

MAHARASHTRA METRO RAIL CORPORATION LIMITED
(NAGPUR METRO RAIL PROJECT)

BID DOCUMENTS

FOR

Construction Of Subway as RCC Box 1x7x3 Mt. by Pushing Method at Railway's Ch.830/09-11 Between Khapri-Ajni Station In Lieu Of Existing Level Crossing No.120 at Manish Nagar Crossing under Nagpur-Division Of Central Railway (Re-Tender).

TENDER NO.
N1CRF-04/2022

PART 4: Financial Bid & Bill of Quantities



Maharashtra Metro Rail Corporation Limited

(Nagpur Metro Rail Project)

**Metro Bhawan, East High Court Road (VIP Road),
Infront of Dr. Babasaheb Ambedkar Collage,
Near Dikshabhoomi, Nagpur-440010, Maharashtra, INDIA
Website: www.metrotrainagpur.com**

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BILL OF QUANTITIES**PREAMBLE**

1. The Bill of quantities consists of six schedules as shown below:
 - i) Schedule 'A': Covers the general/ancillary works associated with construction of viaduct and stations viz. Barricading, Traffic diversion/management, Digital topographical survey, etc. along the length of Subway.
 - ii) Schedule 'B': Covers the Road works along the LC-120 and of connecting sub-arterial roads.
 - iii) Schedule 'C': Covers the structural works such as foundation works, concrete works, earth work, box-pushing works etc. of the subway.
 - iv) Schedule 'D': Covers the Miscellaneous works such as painting, waterproofing, construction work of pumphouse etc.
 - v) Schedule 'E': Covers the Electrical items including the work of electrical utility shifting along the length of the subway.
 - vi) Schedule 'F': Covers the civil utility shifting and other incidental/unforeseen works associated with operation of above schedules.
2. The Bill of Quantities shall be read in conjunction with the Instructions To Bidders, Conditions of Contract, Notice Inviting Tender, Particular Specifications, Tender Drawings, Schedule, Annexure and Addendums.
3. 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 in the accepted priced "Bill of Quantities", where applicable.
4. The bidder should quote his rate only in the Financial Bid/ Price Bid Summary sheet provided in the Commercial/ Price Envelope section of the E-Tender Portal of NMRCL.
5. The bidder has to quote percentage **above/below/at par** against the estimated amount of respective schedules and arrive at the final amount of the respective schedules from Schedule A to E. The bidder is not required to quote any percentage **above/below** against schedule-F and the value will be taken **at par**. The BOQ based Schedules has to be filled up by the bidder with the percentage above/below/at par and amount of each schedule has to be signed, scanned and duly uploaded in the financial section of e-tender portal of Maha-Metro.

6. The percentage/ above, below or at par shall be quoted only in the Financial Bid of the Commercial Envelope in e-tender portal of Maha-Metro. The same shall being Indian Rupees both in figures and in words. All the amounts should be filled both in figures and in words. In case of any discrepancy between the two, the value provided in words shall be treated as sacrosanct.
7. If the bidder fails to quote rates against any schedule, the quote for that particular schedule will be treated as “Quoted at par”.
8. The total of Six schedule as mentioned above i.e. from Schedule-A to Schedule-F filled up by the bidder in the summary of financial bid shall be treated as total price bid quoted by the bidder for evaluation purpose.
9. The bidder should ensure that the financial/ commercial quote should be only quoted in the Commercial bid option on e-tender portal of Maha-Metro & nowhere else. If by mistake/ inadvertently the rate is quoted/ indicated anywhere in the Technical submission/ uploading of the entire Bid document/ Corrigendum / Addendum, the bid will be rejected outright and will not be considered for any further evaluation.
10. The quoted rates are for completed and finished items of work and complete in all respects. It will be deemed to have included all constructional plant, tools, machinery, labour, supervision, materials, fuel, oil, consumables, electric power, water, transportation, all leads and lifts, dewatering, all temporary works and false works, construction of temporary stores and buildings, fencing, watering, lighting, erection maintenance, night working, inspection facilities, safety measures at work sites/casting yard for workmen and road users, preparation of design and drawings pertaining to the casting yard, staging, shuttering, form work, stacking yard etc, establishment and overhead charges, labour camps, insurance costs for labour and works, contractor's profit, all taxes, royalties, duties, cess, GST and other levies and other charges together with all general risks, liabilities and obligations set out or implied in the contract and including remedy of any defects during the Defect Liability Period, unless otherwise provided in BOQ. Reinforcement (supply, cutting, bending, placing in position, tying etc.) shall not be paid separately unless otherwise mentioned in BOQ.
11. Providing concrete for all works deemed to be inclusive of the cost towards production of concrete by Batching Plant, transit mixer, transportation of concrete with all feeds and lifts, form work, shuttering including staging as required, pouring of concrete by pump/tower crane to all heights/ depths, tremie or other approved means, compaction by vibrators, curing by approved means such as water, steam or curing compound and all

- labour, tools, plants, machinery required for execution of work complete in all respects including de-shuttering after completion of work.
12. The whole cost of complying with the provisions of the Contract shall be deemed to have been included in the quoted rates.
 13. General directions and description of works and materials are not necessarily repeated or summarized in the Bill of Quantities.
 14. The method of measurement of completed work for payment shall be in accordance with the requirements as stated in Part-2 Work's Requirement under this bid Document.
 15. Errors will be corrected by the Employer for any arithmetical errors in computation or summation as indicated in Contract Document.
 16. Bidder may please note that to perform this contract, nothing extra shall be payable on account of field constraints, availability of front, preparation of detailed scheme for taking necessary clearance and approval from the concerned authority and other local bodies / administration etc.
 17. Geo technical data provided in the tender document is an indicative only for Bidding purpose. The successful Bidder has to carry out the Geo-Technical Investigations to perform this contract.
 18. The Bidder's offer shall be inclusive of all taxes and duties payable by them, income Tax and any other statutory taxes to be deducted at source, if any, will be deducted by the Employer in accordance with the Income Tax Act and any other acts in force and in accordance with instructions issued by the Authorities on this behalf, from time to time.
 19. The estimate has been prepared including 12% GST. However, as per circular dated 13/07/2022 by Ministry of Finance, Dept of Revenue, 18% GST for Metro Works is to be considered with effect from 18/07/2022. The bidder has to quote for this bid considering 18% GST. Any changes in rate of GST or any other taxes, hereafter, during the execution of the work shall be adjusted both ways.

IMPORTANT NOTES

- 1. The bidder should quote his percentage rate against amount indicated for each Schedule.**
- 2. For comparison/evaluation of the quoted bid price by the bidders, the grand total of the quoted amount from schedule "A" to "F" shall be taken in to consideration.**
- 3. Employer reserves the right to omit /off load/ partially execute any items in any of the Schedules during construction without any liability to either party.**

NAME OF WORK : Construction of Subway as RCC box 1x7x3 Mt. by box pushing method at Railway's Ch. 830/09-11 between Khapri-Ajni station in lieu of existing level crossing no. 120 at Manish Nagar crossing under Nagpur division of Central railway.			
ABSTRACT			
S. No.	Schedule	Description	Amount (in Rs.)
1	Schedule-A	General Works	70,71,968.99
2	Schedule-B	Road Works	3,70,72,188.83
3	Schedule-C	Structural Works	11,3348,132.54
4	Schedule-D	Miscellaneous Works	1,68,97,388.93
5	Schedule-E	Electrical Items including Electrical Utility Shifting	1,45,09,902.70
6	Schedule-F	Lump-Sum	50,00,000.00
		Total Contract Value	19,38,99,581.99

NAME OF WORK : Construction of Subway as RCC box 1x7x3 Mt. by box pushing method at Railway's Ch. 830/09-11 between Khapri-Ajni station in lieu of existing level crossing no. 120 at Manish Nagar crossing under Nagpur division of Central railway.

