"Annex-D"

Providing street light arrangement from Barge jetty gate No. 1 to VIP road crossing via Hoogly metcoke at Haldia Dock Complex, Kolkata Port Trust.

SL.NO		DESCRIPTION	UNIT	QTY	RATE PER UNIT (IN Rs.) Excluding GST	AMOUNT (in RS.)	REMARKS
PART A- Illumination							
1		**9 m high octagonal street pole:-** Supply and delivery of following Hot Dip Galvanised octagonal street light pole [with inbuilt terminal box for cable connection], made of Structural Steel (3 mm thick) of grade S355 [as per European Standard EN 10025], alongwith base plate, arm bracket & foundation bolts, as per the enclosed "Technical Specification & Scope of Work."					
	(i)	9m high octagonal street pole with single arm (1500 mm)	No.	190			
	(ii)	9m high octagonal street pole with double arm (1500 mm)	No.	10			
	(iii)	Erection, testing and commissioning of 9 m high Hot Dip Galvanised octagonal street light pole, including fixing of single arm/ double arm and construction of civil foundation, as per the "Technical Specification & Scope of Work".	No.	200			
2		**Feedar Pillar:-** Supply, Installation, Testing and Commissioning of Feeder Piller for for street lighting.Feeder Piller shall be Outdoor type, dust, vermin weather proof fabricated from SS316 grade sheet of 2mm thick, suitable angled and flat etc. and as per Technical Specification.					
	(i)	Supply Type-A	No.	3			
	(ii)	Supply Type-B	No.	3			
	(iil)	Foundation,Installation, Testing and Commissioning	No.	6			
3		**Luminaries & Lamps:-** Supply, Installation, testing and commissioning of following LED luminaries with complete accessories as per Technical Specification.					
	(i)	Supply of 120 W LED Streetlight luminaire.	No.	210			
	(ii)	Installation, Testing and Commissioning 120 W LED Streetlight luminaire.	No.	210			
4		**LT Cable:-** Supply of LT Cable, 1.1KV grade, XLPE U.G. Alu. Cable as per Technical Specification.					
	(i)	Supply of 4 C X 25 Sq.mm.	Mtrs.	7000			

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SL.NO		DESCRIPTION	UNIT	QTY	RATE PER UNIT (IN Rs.) Excluding GST	AMOUNT (in RS.)	REMARKS
5		**Laying, testing and commissioning of LT Cables including termination of cable at Outdoor feeder pillar and Sub-station. Job includes supply and installation of Hume and GI pipe.**					
	(i)	By existing RCC trench/Hume pipe/GI Pipe.	Mtrs.	50			
	(ii)	By excavating trench.	Mtrs.	6000			
	(iii)	By removal of paver blocks, excavating trench and refixing of the same after laying.	Mtrs.	100			
	(iv)	By 150mm dia. Hume pipe through excavating.	Mtrs.	400			
	(v)	By 150NB GI Pipe through excavating (open cut)	Mtrs.	150			
	(vi)	By 150NB GI Pipe through Boring (by HDD method)	Mtrs.	300			
6		**Earthing System:** Supply Installation, termination, interconnection between earthing station and High Mast, Load panel, Feeder pillar as per Technical Specification.					
	(i)	Supply	Set	12			
	(ii)	Installation, Testing and Commissioning.	Set	12			
7		Connecting the Street Light Poles to spike earth of 1.85mtr. length including supply, laying & fixing G I (Hot Dip) wire of size 8 SWG and making connection to the poles with bolts, nuts, washers, etc. as required and mending good damages, if any.					
	(i)	Supply of 20mm dia. GI spike.	No	400			
	(ii)	Installation of GI spike	No	400			
	(iii)	Supply of G I (Hot Dip) wire, 8 SWG	Mtrs.	800			
	(iv)	Laying & Fixing of G I (Hot Dip) wire, 8 SWG	Mtrs.	800			
8		**Supply, laying and termination of size of 25 X 6 mm GI strip as per Technical Specification**					
	(i)	Supply	Mtrs.	30			
	(ii)	Laying, termination,commissioning and interconnection between earthing station.	Mtrs.	30			
					Total Part A =	**0.00**	

