



Name of the Project : Construction of Foot Over Bridge Joining Promenades of River Sabarmati Between Sardar Bridge & Ellis Bridge

MEASUREMENT PREAMBLE

- 1 All quantities in the Bill of Quantities are estimated quantities. For all payment purposes measurements, as prescribed in the contract document shall be taken and quantities shall be computed from such measurements.
- 2 The inclusions and exclusions from quoted rates are specified in the details of each item of work in the specifications and the Bill of Quantities. In case there is no specific mention of a particular detail, the mode of measurements as prescribed in MORTH specifications or other standard specification for such an item shall be followed.
- 3 In the event of contradiction between the MORTH specifications or other standard specification referred to above and this Contract document, the provisions of this Contract document shall prevail.



**SECTION VI
BILL OF QUANTITIES**

**Name of the Project : Construction of Foot Over Bridge Joining Promenades of
River Sabarmati Between Sardar Bridge & Ellis Bridge**

SUMMARY SHEET

Section	Amount (Rs.)
Sub Section : 6.1 Civil Works	412,555,226
Sub Section : 6.2 Architectural Finishes	138,921,048
Sub Section : 6.3 Electrical	24,475,979
Total Amount put to Tender Rs. =	575,952,253
In word : Fiftyseven Crores Fiftynine Lakh Fifty two thousand Seven Hundred fifty three rupees Only	

I/We am/are willing to carry out the work at _____% above / below _____%
(should be written in figures and words below/above the estimated rates mentioned
above. Amount of my/our tender works out as under :

Notes :



- 1) % above / below is to be submitted online only.**
- 2) All work shall be carried out as per the specifications or as directed.
- 3) Rates quoted include cleaning of site (prior to commencement of work and at its close) in all respects and hold for work under all conditions, site moisture, weather, etc..

**Signature
Contractor**

**Signature
SRFDCL**





6.1 BILL OF QUANTITIES CIVIL WORKS

 					
SubSection 6.1 : CIVIL WORKS BILL OF QUANTITIES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
Section 1- Site Clearance & Miscellaneous					
1.01	Carrying out topographical survey ,contouring of all terrain (all types),road,bridge,and building works by using Electronic Total Station surveying instruments (3 second least count) with its all accessories tools, plants including preparing necessary plans such as ghat level, lower promenade & upper peomenade levels, L sections, cross sections, contouring, topographical detail survey plan as directed by processing data on computer, preserving processed data on CD's or any other advanced type computer hardware including all manpower i.e.electronic total station operator, computer engineer, trained supervisor, skilled labours, machineries such as electronic total station with its accessories, computer with latest configuration, materials such as stationary required for printing processed data,plotting drawings of required sizes,submission of processed data and plans in properly bound book as directed etc complete.	LS	1.00	52250.00	52250.00
Total of Section 1					52250.00
Section 2 - Geotechnical Investigation					
2.01	Mobilisation/Demobilisation of Boring Plant and all other allied equipment like boring rigs for all in-situ tests etc including personnel, first setting up of rigs etc. complete	LS	1.00	52250.00	52250.00
2.02	Shifting from one location to other and setting up of Boring Rig at required location excluding setting up covered under item 1	No	1.00	3150.00	3150.00
2.03	Boring 150 mm dia holes vertically through all kinds of soil, road surface, paving,water body etc. with suitable equipments for depths measured below existing ground levels at rig locations	Rmt	200.00	1575.00	315000.00
2.04	Conducting Standard Penetration Tests as per code, collection and preservation of sample with proper identification mark etc. complete. SPT shall be conducted at 1.50 m interval or change in strata, starting at 1.50 m below the existing ground level.	No	100.00	157.50	15750.00
2.05	Conducting Standard Cone Penetration Tests along with measurement of Pore water pressure as per code, to be conducted upto a depth of 45 m or refusal.	Rmt	20.00	2625.00	52500.00
2.06	Collection of Undisturbed Soil Samples (UDS) using thin walled tube sampler of 100 mm dia at 3 m interval including sealing of samples, numbering with proper identification mark etc complere. SPT and UDS shall be conducted alternately	No	16.00	157.50	2520.00
2.07	Collection of Ground water samples for chemical testing	No	4.00	105.00	420.00
Laboratory Testing of samples					
2.08	A] Soil Samples Testing of Soil Sample for Index Property Tests as NMC, Sp Gravity, Atterbergs Limits, Sieve and Hydrometer Analysis	per sample	116.00	420.00	48720
2.09	Tests for swelling characteristics of soil - Shrinkage Limit and Free Swell Index	No	116.00	210.00	24360
2.10	Testing of UDS for Triaxial UU Test / UC	No	16.00	315.00	5040
2.11	Direct Shear Test	No	16.00	315.00	5040
2.12	Testing of UDS for consolidation	No	4.00	315.00	1260
2.13	Testing of UDS for swelling pressure	No	4.00	315.00	1260
B] Chemical Testing					
2.14	i) Chemical testing of soil samples (pH, Sulphate as SO ₃ ⁻ and Chloride as Cl ⁻)	No	4.00	420.00	1680.00
2.15	ii) Chemical testing of soil samples (pH, Sulphate as SO ₃ ⁻ and Chloride as Cl ⁻)	No	4.00	420.00	1680.00
2.16	Preparation and submission of Test reports in soft & hard copies as per format provided.	LS	1.00	10500.00	10500.00
Total of Section 2					541130.00

**SubSection 6.1 : CIVIL WORKS BILL OF QUANTITIES**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
Section 3 - Pile foundations					
3.01	Providing & laying in situ RCC M40 including for 1.5 m dia, bored piles with hydraulic power rig 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 etc. complete A/B.	Cum	1050.00	16312.80	17128440.00
3.02	Providing and placing in position HYSD bar reinforcement of Fe 500D of approved make for following items including cutting bending hooking and tying complete as per detailed drawing (Piles)	MT	278.33	42311.85	11776657.21
3.03	Providing, placing and driving in position 8 mm thick permanent M.S. liner up to required depth with 12 mm thick M.S. cutting edge of 0.5 meter length of bottom including fabricating, cutting the M.S. sheet to required diameter and shape, welding the joints and driving with the help of required machineries including all materials, labour and lift etc. complete.	MT	53.27	52000.20	2769990.60
3.04	Providing and casting in situ controlled cement concrete M-40 for Pilecap including necessary shuttering at any depth laying, vibrating and curing complete.	Cum	1230.00	5350.80	6581484.00
3.05	Providing and placing in position HYSD bar reinforcement of Fe 500D of approved make for following items including cutting bending hooking and tying complete as per detailed drawing (pilecap)	MT	148.00	42074.55	6227033.40
Total of Section 3					44483605.21
Section 4 - Substructure					
4.01	Providing and casting in situ controlled cement concrete M-50 for R.C.C. pier as per drawing, minimum cement content shall be maintain irrespective of fly ash including centering shuttering any height, scaffolding where necessary, laying vibrating, curing and finishing complete. (Pier & Pier cap)	Cum	1093.00	5990.25	6547343.25
4.02	Providing and placing in position HYSD bar reinforcement of Fe 500D of approved make including cutting, bending, hooking and tying complete as per detailed for (Piers & Pier cap)	MT	163.95	43467.90	7126562.21
4.03	Grouting under column base with non-shrink grout of the type Sikagrout 214 (ES) / Cebex 200 / Shrinkcomp con bextra Gp or equivalent as per manufacturer's recommendation as approved by the Engineer	cum	5.00	45958.50	229792.50
Total of Section 4					13903697.96
Section 5 - Superstructure					
5.01	Providing and casting in situ controlled cement concrete M-40 for R.C.C. work in superstructure minimum cement content shall be maintain irrespective of fly ash including centering, shuttering any height, scaffolding, ramming, vibrating curing and finishing complete. Deck slab	Cum	488.00	6143.55	2998052.40
5.02	Providing and placing in position HYSD bar reinforcement of Fe 500D of approved make including cutting, bending, hooking and tying complete as per detailed drawing. Deck slab	MT	78.08	44566.20	3479728.90

