm	1789.78			
6B27			Providing 40 mm thick Bituminous concrete in one layer in wearing course complete as directed by the Engineer and as per Technical Specifications Clause 2702/509 (Cost of Tack Coat Included)	Cum	89.49			
6B29			Providing cement concrete crash barrier in M-40 grade including safety kerb, reinforcement and G.I. pipe complete as per drawing & Technical Specifications sections 1500, 1600, 1700, 2200 & clause 809.	Lm	328.40			
			Misc. Items					
6B31			Providing weep holes in brick masonry / plain / reinforced concrete abutments, wing walls / return walls etc. with 100mm dia A.C. pipe, extending through the full width of structure with slope of IV:20H towards draining face including porous concrete blocks complete as per drawing and Technical Specifications clause 2706.	Nr	96.00			
6B32			Providing & fixing drainage Spouts complete as per drawing and Technical Specifications Clause 2705.	Nr	28.00			
6B33			Back filling behind abutment with selected granular material of approved quality as per Technical Specifications Clause 305	Cum	2070.90			
6B34			Filter media behind abutments, wing walls, & return walls, including all material, labour, equipment carriage etc. all complete as per drawing and Technical Specification Clauses 305, 309 & 2504.	Cum	730.36			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6B35			Providing & laying plain cement concrete M-15 grade in levelling course under the approach slab complete as per drg. and Technical specifications sections 1700, 2100 and 2700.	Cum	78.84			
6B36			Providing & laying reinforced cement concrete M-30 grade in approach slab including form work and reinforcement complete as per drg. and Technical specifications sections 1500, 1600, 1700 & 2100 and clause 2704.	Cum	151.20			
			Total Bridges carried to Grand Summary					
6C			**REPAIR & REHABILITATION**					
6C01			Construction of temporary diversion, including across waterway, for passage of traffic, complete as per drawings and Technical Specifications Section Clause 112.3, including temporary cross drainage	Lm	639.30			
6C02			Dismantle of various items of structures complete as per Technical specification clause 202 or as directed by the Engineer.					
			a) RCC	Cum	27.68			
			b) PCC	Cum	41.40			
			c) Existing Wearing coat	sqm	477.10			
			d) Stone/Brick masonry	Cum	315.17			
			f) NP4 Pipe	Lm	185.00			
			g) Spalling of Concrete	Sqm	205.50			
6C06			Construction and fixing of PCC Pillar with M15 grade of concrete of size 400 x 400 x 1000 mm for inscribing Structure Number as per drawing and Technical Specification section 1500, 1700 or as directed by the Engineer	Nr	6.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6C11			Cleaning and removal of vegetation growth from structures channel and protective works complete as per Technical specification clause 202 or as directed by the Engineer.	Sqm	3094.30			
6C12			Replacement of RCC railing including reinforcement as per Technical Specifications Section 1500, 1600, 1700, 2200, 2815 and Clause 2703.					
	c)		Mild Steel Railing	Lm	54.10			
6C22			Providing 25 mm thick mastic asphalt over the top of the deck after applying prime coat underneath wearing course complete as per Technical Specifications Clause 2702, 503 and 515 (Cost of Prime Coat Included)	Sqm	477.10			
6C23			Providing 40 mm thick Bituminous concrete in one layer in wearing course complete as directed by the Engineer and as per Technical Specifications Clause 2702/509 (Cost of Tack Coat Included)	Cum	19.08			
6C30			Providing & laying Brick masonry in cement mortar 1:3 (1 cement : 3 coarse sand) in floor protection, foundation, sub-structure complete as per drg. and Technical Specification Section 1300.	Cum	2.40			
6C31			Providing & laying random rubble stone masonry in cement mortar 1:3 (1 cement : 3 coarse sand) works complete as per drg. and Technical Specifications Section 1400.	Cum	8.28			
6C36			Repair of spalling and patches by PMC mortar 50 to 70mm thick at soffit of slab as per clause 2804 of specification and additional specification A-3 and as directed by the Engineer	Sqm	123.60			
6C38			Providing concrete M-20 keys of size 200mm x 200mm x 400mm for connecting the old and new masonry work complete as per drawings and Technical Specification sections 1500 and 1700 or as directed by the engineer	Nr	332.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6C43			Guniting concrete surface with cement mortar applied with compressor after cleaning surface and spraying with epoxy complete as per Technical Specification clause 2807. [Assumed thickness 25mm]	Sqm	94.50			
6C47			Jacketing					
	b)		Providing & placing in position TMT Fe-500 bar reinforcement incl. curing, bending, hooking and tying complete as per Technical Specification section 1600.	MT	10.40			
6C49			Cement plaster 12mm thick in cement mortar 1:3 complete as per drawing and Technical Specifications Section 1000 and 1300 and as directed by the Engineer	Sqm	272.16			
6C50			Cement pointing with cement mortar 1:3 on brick/stone work complete as per drawings and Technical Specifications section 1000 and 1300	Sqm	43.40			
6C51			Removal of accumulated debris in Pipe Culverts complete as per Technical Specification clause 202.	Lm	19.90			
6C53			Providing and laying boulders apron without wire crates on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification section 2500	Cum	86.00			
			Total Repair & Rehabilitation carried to Grand Summary					
7			**DRAINAGE AND PROTECTION WORK**					
7.01			Earthwork in excavation in all types of soil including rock complete as per Technical Specification Clauses 304 & 309.	Cum	649.78			
7.02			Plain Cement concrete M-15 grade in levelling course in drain including centering and shuttering all complete as per drawing and Technical Specification Sections 309, 1500 & 1700.	Cum	25.03			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
7.03			Construction of open unlined drains as per proper slope and dimension as shown in drawing and technical specification clause 309.	Lm	65218.00			
7.06			Construction of covered lined drains of concrete grade M 20 including cover slab and reinforcement as per proper slope and dimension as shown in drawing and technical specification clause 309.	Lm	2000.00			
7.07			Construction of chute drain in cement concrete M-15 with M-15 foundation concrete including construction of bell mouth at entry as per drawings and Technical Specification Sections 309, 1500 and 1700.	Lm	139.03			
7.08			Construction of energy dissipation basin in M-15 as per drawing and Technical Specification Sections 309, 1500 & 1700.	Nr	12.00			
7.10			Providing. laying and jointing RCC. NP-4 hume pipes under IS:458-1988, Hume Pipes to discharge storm water from catch basins as per drawings and complete as per Technical Specifications section 2900	Lm				
		a)	450 mm diameter	Lm	520.00			
		b)	900 mm diameter	Lm	266.00			
7.11			Providing and laying granular material for pipe bedding of Hume Pipe culverts and replacement of soft and loose patches in the bearing area of the Box structure with layers not exceeding 300 mm as per drawing and Technical Specifications Clause 2904	Cum	179.97			
7.12			Plain cement concrete grade M-20 in Headwall of Access Road Culverts complete as per drawing and Technical Specifications Clause 1500 and 1700	Cum	227.15			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
7.13			Providing and laying interlocking paver blocks of high density 65 mm thick M-25 grade in pedestrian pathway and in Island of major intersections areas as shown in the drawing, close jointed over bed of 50mm thick river sand to a tight pattern, laid to proper line and level including bedding down the completed surface with a plate vibrator or by firmly topping level with mallet and a large flat piece of timber, finishing by brushing clean dry sand over the surface to fill all the joints thoroughly and as per Additional Technical Specification A 15 or as directed by the Engineer.	sqm	9977.36			
7.15			Providing and laying Grade M15 Concrete perforated erosion protection scour blocks laid on the slopes and bed of the river including the rebar, trimming of earth to required lines and levels, including capping with concrete on the tops of slopes as per drawings and Specifications	cum	80.46			
7.16			Providing and laying plain cement concrete in medians and in sidewalks, foundations complete as per respective drawings, Technical Specifications section 1500 and 1700 and as directed by the Engineer					
	b)		Construction of median kerb and island kerb Type B grade M20 (including base preparation, foundation and haunch concrete)	Lm	1015.00			