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SL.NO		DESCRIPTION	UNIT	QTY	RATE PER UNIT (IN Rs.) Excluding GST	AMOUNT (in RS.)	REMARKS
PART B- Non-Comprehensive / Comprehensive maintenance:-							
1		Non-Comprehensive /Comprehensive Annual Maintenance Contract with full responsibility of carrying out repair and supply of required original spare parts to keep the system fully operational condition for a period of 5 years, after commisioning of the system.					
	(i)	Non-Comprehensive maintenance during Guarantee period (without spares) in 1st year.	LS	1			
	(ii)	Non-Comprehensive maintenance during Guarantee period (without spares) in 2nd year.	LS	1			
	(iii)	Comprehensive maintenance with spares(except luminaire) during 3rd year.	LS	1			
	(iv)	Comprehensive maintenance with spares(except luminaire) during 4th year.	LS	1			
	(v)	Comprehensive maintenance with spares(except luminaire) during 5th year.	LS	1			
Total Part B =							
(Total Part A + Total Part B) =						**0.00**	

Estimated Value=		**With out GST**
Estimated Value=	**-**	**With 18% GST**

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TECHNICAL SPECIFICATION

A. Scope of work

6.1. The "Scope of Work" includes supply, delivery, erection / installation, testing & commissioning of following items:

a) 9 m high Hot Dip Galvanised octagonal Street Light Poles, including foundation.

b) 120 W LED streetlight luminaries.

c) Outdoor type Feeder Pillar Boxes, including foundation.

d) 4 C X 25 mm^2, 1.1 kV grade, XLPE insulated, Aluminium Conductor, armoured cable, including laying.

e) Providing earthing by Hot Dip Galvanised (with minimum coating thickness of 100 micron) Flat of size 25 mm X 6 mm for feeder pillar.

f) Providing earthing by earth spike of 20mm dia., 1.85Mtrs. Length and G I wire of size 8 SWG in each pole.

6.2. All the materials required for the aforesaid work are to be supplied as per the "Technical Specification", specified hereinafter.

6.3. Materials required for the instant work and different specifications related to the instant work should be as per latest Indian Standard (IS) [issued by Bureau of Indian Standard] / latest International Standard issued by International Electrotechnical Commission (IEC), as applicable, if not specified otherwise.

6.4. The work is to be carried out by an Electrical Contractor, holding a valid licence [issued by the competent authority (in line with *The Indian Electricity Rules, 1956*)] in this behalf.
The work is to be executed at site, under direct supervision of a person holding a valid certificate of competency [atleast for Underground Cable upto 1100 V] issued or recognised by the competent authority (in line with *The Indian Electricity Rules, 1956*).

6.5. Contractor's personnel with respect to physical execution of the contract at site level:

The Contractor may authorise their personnel for the activities in connection with execution of the contract, at site level. **Signature of such persons should be attested by an authorized official / representative** [as indicated in **GCC] of the Contractor.**

B. Technical specification :

6.6. Hot Dip Galvanised octagonal Street Light Pole :

a) The Hot Dip Galvanised [as per BS EN ISO 1461 standard, with minimum coating thickness of 100 micron] octagonal Street Light Poles should have inbuilt terminal box for cable connection and should be made of Structural Steel (3 mm thick) of grade S355 [as per European Standard EN 10025], having following details (as per the drawing enclosed) :-

i) Bottom diameter – 155 mm [Across Face (A/F)].

ii) Top diameter – 70 mm [Across Face (A/F)].

iii) Base plate – Size : 260mm X 260mm X 16 mm (PCD – 250 mm), as per IS – 2062.

iv) Foundation bolts, washers & nuts –

Bolt : 'J' type M24 X 750 mm long [EN 8 grade, 4 nos. per pole].

Washer : Suitable plain washer for the aforesaid bolts (1 no. per bolt).

