

E-TENDER -PROJECT MANAGEMENT CONSULTANCY SERVICES FOR CONSTRUCTION OF UP RAMP AT MPT RAILWAY YARD AT BAINA

STRUCTURE BOQ FOR UP RAMP, MPT yard, Baina

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
	FOUNDATION					
1.00	Earthwork in excavation of foundations for structures including all leads and lifts complete					
a	In all types of soil	Cu.m.	520	258.00	300.57	1,56,296
2.00	Disposal of Excavated Material up to 1.0km lead	Cu.m.	901	90	104.85	94,514
3.00	Providing & laying Plain cement concrete levelling course including form work but excluding the cost of reinforcement.				0.00	
a	M-15 grade	Cu.m.	26	5,024	5,852.96	1,54,079
4.00	Providing bored cast-in-situ R.C.C. vertical piles excluding reinforcement In Soil.		-		0.00	
a	1000mm dia piles (M-40 grade concrete)	M	1,040	17,167	19,999.74	207,99,726
5.00	Providing & laying reinforced cement concrete M-40 grade in Pile caps including form work but excluding the cost of reinforcement complete	Cu.m.	361	9,325	10,864.20	39,17,141
6.00	Supplying, placing and fixing Corrosion Resistant Reinforcements of TMT Bars (Grade Fe-500D) (as per IS 1786) in Foundation.				0.00	
a	Open foundation & Pile Cap	MT	50	69,994	81,543.01	40,88,159
b	Pile	MT	52	69,994	81,543.01	42,40,237
7.00	Carrying out initial test for board cast-in-site piles(1000mm dia)	Nr.	1	35,13,105	40,92,766.87	40,92,767
8.00	Carrying out routine test for board cast-in-site piles(1000mm dia)	Nr.	2	5,90,931	6,88,434.72	13,76,869
9.00	Carrying out confirmatory bores holes up to required depths at each foundation location of bridge complete in all respects		-		0.00	
I	Depth between 0m to 10m	M	130	2,613	3,043.56	3,95,663
II	Depth between 10m to 20m	M	130	3,163	3,684.31	4,78,961
10.00	Providing & Painting of RCC surface coming in contact with earth shall be coated with coal tar epoxy as per technical specification.	Sq.m.	584	115	134.01	78,274
					0.00	
	SUB STRUCTURE				0.00	
11.00	Providing & laying plain cement concrete / Reinforced Cement Concrete in sub-structure including form work but excluding the cost of reinforcement.(M40)				0.00	
a	Pier	Cu.m.	191	10,971	12,781.45	24,45,858
b	Pier Cap	Cu.m.	309	11,224	13,075.82	40,40,900
c	Dirt Wall (M-40 Grade)	Cu.m.	16	11,224	13,075.82	2,05,021
d	Pedestals	Cu.m.	16	11,224	13,075.82	2,11,828
e	seismic arresters	Cu.m.	29	11,224	13,075.82	3,75,642
12.00	Supplying, placing and fixing Corrosion Resistant Reinforcements of TMT Bars (Grade Fe-500D) (as per IS 1786) in Substructure.		-		0.00	
a	Pier	MT	35	75,142	87,540.43	30,72,669
b	Pier Cap	MT	68	75,142	87,540.43	59,51,692
c	Dirt Wall (M-40 Grade)	MT	2	75,142	87,540.43	1,92,161
d	Pedestals	MT	4	75,142	87,540.43	3,54,539
e	seismic arresters	MT	10	75,142	87,540.43	8,80,202
13.00	Providing & Painting of Substructure exposed to atmosphere shall be provided with protective coating as per technical specification.	Sq.m.	1,327	350	407.75	5,40,968
					0.00	
	SUPER STRUCTURE				0.00	
14.00	Providing & laying Reinforced Cement Concrete in super-structure including form work but excluding the cost of reinforcement.				0.00	
	Deck slab (M-50 Grade)	Cu.m.	588	11,916	13,882.02	81,55,964

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					1.165	
	PSC girders	Cu.m.	750	27,119.00	31,593.64	236,95,226
	Diaphragm	Cu.m.	117	11,916	13,882.02	16,26,278
15.00	Supplying, placing and fixing Corrosion Resistant Reinforcements of TMT Bars (Grade Fe-500D) (as per IS 1786) in Superstructure.				0.00	
d	PSC I-Girder	MT	120	75,142	87,540.43	105,04,852
e	Diaphragm	MT	18	75,142	87,540.43	15,38,304
	Deck slab	MT	135	75,142	87,540.43	118,29,303
16.00	Providing high tensile steel strands including all accessories for stressing and jacking operations and grouting etc.	MT	32	1,93,853.00	2,25,838.75	72,83,300
17.00	Providing & Painting of Superstructure exposed to atmosphere shall be provided with protective coating as per technical specification.	Sq.m.	9,044	350.00	407.75	36,87,764
	RE WALL & ROAD WORK IN BRIDGE APPROACH		-		0.00	
17.00	Construction of reinforced earth retaining structures together with construction of earth work in layers, assembling and erection of reinforcing elements and placing of facing panels and all associated components as per specifications & approved design and drg. of specialised firm.		-		0.00	
a	Earthwork in excavation of foundations for structures including all leads and lifts complete	Cu.m.	879	258.00	300.57	2,64,347
b	Providing and erecting precast reinforced concrete facia panels of M-35 grade including untensioned reinforcement, soil reinforcing elements with all fixtures and accessories and drainage system complete.	Sq.m.	903	5,261.00	6,129.07	55,34,546
c	Providing & laying levelling pad in cement concrete M-15 grade below facia panels including earth work in excavation, back filling and profiling of fore slope complete as per drq. and Specifications.	Cu.m.	9	5,024.00	5,852.96	52,852
d	Providing filter media behind reinforced earth panel with well packed materials to specified thickness with smaller size towards the soil and bigger size towards the wall complete with all leads and lifts.	Cu.m.	542	2,317.00	2,699.31	14,62,483
e	Filling, grading and compaction with selected soil meeting approved design parameters in layers in soil reinforced zone.	Cu.m.	138	449.00	523.09	72,249
f	Providing & laying in position RCC crash barrier M-40 grade at RE wall location including form work and reinforcement complete. (Concrete=0.40 cum/Rmt & 50kg/Rmt,shuttering=2.0 sqm/Rm)	M	164	10,779.00	12,557.54	20,59,436
g	Providing & laying in position of friction slab M-35 grade at RE wall location including form work and reinforcement complete. (Concrete=0.85 cum/Rmt & steel=115kg/Rmt, shuttering=1.0 Sqm/Rm)	M	164	23,205.00	27,033.83	44,33,547
h	Providing & laying M-15 grade levelling course below friction slab (Concrete=0.4 cum/Rmt, shuttering=0.15 sqm/Rm)	Cu.m.	66	5,024.00	5,852.96	3,83,954
i	Providing & applying external faces of panels of RE wall provided with protective coating conforming to the specifications.	Sq.m.	697	350.00	407.75	2,84,039
j	Providing & Painting of RCC surface coming in contact with earth shall be coated with coal tar epoxy as per technical specification.	Sq.m.	205	115	134.01	27,499
k	Painting two coats on Crash Barrier in black and white or yellow after filling the surface with synthetic enamel paint complete as per drawing and Technical specifications and as directed by the Engineer-in-charge.	Sq.m.	438	350	407.75	1,78,412
l	Providing RE wall coping beam in cement concrete M-30 grade including shuttering & reinforcement.	Cu.m.	4	9,985.00	11,632.53	51,509
m	Providing & fixing in position 150mm dia perforated PVC drain pipe all complete as per drg. & Technical specifications.	M	164	1,467	1,709.49	2,80,356

