

**Improvement of Movement Network IN Nananded under JNNURM
Summary of Bill of Quantities for RoB at hingoli gate**

Sl. No.	Item No.	Item Description	Unit	Quantity	Rate in (Rs.)	Amount in (Rs.)
PART - 1. PRELIMINARY WORKS						
1	1.01	Clearing and grubbing road land including uprooting all vegetation, grass, bush shrubs, saplings and trees of girth upto 300 mm, removal of stumps of trees of girth of all sizes including removing stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable materials as directed by Engineer with all leads and lifts etc. complete as per specification.	Ha	2	16461	32,922.00
2	1.02	Installation of a steel portable barricade with horizontal rail 300 mm wide, 2.5 m in length fitted on a 'A' frame made with 45 x 45 x 5 mm angle iron section, 1.5 m in height, horizontal rail painted (2 coats) with yellow and white stripes, 150 mm in width at an angle of 45, 'A' frame painted with 2 coats of yellow paint, complete as per IRC:SP:55-2001	Nos	620	1522	943,640.00
3	1.04	Dismantling of structures and sorting of the dismantled material, disposal of unserviceable material and stacking serviceable materials as directed by Engineer with all leads and lifts etc. complete as per specification and as per site requirements. Dismantling PCC Kerb Median	Cum.	300	138	41,400.00
		b) Dismantling of Concrete Structures	Cum.		144	-
		Ref: Sr.No. 1.04 b) Of RA as per MORT&H				-
4	1.05	Soil Investigation				-
		Taking one 100 mm bore hole at each foundation location of ROB proper and one each in approaches on each side by using double tube boring machine and carrying out tests to determine Engineering Properties of soil and to ascertain rock levels / qualities of strata at each location and submitting the soil investigation report with necessary interpretation of the test results as directed by Engineer and as per specification. a				-
		a) Boring in all strata excluding hard rock.	Rmt.	500	1474	737,000.00
		b) Drilling in hard rock.	Rmt.	125	1950	243,750.00
PART - 2. FOUNDATIONS & SUBSTRUCTURES						
1	2.01	Excavation for foundation of structures and staircase including existing pavement surfaces including dewatering, shoring and strutting as necessary and backfilling the trenches with suitable excavated material in layers of 15 to 20 cms and disposing of remaining unsuitable material with all lifts and lead as directed and preparation of bed for concreting of foundations etc. complete as directed by Engineer and as per specification.				-
	i)	a) Soils of all types upto 3m depth	Cum.	4500	81	364,500.00
		including ordinary earth, sand dry / wet soil, marine clay, boulders, kankars, soft murrum, hard murrum, etc.				-
		b) Soils of all types greater than 3m depth	Cum.		90	-
	ii)	Excavation foundation of structure in rock by wedging / chiselling / controlled blasting or line drilling and mechanical means including shoring and strutting as necessary and disposing of excavated stuff as directed or stacked etc. complete by engineer with all leads and lifts .	Cum.	300	426	127,800.00
2	2.02	Providing Trial Pits to find out the utilities in the proposed alignment. The Location details shall be submitted by the Contractor as directed by the Engineer.				-
		a) Soils of all types upto 3m depth	Cum.	1300	81	105,300.00
		including ordinary earth, sand dry / wet soil, marine clay, boulders, kankars, soft murrum, hard murrum, etc.				-

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		b) Soils of all types greater than 3m depth	Cum.	0	90	-