7.18			Pitching/revetment on slopes with Cement Concrete blocks in M15 grade conforming to Section 1700 complete as per drawings, technical Specifications 2504 and as directed by the Engineer	Cum	359.06			
7.20			Geo textile filters membrane as per Technical Specifications Clause 2504 and as directed by the Engineer.	Sqm	3256.96			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
7.21			Filter media beneath the pitching/revetment on slopes for protection of embankment as per drawings and Technical Specifications clause 2504 and as directed by the Engineer					
	b)		Granular Material	Cum	488.54			
7.23			Providing and fixing of man hole including excavation, concrete, C.I. Cover, C.I. Steps complete as per drawing and Techinical Specifications sections 300, 1500, 1600, 1700 and manufacture specification approved by the Engineer.	Nr	5.00			
			Total Drainage and Protection Work rates carried to Grand Summary					
8			**TRAFFIC SIGNAGE AND ROAD APPURTENANCES**					
8.01			Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810	Lm	8001.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.02			Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign made of 1.5mm thick Aluminium Sheet/3mm Aluminium Composite Material , face to be fully covered with Class B Type-IV High Intensity Micro Prismatic Grade Sheeting as defined in IRC: 67-2010 having approved massages e.g. letter, numerals,symbols/legend/arrow etc. in Regional and/or Hindi and /or English as per drawing and TechicalSpecifications for Road and Bridge works (Fourth Revision). The sign plate will be fixed with minimum 6 mm dia aluminium rivets back supported on a mild steel angle iron frame 35x35x5 mm and one vertical Mild Steel post of NB65 Dia Pipe (height from crown level of the road and bottom of the sign board shall not be less than 2.10 m.) firmly fixed to the ground by means of properly designed foundation with M -15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing including painting of vertical post as per specification.					
	a)		**Informatory Signs**					
		i)	Facility information 800 mm x 600 mm complete as per drawings and Technical Specifications Clause 801	Nr	88.00			
		ii)	Advance direction sign complete as per drawings and Technical Specifications Clause 801	Sq m	470.75			
		iii)	Route marker sign 450mm x 600 mm complete as per drawings and Technical Specifications Clause 801	Nr	21.00			
	b)		**Cautionary Signs**					
		i)	Triangular 900 mm side complete as per drawings and Technical Specifications Clause 801	Nr	252.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		ii)	Hazard marker 180 x 1200 mm complete as per drawings and Technical Specifications Clause 801	Nr	2.00			
		iii)	Hazard marker 300 x 900 mm complete as per drawings and Technical Specifications Clause 801	Nr	1.00			
	c)		**Mandatory Signs**					
		i)	Triangular 900 mm side (for "GIVE WAY" sign) complete as per drawings and Technical Specifications Clause 801	Nr	75.00			
		ii)	Stop sign - Octagon of size 900 mm complete as per drawings and Technical Specifications Clause 801	Nr	118.00			
		iii)	Speed limit compulsory keep left 600 mm dia meter complete as per drawings and Technical Specifications Clause 801	Nr	41.00			
8.03			Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes complete as per drawings and technical specification clause 803.					
	a)		Lane/centerline/edge marking or any other marking	Sqm	13688.02			
	b)		Directional arrows, lettering etc					
		i)	Straight (nr) RM13	Nr	283.00			
		ii)	Left/right (nr) RM14 & 15	Nr	26.88			
		iii)	Comb (nr) RM 16& 17	Nr	643.80			
		iv)	Lettering	Nr	101.32			
		v)	Chevron Marking	Sqm	1392.08			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		vi)	Diagonal Marking	Sqm	40.60			
		vii)	Pedestrian Crossing	Sqm	2852.50			
8.04			Reinforced cement concrete M15 grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc complete as per drawings and technical specification clause 804.					
	a)		Hectometer Stone	Nr	135.00			
	b)		Kilometer Stone	Nr	27.00			
	c)		5th kilometer stone	Nr	7.00			
8.05			Supplying and fixing of boundary stones of M15 grade concrete complete as per drawing and Technical Specifications clause 806	Nr	169.00			
8.06			Providing and fixing retro-reflectorised road delineators complete as per drawing and Technical Specification Clause 805.					
	b)		Road way delineators.	Nr	482.00			
8.08			Supply and install single guide rails (crash barriers) as approved by the Engineer as per drawings and Additional Specifications A-12	Lm	7889.92			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.09			Providing and fixing Raised Pavement Marker (Cats Eye, Road Stud), made of high strength engineering Plastic Body having at least 13 tons load bearing capacity of pnumatic tyre. Size or marker 9 cms x 10 cms x 1.6 cm having shape so that no water penetration or dust accumulation takes place on reflective surface, fitted with electronically welded tough polycarbonate micro prismatic reflective panels having 16 sq.cms surface area of each side having long distance visibility at night and in wet weather condition. The body of the marker having finger grip for easy and accurate placement fitted with two number polymer shanks to anchor the marker with the road for avoiding dislocation of the marker where the road is bleeding or made with softer grade of bitumen and application with adhesive on Bituminous road complete as per Additional Technical Specification Clause A-16	Nr	2899.00			
8.10			Solar Powered Traffic Blinkers LED based 300 mm/200 mm dia signal head with In built blinker unit haivng battery & battery charger unit with photo electric switch complete as per technical specification clause 112 and as directed by the Engineer.	Nr	4.00			
8.11			Construction of bus shelters for commuters including all building and furnishing works, etc. complete as per drawings and additional Technical Specifications A-17 or as directed by the Engineer.	Nr	9.00			
8.12			Repairing of existing Bus Shelter complete as per drawings and Technical Specifications section 800, 1300, 2500 or as directed by the Engineer.					
		a)	Paintitng	sqm	260.00			
		b)	Plastering	sqm	520.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.13			Providing and fixing of liter bins complete as per Manufacturer drawing and specification and approved by the Engineer.	Nr	34.00			
8.25			Providing and Construction of Rain water Harvesting complete as per drawings and Technical Specification section 300, 1300, 1500, 1700 or as directed by the Engineer.	Nr	68.00			
8.26			Providing and construction of Raised Pedesterian Crossing / Speed Hump across the road of 150 mm height and width of 2.5 m with M25 grade concrete considering side slope in 1:10. 100mm dia steel bollard to be fixed on sides. The surface to be painted with brick red colour complete as per drawings and Additional Technical Specification clause A15 or as directed by the Engineer.	sqm	660.00			
8.27			Providing and laying Tactile Block of yellow colour conforming to IS 13801:1993 (Reaffirmed 1998) of size 250 x 250 x 65 mm on pedestrian pathway as shown in drawing and directed by Eng in charge. The tile should be subjected to a pressure of not less than 14N/sqmm. Sample must be approved complete as per Additional Technical Specification A18	sqm	1752.48			
8.28			Providing and Construction of speed hump across the road of 100mm height with Bituminous concrete of 3.7m Length and raidus of 17m for the entire width of carriageway complete as per drawings and IRC: 99 or as directed by the Engineer.	Lin.m	7.00			
8.29			Providing and Construction of raised Rumble strip complete as per drawings and technical specifications section 500 and 800 or as directed by the Engineer.	Lin.m	4636.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.30			Providing and fixing Aluminum backed flexible prismatic sheeting , consisting of yellow/black colored flexible prismatic sheet with non-mettalic prismatic lens as retro reflective elements and confirming to ASTM D4946 Type VI specifications for reboundable retro reflective sheeting. The prismatic sheet shall be laminated at the back with 50micron aluminum Foil sensitive adhesive and liner with screen printed arrow/slant pattern in yellow/black color. The AFP shall be applied with adhesive , the edge of the sheeting shall be sealed all around with epoxy based structural adhesive and shall be extremely resistant to pill-off complete as per manufacturer drawings approved by the Engineer.	sqm	37.13			