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					1.165	
			-			
	MISCELINEOUS					
18.00	Providing & Fixing of Bearings Vertical Load (max) 100 MT, min 30 MT	Tonne Capacity	22,800	350	407.75	92,96,700
19.00	Providing & fixing of expansion joints complete.					
c	Strip Seal Joint Type (40mm)	M	56	7,609.00	8,864.49	4,96,411
20.00	Providing & fixing drainage Spouts.	Nr.	120	2,562.00	2,984.73	3,58,168
21.00	Providing & laying wearing course consisting of 40mm thick bituminous concrete over a 25mm thick Bitumen mastic layer.	Cum	107	9,918.00	11,554.47	12,37,484
		Cum	54	11,477	13,370.71	7,16,001
22.00	Providing cement concrete crash barrier in M-40 grade including reinforcement and 65 NB pipe (Concrete=0.30 cum/Rmt & 47kg/Rmt,shuttering=2.0 cum/Rmt)	M	832	10,779	12,557.54	104,47,869
23.00	Providing 75mm dia PVC pipe of approved quality in Crash barrier.	M	832	249	289.91	2,41,203
24.00	Providing & fixing 250mm dia PVC Rain water down pipe in overpasses, ROBs, flyovers including bends and shoes etc. fixed on walls/columns by clamps complete	M	831	1,467	1,709.49	14,20,585
25.00	Providing chambers (Catch pits)at ground level at pier and abutment locations	Nr.	5	9,818	11,438.04	57,190
26.00	Providing & fixing 300 mm dia. NP-4 Class R.C.C. pipes to take the collected water up to nearest drains	M	65	5,872	6,840.92	4,44,660
27.00	Providing & laying plain cement concrete M-15 grade in levelling course under the approach slab.	Cu.m.	3	5,024.00	5,852.96	16,388
28.00	Providing & laying reinforced cement concrete M-30 grade in approach slab including form work and reinforcement.	Cu.m.	8	12,949.00	15,085.59	1,26,719
	Elevated Cost					1664,09,764
	Road Cost					344,01,385
	sub total					2008,11,148
	Design and Proof Checking ,topo survey Cost @5.40%					10843802.01
	Sub Total					2116,54,950
	Contingency 3.00%					63,49,648.51
	Quality Control Charges 0.25%					5,29,137
	miscell & Safety Charges 0.25%					5,29,137
	TOTAL CONSTRUCTION COST					2190,62,874
	Maintenance charges for 4 years @ 3.50 % of Rs.21.91 crore		-			76,67,200.58
						2267,30,074
					SAY	22.67 crores

ROAD BOQ

ITEM	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
	BILL NO : 1 SITE CLERANCE AND DISMANTLING				1.165	
1.01	Clearing and grubbing road land, embankment, drain, cross drainage structures including uprooting rank vegetation, grass, bush scrubs, saplings and trees of girth up to 300mm, removal of stumps, disposal of unserviceable material and stacking of serviceable material complete as per drawing and MORT&H specification clause 201.	hectare	0.66	50,000.00	58,250.00	38,445
			-		0.00	