Nut: Suitable nuts for the aforesaid bolts (3 nos. per bolt).

b) Arm Bracket (single / double), to be provided with each octagonal Street Light Pole, should have following details (as per the drawing enclosed):

i) Cap – To be made from 3 mm thick M. S. Pipe (approx. 300 mm long) of suitable diameter, to fit on Pole [top diameter – 70 mm (A/F)] with bolts, with a top cover welded at top.

ii) Arm – To be made from M. S. Pipe (approx. 1500 mm long) of suitable diameter, welded with the cap (supported by suitable stiffener plate), keeping suitable opening for cable entry.

iii) The Arm Bracket (in totality) should be Hot Dip Galvanised [as per BS EN ISO 1461 standard, with minimum coating thickness of 100 micron].

c) The inbuilt terminal box, for cable connection, should be provided with suitable TPN connectors (for connecting loop-in & loop-out cables) and one no. 6A SPN MCB (for terminating connecting wires of the luminaries) , mounted on a suitable Bakelite sheet.

6.7. <u>Erection of Hot Dip Galvanised octagonal Street Light Pole</u> :

a) The RCC foundation (1:2:4, with nominal reinforcement) for Hot Dip Galvanised Street Light Poles should be provided as per the approved drawing. RCC foundation should be designed to withstand 120 km/hr wind speed and necessary drawing is to be submitted by the successful bidder for approval of the Engineer.

The portion of the RCC foundation, exposed above ground level, should be finished & painted properly.

b) 02 nos. flexible PVC Pipe of suitable diameter to be kept inserted inside the RCC foundation, for cable entry.

c) The Hot Dip Galvanised Street Light Poles should be erected on aforesaid RCC foundation.

d) During erection of the poles 01 no. nut is to be placed below the base plate and 01 no. washer & 02 nos. nut are to be placed above the base plate.

6.8. <u>LED streetlight luminaries:</u>

The LED streetlight luminaires should have following technical details :

Housing :: Die-cast aluminium housing with epoxy powder coating and having cooling fins for effective heat dissipation.

Separate cavity for driver & LED lamp.

Glass cover	::	Heat resistance toughened clear glass cover.
Light source	::	High power , high efficiency LED
LED Luminaire efficacy	::	≥ 100 (Lumen/W)
Correlated Color Temperature	::	5700 K ± 500K
Driver	::	Drivers should have in-built protection against high voltage surge, open circuit & short circuit.
Operating temperature	::	Minimum 50°C
Input Voltage	::	110 V – 270 V , 50 Hz
IP Rating	::	IP 65
Mounting	::	Side entry mounting on pipe bracket of outer diameter 50 mm – 60 mm.

6.9. Installation of LED Street lighting Luminaire :

a) The LED Street lighting luminaires are to be installed on the arm brackets of newly erected Hot Dip Galvanised Street Light Poles.

b) Providing electrical connections of the luminaries with ISI marked, 3 X 2.5 mm^2 circular PVC insulated & PVC sheathed (1.1 kV grade) flexible cable (with copper flexible conductor), from the MCBs of the inbuilt terminal boxes of the Hot Dip Galvanised Street Light Poles, is under the scope of the Contractor.

c) Supply of aforesaid copper wire is also under the scope of the Contractor.

6.10. 1.1 kV grade , Cross Linked Polyethylene (XLPE) Cable :

The cables should be generally compliance with IS 7098 (Part-1) [with latest amendment, if any] with following specifications :

a) Size : 4 C X 25 mm^2

b) Conductor materials: Aluminium.

c) Shape: Stranded Compacted Shaped.

d) Insulation: Cross Linked Polyethylene (XLPE).

e) Armouring : Single layer, Galvanised steel flat strip

f) ST2 type PVC outer and inner sheathed.