Schedule-A (General Works)

Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
1	<p>Providing and erecting 2.00 metre high temporary barricading at site; each panel of size 2.50mx2.00m made of 40x40x6mm angle iron or 50x50x3mm hollow MS tube posts/horizontal members/ bracings covered with 1.63mm thick MS sheet. The sheet shall be fixed with 30x5mm MS flat by suitable welding/riveting. MS channel ISLC 75 @ 5.70 kg/m, 50cm long shall be provided at the bottom having oval shaped holes of size 50x25mm at both ends with 50cm long MS angle 40x40x6mm bracing. Suitable arrangement shall be made to fix the barricading to avoid from overturning by providing 250mm long expansion fasteners at both ends.</p> <p>The work shall be executed as per drawing/direction of Engineer-in-Charge which includes writing and painting, arrangement for traffic diversion such as traffic signals during construction at site for day and night, glow lamps, reflective signs, marking, flags, caution tape as directed by the Engineer-in-Charge.</p>				
	<p>The barricading provided shall be retained in position at site continuously consisting of shifting of barricading from one location to another location as many times as required during the execution of the entire work till its completion. Rate include its maintenance for damages, painting, all incidentals, labour materials, equipments and works required to execute the job. The barricading shall not be removed without prior approval of Engineer-in-Charge.</p> <p>(Note :- One time payment shall be made for providing barricading from start of work till completion of work consisting of shifting. The barricading provided shall remain to be the property of the contractor on completion of the work).</p>				
	(a) 2m height	RMT	720	3,307.02	23,81,054.40
	The Payment schedule for item shall be as follows:				

Schedule-A (General Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	(i) On completion of fixing/installation of Barricade as approved by Engineer- 70% of accepted amount.				
	(ii) After completion of all activities including removal of barricades and restoration of site with latest specification and as per the instructions of the Engineer, 30 % of accepted amount.				
	(iv) While erecting barricade, the bottom gap between barricade and road should be plugged with cement concrete from inside.				
	(v) There should be minimum openings at the end of barricade to allow access of lorries and machine to site work area. Even these spacing should have proper opening/closing arrangements.				
	(vi) Adequate blinking lights on barricade during night time must be ensured. The cost of this item should include provision for power pack/ Genset etc. so as to ensure the blinking of lights in night time as long as barricades are in position at the work spot.				
2	Deployment of adequate manpower for 8 hrs shift (3 Shifts/day) for round the clock management of traffic at intersections, junctions, roadway influenced by contractor & traffic diversions at various levels as per approved traffic management plan and as directed by Engineer.				
	(a) Supervisor (1 Nos Per Shift)	Shift	1080	1,460.99	15,77,869.20
	(b) Traffic Guards	Shift	2160	1,397.33	30,18,232.80
	Note-1: The deployment to be done with prior approval of Maha Metro and the attendance shall be jointly certified by GC/ Maha-Metro. The personnel at (a), & (b) above should be familiar with traffic rules and regulations.				

Schedule-A (General Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
3	Detailed survey along the corridor shall be carried out with the following details:	KM	0.25	3,79,250.36	94,812.59
	<p>a) Establishing GPS stations (at every proposed station locations) at the interval of not more than 200-250 m. The GPS station shall be fixing concrete pillar 600 mm x 600 mm x1000 mm on building roof free with a proper concrete platform. Stainless Steel (SS) Plate 100 mm x 100 mm x 4 mm with center punch shall be fixed on the top of the station.GPS instrument accuracy shall be minimum horizontal 5 mm + 0.5 ppm and vertical 10 mm + 0.5 ppm in static observation. The base line measurement shall be based on minimum 4 hrs. static observations and other observations shall be with minimum 2 hrs. Static observations. (The observation time may be increased if the no. of satellite is less than 8 as the project corridor is a urban section.)</p> <p>b) Closed traversing shall be carried out storing in total station Angle and Distance from GPS to GPS with an accuracy of 1: 50000 by observing minimum 3 sets of face right and 3 set of face left. Stations shall be established at an interval not more than 200 m. Closing error shall be distributed with least square method and Bowditch Method in commercial software compatible to the intrument used for traversing. The same commercial software shall be supplied to NMRC. Traverse pillar shall be established on permanent structure or providing and fixing concrete pillar 400mm x 400mm x 600mm along the alignment. Total station raw data, calculations shall be submitted to the employer along with beforeand after adjustment co-ordinates in tabular form.</p>				

Schedule-A (General Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	<p>c) Detailed Topographical survey shall be carried out with adjusted traverse co-ordinates. All surface features, ground levels, and over-ground utilities shall be taken. Total Station raw data and calculations shall be submitted to Employer for No Objection. Drawings, raw data and calculations shall be submitted in soft and hard copy.</p> <p>d) A closed circuit leveling shall be run along the entire route connecting one pair of GPS to another pair of GPS station. The accuracy of the leveling will be $(6\sqrt{K})$, where the k is length of the leveling loop. Digital leveling/Auto level instrument shall be used to establish bench mark. Raw data from digital level shall be submitted along with adjusted and unadjusted levels in tabular form.</p> <p>e) Establish all control points, traverse, bench mark and TBM. Fixing and Validating Centre line of corridor, GAD and pier locations duly considering feasibility of the pier locations on account of physical site constraints, utilities (by physical verification) and on the basis of Geotechnical Investigation Reports, vertical & horizontal clearances and establishing traverse points and bench mark for the elevated section including modifications, if any, as per drawings. No extra amount will be paid to redo or to re-establish any of the survey points. The work shall be maintained during the Contract Period including the extended contract period till the completion of the work. Rate includes all survey work including preparation of revised GAD in consultation with the Engineer. However, physical verification of utilities and Geotechnical investigations will be paid separately under relevant Schedules.</p>				
	NOTE:				
	i. Digital leveling instrument to be used for the work shall have the minimum accuracy of the order of ± 0.3 mm per km double run with least count not more than 0.01 mm				
	ii.Total station instrument shall have minimum accuracy for:				
	a) Angle measurements (Hz, V) of the order of 1"				
	b) Distance measurement of the order of 1mm+2ppm				

Schedule-A (General Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	iii. Payment at 50% of total cost of the item on checking and verification of all control points and submission of drawings and approval of the same by the employer.				
	iv. Payment at 40% of total cost of the item equally distributed over the duration of the contract and will be paid on prorata basis.				
	v. Payment at 10% of total cost of the item on satisfactory completion of work along with the final bill.				
	Total of Schedule-A				70,71,968.99