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
BILL NO. 2 EARTH WORK						
			-		0.00	0
2.01	Earthwork in excavation necessary for construction of roadway including all leads and lifts complete as per MORT&H specifications clause 301.		-		0.00	0
a	Excavation in all types of soils				0.00	0
b	Excavation in Soft Rock (15%)				0.00	0
c	Excavation in Hard Rock - Requiring blasting (12%)				0.00	0
d	Excavation in Hard Rock - Controlled blasting (12%)				0.00	0
e	Excavation in Hard Rock - Blasting Prohibited (8%)				0.00	0
2.02	Construction of Embankment with suitable material obtained from roadway, drainage excavation etc. with all leads and lifts, compacting to 95% of modified proctor density, all complete as per drawings and MORT&H Specifications Clause 305.				0.00	0
2.03	Construction of embankment with approved material from with all leads and lifts, compacting to 95% of modified proctor density, all complete as per drawings and MORT&H Specifications Clause 305.				0.00	0
a	With soil from borrow				0.00	0
b	With pond ash				0.00	0
2.04	Construction of subgrade and Earthen shoulder satisfying the requirements of minimum soaked CBR value as indicated in the drawings with approved material from borrow areas , with all leads & lifts, compacting to 97% of modified proctor density, all complete as per drawing and MORT&H specification clause 305.		1,925	507.00	590.66	11,37,011
2.05	Construction of subgrade and Earthen shoulder satisfying the requirements of minimum soaked CBR value as indicated in the drawings with approved material from excavation of existing road, with all leads & lifts, compacting to 97% of modified proctor density, all complete as per drawing and MORT&H specification clause 305.	Cu.m.	-		0.00	0
2.06	Loosening and recompacting sub-grade in all kinds of soil, compacting to 97% of modified proctor density, all complete as per MORT&H Specifications Clauses 301 & 305.	Cu.m.	-		0.00	0
2.07	Filling in median/island with approved material with all leads and lifts complete as per MORT&H Specifications Clauses 305 & 408.				0.00	0
2.08	Disposal of surplus earth/rock beyond an initial lead of 1 km. as per MORT&H specifications section 200.	Cu.m.	-		0.00	0
2.09	Rockfill Embankment from excavated rock (where embankment ht is more than 2m and less than 8m) complete as per MORT&H specifications clause 305 & additional Technical specifications.	Cu.m.	-		0.00	0
2.10	Preparation of rock cut surface for road formation by leveling with Lean concrete compete as per MORT&H specifications sub-clause 301.6	Sq.m.	-		0.00	0
2.11	Rebate towards salvage value of Hard rock available from exatation (measurement same as of full quantity of excavated hard rock).	Cu.m.	-		0.00	0
2.12	Earth filling between RE Wall .	Cu.m.	-		0.00	0
2.13	Construction of embankment with Boulder filling	Cu.m.	-		0.00	0
2.14	Brick Soling for TCS J i/c All preparation work, Earth filling etc complete	Sq.m.	-		0.00	0
2.15	Transportaion of suitable rock to crusher @ lead of 8 km.	Cu.m.	-		0.00	0
2.16	Credit for suitable rock	MT	-		0.00	0
			-		0.00	
BILL NO. 3 GRANULAR SUB-BASE AND BASE COURSES						
			-		0.00	
3.01	Providing, laying & compacting Granular Sub-base at OMC complete as per MORT&H Specifications Clause 401 (Grading-I of Table-400-1).	Cu.m.	-		0.00	0

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
3.02	Construction of Upper granular sub-base by providing coarse graded material spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401, Table 400-1 (Grading -V & VI), & Physical requirement given in Table 400-2	Cu.m.	770	2,292.00	2,670.18	20,56,039
b	Granular Filling in Shoulder	Cu.m.	-		0.00	0
3.03	Construction of Lower granular sub-base by providing coarse graded material spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401, Table 400-1 (Grading -III & IV), & Physical requirement given in Table 400-2	Cu.m.	-		0.00	0
3.04	Providing and laying Wet Mix Macadam base and profile corrective course of required thickness complete as per MORT&H Specifications Clause 406.	Cu.m.	963	2,460.00	2,865.90	27,58,429
			-			
	BILL NO. 4 FLEXIBLE PAVEMENTS		-			
4.01	Scarifying existing bituminous road surface 50-70mm along with pre-mix carpet and surface dressing but without disturbing the base as per MORT&H specifications clause 501.	Sq.m.	-		0.00	0
4.02	Providing & laying bituminous primer coat over granular surface with bitumen emulsion complete as per Technical Specifications Clause 502 @ 6.0 to 9.0 kg/10 sq.m.	Sq.m.	3,850	47.00	54.76	2,10,807
4.03	Providing & laying tack coat with bituminous Emulsion all complete as per MORT&H Specifications Clause 503		-		0.00	
a	On granular surface treated with primer or dry and hungry bituminous surface @ 2.5 to 3.0kg/10 sq.m.	Sq.m.	7,700	17.00	19.81	1,52,499
b	On normal Bituminous surface @ 2.0 to 2.5 Kg/10 sq.m.	Sq.m.			0.00	0
4.04	Providing & laying Profile corrective course all complete as per Technical Specifications Clause 501 & 505.		-		0.00	0
a	With BM	Cu.m.	-		0.00	0
b	With DBM	Cu.m.	-		0.00	0
c	With WMM	Cu.m.	-		0.00	0
d	With GSB	Cu.m.	-		0.00	0
4.05	Providing & relaying after milling and recycling of existing bituminous pavement material including cost of adding new bitumen, fresh untreated aggregates and recycling agent complete as approved by the Engineer to produce recycled dense graded bituminous macadam (DBM) mix conforming to clause 505 & 519 of MORT&H specifications. (cost of milling excluded)	Cu.m.	-		0.00	0
4.06	Providing & laying Bituminous Macadam course of required thickness on prepared surface complete as per drawing and MORT&H Specifications Clause 504 .	Cu.m.	-		0.00	0
4.07	Providing and laying Dense Graded Bituminous Macadam (using VG 40 with 3000 MR Bitumen) with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading of Table 500-10, premixed with bituminous binder at 4.0% & 4.5% for grading 1 and grading 2 by weight of total mix respectively, in one or Two layer, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause-505 complete in all respects.		-			
a	Grading I (Above 75 MM)	Cu.m.	-			