6.11. Laying of 1.1 kV grade, XLPE Cable :

a) Laying of cables is to be executed by a Cable Jointer [holding a valid permit for 1.1 kV grade cable laying and jointing, issued or recognised by the competent authority (in line with The Indian Electricity Rules, 1956)], under direct supervision of the Contractor's Engineer(s) / Supervisor(s) [holding a valid certificate of competency for (atleast for Underground Cable upto 1100 V), issued or recognised by the competent

authority (in line with The Indian Electricity Rules, 1956)].

b) Programme for Road Crossing, wherever required (for Casing Pipe laying etc.), shall have to be coordinated through the authorized representative of the Sr. Dy. Manager (P&E), in advance, for having due clearance of Road Blockage. Such clearance will be given within 7 (seven) days from the date of receipt of request from the Contractor.

c) Before laying of Cables, cable routes should be checked properly to avoid interference with the existing cables, structures, heat sources, drains, pipelines, etc., as far as possible and minor adjustments to be done to suit the field conditions, wherever deemed necessary, without any extra cost. Considering above, cable routes should be carefully measured to ascertain the exact requirement of cable for a particular feeder. Sufficient lengths to be kept for the final connections of the cables to the terminal of the equipment.

d) Cable should be handled carefully during installation, to prevent mechanical injury to the cables. During laying of cables, Cable Drum Lifting Jacks, sufficient numbers of Cable Rollers and other materials, as necessary, must be used to avoid any mechanical injury to the cables.

e) Directly buried cables should be laid in underground Cable Trenches to be excavated by the Contractor. Width of the Cable Trench should be such that all cables shall be correctly spaced and arranged. The 1.1 kV grade cables should be laid in trenches at a depth of 0.75 m.

f) Before cables are placed, the bottom of the trenches should be filled with a layer (approx. 100 mm) of sand at the bottom of the trench, duly levelled. After laying of the cable on the sand bed bricks should be placed at both sides of the cable. The cable inside the brick walls to be covered with sand at the bottom of the trench, up to the height of wall. Bricks should also be used as protective top covering and to be placed on the top of the protective brick walls. Rest of the trench should be re-filled with soil, rammed and levelled.

g) The bricks, to be used for protective top covering & side wall, should be of class designation 10.0 (as per latest version of IS: 1077, 1992). Dimensions [non-modular size (230 mm. x 110 mm. x 70 mm)] and tolerances of the bricks should be as per latest version of IS: 1077, 1992.

h) In case of Road or Rail Crossing, cable should be laid inside the pipes. Where cables enter into pipe sleeves, adequate beds of sand should be given so that the cables do not slack and get damaged by pipe ends.

i) When cables pass through foundation walls, or other underground structures, if necessary, ducts or opening shall have to be provided, by the Contractor. However, shall it become necessary to cut holes in the existing foundations or structures, the contractor should obtain approval from Sr. Dy. Manager(P&E), before cutting is done. Cutting, if necessary and mending good of any cut portion should be done by contractor at his cost and risk.

j) **Laying of Cables in Exposed/Embedded GI Pipes/Hume pipes**

GI Pipes /Hume pipe for drawing cables in plant buildings shall be of ***Heavy Duty***, galvanised, electric resistance welded, screwed type conforming to IS: 1239 (Part-I). GI Pipe/Hume pipe of the following sizes shall be used:
a) 150 mm nominal bore ***Heavy Duty*** GI pipe as per BOQ.
b) 150 mm dia. Heavy duty NP-4 Hume pipe.
For installation of cables in GI Pipe /Hume pipe. Complete system shall be installed first without cables but having suitable pull wires laid in the pipes to facilitate cable pulling. Ends of GI pipe shall be cut square and the threads out in the field shall have the same effective length and the same dimensions and taper as specified for factory out threads. Ends of pipe shall be reamed to remove burrs and sharp edge after threads are cut.

Exposed GI pipes shall run parallel or perpendicular to column lines or building lines so as to match with the architectural arrangement of the building. Concealed GI pipes shall run in direct lines with minimum bends.

Laying of Reinforced Concrete Pipe and Galvanized Mild Steel Tubes should be done wherever necessary, such as at Road Crossing, Railway Crossing, Drains, Culverts or any similar concrete structure etc.

The scope includes cutting of road, Railway Crossing, Excavating of Trenches, etc. including mending good work. The depth of laying of the pipes should have to be matched with the underground cable trench, as far as possible and practicable. Making jointing between collars and pipes, with cement mortar (1 cement: 2 medium sand) and cutting the Reinforced Concrete Pipe to the required length, if necessary, to be done by the contractor at their own cost and arrangement.