3	2.03	Providing and laying in situ M15 grade bedding concrete in foundation, Annular filling bollow pile cap including dewatering, shuttering, mixing in mechanised batch mix plant, compacting, curing etc. complete true to level and position as directed by Engineer and as per specification.	Cum.	268	2364	633,552.00
3	2.04	Providing and casting in situ controlled cement concrete M30 for RCC bored pile including necessary dewatering, formwork, mixing in mechanised batch mix plant, transporting, compacting, vibrating, curing and finishing including all leads & lifts Including Chipping and dressing of the RCC piles upto cut-off level (Min. 1D) including cleaning of reinforcement and removal of dismantled materials (Excluding Reinforcement) complete as per detailed specifications. Note: 10% additional cement to be added over and above the quantities required as per designs.				-
		1.0 m Dia Pile	Rmt	3600	6521	23,475,600.00
		1.2 m Dia pile	Rmt	900	7385	6,646,500.00
4	2.05	Carrying out load test on any pile as per standard procedure laid down in the IS:2911 specification including construction of test cap, dismantling the cap after test and cleaning the site and maintaining complete records of load settlement as directed by Engineer and as per specification, and submission of records.				-
		a) Initial Load Test on test				-
		pile for 2.5 times the design load specified in Drawings				-
		1.0 m Dia Pile (2% of 252 piles in total) = 6 Nos. (Load per Pile = 200 t x 2.5 = 500.0 t) x 6 Nos.	MT	3000	312	936,000.00
		1.2 m Dia Pile (2% of 64 piles in total) = 2 Nos.(Load per Pile = 300 t x 2.5 = 750.0 t) x 2 Nos.	MT	1500	312	468,000.00
		b) Routine pile load test on				-
		pile for 1.5 times the design load specified in Drawings				-
		1.0 m Dia Pile (2% of 252 piles in total) = 6 Nos.(Load per Pile = 200 t x 1.5 = 300.0 t) x 6 Nos. =	MT	1800	300	540,000.00
		1.2 m Dia Pile (2% of 64 piles in total) = 2 Nos.(Load per Pile = 300 t x 1.5 = 450.0 t) x 2 Nos.	MT	900	300	270,000.00
		c) Horizontal pile load test on				-
		pile for 1.5 times the design load specified in Drawings				-
		1.0 m Dia Pile (2% of 252 piles in total) = 6 Nos.(Load per Pile = 20 t x 1.5 =30.0 t) x 6 Nos. =	MT	180	5000	900,000.00
		1.2 m Dia Pile (2% of 64 piles in total) = 2 Nos. (Load per Pile = 30 t x 1.5 = 45.0 t) x 2 Nos.	MT	90	5000	450,000.00
5	2.06	Providing and laying 600 mm thick filter media behind abutment as per detailed drawing & specifications complete.	Cum	130	333	43,290.00
6	2.08	Providing and laying M30 grade cement concrete for cast-in situ piers, abutments, Retaining Wall ,dirt walland column of staircase etc. as per approved design and drawings, with necessary centering, shuttering with asthetic finishes mixing in mechanised batch mix plant, scaffolding, transporting, placing, compacting by mechanical vibrators, finishing, curing etc. complete excluding reinforcement as directed by Engineer and as per specification.	Cum.	1040	4418	4,594,720.00
7	2.09	Providing and laying in situ controlled M30 grade cement concrete for RCC caps and pedestal over piers and abutments including necessary scaffolding formwork, centering, mixing in mechanised batch mix plant, transporting, placing, compacting by mechanical vibrators, finishing and curing etc. complete excluding reinforcement, as directed by Engineer and as per specification.	Cum	685	4528	3,101,680.00

Sl. No.	Item No.	Item Description	Unit	Quantity	Rate in (Rs.)	Amount in (Rs.)