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					1.165	
b	Grading II (Up to 75 MM)	Cu.m.	481	10,910.00	12,710.15	61,16,760
4.08	Providing and laying Bituminous Concrete (using VG 40 with 3000 MR Bitumen) with 100-120 TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading of Table 500-17, premixed with bituminous binder at 5.2% & 5.4% for grading 1 and grading 2 by weight of total mix respectively, in single layer, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification clause-507 complete in all respects.		-			
a	Grading I (Above 50 MM)	Cu.m.	-			
b	Grading II (Up to 50 MM)	Cu.m.	193	12,625.00	14,708.13	28,31,314
			-			
	BILL NO. 7 DRAINAGE AND PROTECTIVE WORKS		-			
7.01	Earthwork in excavation for construction of surface unlined drains, ditch drain, open/covered drain, foundation of toe wall, head wall, retaining wall to required line and grade complete as per drg. or directed by Engineer and as per MORT&H specifications section 300.		-		0.00	
a	In all types of soil including marshy soil	Cu.m.	759	284.00	330.86	2,51,123
b	Ordinary rock	Cu.m.	-		0.00	0
c	Hard rock (blasting prohibited)	Cu.m.	-		0.00	0
7.02	Construction of open unlined drains as per proper slope and dimension as shown in drawing and technical specification clause 309.	Li.m	-		0.00	0
7.03	Construction of Open lined Drain complete as shown in drawing and technical specification clause 309.	Li.m	-		0.00	0
7.04	Providing and laying M-15 PCC cement concrete grade construction complete as per drawing and technical specification. Spec. No. MORT & H - 1500, 1700 & 2100	Cu.m.	91	5,526.00	6,437.79	5,84,229
7.05	Providing and laying M-20 RCC cement concrete grade construction complete as per drawing and technical specification. Spec. No. MORT & H - 1500, 1700 & 2100	Cu.m.	853	9,982.00	11,629.03	99,13,748
7.06	Providing & fixing in position HYSD / TMT Fe 415 grade bar reinforcement in base, walls and slab of RCC drains complete as per drg. and MORT&H specifications sections 1600.	MT	27	76,994.00	89,698.01	24,27,845
7.07	Supply and fixing in position Precast Cover slab including all fitting and fixtures and reinforcement steel @ 50 Kg/cum over covered drain complete as per drg. and Technical Specifications.		-		0.00	0
a	Size 1360 x 900 x 110	Nr.	-		0.00	0
b	Size 1860 x 900 x 110	Nr.	-		0.00	0
7.08	Construction of reinforced cement concrete M-20 grade inlet chamber / catch pit / gully pit with reinforced Polyelastomer grating fitted with reinforced cement polymer concrete (RCPC) frame of medium duty etc. including form work and reinforcement all complete as per drg and MORT&H Specifications sections 300, 1000, 1500, 1600, 1700, 2100 & 2200.		-		0.00	0
a	Catch pit size 850 x 850mm	Nr.	-		0.00	0
b	Catch pit size 1000 x 1000mm	Nr.	-		0.00	0
7.09	Providing, laying and jointing RCC Pipes to dewater Catch Pit / median drain as per drawings and MORT&H Specifications section 2900.		-		0.00	0
a	150mm dia NP 4 RCC pipe	M	-		0.00	0
b	300mm dia NP 4 RCC pipe	M	-		0.00	0
c	450mm dia NP 4 RCC pipe	M	-		0.00	0
d	600mm dia NP 4 RCC pipe	M	-		0.00	0
7.10	Providing and fixing 200 mm dia PVC pipe through footpath to discharge surface runoff to side drain as shown in drawing and as directed by the Engineer.	M	-		0.00	0

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					1.165	
7.11	Providing and fixing 100mm dia PVC pipes of approved quality including all fixtures and accessories in walls of drains as per drawings and directions of the Engineer.	M	-		0.00	0
7.12	Providing & laying stone pitching on slopes for erosion protection and open drain and drain joining rain water harvesting pit complete as per drg. and MORT&H specifications section 2500 and as directed by the Engineer.	Cu.m.	9		0.00	0
7.13	Providing and Fixing of Macmat (Meccaferi Product) for above 6.0m ht Embankment Geo Grid Fibre (Paying Fabric)complete as per drawing or as directed by the Engineer.	Sq.m.	-		0.00	0
7.14	Providing & laying filter media underneath pitching complete as per drg. and MORT&H specifications clause 2504.	Cu.m.	-		0.00	0
7.15	Providing reinforced cement concrete / plain cement concrete in head wall / toe wall / retaining wall including cost of all materials, form work, labour, mixing, transportation, placing, vibration, curing etc. but excluding the cost of reinforcement complete as per drg. and MORT&H specifications sections 1500 & 1700.		-		0.00	0
a	M-15 grade	Cu.m.	-		0.00	0
b	M-20 grade	Cu.m.	-		0.00	0
c	M-25 grade	Cu.m.	-		0.00	0
d	M-30 grade	Cu.m.	-		0.00	0
7.16	Providing & fixing in position HYSD / TMT Fe 415 grade bar reinforcement in head walls / retaining walls complete as per drg. and MORT&H specifications section 1600.	MT	-		0.00	0
7.17	Providing Brick masonry in cement mortar 1:3 (1 cement : 3 coarse sand) for lined covered drains/ head wall/ toe wall/ retaining walls etc. complete as per drg. and MORT&H Specifications Section 1000 & 1300.	Cu.m.	-		0.00	0
7.18	Providing Random Rubble stone masonry in cement mortar 1:3 (1 cement : 3 coarse sand) for lined covered drains/ head wall/ toe wall/ retaining walls etc. complete as per drg. and MORT&H Specifications Section 1000 & 1400.	Cu.m.	-		0.00	0
7.19	Providing weep holes in toe/retaining walls with 100mm dia A.C. pipe, extending through the full width of wall complete as per drg. and MORT&H specifications clause 2706.	Nr.	-		0.00	0
7.20	Providing filter media behind toe/retaining wall with well packed materials to specified thickness with smaller size towards the soil and bigger size towards the wall complete with all leads and lifts as per drg. and MORT&H specifications clauses 305 & 309.	Cu.m.	-		0.00	0
7.21	Back filling behind abutments, wing walls and return walls with selected granular material of approved quality with all leads and lifts complete as per drg. and MORT&H specifications clauses 305,309 & 2907.	Cu.m.	-		0.00	0
7.22	Construction of drainage chute in cement concrete M-20 grade with foundation concrete M-15 grade complete as per drawings and MORT&H Specifications Sections 300, 1500 and 1700 including construction of bell mouth at entry.	M	-		0.00	0
7.23	Construction of cement concrete M-20 grade chute as per enclosed drawing and direction of Engineer.	M	-		0.00	0
7.24	Construction of energy decipating basin at toe of chute in cement concrete M-15 complete as per drawings and MORT&H Specifications Sections 300, 1500 and 1700.	Nr.	-		0.00	0
7.25	Constructing Median Drain in Open M-20 grade, form work and reinforcement as per Drawing and MORT&H Specification sections 300, 1500 & 1700 and clause 309.	M	-		0.00	0