Cutting of Galvanized Pipe to required length and threading, bending, jointing by Socket as required, supply and fixing of support clamps/ brackets should be under the scope of contractor. Re-filling of the trench after laying the reinforced concrete pipes and galvanized mild steel tubes are also to be done by the contractor.

Depth of laying

Sl. No.	**Cable**	**Laying Type**	**Depth of Laying**
1.	LT Cable	Open cut excavation with brick protection	750 mm
		Boring through GI pipe	2000 mm
		Open cut excavation through Hume / GI pipe.	2000 mm
		Through existing RCC trench / Hume pipe / GI Pipe.	As per available depth.

k) Cables should be handled carefully during installation to prevent mechanical injury to the cables. During laying of cables, Cable Drum Lifting Jacks, sufficient number of Cable Rollers and other materials, etc. as necessary, must be used to avoid any mechanical injury to the cables. Ends of cables leaving trenches should be coiled and

provided with a protective pipe or cover, until such times, the final terminations to the equipment are completed.

l) After laying of the cables in the trench and before placement of protective covering, an Insulation Test should be carried out for each length of cable in presence of the representative of Sr. Dy. Manager (P&E), HDC. After re-filling the trench with soil, rammed and levelled, Insulation Test of the cable should also be carried out in presence of the representative of Sr. Dy. Manager (P&E), HDC.

m) All cables will be identified close to their termination points by Cable Number / Equipment Number, which will be punched on Aluminium Straps (approx. 2 mm thick) securely fastened to the cable and wrapped around it. Type and size of the cable also to be punched on the Aluminium Straps.

n) Each underground cable should be provided with Identification Tags (made of lead) securely fastened every 30 m of its underground length, with at least one tag at each end before the cable enters the ground. **Concrete Cable route Markers are to be placed along the cable route and at cable joint locations. "L.T. Cable Joint" should be engraved on the said Cable Markers.**

o) All temporary ends of cables must be protected against dirt and moisture to prevent damage to the insulation. For this purpose, ends of the cables should be covered with PVC insulating tape.

p) Where splices or terminations are required in circuit, it is required to measure insulation resistance of each length of cable before splicing and / or terminating. It is required to repeat measurement after splices and / or terminations are completed. Before energizing, the insulation resistance of every cable shall have to be measured.

It is required to measure the Insulation Resistance of directly buried cables, before Cable Trenches are back-filled.

6.12. Outdoor Feeder Pillar for street lighting :

a) The outdoor Feeder Pillar for street lighting shall be pedestal type (with top canopy), IP 65 compliant and dust, damp, vermin & weather proof, fabricated from SS316 grade sheet (2 mm thick), angle & flat. It shall be provided with double shutter, handle with lock and key system. The Feeder Pillar shall be designed in such a way that it should be spacious for easy maintenance. The design & drawing of the Feeder Pillar should be got approved from the Engineer, prior to manufacture.

The aforesaid Feeder Pillar should be CPRI / ERDA approved and necessary type test certificate should be provided by the successful bidder during inspection.

b) The Feeder Pillar shall be provided with PVC sleeved (with colour code) electrolytic grade copper tinned busbar (for 3 Phases and Neutral) of suitable size and following items :

TYPE- A (for inter-connection)

Incomer :

Front operated **125 A Switch – Disconnector – Fuse Unit** **:: 02no.**

Distribution :

PVC sleeved (with colour code), 150 A **Electrolytic grade copper tinned busbar** (for 3 Phases and Neutral)	**::**	**01 set**
TPN, 63 A , 415 V, MCB (10kA breaking capacity)-	**::**	**03 no.**

TYPE- B (For power injection.)