8.31			Providing and applying Geru paint of approved brand on Trees withing ROW complete as per drawings and Technical Specification section 800 or as directed by the Engineer	Nr	819.00			
8.32			Providing and Constructing Welcome Sign at Start and End of Project corridor complete as drawings and Technical Specification 300, 800, 1500, 1700 and 1900 or as directed by the Engineer.	Nr	2.00			
8.33			**Street Lighting in urban areas**					
	xxix)		Solar Street Light					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		a)	Supplying and erecting MNES certified SOLAR STREET LIGHT fitting made from M.S. Body powder coated / painted with corrosion resistant paint with gasket & transparent cover with following CFL non retro lamp with choke, holder & accessories. Fitting shall be mounted on 75/80 mm B class G.I. pipe pole up to 5.5 mtr load complete erected with C.C. Foundation duly painted with two coats of red oxide and corrosive resistant paint. Complete with tubular battery, inverter, charge controller with photo sensor switch & necessary wiring complete erected connected & commissioned in approved manner.					
			b) 2 x 11 W CFL (Single luminaire with 2 CFL) PV Module:120 W Battery Capacity 12V, 100 AH	Ea.	680.00			
			c) 2 x 11 W CFL (Double Luminaire with One CFL each), PV Module : 120W Battery Capacity : 12V, 100 AH	Ea.	40.00			
		b)	Supplying & erecting Solar Home light system with structure as per MNES specification consisting of following non retrofit CFL fitting complete with following CFL lamps & battery capacity dully connected with built in inverter & commissioned as per directed with necessary wiring & fittings.					
			(b) Two No CFL 11 watt non retrofit ceiling / wall mounting features with battery capacity 12 watt, 40 AH	Ea.	720.00			
			Total Traffic Signage and Road Appurtenances carried to Grand Summary					
9			**SAFETY IN ROAD CONSTRUCTION ZONE**					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
9.01			Supplying and fixing sign boards including the cost of posts, fixtures, foundation, fitting and fixing. Sheeting will be made of encapsulated lens type of Retro-reflective type and messages/ borders will be screen printed complete as per Technical Specification clause 801 and as directed by Engineer.					
	a)		Speed Limit sign (600mm dia)	Nr	10.00			
	b)		Overtaking Prohibited (900 mm dia)	Nr	10.00			
	c)		Diversion Board (450mm x 600mm)	Nr	30.00			
	d)		Men at Work Sign (900mm triangular)	Nr	20.00			
	e)		Direction Sign (Right / Left) (600 mm Circular)	Nr	10.00			
9.02			Providing of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene(LDPE) material with a square base of 390x390x35mm and a height of 770mm, 4Kg in weight, placed at 1.5m interval, all as per BS 873 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete Technical Specification section & IRC SP 55-2001.	Nr	1480.00			
9.03			Installation of a steel portable barricade with horizontal rail 300mm wide,2.5m in length fitted on a frame made with 45X45X5 mm angle iron section, 1.5m in height, horizontal rail painted(2coat) with yellow and white strips,150mm in width at angle of 45degree, A frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete as per drawings or as directed by the Engineer.	Nr	1480.00			
9.04			Solar Street Light					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	i)		Supplying and erecting MNES certified SOLAR STREET LIGHT fitting made from M.S. Body powder coated / painted with corrosion resistant paint with gasket & transparent cover with following CFL non retro lamp with choke, holder & accessories. Fitting shall be mounted on 75/80 mm B class G.I. pipe pole up to 5.5 mtr load complete erected with C.C. Foundation duly painted with two coats of red oxide and corrosive resistant paint. Complete with tubular battery, inverter, charge controller with photo sensor switch & necessary wiring complete erected connected & commissioned in approved manner.					
			a) 1 x 11 w CFL PV Module : 74 W Battery Capacity : 12V, 75 AH	Ea.	40.00			
	ii)		Supplying & erecting Solar Home light system with structure as per MNES specification consisting of following non retrofit CFL fitting complete with following CFL lamps & battery capacity dully connected with built in inverter & commissioned as per directed with necessary wiring & fittings.					
			(a) One No CFL 11 watt non retrofit ceiling / wall mounting features with battery capacity 12 watt, 20 AH	Ea.	40.00			
9.05			Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of450, complete as per IRC:SP:55-2001	Nr.	4.00			
			Total of Safety in Road Construction Zone carried to Grand Summary					
10			**Implementation of Environmental Management Action Plan to be executed under Civil Works Contract**					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
10.03			Periodic air quality monitoring during construction stage at construction camp sites, bitumen hot mix plants, crusher plants (if specifically established for Project), at major settlement areas along project road. The parameters to be monitored are SPM, RPM, SO2, NOx and CO, Lead. Each monitoring schedule shall be over a duration of 24 hours (in 8 hour shifts) for three seasons per year. (as per the Environmental monitoring plan refered in the EMP)					
		a)	Construction Phase	Nr	30.00			
		b)	Operation Phase	Nr	12.00			
10.04			Water quality monitoring during construction phase at locations . The sampling shall be carried out for three seasons per year and cover all parameters as per IS10500 including heavy metals . (as per the Environmental monitoring plan refered in the EMP).					
		a)	Construction Phase	Nr	24.00			
10.05			Noise quality monitoring at specified silent receptors along Project Road, at construction camp sites, bitumen hot mix plants, crusher plants(if specifically established for Project), and at major settlement areas along project road. – Each monitoring schedule shall be over a duration of 12hours (6Am to 6PM) for three seasons per year. (as per the Environmental monitoring plan refered in the EMP)The monitoring shall be carried out in accordance with CPCB norms at locations given .					
		a)	Construction Phase	Nr	24.00			
		b)	Operation Phase	Nr	12.00			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
10.06			Soil quality monitoring at construction camp sites, work shop areas, oil/lubricant handling areas, bitumen hot mix plants, at all parking lay byes, vehicle servicing stations along Project Road. Parameters shall include N, P, oil and grease, heavy metals, C/N ratio, pH, organic matter to be monitored for three seasons per year.(as per the Environmental monitoring plan refered in the EMP)					
		a)	Construction Phase	Nr	4.00			
10.12			Enhancement of Cultural Properties (bill no 10.18)					
		a)	Chavdi Mata Temple (134+900)	Nr.	1.00			
		b)	Harigarna Primary School (145+200)	Nr.	1.00			
10.13			HIV prevention / alleviation programme comprissing of conduction information, Education and comunication (IEC) campaigns at least every other month, providing condoms, providing STI and HIV / AIDS screening, diagnosis and referal to dedicated national STI and HIV / AIDS programme and programme management support throughout the contract period (including the defect notification period).					
		a)	IEC materials - printing, publishing	Nr	24.00			
		b)	Healthcare clinic	Nr.	8.00			
		c)	Condom vending machines	Nr.	3.00			
		d)	Condom supplies	Nr.	24.00			
		e)	Testing	Nr.	500.00			
		f)	Signages and hoardings	Nr.	15.00			
			Total Implementation of Environmental Management Action Plan to be executed under Civil Works Contract carried to Grand Summary					
11			**DAY WORKS**					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
11.01			Providing labour at site supplied with all necessary hand tools inclusive of all costs, overheads and profit margin complete as directed by the Engineer	As per details in Schedule "A"	1.00			
11.02			Providing equipment at site with operators, P.O.L. etc. complete in good working condition including all types of maintenance during contract period	As per details in Schedule "B"	1.00			
11.03			Providing material at site inclusive of all costs, overheads and profit margin complete as directed by the Engineer	As per details in Schedule "C"	1.00			
			Total Day work rates carried to Grand Summary					
12			**MAINTENANCE**					
12.01			Maintenance of project road for first year of maintenance period after construction as directed by the Engineers	per km	33.80			
12.02			Maintenance of project road for 2nd year of maintenance period after construction as directed by the Engineers	per km	33.80			
			Total for maintenance cost					