 		SubSection 6.1 : CIVIL WORKS BILL OF QUANTITIES			
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
5.03	Providing and casting in situ or Precast controlled cement concrete M-40 for prestressed concrete work in super structure minimum cement content shall be maintain irrespective of fly ash including centering, shuttering any height, curing, scaffolding, ramming, vibrating, finishing, launching or shifting complete. Steps	Cum	22.00	7169.40	157726.80
5.04	Providing and placing in position HYSD bar reinforcement of Fe 500D of approved make including cutting, bending, hooking and tying complete as per detailed drawing..	MT	2.20	44566.20	98045.64
5.05	Supplying & installation of 1030 Macalloy bars or equivalent with necessary tools & tackless for installation, stressing etc. complete as per technical specifications & workmanship requirement as per directions of manufacture including testing of the installed bars at site as per directions of Engineer In charges.				
	i) 75 mm dia, Fully threaded	Nos	260.00	94500.00	24570000.00
	ii) Macalloy suitable Nut	Nos	260.00	6300.00	1638000.00
5.06	Providing and applying waterproof cement paint in two coats to the concrete surface including at any level with spray, cleaning cost of material, machinery equipment, labour etc. complete.	Sqm	4268.00	235.20	1003833.60
5.07	Supplying, Fabricating & erection of Structural steel work in welded, built up section with steel of E350 grade BR conforming to IS 2062, specially fabricated at site or pre fabricated by the manufactures as per details shown in drawings / design including bending to shape, fabrication, testing, erection and hoisting, all protective painting as per detailed specifications, erection /launching etc. with all necessary test as per technical specification and direction of the Engineer -in -charge complete. This shall include necessary testings of all material, fabrication quality tests & all others tests as specified in the technical specifications of the work & good engineers practice. All material shall be got approved by engineer in charge before using for any fabrication.	MT	290.00	152426.40	44203656.00
5.08	Supplying, Fabricating & erection of Structural steel work in welded, built up section with steel of E410 grade BR conforming to IS 2062, specially fabricated at site or pre fabricated by the manufactures as per details shown in drawings / design including bending to shape, fabrication, testing, erection and hoisting, all protective painting as per detailed specifications, erection /launching etc. with all necessary test as per technical specification and direction of the Engineer -in -charge complete. This shall include necessary testings of all material, fabrication quality tests & all others tests as specified in the technical specifications of the work & good engineers practice. All material shall be got approved by engineer in charge before using for any fabrication.	MT	1800.00	152426.40	274367520.00
5.09	Supplying, fitting and fixing in position true to line and level POT- PTFE bearing consisting of a metal piston supported by a disc or unreinforced elastomer confined within a metal cylinder, sealing rings, dust seals, PTFE surface sliding against stainless steel mating surface, complete assembly to be of cast steel / fabricated structural steel, metal and elastomer elements to be as per IRC: 83 part I & II respectively and other parts conforming to BS:5400, section 9.1 & 9.2 and clause 2006 of MORTH Specifications complete as per drawing and approved technical specifications. Spec. No.: MORT & H – 2000 & 2200				
	1200 MT capacity Bearing - 2 Nos	MT	2400.00	240.45	577080.00
	500 MT capacity Bearing - 4 Nos	MT	2000.00	240.45	480900.00
	Total of Section 5				353574543.34
	Grand Total - Sub Section : 6.1 Civil Works				412555226.50



6.2 BILL OF QUANTITIES

Architectural Finishes

SubSection 6.2 : BILL OF QUANTITIES FOR ARCHITECTURAL FINISHES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
I FLOORING, SKIRTING & CLADDING					
1.0	Providing and laying approved machine cut, flamed Granite stone slabs of approximately 1500mm x 300mm size, in floors, ramps and landings , (in required shade, size & thickness as specified below), in pattern / in combination with other stone slabs, as shown in drawings, including 20 mm thick cement mortar bedding 1 : 4 (1 cement : 4 coarse sand), with neat white cement slurry floated over bed mortar pigmented to match the shade of stone slab, joints to have hairline finish (unless otherwise specified) and finished with matching coloured pigment and white cement, curing, rubbing, polishing, flaming to achieve the desired finish to the satisfaction of the architect, washing, cleaning, making cut out for services etc. complete as per drawings, specifications and as directed by the Engineer.				
(Basic Rate of Flamed Granite shall be Rs. 200 per Sft.)					
1.1	In machine cut, flamed Granite stone slabs, minimum 18 mm thick in approved shade & size for flooring	Sqm.	2847	5449.50	15,514,726.50
2.0	Providing and fixing approved machine cut, flamed Granite stone slabs (in required shade, size & thickness as specified below), in skirting 100 mm high , on walls, bunds & columns etc. including 15mm thick backing coat of cement mortar in 1:3 (1 cement : 3 coarse sand), fixing with white cement paste with matching pigment for joints, joints to match with the line of floor joints, edge polishing, polishing, flaming to achieve the desired finish to the satisfaction of the architect etc. complete as per drawings, specifications and as directed by the Engineer.				
2.1	In machine cut, flamed Granite stone slabs, minimum 18mm thick in approved shade & size for skirting	Rmt.	675	483.00	326,025.00
3.0	Providing and laying approved machine cut, flamed Granite stone slabs (in required shade, size & thickness as specified below) , in one piece upto 1.5 m length with machine cut edges for treads of steps with rounded nosing, engraving three nos., longitudinal anti-skid grooves 25 mm apart (size 6 mm wide, 3 mm deep) including the under layer of 20mm thick grey cement mortar of 1 : 4 (1 cement : 4 coarse sand) mix, cement float pigmented to match the shade of the stone slab, filling joints with neat cement slurry leveling and matching coloured pigments & white cement, compaction, curing, washing, cleaning, rubbing, polishing, flaming to achieve the desired finish to the satisfaction of the architect etc. complete as per drawings, specifications and as directed by the Engineer.				
3.1	In machine cut, flamed Granite stone slabs, minimum 18mm thick in approved shade & size for treads	Sqm.	58	6793.50	394,023.00
4.0	Providing and fixing approved machine cut, flamed Granite stone slabs (in required shade, size & thickness as specified below), in risers of steps , in pieces not less than 1.5 m length each, including 15mm thick cement mortar in 1 : 3 (1 cement : 3 coarse sand) backing coat, fixing in white cement slurry paste with matching pigment for joints, grooves as specified, joints to match with the line of floor joints, edge polishing, cleaning, curing, polishing, flaming to achieve the desired finish to the satisfaction of the architect etc. complete as per drawings, specifications and as directed by the Engineer.				
4.1	In machine cut, flamed Granite stone slabs, minimum 18mm thick in approved shade & size for risers	Sqm.	16	5806.50	92,904.00
5.0	Providing and laying approved machine cut, flamed stone slab in copings, sills, ledges, over bund walls or any other location (as specified below), in sizes and in pattern as shown in drawings, including 20mm thick cement mortar bedding 1:3 (1 cement : 3 coarse sand), fixed in white cement slurry floated over bed mortar pigmented to match the shade of stone slab, joints to have hairline finish (unless otherwise specified) and finished with matching coloured pigment and white cement, curing, rubbing, polishing, washing, cleaning, approved fixing arrangements, finishing of all stone edges before fixing, edge nosing / chamfering, flaming to achieve the desired finish to the satisfaction of the architect, making grooves wherever required etc., complete as per drawings and details, and as directed by the Engineer.				
5.1	In copings,sills, ledges, over bund walls etc. using machine cut, flamed Granite stone slabs, minimum 18mm thick, upto 300mm width	Rmt.	675	3627.75	2,448,731.25