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Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
1	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately etc.	CUM	3,000	532.77	15,98,310.00
2	Transportation of material obtained from Excavation of various sorts including necessary excavation/ loosening including loading, unloading and conveying and disposing as directed. (Lead of initial 1km is included in item)	CUM per KM	41,550	45.70	18,98,835.00
3	Compacting the existing sub grade / gravel / size metal (100 mm loose) layers for all widths with vibratory roller having weight 8 to 10 MT including necessary, labour,	SQM	6,870	42.13	2,89,433.10
4	Construction of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader/ Paver on prepared surface and compacting with vibratory roller to achieve the desired density, complete as per clause 401 -- Plant	CUM	1,670	2,526.33	42,18,971.10
5	Wet Mix Macadam -- Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the Material with water at OMC in mechanical mix plant carriage of mixed Material by tipper to site, laying in uniform layers with paver in sub- base / base course on well prepared surface and compacting with vibratory roller to achieve the desired density. Laying By Grader/Paver.	CUM	1,155	2,533.76	29,26,492.80
6	DENSE BITUMINOUS MACADAM:--Providing and laying dense bituminous macadam using crushed aggregate of grading 1, premixed with bituminous binder Bitumen of specified grade,@ 4.50 % by weight of total mix and filler, transported at site with VTS, laid over a previously prepared surface , finished to the required grade ,level, alignment,and rolling to achieve the desired density for 76/100 mm compacted thickness with drum mix type hot mix plant with SCADA having complying essential features of Hot mix plant as per IRC-27-2009 specified conditions and attachments such as electronic load sensor based belt conveyers, automatic synchronization of bitumen and aggregate fedder,built in dust controller system and PLC for Drum Mix plant ,Sensor paver, and Vibratory roller excluding prime/Tack coat etc. complete --Bitumen VG-30 grade with stone dust filler (VG-30 bulk bitumen rates are considered to arrive at rates)	CUM	415	11,371.54	47,19,189.10

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
7	BITUMINOUS CONCRETE:--Providing and laying bituminous concrete using crushed aggregate of grading 1, premixed with bituminous binder @5.40% by weight of total mix and filler, transported at site with VTS, laid over a previously prepared surface, finished to the required grade ,level, alignment, and rolling to achieve the desired density for 50mm compacted thickness with drum mix plant with SCADA, Sensor paver and Vibratory roller excluding prime/Tack coat etc. complete --Bitumen of VG-30 grade with specified filler and Specification as per latest MORTH 507.	CUM	510	13,166.85	67,15,095.03
8	Providing and laying 25mm thick Mastic asphalt wearing course with paving grade bitumen 14 % by weight of total mix, filler, fine & course aggregate, meeting the requirements given in table 500-29, of MORT&H Specifications prepared by using mastic cooker and laid to required level and slope after cleaning the surface, including providing antiskid surface with bitumen precoated finegrained hard stone chipping of 13.2 mm nominal size at the rate of 0.005 cum per 10 sqm and at an approximate spacing of 10 cm center to center in both directions, pressed into surface when the temperature of surfaces is not less than 100 0 C, protruding 1 mm to 4 mm over mastic surface, etc. complete (excluding tack coat, mix design is required for each case).	SQM	1,150	1,131.50	13,01,225.00
9	Prime coat - Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including cleaning of road surface and spraying, primer at the rate of 0.60 kg/sqm using mechanical means as per latest MORTH specifications.	SQM	4,125	40.89	1,68,671.25
10	Providing and applying tack coat on the prepared surface heating by flames in Boiler and spraying bitumen with sprayer on Concrete surface treated with primer @ 3.25 kg/10 sqm (VG-30 bulk bitumen rates are considered to arrive at rates)	SQM	1,128	28.50	32,148.00
11	Providing and applying tack coat on the prepared surface heating by flames in Boiler and spraying bitumen set footed in bitumen boller on B.T. surface 2.5 Kilogram/10 Square Metre.(VG-30 bulk bitumen rates are considered to arrive at rates)	SQM	10,130	22.31	2,26,000.30

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
12	Providing and laying of Type - B premix seal coat with HMP of appropriate crushed stone chipping 6.70 mm size and penetration bitumen of specified grade @ 0.68Kilogram/ Square Metre. , preparing existing road surface including mixing in suitable Batch Mix plant and rolling by static roller having weight 8 to 10 MT.etc.	SQM	10,130	83.02	8,40,992.60
13	Providing and laying in-situ M40 Grade unreinforced plain cement concrete pavement over a prepared sub base with 43 grade cement , coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS 383, using fine and coarse aggregates combined gradation as per Table 600-3 of MORTH Specification 2013, mixed in a batching and mixing plant/ non tilting mixer and Weigh batcher as per approved mix design, admixtures, transporting to site, spreading, laying with approved make paver,compacted and finished in a continuous operation, finishing to lines and grades as directed by Engineer-in-charge.	CUM	600	9,655.53	57,93,318.00
14	Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, , cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant/ Weigh batch mixer, transported to site with all leads and lifts, laid with a paver with electronic sensor /by suitable means as approved by Engineer-in-charge , compacting with vibratory roller, finishing, curing and including preparation of sub-grade surface if required etc. complete.	CUM	450	4,422.00	19,89,900.00
15	Providing and fixing in position mild steel 32 mm dia dowel bars precoated with anticorrosive epoxy paint of required Dia. 60 cms. Long and at 30.00 cm. C/C & wherever directed including handling, straightening necessary cutting supported by HYSD chairs with proper alignment by using properly designed assembly of Bulkheads lubricating half length with bituminous paint as directed etc. complete. 32mm	NOS	2,000	486.71	9,73,420.00

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
16	Providing and fixing in position TMT FE 500, tie bars precoated with anticorrosive epoxy paint of 12 mm dia. 70 cms.long and at 30.00 cm. C/C and wherever directed including handling, straightening wrapping with paper of approved quality for half length, necessary cutting, handling, straightening , supported by assembly of TMT FE 500, chairs with proper alignment etc. complete.	NOS	370	379.14	1,40,281.80
17	Cutting transverse contraction joints 3 to 4 mm wide and depth 60mm in concrete slab using concrete cuttingmachine with diamond studded saw within 48 hours of casting of bay / slab etc. complete including subsequent widening of the groove 8 to 10 mm. wide at top having depth of 15 mm. as directed by Engineer-in-charge.	RMT	805	94.17	75,806.85
18	Providing to contraction joints polysulphide sealent (Pouring grade) conforming to BS : 5212 - 1989 into sawed groove widened at top for sealent reservoir of specified size and shape as per detailed drawing including fixing Polyethylene foam backer rod of required diameter (appraox. 25% larger than the initial 3mm.to 4 mm. joint) overlaid with bond breaking tape as per detailed drawing. Item includes cleaning the joints with water jet / air compressor and allowing joint to become thoroughly dry before sealent is applied and applying primer. (A) Contraction and longitudinal joints (15 mm. deep x 8 mm.wide)	RMT	1,005	385.33	3,87,256.65
19	Providing and laying 125 micron Low Density Polyethylene (LDPE) sheet confirming to IS 3395 : 1997 below concrete pavement including all materials and labour complete.	SQM	2,565	37.17	95,341.05
20	Providing and laying factory made chamfered edge Cement Concrete paver blocks in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength, thickness & size/ shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of sand, compacting and proper embedding/laying of inter locking paver blocks into the sand bedding layer through vibratory compaction by using plate vibrator, filling the joints with sand and cutting of paver blocks as per required size and pattern, finishing and sweeping extra sand. complete all as per direction of Engineer-in-Charge.		-	-	-
	a) 80mm thick C.C. paver block of M-30 grade with approved colour, design &	SQM	900	1,182.73	10,64,457.00