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					1.165	
7.26	Turfing with sods of embankment slopes, earthen verge and other locations complete as per MORT&H Specifications Clause 307.	Sq.m.	-		0.00	0
7.27	Constructing rain water harvesting recharge trench cum recharge shaft / well including grating passage joining storm water drain and trench having brick walls, RCC cover slab and filled with layers of coarse sand, gravel and boulders, grating having brick walls and CC 1:2:4 base and M.S. pipe shaft packed with gravel, provided with wire screen and bottom plug complete as per Drawing, direction of the Engineer and MORT&H Specifications sections 300, 1000, 1300, 1500, 1600 & 1700.	Nr.	#REF!		0.00	#REF!
7.28	Construction Gully chamber of internal size 750 x 750 x 1400mm on one end of median at super elevated portions in BW 1:3 having base concrete of M-15 and top cover of RCC (M-20) provided with inlet grating complete as per Drawing and MORT&H Specifications sections 300, 1300, 1500, 1600 & 1700.	Nr.	-		0.00	0
7.29	Construction of brick masonry manhole chamber of internal size 600 x 900 mm including reinforced cement concrete M-20 grade cover slab with medium duty MS manhole frame and cover, inside cement plaster 1:3 with neat cement punning, C.C. benching and pipe connections complete as per drawings and direction of Engineer.	Nr.	-		0.00	0
7.30	Providing RCC railing in M-20 grade over RCC retaining walls, drain walls, high embankments etc. complete as per Drawing and MORT&H Specifications sections 1500, 1600, 1700, 2100, 2200 & clause 2703.	M	-		0.00	0
7.31	Providing cement concrete M-20 grade channel kerb including painting complete as per Drawing and MORT&H Specification Clause 408.	M	-		0.00	0
7.32	Construction of median cut drain complete as per drawing or as directed by the engineer.	Li.m	-		0.00	0
7.33	Construction of longitudinal median drain complete as per drawing or as directed by the engineer.	Li.m	-		0.00	0
7.34	Providing And Laying Footpath over lined Drain complete as per drawing.	Sq.m.	-		0.00	0
7.35	Construction of Open lined U - Drain in Bus bye/truck laybye area complete as shown in drawing and technical specification clause 309.	Li.m	-		0.00	0
7.36	Utility duct/cross roads etc.		-		0.00	0
a	Providing and Laying of 450mm dia NP4 Pipe	M	-		0.00	0
b	Providing and laying M-15 PCC cement concrete	Cu.m.	-		0.00	0
c	Providing & laying selected granular material for pipe bedding	Cu.m.	-		0.00	0
d	Manhole with Cover for 450mm dia Pipe	Nr.	-		0.00	0
7.37	P/L 200 mm thick pitching in longitudinal Pitched Drain	Cu.m.	-		0.00	0
7.38	Providing and construction of raised Footpath complete as per drawing or as directed by the Engineer.		-		0.00	
a	C.C. paving block 80mm thick including filling sand 30mm thick for levelling course	Sq.m.	840	495.00	576.68	4,84,407
c	Selected Earth Fill at bottom	Cu.m.	-		0.00	0
7.39	Providing and Laying of Guard Stone complete as per drawing or additional Technical Specification.	Nr.	-		0.00	0
7.40	Providing and Installing Drip Irrigation	km	-		0.00	0
7.41	C.C. paving block 80mm thick including filling sand 30mm thick for levelling course	Sq.m.	-		0.00	0
			-		0.00	0
	BILL NO. 8 TRAFFIC SIGNS, MARKINGS AND ROAD APPUR		-		0.00	
8.01	Pavement marking with hot applied thermoplastic paints with reflectorising glass beads conforming to ASTM D36/BS-3262 (Part - I) as per drawing & MORT&H Specifications Clause 803.		-		0.00	
a	Lane/centre line / edge marking / transverse and any other marking	Sq.m.	310	603.00	702.50	2,17,773
c	Diagonal marking	Sq.m.	450	603.00	702.50	3,16,123
d	Pedestrian crossing (BM 03)	Sq.m.	-	603.00	702.50	0