SubSection 6.2 : BILL OF QUANTITIES FOR ARCHITECTURAL FINISHES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
6.0	Providing and fixing machine cut, flamed Granite stone slab (as specified below) in Wet Cladding in approved shade, size and in pattern / in combination with other stones & thickness as specified below to masonry / concrete surfaces wherever called for with slab of approved size, with machine cut edges laid, including backing coat of 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand), fixed in white cement slurry, joints pigmented to match the shade of stone slabs, curing, rubbing, polishing, flaming to achieve the desired finish to the satisfaction of the architect etc. complete including providing and installing SS cramps / pins of approved design & conforming to SS 316 Grade with matching recesses in slab.				
	The slab shall be fixed in patterns including providing edge moulding, polishing, including cutouts if required for electrical fittings etc. all as per approved shop drawings and as directed by the Engineer. The holes drilled shall be grouted with nonshrink grout with matching pigment. The item includes necessary staging / scaffolding wherever required for all heights, leads & levels.				
6.1	Wall Cladding using machine cut, flamed Granite stone slabs, minimum 18mm thick in approved shade & size	Sqm.	375	6982.50	2,618,437.50
7.0	Providing and laying, exterior grade wooden deck flooring (Series : IPE, Type : Brazilian Walnut, Colour : Natural manufactured by Xylos Arteriors India Pvt. Ltd. or approved equivalent) in 1500mm x 90mm size & 19mm thick sized planks, air dried to moisture content not exceeding 12%, tested for strength as per ASTM-D143 & for slip resistance as per ASTM C-1028-89 and laid in approved pattern and in required position on base frame work made out of salwood battens of 60mm x 30mm size at 450mm c/c (one way) drilling & fixing to the floor base using concrete screws with rawl plug or any other approved fixing arrangements.				
	The salwood frame work shall be treated with approved wood preservative. The IPE decking shall be fixed to the base battens by drilling counter sunk wooden screws or any other approved fixing arrangements and the sides of the planks shall be joined by approved clipping arrangements including providing joints of 2 to 3mm, finished with linseed oil, all accessories for fixing, cleaning the base of the floor etc. complete including providing 10 years performance guarantee on approved proforma for the entire installed system all as per manufacturer's specifications, detailed shop drawings and as directed by the Engineer. The rate shall include cleaning the surface, supply & fixing the base frame work, supply & installation of wooden plank flooring , polishing etc complete.	Sqm.	557	9360.75	5,213,937.75
8.0	Providing & laying cement concrete screed upto 60 mm thickness using 20 mm nominal size stone aggregate in 1:2:4 grade mix (1 cement : 2 coarse sand : 4 graded stone aggregate) below the floors as an underlayer for making up levels in floors / floor trunking etc. in proper slope & gradient, including shuttering, cleaning & preparing the base etc. complete all as per specifications and as directed by the Engineer .	Sqm.	Rate Only	1720.00	
9.0	Providing and fixing satin finished Stainless Steel (conforming to SS 316 Grade) "T-shaped" separators / strips of 12mm x 50mm size in flooring / cladding / ceiling at junctions of dissimilar finishes or as directed, at all indicated locations, including fixing the same with approved adhesive and sealing the joints etc. all as per detailed drawings, sketches and as directed by the Engineer.	Rmt.	50	1134.00	56,700.00
SUB TOTAL					26,665,485.00
II STAINLESS STEEL CLADDING					
1.0	Providing, and fixing in position, silver mirror finished Stainless Steel sheet cladding in straight or curvilinear architectural profile comprising of 2mm thick stainless steel sheets / panels with 9mm thick Bison board backing including supporting approved aluminium framework made out of mill finished extruded aluminium sections (of Jindal series or approved equivalent) of alloy HE-9-WP conforming to IS:733 and approximate size of 75mm x 40mm at approximately 450 mm c/c both ways, treating the plywood surfaces with two coats of approved anti-termite treatment, providing and fixing 20mm x 12mm size SS edge lipping finished to match the cladding panels, including welding by using special electrodes, grinding, buffing the edges (joints not to be visible), all accessories such as screws, nuts, countersunk bolts, washers, spacers, gaskets etc., necessary scaffolding / staging for all heights, leads & levels etc. all complete as per approved shop drawings, technical specifications and as directed by the Engineer.	Sqm.	2413	13833.75	33,380,838.75