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
21	Providing and casting in situ or precast tapering R.C.C. M-20 Barrier type Kerb without gutter (as per IRC 861983) embedded 125mm below ground level over M-10 PCC finished neatly with C.M. 1:2, setting the same in C.M. 1:2, including the required excavation in any strata and removing the excavated stuff any where in city and redoing the surface as specified and directed by Engineering In-charge. Using Concrete Batching and Mixing Plant.	RMT	450	686.41	3,08,884.50
22	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade,Two or more coats on new work--For Kerb stone painting.	SQM	135	153.75	20,756.25
23	Road Marking with Hot Applied Thermoplastic Compound with Reflectorizing Glass Beads on Bituminous Surface- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorizing 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.		-	-	-
	a) Lane/centre line/edge line/ pedestrian crossing marking/Rumble strips and any other markings along strips	SQM	1,025	825.18	8,45,809.50
24	Providing and fixing Mandatory/Regulatory sign boards in circular shape of ___mm dia made out of ___mm aluminum sheet bonded with white retro reflective sheeting of Class C (Type XI Micro prismatic grade sheeting) having pressure sensitive/heat activated adhesive retroreflective specified back ground, border and back side retroreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3 Supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with grey stove enamel paint and supported on one Number of M. S. angle iron post of size 65 mm X 65 mm X 6 mm, 3.45 m long, duly painted with with flat oil paint having alternate black and white bands of 25 cm width including G.I. fixtures etc; fixing the boards in M25 grade concrete block of size 60cm X 60cm X 75cm including transportation etc; complete. Class C		-	-	-

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	(Type XI Micro prismatic grade sheeting) shall have 10 years written warranty from the manufacturer and authorised distributor/convertor issued for field performance including the screen printed areas and cutout sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier		-	-	-
	a) 600mm dia made out of 3 mm alluminum composite material.	NOS	8	6,685.65	53,485.20
25	Providing and fixing Cautionary/Warning sign boards in Equilateral Triangle size of _____mm made out of _____mm aluminum sheet bonded with white retro reflective sheeting of Class C (Type XI Micro prismatic grade sheeting) having pressure sensitive/heat activated adhesive retroreflective specified back ground, border and back side retroreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3 Supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with grey stove enamel paintand		-	-	-

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	supported on one Number of M. S. angle iron post of size 65 mm X 65 mm X 6 mm, 3.45 m long, duly painted with with flat oil paint having alternate black and white bands of 25 cm width including G.I. fixtures etc; fixing the boards in M25 grade concrete block of size 60cm X 60cm X 75cm including transportation etc; complete. ClassC (Type XI Micro prismatic grade sheeting) shall have 10 years written warranty from the manufacturer and authorised distributor/convertor issued for field performance including the screen printed areas and cutout sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier.		-	-	-
	a) 600 mm made out of 3mm aluminum composite material	NOS	8	5,338.86	42,710.88
26	Providing and fixing Cautionary/Warning sign boards in Octagone size of__ mm made out of___mm aluminum sheet bonded with white retro reflective sheeting of Class C (Type XI Micro prismatic grade sheeting) having pressure sensitive/heat activated adhesive retoreflective specified back ground, border and back side retoreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3 Supported with back support frame 25mm x 25mm x 3mm, duly painted on back		-	-	-
	and white bands of 25 cm width including G.I. fixtures etc; fixing the boards in M25 grade concrete block of size 60cm X 60cm X 75cm including transportation etc; complete. Class C (Type XI Micro prismatic grade sheeting) shall have 10 years written warranty from the manufacturer and authorised distributor/convertor issued for field performance including the screen printed areas and cutout sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier		-	-	-
	a) 750 mm made out of 4mm aluminum composite material	NOS	4	10,413.80	41,655.20

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
27	Providing and fixing of retro- reflectorised informatory sign board rectangular/Square in shape having area less than 0.9 square meter made out of ____mm aluminum sheet bonded with white retro reflective sheeting of Class__(Type IV High intensity micro-prismatic grade sheeting-HIP) having pressure sensitive/heat activated adhesive retroreflective specified back ground, border and back side retroreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3, supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with two coats of grey stove enamel paint and supported on one Number mild steel angle iron post 75 mm x 75 mm x 6 mm, 3.5 mt long firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing.			-	-
	The angle iron post shall be duly painted with one coat of epoxy primer and two coats of epoxy finish paints having alternate black and white bands of 25 cm width including GI fixtures and transportation etc.complete.The nut bolts of board with angle iron post/supporting structure after fixing at site has to be electrically welded. Class B (Type IV High intensity micro-prismatic grade sheeting - HIP) having pressure sensitive / heat activated adhesive retro reflective specified background, border and backside retroreflective symbols, letters, numerals, arrow as per IRC 67 - 2012 table number 8.3, supported with backsupport frames 25mm x25mmx 3mm, duly painted on backside with two coats of gray stuffed enamel paint and supported on one number mild steel angle iron post 75mm x 75mm x 6mm, 3.5m long firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45cm x 45cm x 60 cm, 60 cm below ground level as per approved drawing.			-	-

Schedule-B (Road Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	The angle iron post shall be duly painted with one coat of epoxy primer and two coats of epoxy finish paints having alternate black and white bands of 25 cm width including GI fixtures and transportation etc.complete.The nut bolts of board with angle iron post / supporting structure after fixing at site has to be electrically welded. Class B (Type IV High intensity Microprismatic grade sheeting - HIP) Sheeting shall have seven years written		-	-	-
	a) 4mm aluminum composite material Class B	SQM	8	12,127.34	97,018.72
28	Providing and erecting overhead signs complete as per drawing and Clause 802 of MoRTH Specifications for Road and Bridge Works (Fifth Rev		-	-	-
	a) chevron signs	NOS	4	12,165.30	48,661.20
29	Providing and fixing retro-reflectorised road delineators complete as per drawing and Clause 805 of MoRTH Specifications for Road and Bridge Works (Fifth Revision).		-	-	-
	a) One way-Hazard markers	NOS	2	4,793.85	9,587.70
	b) Two Way-Hazard markers	NOS	2	4,793.85	9,587.70
30	Road normal studs: Supplying and fixing of Plastic body studs with two shanks and without shanks of SWAREFLEX or equivalent in yellow, red and white color made of ABS body with size 100*100*17.9 mm, having reflective panels of 34 special Swaro glass reflective elements embedded in plastic and 19 degrees tilted to provide the highest reflectivity. Having reflective panels in yellow, red and white plastic with yellow, red, white or green Swaro glass elements. The studs shall have a compressive strength test certificate of 25 tons in accordance with ASTDM D 4280 and successfully passing retro reflectivity test as per EN 1463-1 and the road test EN 1463-2 from a reputed laboratory. The fixing of the road studs shall be done by using a recommended Two Component Epoxy. In addition two holes should be drilled in the depth of 50 mm on the road for the version with two shanks.	NOS	235	591.01	1,38,887.35
	Grand Total of Schedule B				3,70,72,188.83

NAME OF WORK : Construction of Subway as RCC box 1x7x3 Mt. by box pushing method at Railway's Ch. 830/09-11 between Khapri-Ajni station in lieu of existing level crossing no. 120 at Manish Nagar crossing under Nagpur division of Central railway.					
SCHEDULE-C (Structural Works)					
Item No.	Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
T01	FOUNDATION				
1.1	Providing and laying cast in situ / ready mix M40 RCC for 550 mm diameter bored piles each of load capacity as per design and of specified diameter of as directed, placed through steel shell sunk to the required depth through all strata except rock, excluding provision of reinforcement including placing concrete by tremie arrangement, compaction of concrete and withdrawal of steel shell with fully automatic microprocessor based PLC with SCADA enabled with reversible drum type mixer/ concrete batch mix plant (panmixer) etc. complete.with VSI quality artificial sand (depth 0 to 5 metre)	RMT	3,360	4,522.35	1,51,95,096.00
1.1.a	Extra for Chiselling in hard rocks including removing and stacking the loose material and disposing the unserviceable materials as directed etc. complete. 550mm dia	RMT	2,430	1,283.61	31,19,172.30
1.2	Boring with hydraulic piling rigs with power units, providing and installing cast in situ single under reamed piles of specified diameter and length below pile cap in M-25 cement concrete, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and the length of the pile to be embedded in pile cap etc. all complete. (Length of pile for payment shall be measured upto to the bottom of pile cap) :			-	-
	300 mm dia piles	RMT	800	2,995.31	23,96,248.00
1.3	Providing and laying in position cast-in-situ design cement concrete mix M15/20 grade cement concrete for 100mm thick PCC below open foundations, pilecaps, tie beams, basement, underground water tanks, slab on grade, raft slabs, retaining wall etc, extending 100mm all round beyond pile cap/open stepped foundation etc. Rate shall include preparing surface to receive PCC, shuttering and the cost of required dosage of admixture in concrete for obtaining required workability as per specifications and approval of Engineer.	CUM	180	7,878.81	14,18,185.80
	Sub Total - Foundation:			-	2,21,28,702.10