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
e	Stop lines (TM03)	Sq.m.	88	603.00	702.50	61,820
f	Warning lines	Sq.m.	-	548.00	638.42	0
g	Giveway Lines (TM 07/04 & BM 07)	Sq.m.	-	548.00	638.42	0
h	Arrow marking for route direction for design speed more than 50 km/ hour	Sq.m.	-	548.00	638.42	0
i	"STOP" word (DM01/DM02)	Nr.	2	603.00	702.50	1,405
j	Directional arrows, lettering etc. as per drg. No. 61 of MORT&H type design & intersection of National Highways.		-			
j-i	Straight AM01/AM08	Sq.m.	72	603.00	702.50	50,580
j-ii	Left/right AM 02/AM 03//AM 09/AM 10	Sq.m.	24	603.00	702.50	16,860
j-iii	Comb AM 04/05 AM 11/12	Sq.m.	24	603.00	702.50	16,860
j-iv	Bifurcation Arrow AM 20/21/22	Sq.m.	8	603.00	702.50	5,620
j-v	Lettering	Nr.	-		0.00	0
8.02	Providing and fixing of mandatory, cautionary and informatory Traffic Sign as per IRC :67 having Retro-Reflective Sheeting vide clause 801.3, supported on a GI Pipe conforming to IS 1239, Rectangular Hollow section conforming to IS 4923 or Sqare hallow section conforming to IS 3589 firmly fixed to the ground by means of properly designed foundation to hold these in proper and permanent position aginst normal strom wind loads or displacement by Vandalism with M25 grade cement concrete as per MoRTH specification clause-801.		-			
a	Mandatory /Regulatory Signs of Size.		-			
a-i	Octagon 900 mm height (for "STOP").	Nr.	2	15,260.00	17,777.90	35,556
a-ii	Triangular 900 mm size (for "GIVE WAY").	Nr.	2	8,920.00	10,391.80	20,784
a-iii	Prohibited Sign (600 mm Circular)	Nr.	1	7,600.00	8,854.00	8,854
a-iv	No Stopping and No Standing (1200 mm Circular)	Nr.	-		0.00	0
a-v	Speed Limit and Vihical Control Sign (1200 mm Circular)	Nr.	2	15,260.00	17,777.90	35,556
a-v	Speed Limit and Vihical Control Sign (900 mm Circular)	Nr.	-	6,910.00	8,050.15	0
a-vi	Restriction Ends Sign (1200 mm Circular)	Nr.	-		0.00	0
a-vii	Compulsary Direction control and Other Sign (1200 mm Circular)	Nr.	-		0.00	0
b	Cautionary/Warning Signs	Nr.	-		0.00	
•	Triangular 900mm size	Nr.	2	8,920.00	10,391.80	20,784
•	Triangular 600mm size	Nr.	-		0.00	0
•	Singlr Chevron (Rectangular 600x500mm)	Nr.	1	9,116.00	10,620.14	10,620
•	Object Hazard Marker (left) (Rectangular 1200x300mm)	Nr.	-		0.00	0
•	Object Hazard Marker (Right) (Rectangular 1200x300mm)	Nr.	-		0.00	0
c	Informatory Signs		-		0.00	0
c-i	Direction and Place Identification signs		-		0.00	
•	Advance Direction/Destination signs (600x450mm)	Nr.	-	788.00	918.02	0
•	Direction signs 800 x 600 mm	Nr.	4	11,480.00	13,374.20	53,497
•	Reassurance signs 600 x 800mm	Nr.	-	788.00	918.02	0
•	Place/city Identification Signs 600x600mm	Nr.	1	9,118.00	10,622.47	10,622
•	Truck lay by signs 900x1200mm	Nr.	-		0.00	0
•	Toll Booth Ahead signs 900x1200mm	Nr.	1		0.00	0
•	Weigh bridge Ahead signs 900x1200mm	Nr.	-		0.00	0
•	Overhead signs (Gantry Mounted Sign)		-		0.00	0
o	Full width overhead sign including gantry	Nr.	-		0.00	0
o	Cantilever overhead sign including gantry	Nr.	-	82,130.00	95,681.45	0
c-ii	Facility information Signs 800x600mm	Nr.	-		0.00	0
c-iii	Other Useful information Signs 1200x600mm	Nr.	-		0.00	0
d	Route Marker Signs		-		0.00	0
d-i	NH Route marker signs of size 1500x600mm	Nr.	-	788.00	918.02	0
d-ii	Side road marker signs 450x600mm	Nr.	-		0.00	0
8.03	Supplying and fixing tubular gantry mounted overhead sign board including RCC M-30 foundations and reinforcement and all incidental works complete as per drawings and MORT&H Specifications clause 802.		-		0.00	0
a	4000 mm cantilever arm with 3500 mm x 1000 mm board.	Nr.	-		0.00	0
b	11,000 to 14250 mm single span gantry with 8000 mm x 1000 mm board .	Nr.	-		0.00	0