Incomer :

Front operated **125 A Switch – Disconnector – Fuse Unit**	**::**	**02 no.**

Distribution :

PVC sleeved (with colour code), 150 A **Electrolytic grade copper tinned busbar** (for 3 Phases and Neutral)	**::**	**01 set**
TPN, 63 A , 415 V, MCB (10kA breaking capacity)-	**::**	**03 no.**

Time Switch arrangement :

3 Pole Power Contactor –		
Thermal rating (AC – 1) at 415 V, 50 Hz – 80 A, Coil voltage – 240 V AC (50 Hz), Built in auxiliary contacts - 2 NO + 2 NC	**::**	**01 no.**
Time Switch –		
Supply voltage – 240 V AC, 50 Hz, Contact rating – 16 A @ 250 V AC (Resistive) Shortest Switching Time – 15 min (daily)	**::**	**01 no.**
Bypass Switch (6 A)[Auto/Manual]	**::**	**01 no.**
Control Fuse	**::**	**01 no.**
PVC sleeved (with colour code), 70 A **Electrolytic grade copper tinned busbar** (for 3 Phases and Neutral)	**::**	**01 set**

Outgoing [for Street lighting] :

32 A, TP MCB (10kA breaking capacity)	**::**	**04 no.**

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c) All the aforesaid component shall be mounted in the Feeder Pillar by means of suitable cadmium passivated hardware. The Feeder Pillar shall be complete in all respect with detachable gland plate, interconnection using necessary PVC insulated (1.1 kV grade),

single core, flexible (stranded) copper wire. The Feeder Pillar shall be provided with 02 nos. SS Terminal for earthing.

6.13. Erection / installation of outdoor Feeder Pillar for street lighting :

a) The RCC foundation (1:2:4, with nominal reinforcement) for outdoor Feeder Pillar for street lighting should be provided as per the approved drawing. RCC foundation drawing is to be submitted by the successful bidder for approval of the Engineer.

b) The outdoor Feeder Pillar for street lighting should be erected on the aforesaid RCC foundation and the same should be fixed with the foundation bolts, grouted in the aforesaid RCC foundation.

c) Connection of incoming and outgoing cables with the Switch – Disconnector – Fuse Unit / MCB / Connector is under the scope of the Contractor.

6.14. Laying of Reinforced Concrete Pipe and Galvanized Mild Steel Tubes :

a) Laying of Reinforced Concrete Pipe and Galvanized Mild Steel Tubes should be done wherever necessary, such as at Road Crossing, Drains, Culverts or any similar concrete structure, etc. The scope includes cutting of road, Excavating of Trenches, etc. The depth of the laying should be matched with the underground Cable Trench, as far as possible.

b) Making joint between Collars and Reinforced Concrete Pipe, with cement motar (1 cement : 2 medium sand) and cutting the Reinforced Concrete Pipe to the required length, if necessary, to be done by the Contractor at their own cost and arrangement.

c) Cutting of Galvanized Pipe to required length and threading, bending, jointing by Socket as required, supply and fixing of Support Clamps / Brackets should be under the scope of Contractor.

d) Re-filling the trench after laying the Reinforced Concrete Pipes and Galvanized Mild Steel Tubes to be done by the Contractor.

6.15. Scope of work for earthing :

a) Earth Electrode should be made of 3 m long Medium Galvanised Mild Steel Tubes (as per IS:1239) of nominal bore 50 mm. The tube shall have perforated hole of 10 mm dia at a cross distance of 75 mm. 260 mm long G.I. Plate of size 50 mm X 6 mm (with 4 nos. 10 mm dia tap hole, bend to shape of pipe) to be welded at 100 mm below the top of tube for connection of Earth Strip. G.I. Funnel / Cap to be provided on top of the tube. Two earth electrodes are to be interconnection to from one earth grid, which will provide a common ground for Feeder Pillar Boxes.

Earth Electrode to be driven in the Earth Pit filled up with alternate layer of Charcoal and Salt. Earth Pit should be provided with suitable size Brick Masonry Inspection Chamber with removable RCC Cover (75 mm thick) with handle.