8	2.10	Providing & fixing in position HYSD Fe415 steel bars of various diameters for all RCC works in Piles, Piles Caps ,well steining,well curb,foundations ,Pier, Pier Cap, Abutment wall, Dirt wall, Pedestals as per detailed design & drawings and schedule including cutting, bending, hooking the bars, binding with 18 SWG wires or tack welding (only for piles) and supporting as required with all lifts and leads etc. complete including all laps, chairs, spaces etc. and cost of all labour, materials, tools, plants, equipments etc. all complete as directed by Engineer and as per specification.	MT	913	35491	32,403,328.65
9	2.11	Providing and applying one coat of zinc-rich epoxy primer and two coats of coal tar epoxy paint of reqd. thickness as per specifications to all concrete surfaces in contact with earth in foundation and substructure including all cost of material, labour, transportation and preparing the surfaces by cleaning, washing, brushing, sand / grit blasting etc. complete as directed by Engineer and as per specification. (Paint shall be got tested from approved laboratory).	Sqm.	1800	117	210,600.00
10	2.18	Providing and laying in situ M30 reinforced cement concrete well caps / pile caps including necessary shuttering compacting by vibrating finishing and curing etc. complete (excluding reinforcement) as directed by Engineer	cum	2680	2839	7,608,520.00
11	2.22	Providing and installing 6 / 8 mm MS liner for bored-cast-in-situ concrete piles including applying protective coating as per drawing and specification and as directed by Engineer (excluding reinforcement).	MT	60	37556	2,253,360.00
PART - 3. SUPERSTRUCTURE						-
1	3.01	Providing 12.7 / 15.2 mm nominal dia. high tensile prestressing steel conforming to low Relaxation prestressing steel strands as per IS:14268 strands - Cl. II of specified ultimate strength, including cutting, cleaning, forming cables etc and further including providing and laying corrugated HDPE sheathing of specified dia., anchorages, stagewise stressing, grouting testing of materials Class II for I- Girder / Box Girder and specified dia., anchorages, stagewise stressing, grouting, testing of materials and all enabling work for post tensioning of steel etc. including provision of coupler wherever requiredcomplete including all lifts and leads as per specification and approved design and drawings and as directed by Engineer.	MT	147	93334	13,720,098.00
2	3.02	Providing and laying controlled cement concrete of M40 grade in post-tensioned precast 'I' Girders including necessary casting yard, casting trough, centering, formwork, mixing by using admixture in mechanised batch mix plant, transporting, placing, compacting by mechanical vibrators, finishing, curing etc. complete including inserts, if any, epoxy mortar filling, lifting, shifting, transporting 'I' girder to the actual pier location and erecting in correct alignment on temporary bearings over the pier caps etc. complete as directed by Engineer and as per specification, excluding reinforcement and HTS strands.	Cum	2802	4625	12,959,250.00

Sl. No.	Item No.	Item Description	Unit	Quantity	Rate in (Rs.)	Amount in (Rs.)
3	3.03	Providing and fixing POT cum PTFE bearing to the true line and level and in position as per drawings and BS:5400, Sec. 9.1 & 9.2 so as to impart full and even bearing on the seats and free movements / restraints as specified including cost of all materials, fixtures, preparing surface for receiving bearings, grouting of sleeves in pier caps / superstructures with non-shrink high early strength grout of flowable consistency, load testing of all bearings as per design and drawings and specification, removing clamps provided for transportation and handling etc. complete including all leads and lifts as directed by Engineer.				-
		a) POT fixed bearing				-
		2) 180 Ton capacity each	Nos	66	12100	798,600.00
		3) 200 Ton Capacity each	Nos	6	24200	145,200.00
		4) 260 Ton capacity each	Nos	4	31460	125,840.00
		b) POT cum PTFE bearing				-
		2) 180 Ton capacity each	Nos	126	12100	1,524,600.00
		3) 200 Ton Capacity each	Nos	6	24200	145,200.00
		4) 260 Ton capacity each	Nos	4	31460	125,840.00
4	3.04	Providing and laying controlled in-situ cement concrete of M40 grade in RCC deck slab and diaphragm including necessary scaffolding, centering, formwork, mixing by using admixture in mechanised batch mix plant, transporting, placing, compacting by mechanical vibrators finishing and curing etc. complete as per specification and as directed by Engineer, excluding reinforcement.	Cum.	3940	4946	19,487,240.00