SubSection 6.2 : BILL OF QUANTITIES FOR ARCHITECTURAL FINISHES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
	SUB TOTAL				33,380,838.75
III	TENSILE FABRIC ROOFING				
1.0	Design, Supply, fabrication & erection of outdoor tensile fabric roofing system using exterior grade tensile fabric made out of pre-stressed composite material of high tenacity polyester yarn with high density embossed glossy acrylic coating & waterproof finish of approved brand, shade, texture / design, quality and laid by keeping the yarns absolutely straight by two way tensioning as per manufacturer's specifications and comprising of :				
	(i) Approved tensile fabric : having performance characteristics including dimensional stability, excellent UV resistance, heat and weather protection,color retention and strength for long-term aesthetics and durability.				
	The fabric shall conform to the following specifications : Base Fabric : 100% PES / 1100 dtex, Fabric weight : 900 g/m2 (+/- 5%), Breaking Strength (Warp/Weft) : 4000 N / 5cm, Tearing Strength (Warp) : 600 N, Tearing Strength (Weft) : 500 N, Adhesion : 120 N / 5cm, Light fastness : 7 to 8, Light Transmission : 6.5%, Reflection : 89%				
	The fabric shall be fixed to the steel profile using aluminium extrusions or flat bars. The fabric shall be pretensioned to the required value to acheive the required shape as per architectural intent. The item shall include for welding of seams, preparing corner stiffeners etc. including providing through treads for rigidity purpose.				
	The fabric panels shall be of atleast four to five different colours as selected and approved by the Architect to impart a multi-coloured facet to the tensile fabric roofing system				
	(ii) G. I. tensile cable with Stainless Steel turn buckle, G.I. rings, G. I. clasp hooks, locking devices, accessories etc. The G. I. cable may be passed through the seam of the fabric or clasped to the fabric.				
	(iii) All Stainless Steel components shall be of non magnetic type, grade 316 conforming to American Iron & Steel institute and the surface shall be satin finish. The whole assembly shall be fabricated and fixed taut to the main structural steel frame work (The main structural steel frame work & painting over steel shall be measured and paid separately under relevant item)				
	by means of MS brackets & G.I. hooks at appropriate angle as per approved shop drawings including all necessary materials, fabrication / assembly, machining, installation in required position, tensioning the system, buffing, polishing, welding, scaffolding, staging etc. all as per manufacturer's guidelines, approved shop drawings and as directed by the Engineer.				
	Note : The rate quoted shall deemed to include for necessary samples / mock-up for the approval of the Engineer. The contractor shall submit fabrication shop drawings for work involved based on indicative drawings for approval by the Engineer. The fabrication work shall start only after approval of the fabrication shop drawings. Any change required in the fabrication drawings shall be carried out at no extra cost. The contractor shall guarantee the proper performance of the entire installed system for a period of ten years from the date of final completion of the work.				
	Measurement: The item shall be measured in Sqm. corrected to two decimal for the finished work in net area in girthed profile as per approved shop drawings of the tensile fabric after installation. Allowance for sag etc. shall be taken care by the contractor in his quoted price. The rate shall include for the entire installation as specified.	Sqm.	1730	15162.00	26,230,260.00
	SUB TOTAL				26,230,260.00
IV	RAILINGS				
1.0	Designing, supplying, fabricating, assembling, erecting and fixing to precise line and levels, Modular glass railing (of approved brand / make) in required straight / inclined / curvilinear architectural profile as shown in the drawings, using floor fixed balustrade system with satin finished stainless steel pipe rails & plate balusters, upto 1200mm high from the finished floor level (for all locations as indicated in the drawings) consisting of the following including profile cutting, fixing in position, necessary SS anchor fasteners / approved fixing arrangements, welding using special electrodes for stainless steel welding, accessories like SS bars, SS connectors, sealants, gaskets, provision of 15 to 20mm wide grooves / slits for fixing LED strip light fixtures as per design, scaffolding / staging if required, buffing, cleaning etc. complete as per approved shop drawings, technical specifications and as directed by the Engineer.				
	i) Top SS rail : 1 No. Stainless Steel dia. 50mm (OD) x 1.5mm thick top pipe rail welded to the vertical balusters				

SubSection 6.2 : BILL OF QUANTITIES FOR ARCHITECTURAL FINISHES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
	ii) Vertical Balusters / Posts : 100mm x 12mm thick SS plate balusters fabricated to shape as indicated in the drawing at minimum 1500mm c/c as shown in the drgs, fixed to the base slab with 10mm thick MS galvanised base plate, SS anchor fasteners and covered with SS cover.				
	iii) Glass Panels : The glass for railing shall be 13.52mm thick (6mm + 1.52mm PVB film + 6mm) toughened laminated glass fixed to the railing with SS 304 Grade spiders including all accessories, screws, bolts, necessary welding etc. Each glass panel shall be in a single piece and in the required size as shown in the drawings. All visible edges of the glass shall be machine polished.				
	All stainless steel shall be of non magnetic type stainless steel conforming to grade 316 of AISI, with minimum wall thickness of 1.5 mm for horizontal pipe rails & minimum 3mm thick for vertical plate posts / balusters. The item also includes providing and fixing rigid type, high impact, smooth 0.8mm thick Teflon separators (both side) between dissimilar metals (MS & SS) or other non-conducting materials, necessary scaffolding / staging wherever required, bending / curving as per required architectural profile all as per approved shop drawings, manufacturer's specifications and as directed by the Engineer.				
1.1	In straight profile	Rmt.	561	33090.75	18,563,910.75
1.2	In inclined profile	Rmt.	675	39711.00	26,804,925.00
2.0	Designing, supplying, fabricating, assembling, erecting and fixing to precise line and levels and in required architectural profile, two point side fixed Modular satin finished stainless steel pipe railing (of approved brand / make) 1000mm high (For entrance ramp or any other location) from the finished floor level consisting of the following including profile cutting, fixing in position, welding using special electrodes for stainless steel welding, accessories like SS bars, SS connectors, fixing to the floor slab with epoxy painted mild steel base plates and high tensile SS anchor fasteners (manufactured by Hilti or approved equivalent) , necessary scaffolding / staging if required, buffing, cleaning etc. complete as per approved shop drawings, technical specifications and as directed by the Engineer.				
	i) Dia 50mm (OD) top SS pipe rail - 1 No. connected with SS brackets to the vertical balusters with 16mm dia. SS connectors in SS 316 Grade				
	ii) Dia 25mm (OD) intermediate SS rail - 3 Nos. spaced equally & connected to the balusters				
	iii) Dia. 50mm (OD) x 3mm thick SS pipe balusters fabricated to shape as indicated in the drawing at 1200mm c/c as shown in the drgs, fixed to the base concrete slabs / treads with 135mm x 135mm x 10mm thick MS base plate and SS anchor fasteners in SS 316 Grade.				
	The railing pipe shall be of non magnetic type Stainless Steel conforming to Grade 316 of AISI (as specified below), with minimum wall thickness of 1.5 mm for horizontal pipe rails & 3mm thick for vertical pipe balusters. The item also includes providing and fixing rigid type, high impact, smooth 0.8mm thick Teflon separators (both side) between dissimilar metals (MS & SS) or other non-conducting materials, provision of 15 to 20mm wide grooves / slits for fixing LED strip light fixtures as per design, necessary scaffolding / staging wherever required, bending / curving as per required architectural profile all as per approved shop drawings, manufacturer's specifications and as directed by the Engineer.	Rmt.	25	15697.50	392,437.50
3.0	Designing, supplying, fabricating, assembling, erecting and fixing to precise line and levels and in required architectural profile, satin finished Stainless Steel Handrails (For stairways or any other location as indicated in the drawings) (of approved brand / make) using 50mm (OD) dia. x 1.5mm thick SS pipe rails. The pipe rails shall be connected with SS brackets using 20mm dia. SS rods bent to required shape and profile and anchored to concrete / masonry wall or floor slab surfaces				
	at 1200mm c/c with necessary SS base plates of 75mm dia. size x 8mm thick & SS anchors including profile cutting, fixing in position, welding using special electrodes for stainless steel welding, accessories like SS bars, SS connectors, provision of 15 to 20mm wide grooves / slits for fixing LED strip light fixtures as per design, scaffolding / staging if required, buffing, cleaning etc. complete as per approved shop drawings, technical specifications and as directed by the Engineer. The height of the horizontal pipe rail shall be 1050mm from the finished floor level.				