SECTION-II SANTRAMPUR - KHEDAPA

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
1			**GENERAL ITEMS**					
1.02			Supply of master CD / DVD's of important site activities with four copies complete as per Technical Specifications clause 126	Set	12			
1.03			Construction of temporary diversion for passage of traffic, complete as per Technical Specifications Section Clause 112.3. (separate items are given for CD/ bridge work diversions)	Lm	2500			
			Total General Items carried to Grand Summary					
2			**SITE CLEARANCE AND DISMANTLING**					
2.01			Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned complete as per technical specification clause 201 or as directed by the Engineer.	ha	24			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
2.02			Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, disposal of unserviceable as well serviceable material with all leads and lifts beyond the ROW complete as per technical specification clause 202.					
	a)		Plain cement concrete	Cum	10			
	b)		Reinforced cement concrete	Cum	10			
	c)		Stone / Brick masonry structures	Cum	10			
	d)		Guide/Hand rails / Fencing / kerb / NP3 Pipes / NP4 Pipes	Lm	50			
	e)		Kilometre stone	Nr	18			
	f)		5 km stone	Nr	5			
	g)		Hectometre / Boundary stones	Nr	90			
	h)		Utilities	Nr	10			
	i)		Bituminous Pavement	Cum	5405			
	j)		Non- Bituminous Pavement	Cum	11610			
2.03			Cutting of trees from 300mm and above girth size, the work shall consist of cutting of all such trees as per the direction of the Engineer and further as per duly approved plan by the Forest Department. This shall include duly approved stacking, transport and final handing over to Forest Department with all leads and lifts. Work to comply strictly in accordance with Technical Specifications Clause 201.					
	a)		above 300mm to 600mm girth	Nr	293			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	b)		above 600mm to 900mm girth	Nr	176			
	c)		above 900mm to 1800mm girth	Nr	88			
	d)		above 1800m	Nr	28			
2.04			Removal of tree stumps and roots, disposal and filling of pits complete as per Technical Specifications Clause 201. The work shall follow the directions of the Engineer and further approval of plan by the Forest Department, where necessary. This shall include all leads and lifts.					
	a)		above 300mm to 600mm girth	Nr	293			
	b)		above 600mm to 900mm girth	Nr	176			
	c)		above 900mm to 1800mm girth	Nr	88			
	d)		above 1800mm	Nr	28			
			Total Site Clearance and Dismantling carried to Grand Summary					
3			**EARTH WORKS**					
3.01			Roadway excavation necessary for construction of roadway 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 leads and lifts upto 1000 m complete as per technical specification clause 301 and 305.					
	b)		Ordinary soil / Hard soil	Cum	482591			
	e)		Loosening and re-compacting the original ground/ sub-grade up to the required depths as directed by the Engineer and as per Technical Specifications Clause 301 & 305	Cum	6000			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
3.02			Construction of embankment with approved material obtained from borrow area with all lifts and leads, transporting to site, spreading, grading to required slope and compacting complete as per drawings and technical specification clause 305.	Cum	27357			
3.03			Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted complete as per drawings and technical specification clause 305.	Cum	72317			
3.04			Construction of subgrade and Earthen shoulder with approved material obtained from borrow area with all lifts & leads, transporting to site, spreading, grading to required slope and compacted complete as per drawings and technical specification clause 305.	Cum	140396			
3.05			Construction of Earthen shoulder with approved material obtained from dismantling of existing sub base layers complete as per drawings and technical specification clause 305.	Cum	27197			
3.08			Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted complete as per drawings and technical specification clause 407.	Cum	239			
			Total Earth Works carried to Grand Summary					
4			**SUB-BASE, BASE COURSES (NON-BITUMINOUS) AND SHOULDERS**					
4.01			Constructing Hard shoulder with Naturally obtained Granular sub-base (GSB) complete as per drawings and Technical Specification Clause 401 (Grading I, Table 400-1)	Cum.	30068			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
4.02			Construction of granular sub-base with crushed stone aggregated only, by mixing material in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per technical specification clause 401					
	a)		As per Table 400-1, Close-Graded Grading I	Cum	34898			
	b)		As per Table 400-2, Coarse- Graded Grading I	Cum	26749			
4.03			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 complete as per drawing and technical specification clause 406.					
	a)		Mechanically laid base (Spread by motor grader) including profile corrective course and access roads if applicable	Cum	10139			
	b)		Mechanically laid base (laid by Electronic Sensor Paver)	Cum	34192			
			Total Sub-Base, Base Courses (Non-Bituminous) and Shoulders carried to Grand Summary					
5			**BASE AND SURFACE COURSES (BITUMINOUS)**					
5.01			Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means complete as per drawings and technical specification clause 502.	Sqm	166404			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
5.02			Providing surface dressing with aggregate using Bitumen over primed water bound macadam/ wet mix macadam complete as per Technical Specifications Clause 510					
	b)		Second Coat Surface Dressing	Sqm	78757			
5.03			Providing and applying tack coat with bitumen complete as per drawings and Technical Specification clause 503.					
	a)		@ 2.0 to 2.5 kg/10m2 on bituminous surface	Sqm	223165			
	b)		@ 2.5 to 3.0 kg/10m2 on granular surface treated with primer/hungry bituminous surface.	Sqm	170679			
5.06			Providing and laying dense bituminous macadam 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 as per the approved mixed design, 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 complete as per drawings and technical specification clause 507.	Cum	12527			
5.08			Providing and laying semi dense bituminous concrete 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 as per approved mixed design, 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 complete as per drawings and Technical Specification clause 508.	Cum	4501			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
5.10			Variation of quantity of VG 30 grade bitumen in bituminous courses as per Technical Specification Clause 507.9 and 509.9	MT	107			
5.11			Variation of quantity of rapid emulsion in Tack coat as per Technical Specification Clause 503.					
		a)	0.5 kg extra for normal bituminous surface	MT	11			
		b)	0.5 kg extra for Granular Surface	MT	8			
5.12			Variation of quantity of slow emulsion for prime coat as per Technical Specification clause 502.	MT	17			
5.13			Removal of all failed material, trimming of completed excavation to provide firm vertical faces, cleaning of surface, painting of tack coat on the sides and base of excavation as per clause 503, back filling the pot holes with hot bituminous material of grading I as per clause 504, compacting, trimming and finishing the surface to form a smooth continuous surface, all as per clause 3004.2	sqm	5101			
5.14			Providing and applying low viscosity bitumen emulsion for sealing cracks less than 3 mm wide or incipient fretting or disintegration in an existing bituminous surfacing.	sqm	10201			
5.15			Providing and laying slurry seal consisting of a mixture of fine aggregates, portland cement filler, bituminous emulsion and water on a road surface including cleaning of surface, mixing of slurry seal in a suitable mobile plant, laying and compacting to provide even riding surface	sqm	15302			
5.16			Full depth repair of section in case of poor pavement complete as per drawings or as directed by the engineer	sqm	152			
			Total Base and Surface Courses (Bituminous) carried to Grand Summary					
6			**STRUCTURES**					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6A			**CULVERTS:**					
6A02			Excavation of foundation for culverts including preparation of foundation bed complete as per drawing and Technical Specifications Clause 304 in the following strata					
	a)		Ordinary soil / Hard soil	Cum	1360			
	b)		Ordinary rock / Soft rock	Cum	363			
	c)		Hard Rock (Blasting Prohibited)	Cum	91			
6A03			Providing and laying granular material for pipe bedding of Hume Pipe culverts and replacement of soft and loose patches in the bearing area of the Box structure with layers not exceeding 300 mm as per drawing and Technical Specifications Clause 2904	Cum	549			
6A04			Plain cement concrete in levelling course in open foundation, concrete pipe bedding and apron complete as per drawing and Technical Specifications Section 1500 and 1700					
	a)		M15 grade	Cum	99			
6A16			Providing. laying and jointing RCC. NP-4 Hume Pipes for culverts or equivalent pipes under IS:458-1988, approved by the Engineer complete as per Technical Specifications section 2900					
	c)		Diameter 900mm	Lm	90			
	e)		Diameter 1200mm	Lm	518			
6A17			Plain cement concrete grade M-20 in Headwall of Access Road Culverts complete as per drawing and Technical Specifications Clause 1500 and 1700	Cum	902			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6A18			Painting of culvert reference number complete as per Technical Specifications section 800 or as directed by the Engineer.	Sqm	28			
6A22			Geo textiles filter membrane underneath pitching complete as per drawings and technical specification clause 2504 and as directed by the Engineer.	Sqm	699			
6A23			Filter media beneath the pitching/revetment on slopes for protection of embankment as per drawings and Technical Specifications clause 2504 and as directed by the Engineer	cum	105			
6A24			Pitching/revetment on slopes with Cement Concrete blocks in M15 grade conforming to Section 1700 complete as per drawings Technical Specifications 2504 and as directed by the Engineer.	Cum	210			
6A27			750 thick flexible stone apron as per Clause No. 2503.1 of Technical Specification and as directed by the Engineer	Cum	318			
6A29			Construction and fixing of PCC Pillar with M15 grade of concrete of size 400 x 400 x 1000 mm for inscribing Structure Number as per drawing and Technical Specification section 1500, 1700 or as directed by the Engineer	Nr	56			
			Total Culverts carried to Grand Summary					
6C			**REPAIR & REHABILITATION**					
6C02			Dismantle of various items of structures complete as per Technical specification clause 202 or as directed by the Engineer.					
			a) RCC	Cum	24			
			c) Existing Wearing coat	sqm	1110			
			d) Stone/Brick masonry	Cum	358			
			f) NP4 Pipe	Lm	273			
			g) Spalling of Concrete	Sqm	10			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6C11			Cleaning and removal of vegetation growth from structures channel and protective works complete as per Technical specification clause 202 or as directed by the Engineer.	Sqm	1932			
6C12			Replacement of RCC railing including reinforcement as per Technical Specifications Section 1500, 1600, 1700, 2200, 2815 and Clause 2703.					
	a)		Railing in M30 grade	Lm	32			
	c)		Mild Steel Railing	Lm	128			
6C22			Providing 25 mm thick mastic asphalt over the top of the deck after applying prime coat underneath wearing course complete as per Technical Specifications Clause 2702, 503 and 515 (Cost of Prime Coat Included)	Sqm	1110			
6C23			Providing 40 mm thick asphaltic concrete in one layer in wearing course complete as directed by the Engineer and as per Technical Specifications Clause 2702/509 (Cost of Tack Coat Included)	Cum	56			
6C31			Providing & laying random rubble stone masonry in cement mortar 1:3 (1 cement : 3 coarse sand) works complete as per drg. and Technical Specifications Section 1400.	Cum	14035			
6C36			Repair of spalling and patches by PMC mortar 50 to 70mm thick at soffit of slab as per clause 2804 of specification and additional specification A-3 and as directed by the Engineer	Sqm	10			
6C49			Cement plaster 12mm thick in cement mortar 1:3 complete as per drawing and Technical Specifications Section 1000 and 1300 and as directed by the Engineer	Sqm	111			
6C50			Cement pointing with cement mortar 1:3 on brick/stone work complete as per drawings and Technical Specifications section 1000 and 1300	Sqm	24			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6C51			Removal of accumulated debris in Pipe Culverts complete as per Technical Specification clause 202.	Lm	25			
6C53			Providing and laying boulders apron without wire crates on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification section 2500	Cum	92			
			Total Repair & Rehabilitation carried to Grand Summary					
6D			**RETAINING WALLS**					
6D02			Excavation of foundation for structures including preparation of foundation bed complete as per drawing and Technical Specifications Clause 304 in the following strata					
	a)		Ordinary soil	Cum	11767			
6D03			Providing & laying Plain cement concrete grade M15 as levelling course including form work but excluding the cost of reinforcement complete as per drawings and Technical specifications sections 1500, 1700 and 2100.	Cum	7120			
6D04			Providing & laying Reinforced Cement Concrete in foundations including form work but excluding the cost of reinforcement complete as per drawings and Technical Specifications sections 1500, 1700 and 2100.					
	a)		M-25 grade	Cum	6211			
6D08			Supplying, placing and fixing TMT Fe 500 bar reinforcement complete as per drg. and Technical specifications section 1600.					
	a)		Foundation	MT	151			
	b)		Substructure	MT	296			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
6D09			Providing weep holes in brick masonry / plain / reinforced concrete abutments, wing walls / return walls etc. with 100mm dia A.C. pipe, extending through the full width of structure with slope of IV:20H towards draining face including porous concrete blocks complete as per drawing and Technical Specifications clause 2706.	Nr	15656			
6D10			Filter material behind abutment, wing walls and return walls complete as per drawing and Technical Specifications Clause 305	Cum	4637			
			Total Retaining Walls carried to Grand Summary					
7			**DRAINAGE AND PROTECTION WORK**					
7.01			Earthwork in excavation in all types of soil including rock complete as per Technical Specification Clauses 304 & 309.	Cum	650			
7.02			Plain Cement concrete M-15 grade in levelling course in drain including centering and shuttering all complete as per drawing and Technical Specification Sections 309, 1500 & 1700.	Cum	25			
7.03			Construction of open unlined drains as per proper slope and dimension as shown in drawing and technical specification clause 309.	Lm	44874			
7.07			Construction of chute drain in cement concrete M-15 with M-15 foundation concrete including construction of bell mouth at entry as per drawings and Technical Specification Sections 309, 1500 and 1700.	Lm	173			
7.08			Construction of energy dissipation basin in M-15 as per drawing and Technical Specification Sections 309, 1500 & 1700.	Nr	22			
7.10			Providing. laying and jointing RCC. NP-4 hume pipes under IS:458-1988, Hume Pipes to discharge storm water from catch basins as per drawings and complete as per Technical Specifications section 2900	Lm				