Item No.	Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
T02	IN-SITU /PRECAST CONCRETE WORK				
2.1	Providing and laying in-situ or precast cement concrete of M40/20 grade (as per technical specification) for closed box section span & U-trough including steel formwork, steel centering, compaction by vibrating and all related operations as required to complete the work as specified in drawings. Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer. Finishing uneven and honeycombed surface with C.M.1:3 of sufficient minimum thickness to give a smooth and even surface or roughening the surface if special finish is to be provided, curing and finishing in cement plaster (excluding reinforcement, including cover block). The C.M. 1:3 plaster is considered for rendering uneven and honey- combed surface only. Newly laid concrete shall be covered by gunny bag, plastic, tarpaulin etc. The rate shall also include construction joints as per specification and providing approved wire mesh/weld mesh alepers and hard wooden cut blocks and planks shall be paid sepa	CUM	2,185	11,638.03	2,54,29,095.55
2.2	Providing and laying Cast in situ/ Precast Ready Mix cement concrete M-25 of trap/ granite/quartzite/ gneiss metal for R.C.C. work in boundary wall column, foundation, panels, wearing coat etc. including bailing out water, Steel centering, formwork ,cover blocks, laying/pumping, compaction and curing roughening the surface if special finish is to be provided(Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade). Reinforcement shall be paid separately. Rate shall include cost of using required dosage of admixture in concrete for obtaining required workability as per approval of Engineer.	CUM	400	9,028.60	36,11,440.00

Item No.	Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
2.3	Construction of underground drain 1m x 1m (inside dimensions) lined with RCC M25/20, 15cm thick cover with RCC slab 10cm thickness on the edge of the roads as per MORTH specifications and as directed by engineer. Rate inclusive of reinforcement, shuttering, concreting, curing, excavation in all types of soil/concrete/boulder/rock/hard rock/structure etc. and with all leads and lift. the debris and surplus material has to be disposed at contractor's dumping yard. Payment will be made for running metre of drain measured individually on LHS and RHS on the road.	RMT	256	4,076.41	10,43,560.96
	Sub Total - Concrete Works:			-	3,00,84,096.51
T03	REINFORCEMENT				
3.1	Providing TMT reinforcement steel of Fe-500D grade, from approved supplier, handling, straightening, cutting, bending, tying, lap welding, placing in position including binding wire in diamond form at each reinforcement junction in all structural concrete at all heights and depths with all leads complete as per specifications and as directed including welding involved towards stray current protection effects as per the system approved by Engineer.	MT	390	1,11,142.02	4,33,45,387.80
	Stage Payment: On supply of Material at site in good condition and proper stacking. Invoice, Manufacturer's test certificate (MTC) to be submitted. (GC quality to certify) - i) 50% of the accepted rate shall be paid against indemnity bond. ii) On Fixing and Final certification by GC - 50% of the acceptable shall be paid				-
	Note: (i) No extra payment shall be made for the lap and chairs (wherever applicable), the cost of which is deemed to be included in the rates. (ii) The cost quoted should protective cover coating on reinforcement bar as per technical specification.				-
	Sub Total - Reinforcement			-	4,33,45,387.80

Item No.	Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
T04	BOX- PUSHING				
4.1	<p>Casting of precast single/twin RCC box with or without common web section including thrust bed for RUB/ROB/Canal works with weigh batching/using RMC of Specified grade controlled concrete and pushing in correct position and alignment below Railway track/Road by jacking by "Box pushing technique" as per approved drawing for vent way of any size with or without surcharge in all types of soils including shoring/strutting whenever required and disposal of surplus earth away from vent way upto a maximum lead of 1 Km including de-watering if required, under traffic conditions of Electrified/Non-Electrified sections, fixing of drag sheets, wearing coat as per approved drawing of M 20 Grade or above concrete, including footpaths/cable ducts with kerbs/crash barriers if required, parapet walls on both sides, including cast in-situ plaques for inscribing particulars of bridge foundation of size 450X450X50mm on bridge abutments/returns, casting of bridge number plaques in situ of overall size 750X720X400mm, drainage arrangements in box portion as per approved drawing/scheme, provision of cutting edges, providing and fixing electrical conduit pipes, junction boxes of approved dimension and quality, all fittings wherever required,mobilization operations, generator of required capacity for power supply, lighting, arrangements, other safety measures like protection of track/road traffic etc., during execution of work if required, with all contractors material, cement, Ready Mixed Concrete (if required), reinforcement steel, structural steel, shuttering, labour, tools and plants, machinery, and any other material required for execution of work in all respect with all lead and lift, transportation and as directed by Engineer incharge.</p> <p>(Only Clear area of RCC box opening in sqm shall be considered for entire pushing length in meter for payment purposes.)</p>	SQM per RMT	528	11,947.86	63,08,470.08

Item No.	Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	Note: (1) The rate includes all items of work/supplies for complete job in all respects including design of Thrust bed and related temporary works except cost of Reinforced cement concrete, cement, reinforcement & shuttering of (i) main RCC Box and (ii) Thrust Bed only which shall be paid extra under relevant item of BOQ. (2) If soft rock or hard rock is encountered in place of soil, difference between the respective rates of excavation for quantity of soft rock or hard rock and soil shall be paid extra under relevant items.				
4.2	<p>Insertion of temporary / steel girder in place of formation –</p> <p>The work involves:</p> <ol style="list-style-type: none"> 1. Insertion of C/C crib or wooden crib/ concrete pedestal at both ends as per Railway's design and materials in separate traffic blocks. This includes dismantling of track (if required), removal of ballast and stacking it at nominated location, excavation, installation of crib and filling of earth filled in bags, as required; 2. Excavation for insertion of girder, if required, filling back by bags full of earth under traffic block (if required); 3. Placement of girder by contractor's road crane (of appropriate capacity), tools & plants and linking of track with the approaches including dumping ballast, boxing and packing approach sleepers, ensuring gauge & cross level to make track fit for 20 kmph, as directed by engineer in-charge. <p>NOTE:</p> <ol style="list-style-type: none"> 1. In case bridge timber / channel sleepers are required to be laid on girder, the same shall be paid separately. 2. The cost of wooden sleepers supplied for top and bottom matting and bearing sleepers and hard wooden cut blocks and planks shall be paid separately under relevant items/ 	MT	130	8,336.18	10,83,703.40