5	3.05	Providing and laying controlled in-situ cement concrete of M40 grade in Box Girders including necessary centering, formwork, mixing by Using Admixture in mechanised batch mix plant, transporting, placing, compacting by mechanical vibrators, post threading of cables, finishing, curing etc. complete including inserts if any, epoxy mortar filling in anchorages, etc. complete as directed by Engineer and as per specification, excluding reinforcement and HTS strands.	Cum.	470	5867	2,757,490.00
6	3.06	Providing and fixing in position HYSD Fe415 reinforcing bars of various diameters for all RCC works of Superstructure as per detailed design and drawings and schedule including cutting, bending, hooking the bars, binding with 18 SWG wires, including all laps, chairs, spacers etc. and cost of all labour, materials, tools, plants, equipment, supporting as required with all lifts and leads etc. all complete as per specification and as directed by Engineer.	MT	851	35,491.05	30,202,883.55
7	3.07	Providing and applying one coat Epoxy Phenolic primer of DFT 50 micron and two coats of Epoxy Phenolic coating of DFT 100 microns each or any other equivalent epoxy coating system to all concrete surfaces exposed to atmosphere in superstructure including cost of material, labour, transportation, scaffolding and preparing the surfaces by cleaning, washing, brushing, sand / grit blasting etc. complete and as directed by Engineer and as per specification. (Paint shall be got approved from Engineer and tested from approved laboratory).	Sqm.	0	132	-
8	3.08	Providing and applying 3 coats of water based cement paint of approved quality to the inner concrete surfaces of Box Girder in superstructure including cost of all materials, labour, transportation, scaffolding and preparing the surfaces by cleaning, washing, brushing, sand / grit blasting etc. complete, as directed by Engineer and as per specification. (Paint shall be got tested from approved laboratory).	Sqm.	0	114	-

Sl. No.	Item No.	Item Description	Unit	Quantity	Rate in (Rs.)	Amount in (Rs.)
9	3.09	Providing and carrying out load test on bridge deck with simulated loading including provision, placing and removal of loading, supplying, fixing and removing deflection measuring instruments etc. complete with platforms for fixing the instruments etc. complete as per the details supplied and specification and as directed by Engineer and including submission of required results in triplicate after satisfactory completion of the load test.	Nos	1	100000	100,000.00
PART - 4. MISCELLANEOUS ITEMS						-
1	4.01	Providing and casting RCC Crash Barrier in M40 controlled concrete with cast-in-situ or precast members as per detailed drawings including necessary scaffolding, centering, formwork, mixing by using admixture in mechanised batch mix plant, transporting, placing, compacting, finishing, curing, etc. complete including providing and fixing of inserts if any with all leads and lifts as per drawing & specification and as directed by Engineer, excluding reinforcement.	Rmt.	1530	3825	5,852,250.00
2	4.02	Providing and laying 100 mm HDPE pipe in true line and level inside the crash barrier and drain for the conduits for electrification and services including fixtures, specials etc. complete as per specification and as directed by Engineer.	Rmt.	1530	144	220,320.00
3	4.03	Providing and laying in-situ M25 grade cement concrete in RCC Median Verge Kerb, Railing Beam and footpath cover slab including formwork, transporting, placing, compacting, finishing, curing, etc. complete with all leads and lifts as per drawing & specification and as directed by Engineer.(Excluding Reinforcement)	Cum.	185	2817	521,145.00
4	4.04	Providing and fixing in position HYSD Fe415 reinforcing bars of various diameters for R.C.C. Crash Barrier, Median Kerbs as per detailed designs and drawings and schedule including cutting, bending, hooking the bars, binding with 18 SWG wires with all laps, chairs, spacers etc. and cost of all labour, materials, tools, plants, equipments, supporting as required with all lifts and leads etc. all complete as per specification and as directed by Engineer.	MT	9.5	35,491.05	337,164.98
5	4.06	Providing and fixing 100 mm dia. G.I. Drainage spouts, including grating with suitable clean out fixtures including all leads and lifts etc. complete as per specification, design & drawings and as directed by Engineer.	No.	339	354	119,829.00
6	4.07	Providing and fixing 150 mm diameter PVC longitudinal runner pipes / under drain along soffit of deck slab including cost of all materials, labour, fixing in true line and level, including bends, fixtures, specials etc. complete with all lifts and leads etc. as per specifications and as directed by Engineer.	Rmt.	1010	320	323,040.00