Excavation of earth, back filling, masonry work and interconnection of earthing

electrodes (with 50 mm X 6 mm G.I. Flat), shall be within the Scope of Work.

b) All Feeder Pillars shall have to be earthed by 02 nos. G.I. Strip of size 25 mm X 6 mm (approx.), connected with the Earth Grid [made of 02 earth pits]. All Street Light Poles shall have to be earth by 02Nos. 20 mm dia. Solid GI Earth spikes of 1.85Mtrs. Each spike shall be connected with 02Nos. 08 SWG G. I. Wire and Street Light pole body.

c) All connection of the G. I. Flats / G. I. Wire, with the Earth Electrode & Earth Grid, should be made by welding & welding point should be covered by black Bitumen Paint.

d) Entire earthing should be done in accordance with the relevant Indian Standard (IS), Indian Electricity Rules & Act and Code of Practice.

C. List of Approved Manufacturers /makes :

6.16. The Contractor shall have to provide the items from any of the following manufacturers / makes. However, the contractor shall have to submit item-wise list of manufacturers / makes for approval of the Engineer.

Sl. No.	Items	Name of the Manufactures
i)	Hot Dip Galvanised octagonal Street Light Poles	BAJAJ / VALMONT/CGL/WIPRO
ii)	MCB	L&T / LEGRAND / SIEMENS / SCHNEIDER / ABB
iii)	Contactor	L&T / SIEMENS/ABB
iv)	Time Switch	L&T/ SIEMENS/ABB
v)	L T Cable (XLPE)	UNISTAR / FINOLEX / NICCO / HAVELLS / RPG / UNIFLEX
vi)	PVC insulated (1.1 kV grade) single / multi-core copper flexible conductor.	FINOLEX / NICCO / HAVELLS / RPG / UNIFLEX / R R KABLES
vii)	Cable Lug & Cable Gland	DOWELLS / JHONSON / RAYCHEM
viii)	LED Street Light Luminaire	PHILIPS / WIPRO / BAJAJ / CROMPTON/GE
ix)	Cable Jointing Kit	3M / RAYCHEM / DENSON
x)	Cement	ACC / ULTRA TECH / BIRLA

Comprehensive annual Maintenance contract:-

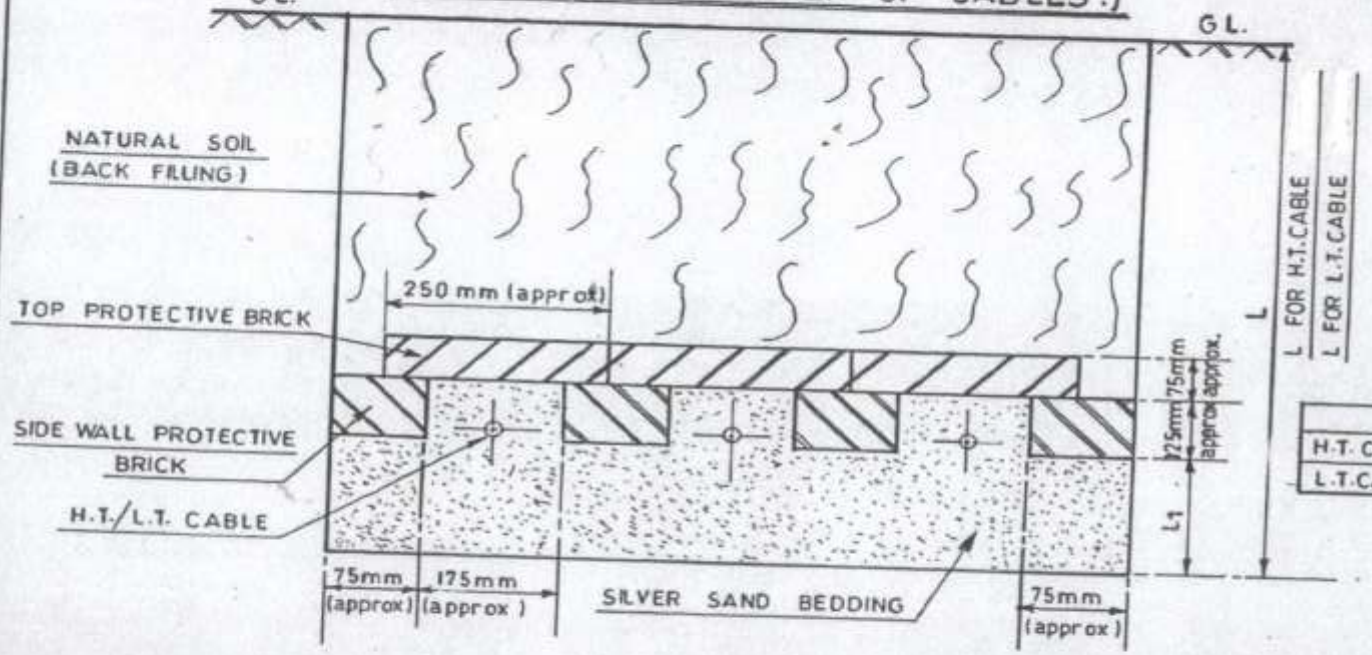
Comprehensive annual **Maintenance contract** for a period of Five **years** from the date of completion and handover of project.