SubSection 6.2 : BILL OF QUANTITIES FOR ARCHITECTURAL FINISHES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
	The railing pipe shall be of non magnetic type stainless steel conforming to grade 316 of AISI as specified below, with minimum wall thickness of 1.5 mm. The item also includes providing and fixing rigid type, high impact, smooth 0.8mm thick Teflon separators (both side) between dissimilar metals (MS & SS) or other non-conducting materials, necessary scaffolding / staging wherever required, bending / curving as per required architectural profile all as per approved shop drawings, manufacturer's specifications and as directed by the Engineer.	Rmt.	25	1596.00	39,900.00
	SUB TOTAL				45,801,173.25
V	MASONRY, PLASTERING & PAINTING				
1.0	Providing and constructing precast solid block masonry in cement mortar 1:4 (1 cement : 4 coarse sand) using cement concrete blocks of approved mix design and having minimum crushing strength of 5N/Sqmm, conforming to IS : 2185 (Part- I), at all levels as mentioned below including RCC M20 grade band 75 mm thick x 100 mm wide, at 1000mm c/c to correct line, level and plumb including providing independent double legged scaffolding, racking out of joints, curing etc., complete as per drawing and specifications and as directed by the Engineer. <i>(RCC elements will be measured and paid for separately. Area occupied by RCC band and stiffeners will be deducted from masonry).</i>				
1.1	In 100mm thick (nominal dimension) precast solid concrete block masonry	Sqm.	85	1281.00	108,885.00
2.0	Providing and applying minimum 18 mm thick external sand faced cement sand plaster in two coats , first coat to be 12 mm thick cement sand mortar 1:5 (1 cement : 5 coarse sand) including mixing approved pure acrylic based water proofing compound in the proportion recommended by the manufacturer in both the layers, keeping the surface of the base coat rough to receive sand faced treatment. Second coat to be 6 mm thick in cement sand mortar 1:3 (1 cement : 3 coarse sand) , finishing the surface, by taking out grains or keeping the surface rough with sponge				
	to receive finishing work or as required to receive specified architectural external finish, to correct line, plumb and level to external faces of walls, soffits/ceiling if any, including racking out junctions of masonry and concrete and other dissimilar materials, hacking closely concrete surfaces, apply chemical adhesive coating to concrete surfaces wherever required and then apply a scratch coat plaster (prior to main plaster for positive bond), independent double legged scaffolding etc. Item also include plastering to precast concrete sills, concrete cornices, making wattas, drip moulds, pattas, grooves (other than specially listed hereunder) etc. curing, cleaning, etc. all complete as directed by the Engineer.	Sqm.	1094	414.75	453,736.50
3.0	Providing & fixing G.I. Hexagonal chicken wire mesh of 19 size of aperture (12mm x 20 guage) confirming to IS : 3150 at the junction of dissimilar surfaces of brick / block masonry wall and RCC column / beams and the like including necessary "U" nails / screws with cleats for fixing, overlapping etc. complete all as per specification and as directed by the Engineer for all height and all locations.	Sqm.	91	105.00	9,555.00
4.0	Providing & applying two coats of Acrylic smooth exterior paint to the external surfaces whether plastered or form finished, using exterior first quality anti-fungal anti-algal anti-carbonation water resistant sun reflective acrylic co-polymer latex based elastomeric weather shield paint of approved brand, quality and in approved shade, applied @ 1.67 Litres / 10 Sqm over a coat of special grade alkali resistant primer applied @ 2.20 Kg /10 Sqm including preparing the base surface, attending to broken edges, corners or patches of plastered surface and filling with cement sand grout, cleaning & preparing , providing & applying STC biocide, watering & curing for the required period, manufacturer's warranty of 10 years for the entire paint system, necessary scaffolding / staging etc. complete for all leads, heights & levels as per manufacturer's guidelines, technical specifications and as directed by the Engineer.	Sqm.	924.00	309.75	286,209.00
	SUB TOTAL				858,385.50
VI	GRANITE STONE SEATING				

SubSection 6.2 : BILL OF QUANTITIES FOR ARCHITECTURAL FINISHES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
1.0	Providing and laying approved machine cut, flamed stone slab in seating (as specified below), in sizes and in pattern as shown in drawings, using minimum 40mm thick machine cut, flamed Granite stone slabs, upto 700mm width with cement mortar bedding in 1:3 (1 cement : 3 coarse sand), fixed in white cement slurry laid over supporting base slab of 40mm thick unpolished Kadappa Stone.				
	joints finished with matching coloured pigment and white cement, curing, rubbing, polishing, washing, cleaning, approved fixing arrangements to the masonry wall, finishing of all stone edges before fixing, rounded edge nosing / chamfering, flaming to achieve the desired finish to the satisfaction of the architect, making grooves wherever required etc., complete as per drawings and details, and as directed by the Engineer.				
	Note : Block Masonry Work shall be measured and paid separately under relevant item.				
1.1	In seating using minimum 40mm thick machine cut, flamed Granite stone slabs, upto 700mm width	Sqm.	84	10368.75	870,975.00
	SUB TOTAL				870,975.00
VII	LANDSCAPING WORK				
1.0	Supplying and planting large flowering / shady trees by digging pit with minimum size as mentioned in the technical specifications, removing and conveying unwanted stuff / surplus soil to contractor's own disposal ground, filling the pit with approved excavated material upto a height of 0.30 Mtr. and providing & filling remaining height of 0.60m.				
	with fresh agricultural soil and manure in 2:1 proportion, mixing the agricultural soil & manure thoroughly, well leveling, watering on previous night including providing & planting one or two year old healthy trees sapling as detailed below and maintaining till well established by watering, weeding, stirring of soil replacing of casualties etc. complete all as directed by the Engineer.				
1.1	Plumeria alba (Champa) minimum 0.5m sapling height standard flowering tree	Each	15	1123.50	16,852.50
1.2	Polyalthia longifolia minimum 1m sapling height standard shaded tree	Each	Rate Only	829.50	
1.3	Azodirachta indica minimum 1.5m sapling height standard instant tree	Each	Rate Only	945.00	
1.4	Spathadia Campanulata minimum 1.5m height standard flowering tree	Each	Rate Only	960.75	
2.0	Preparing Lawn / Turf grass / Ground Cover by excavating the ground to a required depth of 30 cms., removing & disposing the unwanted stuff / surplus soil to contractor's own disposal ground, providing & filling fresh approved agricultural soil & manure in excavated area in 1 : 1 proportion to a height of 30 cms.				
	mixing approved agricultural soil and manure thoroughly well, leveling, watering on previous night, including providing & planting required variety of lawn grass as specified below and maintaining till well established by watering, weeding and clipping, rolling etc. complete all as per the detailed drawings, technical specifications and as directed by the Engineer.				
	The item shall include for providing and laying approved geo-textile (made out of approved high density polypropylene resin) membrane system over inclined surfaces of embankment for slope protection including providing necessary overlaps, anchors etc. wherever required all as per manufacturer's specifications and as directed by the Engineer.				
1.1	Cynodon dactylon (Scutch grass) tile ground cover	Sqm.	92	162.75	14,973.00
1.2	Wedelia Trilobata - minimum 150mm overall height, @ 250mm c/c ground cover	Sqm.	Rate Only	210.00	
	SUB TOTAL				31,825.50
VIII	SCULPTURE WORK				
1.0	Designing, supplying, fabricating, assembling, erecting and installing approved " Kinetic Kite Themed Sculpture " of approved size, design, in architectural shape & profile including all materials, transportation, labour, tools & tackles, equipment, movable components & accessories, all MEP works, fixtures, finishing works, scaffolding / staging, etc. complete all as per approved shop drawings and as directed by the Engineer.	Job	2	2100000.00	4,200,000.00
	SUB TOTAL				4,200,000.00