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		a)	450 mm diameter	Lm	310			
		b)	900 mm diameter	Lm	266			
7.11			Providing and laying granular material for pipe bedding of Hume Pipe culverts and replacement of soft and loose patches in the bearing area of the Box structure with layers not exceeding 300 mm as per drawing and Technical Specifications Clause 2904	Cum	180			
7.12			Plain cement concrete grade M-20 in Headwall of Access Road Culverts complete as per drawing and Technical Specifications Clause 1500 and 1700	Cum	227			
7.13			Providing and laying interlocking paver blocks of high density 65 mm thick M-25 grade in pedestrian pathway and in Island of major intersections areas as shown in the drawing, close jointed over bed of 50mm thick river sand to a tight pattern, laid to proper line and level including bedding down the completed surface with a plate vibrator or by firmly topping level with mallet and a large flat piece of timber, finishing by brushing clean dry sand over the surface to fill all the joints thoroughly and as per Additional Technical Specification A 15 or as directed by the Engineer.	sqm	5233			
7.15			Providing and laying Grade M15 Concrete perforated erosion protection scour blocks laid on the slopes and bed of the river including the rebar, trimming of earth to required lines and levels, including capping with concrete on the tops of slopes as per drawings and Specifications	cum	80			
7.16			Providing and laying plain cement concrete in medians and in sidewalks, foundations complete as per respective drawings, Technical Specifications section 1500 and 1700 and as directed by the Engineer					
	b)		Construction of median kerb and island kerb Type B grade M20 (including base preparation, foundation and haunch concrete)	Lm	718			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
7.18			Pitching/revetment on slopes with Cement Concrete blocks in M15 grade conforming to Section 1700 complete as per drawings, technical Specifications 2504 and as directed by the Engineer	Cum	473			
7.20			Geo textile filters membrane as per Technical Specifications Clause 2504 and as directed by the Engineer.	Sqm	4393			
7.21			Filter media beneath the pitching/revetment on slopes for protection of embankment as per drawings and Technical Specifications clause 2504 and as directed by the Engineer					
	b)		Granular Material	Cum	659			
7.23			Providing and fixing of man hole including excavation, concrete, C.I. Cover, C.I. Steps complete as per drawing and Techinical Specifications sections 300, 1500, 1600, 1700 and manufacture specification approved by the Engineer.	Nr	3			
			Total Drainage and Protection Work rates carried to Grand Summary					
8			**TRAFFIC SIGNAGE AND ROAD APPURTENANCES**					
8.01			Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810	Lm	12918			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.02			Providing and fixing of retro-reflectorised cautionary, mandatory and informatory sign made of 1.5mm thick Aluminium Sheet/3mm Aluminium Composite Material , face to be fully covered with Class B Type-IV High Intensity Micro Prismatic Grade Sheeting as defined in IRC: 67-2010 having approved massages e.g. letter, numerals,symbols/legend/arrow etc. in Regional and/or Hindi and /or English as per drawing and TechicalSpecifications for Road and Bridge works (Fourth Revision). The sign plate will be fixed with minimum 6 mm dia aluminium rivets back supported on a mild steel angle iron frame 35x35x5 mm and one vertical Mild Steel post of NB65 Dia Pipe (height from crown level of the road and bottom of the sign board shall not be less than 2.10 m.) firmly fixed to the ground by means of properly designed foundation with M -15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing including painting of vertical post as per specification.					
	a)		**Informatory Signs**					
		i)	Facility information 800 mm x 600 mm complete as per drawings and Technical Specifications Clause 801	Nr	35			
		ii)	Advance direction sign complete as per drawings and Technical Specifications Clause 801	Sq m	215			
		iii)	Route marker sign 450mm x 600 mm complete as per drawings and Technical Specifications Clause 801	Nr	22			
	b)		**Cautionary Signs**					
		i)	Triangular 900 mm side complete as per drawings and Technical Specifications Clause 801	Nr	244			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		ii)	Hazard marker 180 x 1200 mm complete as per drawings and Technical Specifications Clause 801	Nr	2			
		iii)	Hazard marker 300 x 900 mm complete as per drawings and Technical Specifications Clause 801	Nr	4			
	c)		**Mandatory Signs**					
		i)	Triangular 900 mm side (for "GIVE WAY" sign) complete as per drawings and Technical Specifications Clause 801	Nr	32			
		ii)	Stop sign - Octagon of size 900 mm complete as per drawings and Technical Specifications Clause 801	Nr	49			
		iii)	Speed limit compulsory keep left 600 mm dia meter complete as per drawings and Technical Specifications Clause 801	Nr	31			
8.03			Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes complete as per drawings and technical specification clause 803.					
	a)		Lane/centerline/edge marking or any other marking	Sqm	8563			
	b)		Directional arrows, lettering etc					
		i)	Straight (nr) RM13	Nr	134			
		ii)	Left/right (nr) RM14 & 15	Nr	42			
		iii)	Comb (nr) RM 16& 17	Nr	234			
		iv)	Lettering	Nr	45			
		v)	Chevron Marking	Sqm	614			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		vi)	Diagonal Marking	Sqm	122			
		vii)	Pedestrian Crossing	Sqm	1090			
8.04			Reinforced cement concrete M15 grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc complete as per drawings and technical specification clause 804.					
	a)		Hectometer Stone	Nr	90			
	b)		Kilometer Stone	Nr	18			
	c)		5th kilometer stone	Nr	5			
8.05			Supplying and fixing of boundary stones of M15 grade concrete complete as per drawing and Technical Specifications clause 806	Nr	113			
8.06			Providing and fixing retro-reflectorised road delineators complete as per drawing and Technical Specification Clause 805.					
	a)		Cluster of Red Reflectors.	Nr	4			
	b)		Road way delineators.	Nr	559			
8.08			Supply and install single guide rails (crash barriers) as approved by the Engineer as per drawings and Additional Specifications A-12	Lm	3904			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.09			Providing and fixing Raised Pavement Marker (Cats Eye, Road Stud), made of high strength engineering Plastic Body having at least 13 tons load bearing capacity of pnumatic tyre. Size or marker 9 cms x 10 cms x 1.6 cm having shape so that no water penetration or dust accumulation takes place on reflective surface, fitted with electronically welded tough polycarbonate micro prismatic reflective panels having 16 sq.cms surface area of each side having long distance visibility at night and in wet weather condition. The body of the marker having finger grip for easy and accurate placement fitted with two number polymer shanks to anchor the marker with the road for avoiding dislocation of the marker where the road is bleeding or made with softer grade of bitumen and application with adhesive on Bituminous road complete as per Additional Technical Specification Clause A-16	Nr	1471			
8.10			Solar Powered Traffic Blinkers LED based 300 mm/200 mm dia signal head with In built blinker unit haivng battery & battery charger unit with photo electric switch complete as per technical specification clause 112 and as directed by the Engineer.	Nr	8			
8.11			Construction of bus shelters for commuters including all building and furnishing works, etc. complete as per drawings and additional Technical Specifications A-17 or as directed by the Engineer.	Nr	8			
8.12			Repairing of existing Bus Shelter complete as per drawings and Technical Specifications section 800, 1300, 2500 or as directed by the Engineer.					
		a)	Paintitng	sqm	70			
		b)	Plastering	sqm	140			
8.13			Providing and fixing of liter bins complete as per Manufacturer drawing and specification and approved by the Engineer.	Nr	15			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.20			Plantation of shrubs in central median including planting with manure, gardening and maintenance complete as per Technical Specifications Clause 308.	Nr	95			
8.25			Providing and Construction of Rain water Harvesting complete as per drawings and Technical Specification section 300, 1300, 1500, 1700 or as directed by the Engineer.	Nr	45			