Item No.	Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
	Removal of temporary / steel girder and linking of track – The work involves : 1. Removal of Steel / RH girder (including crib/concrete pedestal on both ends) and placing it on crib / cess away from Railway track as directed by engineer at site under traffic block; 2. Filling of Railway's earth by ramming, pulling ballast from stack / adjoining track / same track, laying track, linking with approach track and packing of ballast, so as to open track at 20 kmph speed, boxing & dressing of cess, ballast profiling etc. {(1) Work to be done under traffic block, (2) If earth is to be brought by contractor, the same will be paid separately } Note: 1) Standby Crane, if required to be deployed, shall be paid seperately. 2) Qty. Payable under this item shall be weight of RH-Girder, rails, bracings & associated fittings like cleats; bolts etc as well as Concrete pedestal. 3) Insertion and removal weight shall be measured seperatly for payment. 4) RH Girder as well as bolts & clamps for RH girder assembly will however, be supplied by the Railway/Maha-Metro.				
4.3	Leading miscellaneous materials such as iron work, rails, fittings & fastenings, pipes, wooden logs, stones overpitching stone size, RCC/PCC beams / slabs etc and allsimilar articles. (For lead upto 10km)	MT	130	150.62	19,580.60
4.3.1	Additional lead for every subsequent km or part thereof, over 10 km and upto 100 km over above.	MT/KM	11,700	13.12	1,53,504.00
	Sub Total - Box-Pushing			-	75,65,258.08
				-	
T05	Earth Work			-	
5.1	Excavation for foundation / pipe trenches in earth, soils of all types, sand, gravel and soft murum, including removing the excavated material upto a distance of 50 metres and lifts as below, stacking and spreading as directed, normal dewatering, preparing the bed for founda0on and excluding backfilling, etc. complete. (Bd-A 1/259) 0 to 1.5 m depth	CUM	6,000	185.85	11,15,100.00

Item No.	Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
5.2	Excavation for foundation in hard murum including shoring and strutting, dewatering as necessary and disposing off excavated stuff as directed etc. complete			-	-
	a) 0 to 1.5m depth	CUM	1,330	298.60	3,97,138.00
	b) 1.5 to 3m depth	CUM	1,980	328.46	6,50,350.80
5.3	Excavation for foundation in soft rock including shoring and strutting, dewatering as necessary and disposing off excavated stuff as directed etc. complete upto 50m distance			-	
	a) 3 to 4.5m depth	CUM	875	828.15	7,24,631.25
	b) 4.5 to 6m depth	CUM	610	897.16	5,47,267.60
5.4	Transportation of material obtained from Excavation of various sorts including necessary excavation/ loosening including loading, unloading and conveying and disposing as directed.	CUM per KM	92,700	45.70	42,36,390.00
5.5	Providing and laying of filter media consisting of granular materials of GW, GP, SW groups as per IS:1498 (latest) in required profile behind boulder filling of abutments, wing walls / return walls etc. above bed level with all labour and material complete job as per drawing and technical specification of RDSO Guidelines.	CUM	220	3,092.92	6,80,442.40
5.6	Providing and filling in the foundation with sand of approved quality including watering, compacting etc. complete. (To be executed in traffic block conditions as per instructions of Engineer In charge)	CUM	700	2,676.24	18,73,368.00
	Sub Total - Earth Work:				1,02,24,688.05
	Grand Total of Schedule C				11,33,48,132.54

NAME OF WORK : Construction of Subway as RCC box 1x7x3 Mt. by box pushing method at Railway's Ch. 830/09-11 between Khapri-Ajni station in lieu of existing level crossing no. 120 at Manish Nagar crossing under Nagpur division of Central railway.					
Schedule-D (Miscellaneous Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
1	Supply and application of Texture Paint as per client approved shade and following application methodology on Concrete Surface with 10 Years Warranty in following steps: Step1 : Surface preparation by closing pinholes with stucco plaster. Step 2: Cement Putty (J.K) or equivalent - 02 coats putty with 1.5 mm thickness in each coat. Step 3: Jotun or equivalent Acrylic Primer with thickness ranging from 25 μ to 35 μ - 1 Coat as per manufacturers specs Step 4: Jotun Profile Decor Texture with thickness of 3mm - 1 Coat as per manufacturers specs Step 5: Jotashield Colourlast Silk with thickness of each coat as 37 μ - 02 coats as per manufacturers specs Step 6: Jotun Jotashield Protect Clear Coat with thickness as 37 μ -1 Coat as per manufacturers specs The above item includes all leads, lifts, scaffolding, etc complete.	SQM	1,120	746.86	8,36,483.20
2	Providing and applying epoxy based paint of approved colour and shade to exterior surface in two or more coats including scaffolding preparing the surface to receive paint etc.Complete. Rate includes preparation of surface, application of one or more coats of primer as per manufacture's recommandation	SQM	480	536.05	2,57,304.00
3	Providing & applying epoxy with pot life not less than 60-90 minutes for bonding of new concrete with old concrete @ 0.80 kg/sqm and as per specifications including cleaning the surfaces complete as per approved procedure (Under traffic block conditions)	SQM	110	928.42	1,02,126.20

Schedule-D (Miscellaneous Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
4	Providing and laying APP (Atactic Polypropylene Polymer) modified prefabricated five layer 3 mm thick water proofing membrane, black finished reinforced with non-woven polyester matt consisting of a coat of bitumen primer for bitumen membrane @ 0.40 litre/sqm by the same membrane manufacture of density at 25°C, 0.87-0.89 kg/ litre and viscosity 70-160 cps. Over the primer coat the layer of membrane shall be laid using Butane Torch and sealing all joints etc, and preparing the surface complete. The vital physical and chemical parameters of the membrane shall be as under : Joint strength in longitudinal and transverse direction at 23°C as 650/ 450N/ 5cm. Tear strength in longitudinal and transverse direction as 30 250N. Softening point of membrane not less than 150°C. Cold flexibility shall be upto -2°C when tested in accordance with ASTM, D - 5147. The laying of membrane shall be got done through the authorised applicator of the manufacturer of membrane : 3mm thick	SQM	2,520	659.09	16,60,906.80
5	Extra for covering top of membrane with Geotextile, 120 gsm non woven, 100% polyester of thickness 1 to 1.25 mm bonded to the membrane with intermittent touch by heating the membrane by butane Torch as per manufactures recommendation.	SQM	2,520	121.06	3,05,071.20
6	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete : Serrated with central bulb (225 mm wide, 8-11 mm thick)	RMT	147	334.05	49,105.35
7	Providing and fixing various size HTS holding down bolts conforming to IS:1364 in concrete column or in other structures with proper nuts, bolts, washers/plates, grouting of holes with all material, labour, T&P as a complete job. Note: Cement / Epoxy grout used in grouting will be paid separately under relevant item.	KG	450	169.06	76,077.00

Schedule-D (Miscellaneous Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
8	Providing epoxy mortar with quartz sand with proportion epoxy concrete sand 1:6 for segment joints water stopper fixing, the section giving minimum 3day compressive strenght of 525 Kilogram/cm2 and maximum epoxy consumption of 315Kilogram/m3 of mortar with all materails labour equipment etc complete (Quartz Sand 885 Kilogram/Cum)	CUM	3	3,36,710.64	10,10,131.92
9	Steel work welded in built up sections/ framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.		-	-	
	a)In stringers, treads, landings etc. of stair cases, including use of chequered plate wherever required, all complete--Miscallaneous	KG	11,000	119.60	13,15,600.00
	b) In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works (Height Gauge)	KG	10,000	166.44	16,64,400.00
10	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-incharge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	KG	2,000	716.11	14,32,220.00
11	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.		-	-	-
	Granite of any colour and shade		-	-	-
11.1	Area of slab upto 0.5 sqm	SQM	20	5,473.11	1,09,462.20
11.2	Area of slab over 0.5 sqm	SQM	15	5,176.03	77,640.45

