

**Volume-2**

**SECTION 6**

**BILL OF QUANTITIES**

## **PREAMBLE**

### **Bill of Quantities for the Works:**

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications and Drawings.
2. The quantities given in the Bill of Quantities are estimated and are given to provide a common basis for bidding. The Contractor to measure the work under the observation and control of the Engineer, which shall be valued at the rates provided in the priced Bill of Quantities, where applicable, and otherwise at such rates as the Engineer may fix within the terms of the Contract, which shall form the basis for payments to the Contractor.
3. The rates in the priced Bill of Quantities shall, except in so far as it is otherwise provided under the Contract, include all construction plant, labour, supervision, materials, all temporary works and false works, erection, transportation, maintenance, insurance, administrative overheads, profit, taxes and duties, together with all general risks, liabilities and obligations set out or implied in the Contract, and including remedy of any defects during the Defects Liability Period.
4. A rate shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates entered in the Bill of Quantities.
5. The costs of complying with the provisions of the Contract shall be included in the items provided in the priced Bill of Quantities. Where no items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related items of work.
6. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering rates against each item in the priced Bill of Quantities.
7. The Bill of Quantities of the Work is comprised of the various Bills of Lighting works activities. During execution, however, the items existing in any of the Bills can be made applicable for execution elsewhere also on the Works if considered appropriate and directed by the Engineer.
8. The method of measurement of completed work for payment shall be as per Specification.

9. Errors, if any, shall be corrected by Employer in terms of Clause 27 of ITB.

**Six-Laning of Barwa-Adda- Panagarh Section of NH-2 from km 398.240 to km 521.120 including Panagarh Bypass in the States of Jharkhand and West Bengal**

**Supply, Installation, Testing & commissioning for Lighting works at various locations within km 398.240 to km 521.120 on Barwa Adda Panagarh Road Project in the States of Jharkhand and West Bengal**

**Bill of Quantities attached separately**

## SECTION 4: BOQ (PART-I)

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
<b>Part-I</b>	<b>(As per CA: Location of Street Lighting (iv). Top &amp; Underside of Grade Separated structures including Half &amp; Full Flyovers as well as Underpass</b>				
<b>1</b>	<p>Supply, Installation, testing &amp; commissioning of Main Street Light Feeder Pillar (Location: Below grade separator bridge deck area) Outdoor, sheet steel metal clad, floor mounted type conforming to I S: 8623 (latest edition) with an enclosure protection of IP 65 as per I S: 2147. The Feeder Pillar (FP) shall be complete with key-lockable door; with bus Bars suitable for 1.1 kV with fault level withstand: 10 K A current for 1 sec. The F P panel shall have the main bus with electrical components mounted and wire connections terminated as per SLD. &amp; as follows:</p> <p>INCOMER : 415 V, 50 Hz, 80A, 3P MCCB + Neutral Bus Bar: 1 No.</p> <p>BUS BARS : 100 A TP + N + E Aluminium bus suitable for 1.1 K V with Fault with-stand current of 10 K A: 1 Set</p> <p>MCB: 0.5 A to 4 A rating (Protection MCB)</p> <p>CT operated direct reading type Ampere meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.</p> <p>(0-500) V range Volt meter on existing panel , making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.</p> <p>Digital type selector switch of 10 A for voltmeter (4 position) including making connection etc. as required.</p> <p>CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required.</p> <p>OUTGOINGS: 415 V, 40 A, 4P</p> <p>MCB: 5 Nos.</p> <p>415 V, 40 A, 4P Contactor: 5 Nos.</p> <p>"Timer: 415 V, 40 A, 4P Contactor with contactor control through Astro-timer, control circuit along with 'ON' &amp; ;OFF' switches: ON &amp; OFF Indicating Light : Over, Low Voltage &amp; Neutral Failure Relay through control wiring"</p> <p>Providing &amp; fixing of AC operated heavy duty</p>	No	<b>13</b>		