8.26			Providing and construction of Raised Pedesterian Crossing / Speed Hump across the road of 150 mm height and width of 2.5 m with M25 grade concrete considering side slope in 1:10. 100mm dia steel bollard to be fixed on sides. The surface to be painted with brick red colour complete as per drawings and Additional Technical Specification clause A15 or as directed by the Engineer.	sqm	506			
8.27			Providing and laying Tactile Block of yellow colour conforming to IS 13801:1993 (Reaffirmed 1998) of size 250 x 250 x 65 mm on pedestrian pathway as shown in drawing and directed by Eng in charge. The tile should be subjected to a pressure of not less than 14N/sqmm. Sample must be approved complete as per Additional Technical Specification A18	sqm	949			
8.28			Providing and Construction of speed hump across the road of 100mm height with Bituminous concrete of 3.7m Length and raidus of 17m for the entire width of carriageway complete as per drawings and IRC: 99 or as directed by the Engineer.	Lin.m	0			
8.29			Providing and Construction of raised Rumble strip complete as per drawings and technical specifications section 500 and 800 or as directed by the Engineer.	Lin.m	2074			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
8.30			Providing and fixing Aluminum backed flexible prismatic sheeting , consisting of yellow/black colored flexible prismatic sheet with non-mettalic prismatic lens as retro reflective elements and confirming to ASTM D4946 Type VI specifications for reboundable retro reflective sheeting. The prismatic sheet shall be laminated at the back with 50micron aluminum Foil sensitive adhesive and liner with screen printed arrow/slant pattern in yellow/black color. The AFP shall be applied with adhesive , the edge of the sheeting shall be sealed all around with epoxy based structural adhesive and shall be extremely resistant to pill-off complete as per manufacturer drawings approved by the Engineer.	sqm	30			
8.31			Providing and applying Geru paint of approved brand on Trees withing ROW complete as per drawings and Technical Specification section 800 or as directed by the Engineer	Nr	546			
8.32			Providing and Constructing Welcome Sign at Start and End of Project corridor complete as drawings and Technical Specification 300, 800, 1500, 1700 and 1900 or as directed by the Engineer.	Nr	2			
8.33			**Street Lighting in urban areas**					
	xxix)		Solar Street Light					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
		a)	Supplying and erecting MNES certified SOLAR STREET LIGHT fitting made from M.S. Body powder coated / painted with corrosion resistant paint with gasket & transparent cover with following CFL non retro lamp with choke, holder & accessories. Fitting shall be mounted on 75/80 mm B class G.I. pipe pole up to 5.5 mtr load complete erected with C.C. Foundation duly painted with two coats of red oxide and corrosive resistant paint. Complete with tubular battery, inverter, charge controller with photo sensor switch & necessary wiring complete erected connected & commissioned in approved manner.					
			b) 2 x 11 W CFL (Single luminaire with 2 CFL) PV Module:120 W Battery Capacity 12V, 100 AH	Ea.	195			
			c) 2 x 11 W CFL (Double Luminaire with One CFL each), PV Module : 120W Battery Capacity : 12V, 100 AH	Ea.	100			
		b)	Supplying & erecting Solar Home light system with structure as per MNES specification consisting of following non retrofit CFL fitting complete with following CFL lamps & battery capacity dully connected with built in inverter & commissioned as per directed with necessary wiring & fittings.					
			(b) Two No CFL 11 watt non retrofit ceiling / wall mounting features with battery capacity 12 watt, 40 AH	Ea.	295			
			Total Traffic Signage and Road Appurtenances carried to Grand Summary					
9			**SAFETY IN ROAD CONSTRUCTION ZONE**					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
9.01			Supplying and fixing sign boards including the cost of posts, fixtures, foundation, fitting and fixing. Sheeting will be made of encapsulated lens type of Retro-reflective type and messages/ borders will be screen printed complete as per Technical Specification clause 801 and as directed by Engineer.					
	a)		Speed Limit sign (600mm dia)	Nr	10			
	b)		Overtaking Prohibited (900 mm dia)	Nr	10			
	c)		Diversion Board (450mm x 600mm)	Nr	30			
	d)		Men at Work Sign (900mm triangular)	Nr	20			
	e)		Direction Sign (Right / Left) (600 mm Circular)	Nr	10			
9.02			Providing of red fluorescent with white reflective sleeve traffic cone made of low density polyethylene(LDPE) material with a square base of 390x390x35mm and a height of 770mm, 4Kg in weight, placed at 1.5m interval, all as per BS 873 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete Technical Specification section & IRC SP 55-2001.	Nr	1480			
9.03			Installation of a steel portable barricade with horizontal rail 300mm wide,2.5m in length fitted on a frame made with 45X45X5 mm angle iron section, 1.5m in height, horizontal rail painted(2coat) with yellow and white strips,150mm in width at angle of 45degree, A frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001 including cost of all materials, labour, loading, unloading, lead, lift, transporting etc complete as per drawings or as directed by the Engineer.	Nr	1480			
9.04			Solar Street Light					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
	i)		Supplying and erecting MNES certified SOLAR STREET LIGHT fitting made from M.S. Body powder coated / painted with corrosion resistant paint with gasket & transparent cover with following CFL non retro lamp with choke, holder & accessories. Fitting shall be mounted on 75/80 mm B class G.I. pipe pole up to 5.5 mtr load complete erected with C.C. Foundation duly painted with two coats of red oxide and corrosive resistant paint. Complete with tubular battery, inverter, charge controller with photo sensor switch & necessary wiring complete erected connected & commissioned in approved manner.					
			a) 1 x 11 w CFL PV Module : 74 W Battery Capacity : 12V, 75 AH	Ea.	40			
	ii)		Supplying & erecting Solar Home light system with structure as per MNES specification consisting of following non retrofit CFL fitting complete with following CFL lamps & battery capacity dully connected with built in inverter & commissioned as per directed with necessary wiring & fittings.					
			(a) One No CFL 11 watt non retrofit ceiling / wall mounting features with battery capacity 12 watt, 20 AH	Ea.	40			
9.05			Construction of a permanent type barricade made of steel components, 1.5 m high from road level, fitted with 3 horizontal rails 200 mm wide and 4 m long on 50 x 50 x 5 mm angle iron vertical support, painted with yellow and white strips, 150 mm in width at an angle of450, complete as per IRC:SP:55-2001	Nr.	6			
			Total of Safety in Road Construction Zone carried to Grand Summary					
10			**Implementation of Environmental Management Action Plan to be executed under Civil Works Contract**					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
10.03			Periodic air quality monitoring during construction stage at construction camp sites, bitumen hot mix plants, crusher plants (if specifically established for Project), at major settlement areas along project road. The parameters to be monitored are SPM, RPM, SO2, NOx and CO, Lead. Each monitoring schedule shall be over a duration of 24 hours (in 8 hour shifts) for three seasons per year. (as per the Environmental monitoring plan refered in the EMP)					
		a)	Construction Phase	Nr	12			
		b)	Operation Phase	Nr	6			
10.04			Water quality monitoring during construction phase at locations . The sampling shall be carried out for three seasons per year and cover all parameters as per IS10500 including heavy metals . (as per the Environmental monitoring plan refered in the EMP).					
		a)	Construction Phase	Nr	12			
10.05			Noise quality monitoring at specified silent receptors along Project Road, at construction camp sites, bitumen hot mix plants, crusher plants(if specifically established for Project), and at major settlement areas along project road. – Each monitoring schedule shall be over a duration of 12hours (6Am to 6PM) for three seasons per year. (as per the Environmental monitoring plan refered in the EMP)The monitoring shall be carried out in accordance with CPCB norms at locations given .					
		a)	Construction Phase	Nr	12			
		b)	Operation Phase	Nr	6			