The Maintenance contract shall start after the handing over of the project during defect liability period of 24 months and three years after defect liability period.

Under maintenance contract the following shall be provided by the bidder:-

- Normally, Periodic maintenance shall be carried out once (01) in every month by the bidder. However, bidder has to attend complaints with in 48 Hrs. of complaint lodge by the competent authority of HDC.
- Record will be maintained for each maintenance/ complaint.
- Maintenance contract will be non comprehensive (without spares) during two years of DLP. However, arrangement of all required tools, tackles & manpower will be under the scope of Maintenance contract.
- Maintenance contract will be comprehensive (with spares except Luminaries) during three years after DLP. Arrangement of all required Spares, tools, tackles & manpower will be under the scope of Maintenance contract.
- **Operation on daily basis & security of the system are not covered under the maintenance contract.**
- Supply of materials (owing to theft / pilferage) during maintenance contract period will not be covered under this contract and the same shall be supplied by HDC free of cost. However, installation of the same shall be done by contractor during periodic maintenance.
- Job also includes replacement of damaged LT cables including laying. However, laying of cable shall be considered max.200Mtrs. per year.

SINGLE/MULTI NUMBERS H.T./L.T. CABLES IN ONE TRENCH.
(WIDTH OF THE TRENCH OF THE CABLE WILL DEPEND ON THE NO. OF CABLES AND DIAMETER OF CABLES.)



	L	L1
H.T. CABLE	As per Spec.	100 mm
L.T. CABLE	As per Spec.	50 mm

KOLKATA PORT TRUST HALDIA DOCK COMPLEX M(P&E)'S DRG. OFFICE	NAME DT DGN. DRN. 30-08-10
SINGLE/MULTI NUMBERS H.T./L.T. CABLES IN ONE TRENCH.	TCD. CKD. APVD.
SCALE :- NTS	DRG. NO. SK-334

KOLKATA PORT TRUST

HALDIA DOCK COMPLEX

AN ISO-9001: 2015 ORGANISATION
Office of Plant & Equipment Division
Operational Administrative Building (1st Floor),
P.O.Haldia , Dist. Purba Medinipur,
West Bengal, Pin: 721 604

No. SDM (P&E)/1050/1201 **Dated: 16.01.2019**

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Sub: Enquiry for obtaining **budgetary quotation** for the work of "**Providing street lights with LED luminaire from Barge jetty gate No.1 to VIP Road crossing at Durgachak via Hoogly Metcoke at Haldia**".

Haldia Dock Complex (HDC), Kolkata Port Trust (KoPT) intends to engage reputed firms to undertake work of "Providing street lights with LED luminaire from Barge jetty gate No.1 to VIP Road crossing at Durgachak via Hoogly Metcoke at Haldia".

A technical estimate, in this regard, is enclosed herewith, please.

Budgetary offers, along with comments / suggestions (if felt necessary), are invited from experienced / reputed firms, for the subject work, with in Jan.28, 2019.

(R.N.Roy)
Sr. Dy. Manager (P&E)