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
	<p>230 /440 Volt power contactor conforming to IS:13947-4-1/IEC:947-4-1 having provision of mechanical interlocking, auxiliary contacts, Din rail mounting type including making connections, testing etc. as required.</p> <p>"NOTE: All the MCB shall be suitable for 'Motor Duty' and the Contactors for 'AC3' duty. Swictgear Make:- Siemens/Schneider/L&amp;T"</p> <p>1 Complete Set of Main Street Feeder Pillar shall comprise of all the items mentioned above. The rate of main street feeder shall be inclusive of rates of all items mentioned above with complete as per technical specifications.</p>				
	<b>High mast Feeder Panel</b>				
	<p>Supply, Installation, testing &amp; Commissioning of High mast Feeder Pillar (Location: Below grade separator bridge deck area) comprising of Out-door, sheet steel metal clad, floor mounted type conforming to I S: 8623 (latest edition) with an enclosure protection of IP 65 as per I S: 2147. The Feeder Pillar (FP) shall be complete with key-lockable door; with bus Bars suitable for 1.1 kV with fault level withstand: 10 K A current for 1 sec. The F P panel shall have the main bus with electrical components mounted and wire connections terminated as follows:</p> <p>INCOMER: 415 V, 50 Hz, 40A, 3P MCCB + Neutral Bus Bar : 1 No.</p> <p>BUS BARS: 63 A TP + N + E Aluminium bus suitable for 1.1 K V with Fault with-stand current of 10 K A. :</p> <p>1 Set</p> <p>1 No. 40Amp TP MCCB as Incomer</p> <p>1 Nos. 32Amp TP Contactor - as Outgoing</p> <p>1 Nos. 32Amp TPN MCB - as Outgoing</p> <p>Phase indicating light</p> <p>Digital VIF Meter</p> <p>Time Switch</p> <p>Electrolytic grade Aluminium TPN bus bar</p> <p>Reverse forward switch with 2nos contactor.</p> <p>Panel Type - described as+B33:B44 above</p>	No	12		
	<b>Truck Lay Bye Feeder Panel</b>				

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
	<p>Supply, Installation, Testing &amp; commissioning of Truck Lay bye Feeder Pillar (Location : Below grade separator bridge deck area ) comprising of Out-door, sheet steel metal clad, floor mounted type conforming to I S: 8623 (latest edition) with an enclosure protection of IP 65 as per I S: 2147. The Feeder Pillar (FP) shall be complete with key-lockable door; with bus Bars suitable for 1.1 kV with fault level with-stand : 10 K A current for 1 sec. The F P panel shall have the main bus with electrical components mounted and wire connections terminated as per SLD. &amp; as follows:</p> <ul style="list-style-type: none"> <li>• INCOMER: 415 V, 50 Hz, 40A, 3P MCCB + Neutral Bus Bar : 1 No.</li> <li>• BUS BARS: 63 A TP + N + E Aluminium bus suitable for 1.1 K V with Fault with-stand current of 10 K A. : 1 Set</li> <li>• 1 No. 32Amp TP MCCB as Incomer</li> <li>• 2 Nos. 20Amp TP Contactor - as Outgoing</li> <li>• 2 Nos. 20Amp TPN MCB - as Outgoing</li> <li>• Phase indicating light</li> <li>• Digital VIF Meter</li> <li>• Time Switch</li> <li>• Electrolytic grade Aluminium TPN bus bar</li> <li>• Panel Type - described as above</li> </ul>	No	9		
<b>2</b>	<b>LT CABLE &amp; TERMINATION:</b>				
<b>2.1</b>	Supply, Installation, Testing & commissioning of P.V.C. / (XLPE Aluminium Armord) insulated & P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor of IS:1554 P-I / IS :7098 P - I in ground including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, IInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.				
A	1.5 Sq.mm (3 core) Copper cable for flyover under deck lighting	Mtr.	1000		
B	10.0 Sq.mm (4 core) Aluminium Cable for MCW + service road lighting	Mtr.	26000		
C	25.0 Sq.mm (3.5 core) Aluminium Cable for High mast lighting	Mtr.	2600		

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
D	50.0 Sq.mm (3.5 core) Aluminium Cable for LT meter to Main Feeder pillar	Mtr.	600		
2.2	<b>TERMINATION:</b> Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty aluminium lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size				
A	3 x 1.5 Sq.mm	No	88		
B	4 x 10.0 Sq.mm	No	1516		
C	3.5 x 25.0 Sq.mm	No	70		
D	3.5 x 50.0 Sq.mm	No	13		
2.3	Providing/Supply & Installation of Double wall corrugated HDPE pipe confirming to IS: 14930 P - 1 & 2 with HDPE Coupler at 1 mtr. Depth below the ground for laying cable including making the trench and back filling, compaction of earth as required of Gemini or IS:14930 marked make. Outer Dia. / Inner dia. (USED FOR CABLE LAYING ON FLYOVER / SERVICE ROAD / ETC.)				
A	Outer Diameter: 40 MM	Mtr.	23500		
2.4	Laying & Jointing R.C.C. class NP-2 (Non pressure) pipes (IS:458) with collars. Jointed with cement mortar of ratio 1:2 including excavation etc. as required.				
A	100 mm Dia with HDD (Horizontal Directional Drill)	Mtr.	700		
3	<b>EARTHING:</b> Supply, Installation Testing & Commissioning of Maintenance free Gel Earthing with Pipe in Strip Technology filled with anti-corrosive conductive compound (CPRI Tested) below the ground in 150 - 200 mm dia. earth pit & surrounding filled with required mineral filling compound (MFC should have hygroscopic property to retain the moisture for long time to create low resistance zone) and C.C. finished chamber covered with hinged type with locking arrangement C.I. Cover, C.I. Frame of size 300mm x 300mm complete testing of earth resistance as required. of following sizes:				
3.1	<b>GI Pipe 2000 mm Long, 50 / 25mm, Terminal 12 mm GI Strip</b>	No	46		



Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
3.2	Supply & Laying Hot Deep GI earth wire/strip/GI Wire in horizontal or vertical run-in ground/surface/recess including riveting, soldering, saddles, making connection etc. as required.	Kg	1000		
<b>4</b>	<b>POLES, High Mast Lighting, Fixtures &amp; Fittings</b>				
<b>4.1</b>	<b>Poles (Location of poles on Main carriageway on flyover at grade separator + service road - both covered by single pole with separate single/double arm bracket)</b>				
4.1 (a)	Supply, Installation, testing & Commissioning of (Excluding CIVIL foundation work or MS Bracket for Pole Fixing with Chemical grout) of 9 MTR. Octagonal Pole, Top Dia A/F - 70 mm, Bottom Dia A/F - 155 mm, Base plate dim - 260x260X16 mm, Shaft Thickness - 3 mm. The Octagonal Poles shall be designed to withstand the maximum wind speed of 50Mtr/Sec as per IS, The Poles and Brackets shall be hot dip galvanized in single dipping as per BSEN ISO 1461, standards with average coating thickness of 70micron. Single / double arm bracket length is 1.0/2.0 mtr. conforming to technical specification. The poles shall be provided with Internal Junction box for termination of Incoming and Outgoing cables between pole to pole, the Junction box shall have 6mm thick Hylam Board, onto which 4P 63A heavy duty connector, DIN rail, termination box having 2 nos. of 6 Amp MCB, internal wiring inside pole 1.5 sq mm ISI mark copper flexible wire, The Octagonal Poles shall be single section (upto 12 mtr).There is no circumferential weld joint. Electrical Contractor / Lighting manufacturer submit the Lux Design with shop drawings & get approval from Electrical Consultants before execution at site. Spiral Earthing (If ground Available) for each streetlight pole complete with 8 SWG galvanized wire having 5 feet deep in ground and 1 feet spiral portion covered by salt, coal etc. or Connect earthing through cable steel / wire armoured only.	No	758		
4.1 (b)	Galvanized Steel Bracket with Chemical grout Fast Nut for Fixing of Pole on Crass Barrier or Pole CC foundation in approach area.	No	758		
4.2	Supply, Installation, Testing & Commissioning of LED STREET Light (220W) with	No	710		

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
	Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 120 to 145 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA I Standard, Luminaries shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips, Wipro, Crompton, Osram, 5 Years warranty)				
4.3	Supply, Installation, Testing & Commissioning of STREET Light (200W) with Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 120 to145 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA I Standard, Luminaries shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips, Wipro, Crompton, Osram 5 Years Warranty)	No	96		
4.4	Supply, Installation, Testing & Commissioning of LED STREET Light (150W) with Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 120 to 145 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA I Standard, Luminaries shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips, Wipro, Crompton, Osram - 5 Years Warranty)	No	640		
4.5	<b>Supply, Installation, Testing &amp; commissioning of High mast Lighting &amp; Fixture:</b>				
a	<b>High Mast Lighting</b> Height of High mast- 30 MTR No. of section - 3 Material Construction shaft - BS-EN10 025,S-355 Thickness- Top-3mm Middle-4 mm, Bottom 5 mm Base & Top Diameter- Bottom- 460 Top- 150 mm Metal protection Treatment- Hot Dip	No	12		

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
	Galvanised Method of Dipping- Single Dipping Average Thickness of Galvanisation- As per BS EN ISO 1461 PCD - 590 mm Foundation Bolt- M30/ 850x12 Luminaire Capacity- 12 SS Wire Rope Grade- AISI 316 Number of Ropes- 3 Rope System Construction- 7/19 Centre core material-Stainless steel core Diameter (mm)- 6mm Braking Load Capacity- 2350 Factor of Safety- >5 for system full load Winch Number of Drum/winch- Double Drum type Gear Ratio- 53:1 Capacity- 750 KG Method of Operation- Manual/Electrical Lubrication Arrangement- Permanent Oil Bath				
4.6	<b>Supply, Installation, Testing &amp; Commissioning of LED light fixtures for High mast lighting:</b> LED FLOOD Light (350 W) with Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 120 to 145 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA I Standard, Luminaries shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips,Wipro,Crompton, Osram, 5 Years warranty)	No	120		
4.7	<b>LED light fixtures for Flyover under deck lighting</b> Supply, Installation, Testing & Commissioning of LED FLOOD Light (75/80W) with Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 135 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA I Standard, Luminarie shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips,Wipro,Crompton, Osram, 5 Years	No	88		

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
	warranty)				
<b>Total Amount in Rs.</b>					