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
8.04	Providing and fixing retro-reflectorised road delineators complete as per drawing and MORT&H Specifications Clause 806.		-		0.00	0
a	Cluster of Red Reflectors.	Nr.	-		0.00	0
b	Road way delineators.		-		0.00	0
b-i	Roadway indicators (Post type)	Nr.	-		0.00	0
b-ii	Hazard markers	Nr.	-		0.00	0
b-iii	Object marker	Nr.	-		0.00	0
c	Cats Eye	Nr.	-		0.00	0
8.05	Providing and fixing Traffic Blinker Signals (L.E.D.) at all intersections with SH / MDR / ODR category roads in rural areas with preferably non-conventional energy source like solar energy in accordance with relevant IRC /IS codes and as per direction of independent consultant.	Nr.	-		0.00	0
8.06	Construction of plain cement concrete kerb M-20 grade complete as per drawing & MORT&H Specifications Clause 409.		-		0.00	0
a	Kerb.	Li.m	2,620	277.00	322.71	8,45,487
b	Kerb with channel	Li.m	-		0.00	0
9.00	Providing and fixing reinforced cement concrete M-20 grade stones including excavation, foundation concrete and reinforcement and inscription etc. all complete as per MORT&H Specifications Section 800.		-			
a	Hectometer stone.	Nr.	-		0.00	0
b	5th km. stone.	Nr.	-		0.00	0
c	km. stone.	Nr.	1	2,190.00	2,551.35	2,551
9.01	Providing RCC M-15 Boundary Stone of standard design as per IRC:25, fixing in CC M-15, including finishing and lettering including painting etc. all complete as per MORT&H Specifications Section 807.	Nr.	-		0.00	0
9.02	Providing and fixing M-20 guard post 250mm dia x 1.25m long including reinforcement 4 Nos. 12mm dia vertical bars and 5 Nos. stirrups 6mm dia, duly embedded in cement concrete grade M-15, 550mm x 550mm x 650mm, including painting etc. complete as per drawing & MORT&H Specifications sections 300, 1500, 1600, 1700, 2100 and 2200.	Nr.	-		0.00	0
9.03	Providing and fixing reinforced cement concrete M-20 grade precast Road land (ROW) boundary pillars 200mm dia x 0.9m long including reinforcement 4 Nos. 6mm dia vertical bars and 5 No. stirrups 6mm dia, duly embedded in cement concrete grade M-15, 500mm x 500mm x 750mm including painting etc. complete, as per drawing & MORT&H Specifications sections 300, 1500, 1600, 1700, 2100 and 2200.	Nr.	-		0.00	0
9.04	Providing, fabricating and fixing Thrie Beam Metal Crash Barrier at high embankment (Curve Portion) locations complete as per drawing & MORT&H Specifications clause 811 and sections 300, 1500, 1600, 1700, 1900 and 2100.	Li.m	-		0.00	0
9.05	Providing, fabricating and fixing Single side W shaped Metal beam Crash Barrier at high embankment/Curve/Structure Approach locations complete as per drawing & MORT&H Specifications clause 811 and sections 300, 1500, 1600, 1700, 1900 and 2100.	Li.m	-		0.00	0
9.06	Providing, fabricating and fixing double side W shaped Metal beam Crash Barrier at median complete as per drawing & MORT&H Specifications clause 811 and sections 300, 1500, 1600, 1700, 1900 and 2100.	Li.m	-		0.00	0
9.07	Construction of New Jersey type barrier including reinforcement complete as per drawing and conforming to relevant specifications.	M	-		0.00	0
9.08	Providing and laying 25 mm thick precast cement concrete chequered tiles of grade M-20 in ordinary grey cement, laid in cement mortar 1:3 over 75 mm thick cement concrete M-15 grade including pointing of tiles with neat cement all complete as per drawing.	Sq.m.	-		0.00	0

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
9.09	Providing and installing Pedestrian Guard rail of G.I. pipes at urban locations as per drawings and MORT&H Specifications Clause 808 and sections 300, 1500, 1700 and 1900.	M	-		0.00	0
9.10	Providing & fixing M.S. railing for traffic islands / median including foundation concrete M-15 grade and painting with approved paint etc. complete job as per drawing and MORT&H Specifications Sections 300, 1500, 1700 & 1900.	M	-		0.00	0
9.01	Providing and fixing of Reflective pavement marker (RPM) or Road Studs, device which is bonded to or anchored within the road surface for Road marking and delineation for night time visibility, including warranty and durability as per Technical Specifications Clause 804, or as directed by Engineer.	Nr.	505	240.00	279.60	1,41,198
9.02	Providing LED (Light Emitting Diode) at intersections and median opening as per standard design and direction of the Independent consultant.	Nr.	-		0.00	0
9.03	Providing speed breakers on all side roads intersecting the Project Highway as per standard design and direction of independent consultant.	Nr.	-		0.00	0
9.04	Providing Advance Traffic Management System (ATMS) to collect / disseminate information for traffic and incident management and for the safety of users in accordance with IEC 364, with minimum of CENELEC standards EN 50128 software integrity level 2.as per standard design and MORT&H Specifications Sections 816 or as direction of the Independent consultant.	Km.	-		0.00	0
a	Emergency communication system, installed at the spacing of 2km., in a staggered manner on either side of the Highway and connected to the central centre through the transmission system of optical fibre cable and copper cables with suitable interfacing.		-		0.00	0
b	Mobile communication system shall have mobile sets, ambulances, cranes and patrolling vehicles.		-		0.00	0
c	Variable message signs shall be provided at an interval of 10km. in each direction of traffic.		-		0.00	0
d	Meteorological Data System shall be installed at an interval of 25km.		-		0.00	0
e	Automatic traffic counter cum classifier system shall be install at minimum two locations.		-		0.00	0
f	Provision of installing of video cameras shall be made available at all major intersections and atleast 4 video cameras shall be made available at any of the identified location.	One Job	-		0.00	0
g	Power supply system.		-		0.00	0
9.05	Providing and laying precast concrete crash barriers complete as per drawings and Technical specifications .	Cu.m.	-		0.00	0
9.06	TelePhone Booth	Nr.	-		0.00	0
			-		0.00	0
BILL NO. 9 MISCELLANEOUS			-		0.00	0
9.01	Providing & fixing guard railing with tubular steel sections at foot path / medians / islands etc including foundation concrete and painting with approved paint etc. all complete as per drawing & MORT&H Specifications Clauses 808, 300, 1500, 1700 & 1900.	Li.m	-		0.00	0
9.02	Providing shelters for bus passengers as per drawing and MORT&H Specifications section 300, 1500, 1600 and 1700.	Nr.	-		0.00	0
9.03	Construction of way side amenities		-		0.00	0
a	Providing & erecting tube well, a drinking water kiosk, well sheltered from the sun and rain with platform cum washing area paved with cement concrete tiles complete with drainage accessories up to the designated outfall, site clearance, compaction and levelling etc. complete as per drawing and additional specifications.	Nr.	-		0.00	0