SubSection 6.2 : BILL OF QUANTITIES FOR ARCHITECTURAL FINISHES					
Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
IX	MISCELLANEOUS ITEMS				
1.0	Providing, fabricating and installing, in, position, approved exterior grade factory made Stainless Steel grating system (of approved make & quality) of SS 316 Grade in panels of 300mm width and made out of 12mm x 12mm SS welded plain square edge flat bar gratings with forged bearing bar / cross bar intersection at required spacing (both ways), fixed with nosing SS angle of 60mm x 40mm x 6mm size including all accessories such as clips, cleats etc. complete all as per approved shop drawings, manufacturer's specifications and as directed by the Engineer.	Sqm.	31.00	17661.00	547,491.00
	Note : a) Stainless steel shall have minimum nickel content of 10%.				
	b) The contractor shall furnish necessary laboratory test certificate to authenticate the quality and requirements of the grating as per the specific site requirements as approved by the Engineer.				
2.0	Providing and installing in position, Stainless Steel Dust Bin of approved make and of 900mm length x 700mm height x 450mm width & 50 litres capacity, and made out of SS 304 Grade, with allocation of dual storage for dry & wet waste and provision to place the garbage bag inside all as per manufacturer's specifications and as directed by the Engineer.	Each	4	23037.00	92,148.00
3.0	Providing and fixing approved HDPE pipe of 150mm (OD) for rainwater downtake with drainage spout including corecutting of required size in bridge deck slab, installing the pipe in required position with pipe projection of minimum 300mm below the slab, making connections with all accessories and fittings, grouting, necessary scaffolding / staging etc. complete as per drawings and as directed by the Engineer	Each	16	1569.75	25,116.00
4.0	Designing, fabricating, assembling & installing in position, roof /ceiling suspended signages of approximately 2000mm x 300mm size and of approved design, thickness and quality, including main signage body & frame made out of approved minimum 35 microns PVDF coated aluminium sheets of required thickness & made out of alloy HE-9-WP conforming to IS : 733, necessary lighted box with panaflex signage panel, required text alphabets in English or any other language in fonts of indicated height, finishing of panel background in approved shade, provision for concealed light fixtures and				
	cabing with LED backlit features on both faces, all accessories such as suspenders, screws, studs etc., approved suspension system made out of epoxy painted M.S framework if required, providing openable panels of required size for maintainence, provision of level & joint adjustment features for alignment, scaffolding / staging at all heights and locations all as per architectural details and approved shop drawings, manufacturer's specifications and as directed by the Engineer.	Each	4	54337.50	217,350.00
	SUB TOTAL				882,105.00
	GRAND TOTAL (I TO IX) (RS.)				138,921,048.00



6.3 BILL OF QUANTITIES ELECTRICAL

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
	Note- 1) The works shall be executed by competent & proven A class electrical contractor.				
	2) Contractor has to identify the light fitting suitable for the lighting scheme & control system and has to submit 3D lighting simulation for Architects's Approval.				
	3) The procurement of light fittings shall be initiated only after Architect's Approval to the 3D lighting simulation.				
	4) All light fixtures shall have IP				
I	LED Light Fixtures & Controllers				
	Supply, Installation, Testing & Commissioning of following LED light fixtures & Controllers along with all required drivers, accessories, outdoor				
a	Linear LED Light Fixture (IP67) for Bridge Entrance frame	meter	100	1,500	150,000.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref -iColor flex MX Gen2				
	Bajaj Cat. No./Ref -BENP 47AL PL				
	Point Lights * LED Brand: CREE/Osram * Power Consumption: 1W/PC; 5PCs/m * Input Voltage: DC24V * LED Color: RGBW * Control method: DMX 512 * Beam Angle: 120 Degree * Protection class: IP67				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. iColor flex MX Gen2				
b	Uplighter 30W LED Light Fixture (IP67) Natural White 4000K (Wide Beam Uplighter With 41 Degrees Beam Angle.) for fabric	No.s	96	32,000	3,072,000.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - eW Burst				
	Bajaj Cat. No./Ref -BENP 41AL RP-B Series				
	Round Projector * LED Brand: CREE /Osram * Power Consumption: 30W * Input Voltage: AC 220V * LED Color: 4000K * Control method: ON/OFF function only * Beam Angle: 38 Degree, COB + Reflector * Protection class: IP67				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. eW Burst Powercore - 41° spread lenses				

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
c	Linear LED Light Fixture (IP67) for Railing	meter	1000	1,500	1,500,000.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - iColor flex MX Gen2				
	Bajaj Cat. No./Ref -BENP 47AL PL Series				
	Point Lights * LED Brand: CREE/Osram * Power Consumption: 1W/PC; 5PCs/m * Input Voltage: DC24V * LED Color: RGBW * Control method: DMX 512 * Beam Angle: 120 Degree * Protection class: IP67				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. iColor flex MX Gen2				
d	Wall Mounted 8.5W LED Light Fixture	No.s	10	3,800	38,000.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - City Cube Wall Mount Vertical BWS400 LED05 V CW PSU GR S				
	Bajaj Cat. No./Ref -BENP 45AL WP-S				
	Wall Lights * LED Brand: CREE/Osram * Power Consumption: 6W * Input Voltage: AC 220V * LED Color: 4000K * Control method: ON/OFF function only * Beam Angle: 5x10 Degree, LED + Reflector * Protection class: IP67				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. City Cube Wall Mount Vertical BWS400 LED05 V CW PSU GR S				
e	Uplighter 12W LED Light Fixture (IP67) - Warm White 3000K for Tree	No.s	10	7,393	73,930.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - BGP310 3xLED - HP/WW 220-240V 12 1N				
	Bajaj Cat. No./Ref -BENP 41AL RP-A Series				
	Round Projector * LED Brand: CREE /Osram * Power Consumption: 9W * Input Voltage: AC 220V * LED Color: 4000K * Control method: ON/OFF function only * Beam Angle: 30 Degree, LED + Lens * Protection class: IP67				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. BGP310				