## SECTION 4: BOQ (PART-II)

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
<b>Part-I</b>	<b>(As per CA: Location of Street Lighting) (iv). Top &amp; Underside of Grade Separated structures including Half &amp; Full Flyovers as well as Underpass</b>				
<b>1</b>	<p>Supply, Installation, testing &amp; commissioning of Main Street Light Feeder Pillar (Location: Below grade separator bridge deck area) Outdoor, sheet steel metal clad, floor mounted type conforming to I S: 8623 (latest edition) with an enclosure protection of IP 65 as per I S: 2147. The Feeder Pillar (FP) shall be complete with key-lockable door; with bus Bars suitable for 1.1 kV with fault level withstand: 10 K A current for 1 sec. The F P panel shall have the main bus with electrical components mounted and wire connections terminated as per SLD. &amp; as follows:</p> <p>INCOMER : 415 V, 50 Hz, 80A, 3P MCCB + Neutral Bus Bar: 1 No.</p> <p>BUS BARS : 100 A TP + N + E Aluminium bus suitable for 1.1 K V with Fault with-stand current of 10 K A: 1 Set</p> <p>MCB: 0.5 A to 4 A rating (Protection MCB)</p> <p>CT operated direct reading type Ampere meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.</p> <p>(0-500) V range Volt meter on existing panel, making connection by PVC insulated copper conductor with PVC sleeves / channel etc. as required.</p> <p>Digital type selector switch of 10 A for voltmeter (4 position) including making connection etc. as required.</p> <p>CT linked selector switch of 10 A for Ampere meter (4 position) including making connection etc. as required.</p> <p>OUTGOINGS: 415 V, 40 A, 4P</p> <p>MCB: 5 Nos.</p> <p>415 V, 40 A, 4P Contactor: 5 Nos.</p> <p>"Timer: 415 V, 40 A, 4P Contactor with contactor control through Astro-timer, control circuit along with 'ON' &amp; ;OFF' switches: ON &amp; OFF Indicating Light</p> <p>: Over, Low Voltage &amp; Neutral Failure Relay</p>	No	<b>10</b>		

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
	through control wiring" Providing & fixing of AC operated heavy duty 230 /440 Volt power contactor conforming to IS:13947-4-1/IEC:947-4-1 having provision of mechanical interlocking, auxiliary contacts, Din rail mounting type including making connections, testing etc. as required. "NOTE: All the MCB shall be suitable for 'Motor Duty' and the Contactors for 'AC3' duty. Switcgear Make:- Siemens/Schneider/L&T" 1 Complete Set of Main Street Feeder Pillar shall comprise of all the items mentioned above. The rate of main street feeder shall be inclusive of rates of all items mentioned above with complete as per technical specifications. <b>Complete Set of Main Street Feeder Pillar as above</b>				
	<b>High mast Feeder Panel</b>				
<b>2</b>	<b>LT CABLE &amp; TERMINATION:</b>				
<b>2.1</b>	Supply, Installation, Testing & commissioning of P.V.C. / (XLPE Aluminium Armord) insulated & P.V.C. sheathed cable of 1.1 KV grade with aluminium conductor of IS:1554 P-I / IS :7098 P - I in ground including excavation of 30cmx75cm size trench, 25 cm thick under layer of sand, IInd class bricks covering, refilling earth, compaction of earth, making necessary connection, testing etc. as required of size.				
A	1.5 Sq.mm (3 core) Copper cable for flyover under deck lighting	Mtr.	0		
B	10.0 Sq.mm ( 4 core) Aluminium Cable for MCW + service road lighting	Mtr.	18000		
C	25.0 Sq.mm (3.5 core) Aluminium Cable for High mast lighting	Mtr.	1500		
D	50.0 Sq.mm (3.5 core) Aluminium Cable for LT meter to Main Feeder pillar	Mtr.	500		
<b>2.2</b>	<b>TERMINATION:</b> Supplying and making one end termination with heavy duty single compression brass gland SIBG type, heavy duty aluminium lugs duly crimped with crimping tool, PVC tape etc for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminium conductor cable of 1100 volt grade as required of size				
A	3 x 1.5 Sq.mm	No	0		
B	4 x 10.0 Sq.mm	No	1036		

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
C	3.5 x 25.0 Sq.mm	No	36		
D	3.5 x 50.0 Sq.mm	No	10		
2.3	Providing/Supply & Installation of Double wall corrugated HDPE pipe confirming to IS: 14930 P - 1 & 2 with HDPE Coupler at 1 mtr. Depth below the ground for laying cable including making the trench and back filling, compaction of earth as required of Gemini or IS:14930 marked make. Outer Dia. / Inner dia. (USED FOR CABLE LAYING ON FLYOVER / SERVICE ROAD / ETC. )				
A	Outer Diameter: 40 MM	Mtr.	15,600		
2.4	Laying & Jointing R.C.C. class NP-2 (Non pressure) pipes (IS:458) with collars. Jointed with cement mortar of ratio 1:2 including excavation etc. as required.				
A	100 mm Dia with HDD (Horizontal Directional Drill)	Mtr.	600		
3	<b>EARTHING:</b> Supply, Installation Testing & Commissioning of Maintenance free Gel Earthing with Pipe in Strip Technology filled with anti-corrosive conductive compound (CPRI Tested) below the ground in 150 - 200 mm dia. earth pit & surrounding filled with required mineral filling compound (MFC should have hygroscopic property to retain the moisture for long time to create low resistance zone) and C.C. finished chamber covered with hinged type with locking arrangement C.I. Cover, C.I. Frame of size 300mm x 300mm complete testing of earth resistance as required. of following sizes:				
3.1	GI Pipe 2000 mm Long, 50 / 25mm, Terminal 12 mm GI Strip	No	18		
3.2	Supply & Laying Hot Deep GI earth wire/strip/GI Wire in horizontal or vertical run-in ground/surface/recess including riveting, soldering, saddles, making connection etc. as required.	Kg	500		
4	<b>POLES, High Mast Lighting, Fixtures &amp; Fittings</b>				
I	<b>Poles (Location of poles on Main carriageway on flyover at grade separator + service road - both covered by single pole with separate single/double arm bracket)</b>				

Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
4.1	Supply, Installation, testing & Commissioning of (Excluding CIVIL foundation work or MS Bracket for Pole Fixing with Chemical grout) of 9 MTR. Octagonal Pole, Top Dia A/F - 70 mm, Bottom Dia A/F - 155 mm, Base plate dim - 260x260X16 mm, Shaft Thickness - 3 mm. The Octagonal Poles shall be designed to withstand the maximum wind speed of 50Mtr/Sec as per IS, The Poles and Brackets shall be hot dip galvanized in single dipping as per BSEN ISO 1461, standards with average coating thickness of 70micron. Single / double arm bracket length is 1.0/2.0 mtr. conforming to technical specification. The poles shall be provided with Internal Junction box for termination of Incoming and Outgoing cables between pole to pole, the Junction box shall have 6mm thick Hylam Board, onto which 4P 63A heavy duty connector, DIN rail, termination box having 2 nos. of 6 Amp MCB, internal wiring inside pole 1.5 sq mm ISI mark copper flexible wire, The Octagonal Poles shall be single section (upto 12 mtr).There is no circumferential weld joint. Electrical Contractor / Lighting manufacturer submit the Lux Design with shop drawings & get approval from Electrical Consultants before execution at site. Spiral Earthing (If ground Available) for each streetlight pole complete with 8 SWG galvanized wire having 5 feet deep in ground and 1 feet spiral portion covered by salt, coal etc. or Connect earthing through cable steel / wire armoured only.	No	518		
	Galvanized Steel Bracket with Chemical grout Fast Nut for Fixing of Pole on Crass Barrier or Pole CC foundation in approach area.	No	518		
4.2	Supply, Installation, Testing & Commissioning of LED STREET Light (220W) with Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 120 to 145 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA1 Standard, Luminaries shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips, Wipro, Crompton, Osram, 5 Years warranty)	No	518		



Sl. No.	Item/Particulars	Unit	Quantity	Rate to be quoted in INR	Amount in INR
4.3	Supply, Installation, Testing & Commissioning of STREET Light (200W) with Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 120 to145 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA I Standard, Luminaries shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips, Wipro, Crompton, Osram 5 Years Warranty)	No	518		
4.4	Supply, Installation, Testing & Commissioning of LED STREET Light (150W) with Aluminium die cast housing , toughened extra clear glass cover , lens, IP 66 protection and Luminous efficacy $\geq$ 120 to 145 lumens/watt for supply voltage 100-270V AC, 50Hz., 10KV & 5 KV internal & outer SPD Protection, up to 120V to 395V with potted driver protection, Lifetime ( up to 50000Hrs) as per L80,THD < 20% , PF .095, Uniformity as per NHA I Standard, Luminaries shall be confirm to IS : 10322 part-5/section 5 (Make:- Bajaj, Philips, Wipro, Crompton, Osram - 5 Years Warranty)	No	518		
<b>Total Amount in Rs.</b>					

**Note:**

1. Quoted rates are inclusive of GST as per ITB Clause 42.1 and other applicable taxes
2. Item rate shall be inclusive of cost of all the material and its Transportation to the site, Manpower, Scaffolding, Tools, plants and equipment's and other incidentals required for completion of work.
3. Contractor shall arrange all the necessary equipment's required to execute the work as per the Standards and Specifications and as per good industrial practice.
4. Contractor shall supply, install, test & commission any material, LED lights & fixtures as per technical specifications only from the sources specified in the Contract and/or as may be approved by Employer.
5. Performance security equivalent to 3% of Contract Price for which an irrevocable bank guarantees to be submitted from an approved scheduled bank/ nationalized bank in approved format. The Performance Bond will be valid right through the contract and till the end of 28 days from Defects Liability Period of 18 months.