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
b	Providing a Drinking Water Kiosk complete as per drawing & specification.	Nr.	-		0.00	0
c	Construction of toilet block provided with fittings and fixtures complete including paving the surrounding area with tiles and constructing a soak pit in truck parking area complete as per drg. and direction of the Engineer.	Nr.	-		0.00	0
d	Construction of restaurant, workshop, first aid room, shop etc. in truck parking area complete as per drg. and direction of the Engineer.	Sq.m.	-		0.00	0
9.04	Providing and Fixing Post mounted and/or a swivel type theft, vandal and fire proof, litter bin of minimum 30 litres capacity, made of material resistant to wear and tear such as to require minimal maintenance having drainage holes for periodical flushing complete as per requirement of users.	Nr.	-		0.00	0
9.05	Construction of lined drains including cover slab and reinforcement as per proper slope and dimension as shown in drawing and technical specification clause 309.	Li.m	-		0.00	0
9.06	Plantation of trees as per MOEF guidelines in one/two rows depending upon space available on either side of road within ROW (including planting with manure, gardening and maintenance) complete as per MORT&H Specifications Clause 308.	Nr.	-		0.00	0
9.07	Plantation of shrubs in central median including planting with manure, gardening and maintenance complete as per MORT&H Specifications Clause 308.	Nr.	-		0.00	0
a	Supply of color record photographs with negatives and two colour prints in approved size there from mounted in album as per MORT&H Specifications Clause 121.	Nr.	-		0.00	0
b	Same as above but additional prints of colour record photographs.	Nr.	-		0.00	0
9.08	Supplying of color video cassettes and digitized CD ROMs during construction as per MORT&H Specifications Clause 121.	Set	-		0.00	0
9.09	Carrying out earthwork for restoration of rain cuts & earthen shoulders maintenance along the ROW as per MORT&H Specifications clause 302.	Cu.m.	-		0.00	0
9.10	Carrying out repairs to pot holes and perform necessary patching to existing bituminous Carriage way conforming as per MORT&H Specifications clause 302.	Cu.m.	-		0.00	0
9.11	Renewal coat on existing road with 25 mm SDBC as per MORT&H Specification clause 508 to the area of the existing Carriage way.	Sq.m.	-		0.00	0
9.12	Coordinating with respective service provider / authorities for cutting of trees, shifting of utilities and removal of encroachment etc. as per MORT&H specifications clause 110.	L.S.	-		0.00	0
9.13	Relocation / construction of cultural properties such as Temples / Mosque as identified and as per directions of the Engineer	Sq.m.	-		0.00	0
9.14	Providing site office for the independent consultant including furnishing the same complete as per MORT&H specifications clause 120.	Sq.m.	-		0.00	0
9.15	Maintaining site office for the independent consultant and other supervisory staff complete as per MORT&H specifications clause 120.	Month	-		0.00	0
9.16	Providing and maintaining Vehicles for the independent consultant and his staff including driver, POL etc. complete as per MORT&H specifications clause 121.	Veh-month	-		0.00	0
9.17	Providing and maintaining mobile phones of NOKIA or equivalent make with SIM card for use of PIU including roaming and using charges Rs. 3,000/- per month subject to increase every year with 5%.	Phone month	-		0.00	0

SR NO	DESCRIPTION	UNIT	TOTAL QUANTIT	Rate	Escalation @16.5%	Amount
					1.165	
9.18	Construction and provision of highway / material engineering laboratory with latest state of art material testing equipments as per MORT&H specifications clause 120.	Sq.m.	-		0.00	0
9.19	Maintaining of field laboratory with regular water supply, stand by power system and consumables etc. complete as per MORT&H specifications clause 120.	Month	-		0.00	0
9.20	Construction of temporary diversion where necessary and maintenance there of including traffic control and safety devices complete as per MORT&H specifications clause 112.	M	-		0.00	0
9.21	Providing & fixing chain link fencing to protect the ROW on either side of the road as per drg and direction of the Engineer, including excavation, angle iron fixed in M-15 grade concrete complete as per MORT&H specifications sections 300, 1700 & 1900.	M	-		0.00	0
9.22	Providing and fixing 1.8 metres high GI barbed wire fencing with 1.8 m angle iron posts 40 mm x 40 mm x 6 mm placed every 3 metres center to center founded in M15 grade cement concrete, 0.6 metre below ground level, every 15th post, last but one end post and corner post shall be strutted on both sides and end post on one side only and provided with 9 horizontal lines and 2 diagonals interwoven with horizontal wires, fixed with GI staples, turn buckles etc complete as per clause 807.	M	-		0.00	0
9.23	Renewal coat on existing road with BC as per MORT&H Specification clause 508 to the area of the existing Carriage way.including tack coat	Cu.m.	-		0.00	0
9.24	Emergency Medical Services by setting medical Aid Post manned by atleast Two trained and certified paramedics and Ambulance shall be equipped with first Aid & Basic Life support system complete as per Section 12.9 of Manual.	Nr.	-		0.00	0
9.25	Sutable Communication System with all necessary equipment for meeting his O&M obligations complete as per Section 12.11 of Manual.	Nr.	-		0.00	0
9.26	Operation and Maintanance Centre complete as per Section 12.13 of Manual.	Nr.	-		0.00	0
9.27	Supply of O&M vehicles		-		0.00	0
a	Vehicle for Highway Maintainance	Nr.	-		0.00	0
b	Vehicle for Corridor Control	Nr.	-		0.00	0
c	Vehicle for Traffic Aid POST	Nr.	-		0.00	0
d	Vehicle for medical aid post	Nr.	-		0.00	0
e	Crane Services for Rescue Post (20 MT Capacity)	Nr.	-		0.00	0
f	Ambulance	Nr.	-		0.00	0
g	Water Tanker for fire fighting and Watering plants	Nr.	-		0.00	0
h	Boundary stones	Nr.	-		0.00	0
i	Planting of low height flowering plants and shrubs in one rows in central median.	Nr.	-		0.00	0
j	Planting of low height flowering plants and shrubs in one rows in Intersection Islands.	Nr.	-		0.00	0
9.26 a	Highway Lighting		-			
•	Single Arm energy efficient lights of standard make with minimum 40 Lux capacity, 9m ht above FRL	Nr.	32	33,250.00	38,736.25	12,39,560
•	Double Arm energy efficient lights of standard make with minimum 40 Lux capacity, 9m ht above FRL	Nr.	10	42,500.00	49,512.50	4,95,125
•	iqh mast lighting at flyovers	Nr.	4	5,70,000.00	6,64,050.00	26,56,200
	TOTAL					344,01,385