7	4.08	Providing and fixing 150 mm dia. PVC down take pipes including cost of all materials, labour, fixing in true line and level, including bends, fixtures, specials etc. complete with all lifts and leads etc. as per specifications and as directed by Engineer.	Rmt.	940	320	300,800.00
8	4.11	Providing and fixing in position elastomeric Stripseal expansion joint for movement of + and - 40 mm as per specification and detailed drawing including cost of all materials, fixtures, welding, preparing surface for receiving joints, testing of all materials in approved laboratory including all leads and lifts etc. complete in deck slab and crash barrier at the joints as per specification, drawings and as directed by Engineer.	Rmt.	172	7523	1,293,956.00

Sl. No.	Item No.	Item Description	Unit	Quantity	Rate in (Rs.)	Amount in (Rs.)
9	4.12	Providing and applying primer coat using bituminous emulsion or cut back primer over prepared surface of deck slab with emulsion preheated to a temperature between 20 - 60°C and applying a uniform coat with the aid of self propelled bitumen pressure sprayer with self heating arrangement and spraying bar with nozzles of constant volume for pressure system at 10 kg/10 sqm including all materials, labour, machinery etc. complete with all leads and lifts as directed by Engineer and as per specification.	Sqm.	7580	31	234,980.00
10	4.13	Providing and applying tack coat using bituminous emulsion or cut back primer over primed / black top surface with emulsion preheated to a temperature between 20 - 60°C and applying a uniform coat with the aid of self propelled bitumen pressure sprayer with self heating arrangement and spraying bar with nozzles of constant volume for pressure system at 5 kg/10 sqm including all materials, labour, machinery etc. complete with all leads and lifts as directed by Engineer and as per specification.	Sqm.	7580	16	121,280.00
11	4.14	Providing and laying mastic asphalt water proof coat with composition of bitumen 30/40 penetration grade conforming to MOST specification with the bitumen of 14% to 17% weight of total mix including cleaning the surface, testing of materials in approved laboratory etc. complete on the deck slab of the flyover as required and as directed by Engineer.				-
		a) 6 mm thick	Sqm.		95	-
		b) 12 mm thick	Sqm.	7580	190	1,440,200.00
12	4.15	Providing and laying 40-100 mm thick hot mix hot laid dense bituminous macadam on prepared surface using 30 - 40 grade bitumen with bitumen content of 4.5% of weight of total mix including cleaning the surface, providing necessary aggregate with specified gradation, mixing with mechanical means in hot mix plant of suitable capacity of preferably batch mix type and electronically controlled mixing to the specified temperature, transporting and laying the mix with self propelled paver finisher with electronic sensor device and initial compaction with min. 80 - 100 kN static weight vibratory roller / pneumatic tyred roller having min. 150 - 250 kN weight having a tyre pressure of at least 0.7 Mpa and finished with min. 60 - 80 kN weight smooth wheeled tandem roller to achieve desired density including all materials, labour, machinery etc. complete with all leads and lifts as per specification and as directed by Engineer, excluding tack coat.	Cum.	580	4307	2,498,060.00
13	4.16	Providing and laying Bituminous Concrete in a single layer of 25mm to 50 mm compacted thickness on prepared surface using bitumen of grade approved by the engineer 30-40 grade @ 5.5% of bitumen by weight of mix including providing necessary aggregates with specified gradation mixing with mechanical means in hot mix plant of suitable capacity of batch mix type and electronically controlled mixing to the specified temperature, transporting and laying the mix with self propelled paver finisher with electronic sensor device in full width and initial compaction with minimum 80 - 100 KN static weight smooth wheeled roller followed by intermediate rolling with minimum 80 - 100 KN static weight vibratory roller / pneumatic tyred roller having minimum 150 - 250 KN weight having a tyre pressure of atleast 0.7 MPa and finished with minimum 60 - 80 KN weight smooth wheeled tandem roller to achieve desired density including all material, labour, machinery with all leads and lifts etc. complete (excluding tack coat) and including cement filler @2% by weight of mix.	Cum	290	5090	1,476,100.00

Sl. No.	Item No.	Item Description	Unit	Quantity	Rate in (Rs.)	Amount in (Rs.)