6. 5% amount from each Running Account Bill of contractor shall be deducted and withheld by Employer towards Retention Money. The retention money amounting to 5% shall be released interest free to contractor by Employer upon successful completion of Defects Liability Period of 5 years including OEM warranty. In case contractor requests for releasing retention money earlier, the same shall be released only upon contractor submitting a bank guarantee for equivalent amount from an approved scheduled bank/ nationalized bank in approved format with validity till completion of Defects Liability Period of 5 years including OEM warranty.
7. 18 Months for civil & electrical works except for LED lights & fixtures for which it shall be 5 years, from date of final completion certificate issued by Employer to contractor for the entire works including OEM warranty. However, in case of any delay by the Authority for issuing a Final Completion Certificate to Employer due to incomplete or unsatisfactory work of contractor's scope, DLP shall be started after final completion certificate issued by the Authority to Employer.
8. The Contractor shall submit invoices of Supply Part for executed quantities with RA Bills. The RA Bills will not be processed further for release of payment in absence of the material invoices and test reports. Contractor shall also submit relevant Manufacturer Test Certificate for material used in the work as per relevant Codal Provision at the time of supply of material at site.
9. The contractor shall ensure meeting all requirements of technical specifications and performance standards as provided in Employer's Concession Agreement signed with NHAI and MoRTH / IRC specifications.
10. The Contractor shall solely be responsible for implementation of Traffic Management and Diversion during execution of awarded work as per IRC:SP:55-2014 "Guidelines on Traffic Management in Work Zones, other relevant IRC Codes, Clause 112 of Specifications for Road & Bridge Works (5th Revision) and as per Annexure -5B of RFB Volume I. ***Failing to adhere to implement Traffic Management, Diversion and Safety as per agreed & defined norms shall result in imposition of penalty equivalent to 2% of amount from each Running Account Bill of the Contractor.***
11. TDS shall be deducted at the rates applicable as per provisions of Income Tax Act from contractor's running bills. For this purpose, Contractor shall submit necessary documents / details / information's as may be required to Employer from time to time.
12. The contractor shall be responsible for compliance as per prevalent Labor Laws including the labor cess compliances and its payment to Authority.
13. Work shall be executed under the supervision of Employer's representatives and payment shall be released to the contractor. The contractor shall prepare and submit the running account bill as per the milestones for Procurement & Supply of Lighting materials and on monthly basis for Installation Part. The milestone payment conditions have been defined in the contract data. The contractor shall prepare and submit the running account bill as per the milestones for Procurement & Supply of Lighting materials and on monthly basis for Installation Part. Employer shall review / revise (if required) and then certify the same for release of payment. The certification shall be done by the Project Management Consultant, Lender's Independent Engineer and Employer. However, in case of any works to be undertaken as part of 'Change of

Scope' as approved by National Highways Authority of India (NHAI), there would be additional certification required from the Independent Engineer & NHAI and the payment shall be released on receipt of payment from NHAI.

14. Liquidated damages shall be imposed at 0.25% of Contract Value per week of delay limited to 10% of the total Contract Value applicable to each milestone completion. However, these Liquidated damages shall be returned on successful completion of the subsequent milestones within scheduled completion date. In case of delay beyond the scheduled completion date, the liquidated damages imposed shall not be returned.
15. If due to any reason known/unknown or unforeseen circumstances the contractor may face any type of idling of your resources, plants, equipment, and manpower, Employer shall not take any responsibility for the same. No idling claims will be entertained due to whatsoever reason may be.
16. Necessary arrangement for food & accommodation for manpower and labor shall be at the cost of the Contractor. No extra payment shall be made to you for any enabling/temporary works and any changes due to site conditions at any point of time.
17. The Employer shall have the right to terminate this work order either on completion of the said work or at any intermediate phase upon the failure of the Contractor in maintaining the agreed rate of progress or not executing the work to the specified standards and specifications. The Employer also reserves the right to withdraw a portion of work or the entire work entrusted to the Contractor at any stage either for the purpose of executing directly or getting it done through other Contractor in case of default of the Contractor at the sole desertion of the Employer, without assigning any reasons.
18. Contractor shall maintain the safety for the construction workers as well as for the Road users as per the safety requirements during course of work and before opening the section (for traffic) where works got completed. All required safety precautions to be taken on Road, as per the Diversion plan approved by Employer and any lacuna on Safety front shall be viewed seriously and Contractor shall be penalized at the discretion of Employer. In case of any failure for not maintaining proper safety at site, Employer shall get it done through their own resources and cost of the same shall be debited to the contractor as per the actual cost + 25% as overheads and supervision charges of Employer. All safety barricading and associated work for safety shall be executed by the contractor.
19. The contractor shall arrange for all insurances including contractor's equipment and its own surrounding property, workmen's compensation, group accident, and group Medclaim. The Contractor shall provide proof of insurance to Employer before commencement of work. Employer shall not be held liable for any compensation towards any loss of life & property.
20. Above Bill of Quantities with rates shall be submitted on letterhead of the Bidder with signature of authorized signatory and company stamp