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
10.06			Soil quality monitoring at construction camp sites, work shop areas, oil/lubricant handling areas, bitumen hot mix plants, at all parking lay byes, vehicle servicing stations along Project Road. Parameters shall include N, P, oil and grease, heavy metals, C/N ratio, pH, organic matter to be monitored for three seasons per year.(as per the Environmental monitoring plan refered in the EMP)					
		a)	Construction Phase	Nr	2			
10.12			Enhancement of Cultural Properties (bill no 10.18)					
		a)	Simaliya Primary School (13+850)	Nr.	1			
		b)	Malanpur Primary School (1+050)	Nr.	1			
10.13			HIV prevention / alleviation programme comprissing of conduction information, Education and comunication (IEC) campaigns at least every other month, providing condoms, providing STI and HIV / AIDS screening, diagnosis and referal to dedicated national STI and HIV / AIDS programme and programme management support throughout the contract period (including the defect notification period).					
		a)	IEC materials - printing, publishing	Nr	0			
		b)	Healthcare clinic	Nr.	0			
		c)	Condom vending machines	Nr.	0			
		d)	Condom supplies	Nr.	0			
		e)	Testing	Nr.	0			
		f)	Signages and hoardings	Nr.	0			
			Total Implementation of Environmental Management Action Plan to be executed under Civil Works Contract carried to Grand Summary					