14	4.20	Providing & fixing in position 100 mm Dia. A.C. pipes as weep holes in Abutments and Return Walls completed in all respect as per specification and as directed by Engineer.	Nos	48	60	2,880.00
15	4.21	Providing & fixing in position MS Railing over RCC Crash Barrier including Support Angle/Fixtures as per Detailed Drawing and Specifications and as directed by the Engineer.	Rmt.	1530	1371	2,097,630.00
16	4.22	Providing & Fixing Bituminous Filler Pad material 20 mm thk. between two carriageways	Rmt.	505	262	132,310.00
17	4.26	Providing and fixing Neoprene bearing as per standard specification etc.complete(as per IRC-83 Part-11)	cm ³	300000	1.29	387,000.00
PART - 5. SOLID APPROACHES / REINFORCED EARTH RETAINING WALL						-
1	5.01	Excavation for foundation of structures including dewatering, shoring and strutting as necessary and backfilling the trenches with excavated material in layers of 15 to 20 cms and disposing of remaining unsuitable material with all leads and lifts as directed and preparation of bed for concreting of foundations etc. complete as directed by Engineer and as per specification.				-
		a) Soils of all types including ordinary earth, sand dry / wet soil, marine clay, boulders, kankars, soft boulders, kankars, soft etc	Cum.	175	81	14,175.00
2	5.02	Providing and laying in situ PCC M30 grade bedding concrete below fascia element / foundation including dewatering, shuttering, mixing in mechanised batch mix plant, compacting, curing etc. complete true to level and position as directed by Engineer and as per specification.	Cum.	565	2828	1,597,820.00
3	5.03	Providing & fixing of precast fascia elements in RCC M30 grade for reinforced soil embankment for approach returns and abutment as per specifications given in the Tender with suitable as specified in tender document including all materials, connections, joints, fittings and erection of fascia and reinforcing etc. complete in all respect, as directed by Engineer and as per specification, including casting and erection of PC units along with necessary insitu concrete works for foundations as well as coping and providing weepholes, perforated drain pipes behind the wall for necessary drainage arrangement etc. complete as specified/manufacturer's requirement.	Sqm.	2210	1091	2,411,110.00
4	5.04	Providing and laying in-situ RCC M-30 grade friction slab / coping beam on top of fascia wall concrete, necessary shuttering, centering, compaction by vibrating, curing, joints etc.complete in all respect with cast in-situ expansion gap at 50 m interval as directed by Engineer and as per specification and drawing, excluding reinforcement.	Cum.	400	3074	1,229,600.00
5	5.05	Providing and fixing in position HYSD Fe415 reinforcing bars of various diameters for the above all RCC works of Friction Slab as per detailed designs and drawings and schedule including cutting, bending, hooking the bars, binding with 18 SWG wires with all laps, chairs, spacers etc. and cost of all labour, materials, tools, plants, equipments, supporting as required with all lifts and leads etc. all complete as per specification and as directed by Engineer.	MT	40	35491	1,419,642.00
Total						193,254,996.18