## **SECTION 7**

# **SECURITIES AND OTHER FORMS**



## **SECTION 7: SECURITIES AND OTHER FORMS**

Form – 7A	:	Form of Bid
Form – 7B	:	Bid Security (Bank Guarantee)
Form – 7C	:	Letter of Acceptance
Form – 7D	:	Deleted
Form – 7E	:	Deleted
Form – 7F	:	Deleted
Form – 7G	:	Deleted
Form – 7H	:	Bank Guarantee for Advance Payment
Form – 7I	:	Performance Bank Guarantee

### **Forms of Securities**

*Acceptable forms of securities are annexed. Bidders should not complete Advance Payment Security forms at this time. Only the successful Bidder will be required to provide Advance Payment Securities in accordance with one of the forms, or in a similar form acceptable to the Employer.*

**FORM OF BID**

**Barwa Adda Expressway Limited**

The IL&FS Financial Center,  
Plot C-22, G Block,  
Bandra Kurla Complex,  
Mumbai- 400051, Maharashtra  
Tel.: +91 022-26593609,

Gentlemen,

**Sub.: Six-Laning of Barwa-Adda- Panagarh Section of NH-2 from km 398.240 to km 521.120 including Panagarh Bypass in the States of Jharkhand and West Bengal**

**Supply, Installation, Testing & commissioning for Lighting works at various locations within km 398.240 to km 521.120 on Barwa Adda Panagarh Road Project in the States of Jharkhand and West Bengal**

**Scope** \_\_\_\_\_

1. We offer to execute the Works described above in accordance with the Bidding Documents including Invitation for Bid, Instructions to Bidders, Conditions of Contract, Specifications and Drawings, Bill of Quantities, Annexures and Addenda for the Prices and sum mentioned in Annexure 1(a) of Section 6 of the Bidding Document attached with this letter. As per this, the payment for Works is ₹ \_\_\_\_\_ as per the sum total as given in Annexure 1(a) of Section 6.
2. We understand that you are not bound to accept the lowest or any Bid you receive.
3. Unless and until an Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us, but without prejudice to your right to withdraw such acceptance under the provisions of the Bid Document.
4. We assure you that the criteria based on which we are qualified are valid.
5. We agree to abide by this Bid for the period of **Thirty (30) days** from the closing date of Bid Submission, and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

6. We understand that for this Bid, we shall comply with the Eligibility, Bid Validity and Bid Security required as stated in the Bidding documents. We attach herewith our current Income Tax clearance certificate.
7. We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

Yours faithfully,

Authorized Signature:

Name & Title of Signatory:

Name of Bidder with official seal:

Address :



**BID SECURITY (BANK GUARANTEE)**

WHEREAS, \_\_\_\_\_ [name of Bidder] (hereinafter called "the Bidder") has submitted his Bid dated \_\_\_\_\_ [date] for the works **“Six-Laning of Barwa-Adda- Panagarh Section of NH-2 from km 398.240 to km 521.120 including Panagarh Bypass in the States of Jharkhand and West Bengal – “Supply, Installation, Testing & Commissioning for Lighting works at various locations within km 398.240 to km 521.120 on Barwa Adda Panagarh Road Project in the States of Jharkhand and West Bengal”** (Hereinafter called "the Bid").

**Scope** \_\_\_\_\_

KNOW ALL PEOPLE by these presents that We \_\_\_\_\_ [name of bank] having our registered office at \_\_\_\_\_ (hereinafter called "the Bank") are bound unto **Barwa Adda Expressway Limited** (hereinafter called "the Employer") in the sum of \_\_\_\_\_ for which payment well and truly to be made to the said Employer the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this \_\_\_\_\_ day of \_\_\_\_\_ 2023  
THE CONDITIONS of this obligation are:

- (1) If after Bid opening the Bidder withdraws his Bid during the period of Bid validity specified in the Form of Bid; or
- (2) If the Bidder having been notified of the acceptance of his Bid by the Employer during the period of Bid validity:
  - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or
  - (b) Deleted
  - (c) does not accept the correction of the Bid Price pursuant to Clause 27 of ITB;

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the

occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including 30 days after the Bid validity period as stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE \_\_\_\_\_ SIGNATURE OF THE BANK  
\_\_\_\_\_

WITNESS \_\_\_\_\_ SEAL \_\_\_\_\_

\_\_\_\_\_  
[signature, name, and address]

(Letterhead paper of the Employer)

**Letter of Acceptance**

To: [name and address of the Contractor]

[date]

**Sub.: Six-Laning of Barwa-Adda- Panagarh Section of NH-2 from km 398.240 to km 521.120 including Panagarh Bypass in the States of Jharkhand and West Bengal**

**Supply, Installation, Testing & commissioning for Lighting works at various locations within km 398.240 to km 521.120 on Barwa Adda Panagarh Road Project in the States of Jharkhand and West Bengal**