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
f	Uplighter 30W LED Light Fixture (IP67) - Multicolour (Narrow/ Wide Beam Uplighter With 8 Degrees/ 41 Degrees Beam Angle.) for Highlighting Bridge Structure	No.s	128	41,288	5,284,864.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - ColorBurst Powercore - 8°/ 41° primary optic				
	Bajaj Cat. No./Ref -BENP 41AL RP-B Series				
	Round Projector * LED Brand: CREE /Osram				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. ColorBurst Powercore - 8°/ 41° primary optic				
g	Uplighter 30W LED Light Fixture (IP67) - Natural White 4000K (Narrow Beam Uplighter With 8 Degrees Beam Angle.) for Sclupture	No.s	4	41,288	165,152.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - Color Burst Compact Power core 8° primary optic				
	Bajaj Cat. No./Ref -BENP 41AL RP-B Series				
	Round Projector * LED Brand: CREE /Osram * Power Consumption: 24W * Input Voltage: AC 220V * LED Color: 4000K * Control method: ON/OFF function only * Beam Angle: 5 Degree * Protection class: IP67				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No Color Burst Compact Power core 8° primary optic				
h	Pole Mounted 27W LED Light Fixture(IP67) including bolting type FRP pole with integrated junction box concealed inside pole for Central Area Deck. The height of FRP pole shall be 3.5m	No.s	20	17,823	356,460.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - Smart Post Top G3 – BGP161				
	Bajaj Cat. No./Ref - 3350 Garda 1 wide beam (Disano)				

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
	Post Top * LED Brand: CREE /Osram * Power Consumption: 32W * Input Voltage: AC 220V * LED Color: 4000K * Control method: ON/OFF function only * Beam : Wide Beam * Protection class: IP67				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. Smart Post Top G3 – BGP161				
i	Surface Mounted Waterproof 90 LED Light Fixture(IP67) for staircase	No.s	12	15,842	190,104.00
	Make - Philips/Bajaj/Crompton Greaves /Schreder				
	Schreder Cat. No./Ref - OMNISTAR OMNIOB				
	Philips Cat. No./Ref - Equivalent of Schreder Cat. No. OMNISTAR OMNIOB NW				
	Bajaj Cat. No./Ref - Equivalent of Schreder Cat. No. OMNISTAR OMNIOB NW				
	Crompton Greaves Cat. No./Ref - Equivalent of Schreder Cat. No. OMNISTAR OMNIOB				
j	<ul style="list-style-type: none"> • Lighting Controller including controller keypad, in-built weather clock, USB and Ethernet connectivity ports for programming / control/ network communication/ controlling lighting remotely (Philips Cat. No- iPlayer Gen 3) - 2 No.s • Data Enabler PDS series suitable for iPlayer Gen 3 (Outdoor type - IP67) - 20 No.s • Including required No. of - DMX splitter/Boosters & Suitable Connectors, suitable junction boxes-IP67 ("weatherproof" resistant to weather influences -UV due to solar radiation, protected against rainwater, temperature resistant, impact resistant, etc.; saltwater-proof; "offshore applications"; external brackets for wall fixing included) & accessories complete, to run dimming & lighting control system as per Architect's Concept. 	Lot	1	902,584	902,584.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - iPlayer Gen 3 & Suitable PDS series				
	Bajaj Cat. No./Ref - Equivalent of Phillips Cat. No. iPlayer Gen 3 & Suitable PDS series				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. iPlayer Gen 3 & Suitable PDS series				

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
k	LED 4W- Foot Lights- 4000K (IP67) - Floor Washer	No.s	62	7,393	458,366.00
	Make - Philips/Bajaj/Crompton Greaves				
	Philips Cat. No./Ref - BWG150 LED50/NW/WW PSU 220-240V IP67 7043				
	Bajaj Cat. No./Ref - Equivalent of Phillips Cat. No. BWG150 LED50/NW/WW PSU 220-240V IP67 7043				
	Crompton Greaves Cat. No./Ref - Equivalent of Phillips Cat. No. BWG150 LED50/NW/WW PSU 220-240V IP67 7043				
l	DMX Cable suitable for Phillips - iPlayer Gen 3 or equivalent	meter	400	171	68,400.00
m	Sharpy 75WLED Light Fitting in IP67 enclosure	No.s	6	180,000	1,080,000.00
	Light Source: High power RGBW LED Light source, Zoom Range:8° to 43° + pseudo zoom 1° to 43°, Prism Type:4-facet rotating prism, Color temperature range:2000K - 10000K, Efficacy:15.5 lm/W with all required mounting fixtures, cables, brackets & flightcases complete				
	SUBTOTAL - LED Light Fixtures & Controllers				13,339,860.00
II	Sockets				
	Supply, Installation, Testing & Commissioning of following with all required accessories, & mounting supports complete.				
a	6/16A (metalclad weatherproof)- switch socket in Weatherproof IP67 enclosure with looping facility and comprising of Single compression Ni-plated brass cable gland along with crimping type(Cu) lugs suitable for 3CX4sq.mm. XLPE, FRLS (Cu) cable - for cleaning & raw power including 1 Phase Cast Aluminium weather proof 4-way, 125 mm (minimum) internal dimensions- junction box with terminals block suitable for 4sq.mm size, with additional earthing terminations. complete.	No.s	6	1,840	11,040.00
b	Supply and Installation of IP67 Weather Proof 63A, 415V, 3PH, 5Pin Industrial Switch Socket Outlet with 63A TPN FLMCB in IP67 enclosure with all		4	3,060	12,240
					23,280.00
III	Earthing & Lightning Arrester				

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
a	Supplying & erecting in earthpit of minimum bore dia. 225mm size ASH or approved make Safe Earthing Electrode consisting Pipe-in-Pipe Technology as per IS 3043-1987 made of corrosion free G.I.Pipes having Outer pipe dia of 80 mm having 80-200 Micron galvanising, Inner pipe dia of 40 mm having 200-250 Micron galvanising, connection terminal dia of 14 mm with constant ohmic value surrounded by highly conductive compound with high charge dissipation suitable for following type of applications.				
	[C] For Electrical Installation covering Transformer Neutrals, Lightning arrester Earthing, A.C.Plant & Sensitive Computer System(like Automation, SCADA)i.e. independent Earthing located in other than normal soil i.e. Soft Rock, Marshy Soil etc.. -Length of Pipe : 3 Mtrs. -Back filling Compound :2 nos Bags of 25 Kg.	No.s	12	26,706	320,476.23
	Supply, installation, testing and commissioning of earthing strip. Bare earthing conductor for inter-connecting the earthing stations and various equipment in built up trenches, walls/ceiling, buried in ground generally as specified and shown on the drawing complete with earthing clamp, saddle, corrosion protection of buried conductors with bituminous coating, Test links (Copper/GI). Job shall included supply and fixing of earth strip with required tools and takels for complete the job with commissioning and handing over without any extra cost				
b	25 mm x 6 mm thick GI strip	m	300	100	30,000.00
c	Supply, installation, testing and commissioning of Lightning Arrester - Early Streamer Type- (Make-Indelec/LPI) as per IS standards, including all required installation accessories- Lightning protection system comprises of Lightning Terminal and mounting arrangement FRP Insulated Mast 5 mtrs long, Protection Level I, Protection Radius 79m, Guy wire assembly Down Conductor and accessories, semi conductor insulated cable, Conductive saddles, Upper termination, Lower termination kit, Maintenance Free earthing System ,Copper bonded ground rod 4ft 5/8" (4 sets), Earth Rod clamp , Copper tape 50 x 0.5 mm, Earth Enhancing Compound G E L 10 Kg Kit etc. complete as shown in the dwg. etc. complete.	No.s	4	98,402	393,608.73