Schedule-D (Miscellaneous Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
12	Providing and fixing 8mm thck multi-wall clear polycarbonate sheet with specially designed powder coated AI, ALCOX system, EPDM rubber gasket, GE silicon sealent cold forged etc all complete for canopy over the open U-trough sections, including support columns, necessary foundation bolts with template during the casting of concrete, connections, fittings etc., complete as per specifications and as directed by Engineer. Item includes all structural steel works required for the sheeting as per approved drawing.	SQM	1,320	5,049.12	66,64,838.40
13	Providing and applying water proofing treatment using acrylic polymer modified cement based water proofing coating with fibre glass mesh mixing at the rate of powder to liquid (2:1) by weight covering 9 to 10 Square Metre /Kilogram with two coat using approved chemicals for masonry and concrete surface by brush covering 7 years guarantee on Stamp Papers etc. complete.	SQM	260	761.99	1,98,117.40
14	Providing Second class Burnt Brick masonry with conventional/I.S. type bricks in cement mortar 1:4 including scaffolding, racking joints and watering in pillars of rectangular or square shapes as shown in the drawings.	CUM	15	11,801.48	1,77,022.20
15	Providing internal cement plaster 12mm thick in single coat in cement mortar 1:3 without neeru finish to concrete or brick surfaces, in all position including scaffolding and curing etc. complete	SQM	60	358.08	21,484.80
16	Providing and fixing frame with / without ventilator of size as specified with Country non teak wood for doors and windows including chamfering, rounding, rebating, iron holdfast of size 300mm x 40mm x 5mm with oil painting, etc. complete	CUM	1	1,32,711.77	1,32,711.77
17	Providing and fixing solid core flush door shutter commercial in single leaf 32 mm thick without ventilator commercial type of exterior grade as per detailed drawings with wrought iron hold fast, stainless steel fixtures and fastenings and handles on both sides and finishing with oil painting 3 coats complete	SQM	4	3,609.21	14,436.84
18	Providing and applying washable oil-bound distemper of approved colour and shade to old and new surfaces in two coats including scaffolding, preparing the surfaces. (excluding the primer coat.) etc. complete	SQM	60	59.48	3,568.80

Schedule-D (Miscellaneous Works)					
Item No.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
19	Providing and applying priming coat on concrete/ masonry/ Asbestos Cement plastered surfaces including scaffolding if necessary, preparing the surface by thoroughly cleaning oil, grease, dirt and other foreign matter and sand papering as required etc. complete	SQM	120	44.61	5,353.20
20	Providing and applying three coats of water proof cement paint of approved manufacture and of approved colour to new plastered surfaces including scaffolding if necessary, cleaning and preparing the surface, watering for two days etc. complete	SQM	120	128.86	15,463.20
21	Providing and fixing Glass mosaic tiles on finished plain wall surface of size 20 mm x 20 mm x 4 mm in all colour, design , fixing in customize design as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in-Charge.	SQM	200	3,839.32	7,67,864.00
Grand Total of Schedule D					1,68,97,388.93

NAME OF WORK : Construction of Subway as RCC box 1x7x3 Mt. by box pushing method at Railway's Ch. 830/09-11 between Khapri-Ajni station in lieu of existing level crossing no. 120 at Manish Nagar crossing under Nagpur division of Central railway.					
Schedule-E (Electrical Items including Electrical Utility Shifting)					
Item no.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
1	Supplying and erecting LED street light fitting 100W, including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2. (Make : Jaquar, Bajaj, or Suriya)	Each	20	9619.36	192387.2
2	Supplying and erecting LED Street light fitting suitable for above 40W to 48W lamp, including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No . FG-ODF/FLS2. (Make : Jaquar, Bajaj, or Suriya)	Each	80	4858.06	388644.8
3	Supplying & erecting 20W LED PAR (30 Lamp E-27 Base, SPOTO series) lights by making necessary arrangement/recess in wall to make it flush with surface.	Each	2	3350.02	6700.04
4	Providing & fixing junction box having size of 300x300mm & height of 80mm complete with Bakelite terminal strip of 16A/500V rating with cover having IP54 grade protection class includes dismantling of existing Junction box if any. This job includes dismantling of existing inspection/maintenance box if any.	Each	75	1298.00	97350
5	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. copper conductor continuous 5.48 sq. mm. (12 SWG)G.I. earth wire complete erected with glands & lugs, on wall/ trusses/ pole or laid in provided trench/ pipe as per specification no. CB-LT/CU	RMT	500	711.54	355770
6	Supplying, erecting & terminating XPLE armoured cable 4 core 16 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	RMT	450	248.98	112041
7	Supplying and laying (including excavation) 50 mm outside dia. double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, to required depth complete.	RMT	500	247.80	123900
8	Supplying & erecting HMS P.V.C. conduit 32 mm. dia. With necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC.	RMT	150	212.40	31860

Schedule-E (Electrical Items including Electrical Utility Shifting)					
Item no.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
9	Supply, Installation, Testing and commissioning of maintenance free earthing comprising of Electrode of 17.2 mm diameter Low Carbon Steel with 250 micron molecular copper bonded earthing rod of Length 3m along with 25 kg Carbon based environment friendly back fill ground enhancing compound required to fill up the excavated earth with required quantity complete. Specification no.EA-MOBI	Each	12	16289.90	195478.8
10	Supplying and erecting UPVC reinforced flexible conduit 25 mm in dia. conforming to I.S. with required number of couplings, PVC bushes, check nuts etc. complete.	RMT	100	106.20	10620
11	Providing and erecting clamps for box type / industrial type fittings with provided suspension down rod of 20 mm dia. H.G. conduit, the clamp shall be made of 25 x 3 (mm) MS flat with cutting, bending, drilling erected properly with necessary nut bolt as per direction.	Each	200	95.58	19116
12	Supplying & erecting street light control panel in powder coated CRCA 14/16 SWG sheet, outdoor type, three phase, 415 V consisted of suitable rating contactor, 24 hrs digital/ astronomical time switch with minimum 5 years battery backup, TPN MCB 110 A auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc for automatic operation & overcurrent, short circuit, earth fault protection of street lights upto the max load of 12 kW on provided iron frame / CC foundation complete.	Each	3	55752.64	167257.92
13	Supplying and erecting self-locking arrangement with keys in duplicate, made of brass duly erected, flush with surface of panel / cupboard.	Each	12	342.20	4106.4
14	Supplying and erecting exhaust fan heavy duty 440 V A.C. 50 cycles 900 RPM 375/380 mm complete erected in position as per specification no. FG-FN/EXF	Each	4	4547.72	18190.88