Item No.			DESCRIPTION	Unit	Quantity	Unit Rate		Amount
						Figures	Words	
11			**DAY WORKS**					
11.01			Providing labour at site supplied with all necessary hand tools inclusive of all costs, overheads and profit margin complete as directed by the Engineer	As per details in Schedule "A"	1.00			
11.02			Providing equipment at site with operators, P.O.L. etc. complete in good working condition including all types of maintenance during contract period	As per details in Schedule "B"	1.00			
11.03			Providing material at site inclusive of all costs, overheads and profit margin complete as directed by the Engineer	As per details in Schedule "C"	1.00			
			Total Day work rates carried to Grand Summary					
12			**MAINTENANCE**					
12.01			Maintenance of project road for first year of maintenance period after Defect Liability Period as directed by the Engineers	per km	56.48			
12.02			Maintenance of project road for 2nd year of maintenance period after Defect Liability Periodas directed by the Engineers	per km	56.48			
			Total for maintenance cost					

BILLOFQUANTITIES CONTRACTPACKAGE–GSHPII/NCB/08

SUMMARYOFDAYWORKS

Sr.No.	Item	Amount Rs.
11.1	Schedule “A” of Day works, Labour	
112	Schedule “B” of Day works, Materials	
11.3	Schedule “C” of Day works, Construction Plant	
	Total Day work rates carried to Grand Summary	

SCHEDULE "A" OF DAY WORKS RATES

11.1 - LABOUR

Sr. No.	Description	Unit	Nominal	Rate Rs.		Amount
			Quantity	Figures	Words	Rs.
1	Mazdoor	Day	30			
2	Mason	Day	15			
3	Carpenter	Day	6			
4	Fabricator/Blacksmith/Welder	Day	6			
5	Operator for Tractor	Day	6			
6	Electrician	Day	3			
7	Operator for Dozer	Day	3			
8	Operator for Roller	Day	3			
9	Driver LMV	Day	90			
10	Driver HMV	Day	3			
11	Operator for Excavator/Crane	Day	3			
12	Computer Operator	Day	480			
13	Watchman	Day	480			
	Sub total					
	Allow 25 % Contractor's Overhead and Profits etc.					
	Total For Day works: Labour					

SCHEDULE "B" OF DAY WORKS RATES

11.2 - MATERIALS

Sr. No.	Description	Unit	Nominal	Rate Rs		Amount Rs.
			Quantity	Figure	Words	
1	Bitumen VG 30 grade (bulk)	T	1			
2	Cement	T	3			
3	M 15 Concrete	Cu.m	7			
4	M 20 Concrete	Cu.m	7			
5	M 25 Concrete	Cu.m	3			
6	TMT Bars	T	3			
7	Sand	Cu.m	7			
8	Aggregate 40 mm down size	Cu.m	7			
9	Aggregate 20 mm down size	Cu.m	7			
10	Aggregate 10 mm down size	Cu.m	7			
11	Hume pipe (NP 4)1000 mm dia 2.5 m Long	Lm	30			
12	Boulders	Cu.m	90			
13	Selected Earth	Cu.m	230			
	Sub total					
	Allow 25% Contracotor's Overhead and Profits etc.					
	Total For Day works: Materials					

SCHEDULE "C" OF DAY WORKS RATES

11.3 – CONSTRUCTION PLANT

Sr. No.	Description	Unit	Nominal	Rate Rs.		Amount
			Quantity	Figure	Words	Rs.
1	Bull Dozer Size up to 200KW	Hour	30			
2	Front End Loader bach hoe	Hour	30			
3	Motor Grader	Hour	12			
4	Pneumatic Tyred Roller (20 tonne)	Hour	12			
5	Tractor with trailor	Hour	12			
6	Bull dozer (D7 or equivalent)	Hour	10			
7	Roller Static (8-10 tonne)	Hour	3			
8	Roller Vibratory (8-10 tonne static)	Hour	3			
9	Truck (10/12 tonne)	Hour	30			
10	Truck mounted water tanker (10 tonne)	Hour	15			
11	DG set (125 KVA)	Hour	15			
12	Concrete Mixer (mobile)	Hour	3			
13	Drilling equipment with compressor	Hour	3			
	Sub total					
	Allow 25 % Contractor's Overhead and Profits etc.					
	Total For Day works: Construction Plant					

BILL OF QUANTITIES

C. Day work Schedule

General

1. Reference should be made toSub-Clause13.6 of the General Conditions of Contract.

   Work shall not be executed on a Day work basis except by written order of the Engineer. Bidders shall enter basic rates for Day work items in the Schedules, which rates shall apply to any quantity of Day work ordered by the Engineer. Nominal quantities have been indicated against each item of Day work, and the extended total for Day work shall be carried forward as a Provisional sum to the Summary Total Bid Amount (for items priced competitively). Unless otherwise adjusted, payments for Day work shall be subject to price adjustment in accordance with the provisions in the Conditions of Contract.

Day work Labour

2. In calculating payments due to the Contractor for the execution of Day work, the hours for labour will be reckoned from the time of arrival of the labour at the job site to execute the particular item of Day work to the time of return to the original place of departure, but excluding meal breaks and rest periods. Only the time of classes of labour directly doing work ordered by the Engineer and for which they are competent toper form will be measured. The time of gangers (charge hands) actually doing work with the gangs will also be measured but not the time of foremen or other supervisory personnel.

3. The Contractor shall be entitled to payment in respect of the total time that labour is employed on Day work, calculated at the basic rates entered by him in the SCHEDULEOF DAYWORKRATES: LABOUR, together with an additional percentage payment on basic rates representing the Contractor's profit, over heads, etc., as described below:

(a) The basic rates for labour shall cover all direct costs to the Contractor, including (but not limited to) the amount of wages paid to such labour, transportation time, overtime, subsistence allowances, and any sums paid to oronbehalfofsuchlabourforsocialbenefitsinaccordancewithIndianlaw.Thebasicrateswillbepayablein Indian currency only;

(b) The additional percentage payment to be quoted by the Bidder and applied to costs incurred under(a) above shall be deemed to cover the Contractor's profit, over heads, superintendence, liabilities, and insurances and allowances to labour, time keeping, and clerical and office work, the use of consumable stores, water, lighting, and power; the use and repair of stagings, scaffolding, workshops and stores, portable power tools, manual plant, and tools; supervision by the Contractor's staff, foremen, and other supervisory personnel; and charges incidental to the foregoing.

Day work Materials

4. The Contractor shall be entitled to payment in respect of materials used for Day work (except for materials for which the cost is included in the percentage addition to labour costs as detailed heretofore), at the basic rates entered by him in the SAMPLE SCHEDULE OF DAYWORK RATES: MATERIALS, together with an additional percentage payment on the basic rates to cover overhead charges and profit, as follows:

   (a) The basic rates for materials shall be calculated on the basis of the invoiced price, freight, insurance, handling expenses, damage, losses, etc., and shall provide for delivery to store for stock piling at the Site. The basic rates and payment shall be in Indian currency.

   (b) The cost of hauling materials for use on work ordered to be carried out as Day work from the store or stock pile on the Site to the place where it is to be used will be paid in accordance with the terms for Labour and Constructional Plant in this schedule.

Day work Constructional Plant

5. The Contractor shall be entitled to payments in respect of Constructional Plant already on Site and employed on Day work at the basic rental rates entered by him in the SAMPLE SCHEDULE OF DAY WORK RATES: CONSTRUCTIONAL EQUIPMENT. Said rates shall be deemed to included and complete allowance for depreciation, interest, indemnity, and insurance, repairs, maintenance, supplies, fuel, lubricants, and other consumables, and all over head, profit, and administrative costs related to the use of such equipment, The cost of drivers, operators, and assistants will be paid for separately as described under the section on Day work Labour.

6. In calculating the payment due to the Contractor for Constructional Plant employed in

Day work, only the actual number of working hours will be eligible for payment, except that where applicable and agreed with the Engineer, the travelling time from the part of the Site where the Constructional Plant was located when ordered by the Engineer to be employed on Day work and the time for return journey there to shall be included for payment.