**Scope:-** \_\_\_\_\_

Dear Sirs,

1. It is hereby confirmed that your Bid received on \_\_\_\_\_ submitted to the Barwa Adda Expressway Limited (BAEL) for the work mentioned in the subject above has been accepted for and on behalf of the BAEL for an amount mentioned below on rates quoted by you and the terms and conditions as contained in Volume-1 and Volume-2 of bidding documents and subsequently addendum/corrigendum issued.
2. The accepted amount of the bid for the above mentioned work in consideration, execution, completion and maintenance of works by you as prescribed in the bidding documents is as under:

Particulars	Bid amount indicated by you (in ₹)	Amount of Bid after arithmetical corrections (in ₹)	Rebate offered	Bid Amount after Rebate (in ₹.)
<b>Supply, Installation, Testing &amp; commissioning for Lighting works</b>				
<b>TOTAL</b>				

3. The net accepted amount of the Bid is ₹\_\_\_\_\_ (₹ *In words*).
4. The date of start will be as defined in S. No. 5 of Contract Data.
5. The period of completion of whole work is as defined in S. No. 10 of Contract Data as Contract Completion Date.
6. Deleted.
7. You are also requested to sign and execute the Contract Agreement within 28 days, failing which action as stated in Para 32.3 of ITB will be taken.
8. You are requested to submit a detailed supply & Installation works Program including Environment and Traffic Management Plans as per Clause 25 of General Conditions of Contract, Section 3, Part-I within 21 days of receipt of this letter.

Yours faithfully,

Authorized Signatory  
Name and Title of Signatory  
Name of Agency

**Form – 7D**  
*(Please refer Clause 32 of ITB)*

**Deleted**

**Form – 7F**  
*(Please refer Clause 31 of ITB)*

**Deleted**

**Form – 7G**  
*(Please refer Clause 31 of ITB)*

**Deleted**

**Form – 7H**  
*(Please refer Clause 47 of GCC)*

**Deleted**



**FORMAT FOR PERFORMANCE BANK GUARANTEE**

To,  
**Barwa Adda Expressway Limited**  
The IL&FS Financial Center,  
Plot C-22, G Block,  
Bandra Kurla Complex,  
Mumbai- 400051, Maharashtra  
Tel.: +91 022-26593609,

**WHEREAS:**

- (A)..... (the “Contractor”) and *Barwa Adda Expressway Limited* (the “Employer / BAEL”) have entered into a Contract Agreement dated ..... (the “Agreement”) whereby *BAEL* has awarded **Six-Laning of Barwa-Adda-Panagarh Section of NH-2 from km 398.240 to km 521.120 including Panagarh Bypass in the States of Jharkhand and West Bengal – Supply, Installation, Testing & commissioning for Lighting works at various locations within km 398.240 to km 521.120 on Barwa Adda Panagarh Road Project in the States of Jharkhand and West Bengal** subject to and in accordance with the provisions of the Agreement.
- (B) The Agreement requires the Contractor to furnish a Performance Security to the Employer / BAEL in a sum of 3% of Agreed Contract Value (Excluding GST) as security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the Contract Period (as defined in the Agreement).
- (C) We, ..... through our Branch at ..... (the “Bank”) have agreed to furnish this Bank Guarantee by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the Installation Period, under and in accordance with the Agreement, and agrees and undertakes to pay to the BAEL /Employer, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums upto an aggregate sum of the Guarantee Amount as the BAEL / Employer shall claim, without the Employer / BAEL being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from BAEL/Employer that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the BAEL/Employer shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during the Installation Period under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any differences between the Employer / BAEL and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Employer / BAEL shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Employer / BAEL to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Employer / BAEL shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Employer / BAEL against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Employer / BAEL, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Employer / BAEL of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Employer / BAEL or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Employer / BAEL in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force until the successful completion of *Defect Liability Period of 18 Months from the Date of issue of Completion Certificate* and unless a demand or claim in writing is made by the Employer / BAEL on the Bank under this Guarantee, no later than 6 (six) months from the date of expiry of this Guarantee, all rights of the Employer / BAEL under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Employer / BAEL in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
9. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred Branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Employer / BAEL that the envelope was so posted shall be conclusive.
10. This Guarantee shall come into force with immediate effect and shall remain in force and effect for a period as mentioned in point 7 or until it is released earlier by the Employer / BAEL pursuant to the provisions of the Agreement.
11. This guarantee shall also be operatable at our \_\_\_\_\_ branch at Mumbai, from whom, confirmation regarding the issue of this guarantee or extension/ renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment hereunder claimed, the said branch shall accept such invitation letter and make payment of amounts so demanded under the said invocation.

Signed and sealed this ..... day of ....., 2023..... at .....

SIGNED, SEALED AND DELIVERED  
For and on behalf of  
the BANK by:

(Signature)  
(Name)  
(Designation)  
(Code Number)

(Address)

NOTES:

- i. The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- ii. The address, telephone number and other details of the Head Office of the Bank as well as of issuing Branch should be mentioned on the covering letter of issuing Branch.