Schedule-E (Electrical Items including Electrical Utility Shifting)					
Item no.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
15	Supplying & erecting Dewatering Submersible pump set 415V, 3 phase, 50C/s, A.C. supply of 5.5KW/ 7.5 H.P., of 6 to 22 m head with 1560 to 360 LPM discharge, non-clogging minimised abrasive wear, large impeller clearance & maintenance free pump set with water proof cable duly sealed with epoxy material built in protection to prevent the motor from burn out due to abnormal operation. specially designed high efficiency motor with F class insulation & the pump mechanically sealed in the oil chamber,. etc. complete as per specification no. DWP-SMP Make : Kirloskar or Equivalent.	Each	3	79851.78	239555.34
16	Supplying & erecting automatic control panel for 3 Ph, 415 volt, A.c.Submersible/centrifugal pump set upto 10 HP consisting of Star Delta starter having relay range 6-10 Amp, S.P.P., Combined ammeter/ voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc.	Each	3	13,985.36	41956.08
17	Supplying and erecting flat flexible 3 core 2.5 sq mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	RMT	100	164.02	16402
18	Providing & erecting 3 Pole MCCB upto 100A, 415V, with short circuit rating 25 kA (Ics=100% of Icu),adjustable thermal (overload) setting and fixed magnetic setting with provided leads, provision for installation of shunt/ UV/ trip alarm contact and MCCB should have phase barriers both sides, in provided enclosure on iron /GI frame as per specification no. SW-SWR/MCCB	Each	6	6,264.62	37587.72
19	Providing, erecting and commissioning 4 pole RCCB of electromagnetic type with 30/100/300 mA sensitivity and having capacity of 63A complete as per specification no. SW-RCCB/RCCB	Each	3	3,450.32	10350.96
20	Supplying, erecting & terminating XLPE armoured cable 3½ core 95 sq. mm. aluminium conductor with continuous 8.35 sq. mm. (10 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	RMT	300	715.08	214524

Schedule-E (Electrical Items including Electrical Utility Shifting)					
Item no.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
21	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 33 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT Note:- 1) For cable fault detection rates refer sub chapter 7.1 and notes below. 2) For round wire armouring increase material rates For 11 kV (E) by 25% For 11 kV(UE), 22 kV, 33kV (E)/(UE) by 27.5%	RMT	800	6,146.11	4916888
22	Providing and erecting Heat shrinkable straight through joint kit for 33 kV (E)/33 kV (UE) XLPE HT cable 3x300 to 400 sq. mm. with necessary material as per specification no. CBJT/HT	Each	20	1,03,722.00	2074440
23	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 11 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CB-HT Note:- 1) For cable fault detection rates refer sub chapter 7.1 and notes below. 2) For round wire armouring increase material rates For 11 kV (E) by 25%	RMT	600	4,158.14	2494884
24	Providing and erecting Heat shrinkable straight through joint kit for 11 kV (E) XLPE HT cable 3x240 to 400 sq. mm. with necessary material as per specification no. CBJT/HT	Each	6	37,829.62	226977.72
25	Supplying & laying (including excavation) 15 cm dia half round RCC Hume pipe of standard thickness at required depth up to 90 cms. below road / ground surface, for enclosing provided cable & necessary back filling with light ramming to make the road/ground surface as it was (Except bitumen carpet).	RMT	1600	599.44	959104
26	Providing & erecting epoxy outdoor / indoor end termination kitfor LT XLPE armoured cable 150 to 185 sq. mm. cable, with necessary material as per specification no. CB-JT/LT	Each	2	3,350.02	6700.04

Schedule-E (Electrical Items including Electrical Utility Shifting)					
Item no.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
27	Providing and erecting Heat shrinkable indoor termination kit for 11 kV (E) XLPE HT cable 3x240 to 300 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	2	13,308.04	26616.08
28	Providing and erecting Heat shrinkable out door termination kit for 11 kV (E) XLPE HT cable 3x240 to 300 sq. mm. with necessary material as per specification no. CB-JT/HT	Each	3	17,235.08	51705.24
29	Supplying and erecting G.I. pipe above ground of „C“ class ERW of size 200 mm dia with necessary fittings complete as per specification no. FF-PP	RMT	70	4,214.96	295047.2
30	Supplying, erecting & terminating XLPE armoured cable 1100 V. 3½ core 185 sq. mm. aluminium conductor with continuous 12.97 sq. mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	RMT	100	1,289.74	128974
31	Providing & erecting 8 m high (clear height) galvanised octagonal pole with foundation bolts having bottom of 135 mm A/F, top 70 mm A/F on provided foundation as per specification no. OH-PL/OPL	Each	16	22,679.60	362873.6
32	Making M- 20 grade reinforced cement concrete foundation by considering the safe soil bearing capacity at site as 10 T/sq.m at 1.5 m depth including supply of steel, concrete, excavation and fixing provided nut bolts with the help of template, duly plastered as per design complete (for 6m to 8m high octagonal /conical GI pole).	Each	16	4,347.12	69553.92
33	Supplying and erecting LED street light fitting 150 W, including lamp, with PF > 0.95 class IP 65 and above housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete per specification No FG-ODF/FLS-2.	Each	16	16,282.82	260525.12

Schedule-E (Electrical Items including Electrical Utility Shifting)					
Item no.	Item Description	Unit	Quantity	Item Rate (in Rs.)	Amount (in Rs.)
34	Providing and erecting galvanised 1500mm single arm sword type bracket with FRP dome and ball as per specification no. OHPL/ PBKT Note:- 1) For bracket length of 1500 mm (Single/ double arm) increase overall rates by 20%	Each	16	3,392.50	54280
35	Supplying and laying (including excavation) 90 mm outside dia. double wall corrugated pipes (DWC) of HDPE for enclosing cable below ground/road surface, to required depth complete.	RMT	200	397.66	79532
36	Supplying & erecting mains with 3x2.5 Sq.mm F.R copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places as per specification No: WG-MA/BW	RMT	150	109.74	16461
37	Supplying, erecting & marking SPMCB 6A to 32A, B- series (for lighting) in provided distribution board as per specification No. SW-SWR/MCB	Each	16	204.14	3266.24
38	Providing cement concrete for foundation or for concrete filling in 1:3:6 ratio with 20 to 25 mm. stone metal duly plastered with necessary curing for pole muffing or any other purposes.	CUM	20	4,053.30	81066
39	Providing pipe type earthing with 40mm. dia. G.I. pipe or 20 mm dia. G.I. Rod complete with all materials as per specification No. EA-EP	Each	16	1,770.00	28320
40	Supplying and erecting hylam sheet/ ebonite sheet 3 mm thick for covering wall entries including cutting, drilling and fixing with nut bolts / screws etc. complete.	SQM	2	1,227.20	2454.4
41	Supplying, erecting & terminating XLPE armoured cable 3½ core 35 sq. mm. aluminium conductor with continuous 5.48 sq. mm.(12 SWG) G.I. earth wire complete erected with glands & lugs, onwall/ trusses/pole or laid in provided trench/ pipe as perspecification no. CB-LT/AL	RMT	250	345.74	86435
	Total of Schedule-E				1,45,09,902.70

NAME OF WORK : Construction of Subway as RCC box 1x7x3 Mt. by box pushing method at Railway's Ch. 830/09-11 between Khapri-Ajni station in lieu of existing level crossing no. 120 at Manish Nagar crossing under Nagpur division of Central railway.		
Schedule-F (Lump-Sum)		
Item No.	Description	Amount (in Rs.)
1	Lumpsum amount for miscellaneous works not covered in other various schedules are payable as per CPWD DSR-21 with up-to-date correction slips for road works, restoration of footpaths, civil utilities and other miscellaneous. If rate for any item is not available in CPWD DSR-21, then MH PWD SSR 2022-23 shall be used. If rate for any item is not available in both CPWD DSR-21 and MH PWD SSR 2022-23, then MJP SSR -2021-22 shall be used. Note: Payment for Items under the respective schedule (i.e. DSR, PWD SSR and MJP SSR) shall be made as per the applicable rate of GST during the implementation of the contract. For example, if the applicable rate of GST during implementation of contract is 18% and the GST rate considered in a respective schedule is 12%, then the differential rate shall be payable/adjusted.	50,00,000.00