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
	Note: The agency/ contractor providing the lightning protection system shall also give calculations regarding the coverage of the system, adequacy of the single system proposed, mounting height etc.,				
					744,084.96
IV	LT Feeder Pillar & Power Mains Metering Box				
a	LT Feeder Pillar - Outdoor Type	No.s	2	92,000	184,000.00
	Supply, installation, testing and commissioning of Outdoor Type (IP55) LT feeder as follows pillar with required foundation & all required accessories & mounting supports etc. complete.				
	Panel shall be made out of 14/16 SWG CRCA sheet steel.				
	The current density of bus bars shall not exceed 600Amps / sq.inch in respect of AL bus bar & 800A in respect of copper bus bar.				
	Fabrication & mounting shall conform to Technical Specification given under switch boards.				
	Panels shall be provided with twin copper earth bus of rating as per specification along the entire length.				
	Bus Bar - 160A TP&N Cu. busbar + Earth				
	Incomer:				
	1 Nos. of 160A 4Pole MCCB				
	Outgoing:				
	1 No selector switch to select automatic or manual operation				
	2No.s of Astronomical Timers - L & T timer TSQ -ST (daily dial - 1x 24 Hours)				
	2No.s of 25A TPN MCB				
	2No.s of 20A TPN MCB				
	14No.s of 16A TPN MCB				
	All switchgears & accessories shall be of Schneider Electric Make.				
	(Change over switch facility shall be made for transfer of either of feeder pillar's load to one feeder pillar in case of failure or maintenance/service outage.)				
b	Power Mains Metering Box - Outdoor Type	No.s	2	42,000	84,000.00
	Supply, installation, testing and commissioning of Outdoor Type (IP55) Power Mains Metering Box as follows pillar with required foundation & all required accessories & mounting supports etc. complete.				
	Incomer:				
	1 Nos. of 160A 4Pole MCCB				
	3 No- Digital Load Manager of Enercon Make				
	3 Set - 160/5A CT CL0.5 15VA for Measurement				



Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
	3 Set – Indication lamps for R,Y,B, Breaker ON(Red), Breaker OFF (Green), Breaker Trip (Amber) with control fuses / MCB				
	All switchgears & accessories shall be of Schneider Electric Make.				
c	LT Feeder Pillar - Outdoor Type for Socket Power	No.s	2	52,900	105,800.00
	Supply, installation, testing and commissioning of Outdoor Type (IP55) LT feeder as follows pillar with required foundation & all required accessories & mounting supports etc. complete.				
	Panel shall be made out of 14/16 SWG CRCA sheet steel.				
	The current density of bus bars shall not exceed 600Amps / sq.inch in respect of AL bus bar & 800A in respect of copper bus bar.				
	Fabrication & mounting shall confirm to Technical Specification given under switch boards.				
	Panels shall be provided with twin copper earth bus of rating as per specification along the entire length.				
	Bus Bar - 63A TP&N Cu. busbar + Earth				
	Incomer:				
	1 Nos. of 63A 4Pole MCCB				
	Outgoing:				
	4No.s of 63A TPN MCB				
	All switchgears & accessories shall be of Schneider Electric Make.				
	(Change over switch facility shall be made for transfer of either of feeder pillar's load to one feeder pillar in case of failure or maintenance/service outage.)				
	All switchgears & accessories shall be of Schneider Electric Make.				
d	Supply & Installation of Air Cooled 30 KVA Automatic Servo Controlled Voltage Stabilizer for Lighting - outdoor type IP67, duty cycle 100 % and efficiency more than 98 % complete.	No.s	2	60,000	120,000.00
					493,800.00
V	LT Cables & Cable Terminations				
	LT Cables				
	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Aluminium conductor for 1.1 KV. to be laid on wall/ steel structure with necessary clamps or in existing trench / pipe of following size of cables.				
a	3.5C x 70 sq.mm, Aluminium , XLPE, Armoured Cable	meter	650	785	510,250.00
b	3.5C x 50 sq.mm, Aluminium , XLPE, Armoured Cable	meter	650	598	388,700.00
c	3.5C x 25 sq.mm, Aluminium , XLPE, Armoured Cable	meter	225	355	79,875.00
d	4C x 16 sq.mm, Aluminium , XLPE, Armoured Cable	meter	4200	210	882,000.00



Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
e	4C x 10 sq.mm, Aluminium , XLPE, Armoured Cable	meter	625	189	118,125.00
	Providing and erecting XLPE(IS:7098)(I)-88 ISI armoured cable multistrand Copper conductor for 1.1 KV. to be laid on wall/ steel structure with necessary clamps or in existing trench / pipe of following size of cables				
f	4C x 4 sq.mm, Copper , XLPE, Armoured Cable	meter	600	634	380,400.00
g	3C x 2.5 sq.mm, Copper, FRLS PVC Flexible Cable	meter	1500	100	150,000.00
	Cable Terminations				
	Supply & Installation of Cable Terminations including glands/ lugs etc complete(Lugs shall be tinned copper type & glands shall be brass-double compression type.) for				
h	3.5C x 70 sq.mm, Aluminium , XLPE, Armoured Cable	No.s	10	513	5,130.00
i	3.5C x 50 sq.mm, Aluminium , XLPE, Armoured Cable	No.s	10	465	4,650.00
j	3.5C x 25 sq.mm, Aluminium , XLPE, Armoured Cable	No.s	10	347	3,470.00
k	4C x 16 sq.mm, Aluminium , XLPE, Armoured Cable	No.s	200	324	64,800.00
l	4C x 10 sq.mm, Aluminium , XLPE, Armoured Cable	No.s	200	261	52,200.00
m	4C x 4 sq.mm, Copper , XLPE, Armoured Cable	No.s	200	149	29,800.00
					2,669,400.00
VI	PA system				
	Supplying, Installing, Testing & Commissioning of the Public Address system with required foundation & all required accessories & mounting supports etc. complete. consisting of the following:				
a	Supply, Installation, Testing & Commissioning of Audio amplifiers including all necessary control desk and microprocessor based control unit with microphone, BGM, Call Station & PC input along with UPS (Makes- Liebert/APC/Microtek) with suitable capacity including providing necessary rack for mounting the Amplifier.Contractors to decide on the number of amplifiers, depending upon amplifier capacity. Vendor shall calculate & select the capacities of amplifier, related controller, router, call station and keypad. (Contractor shall furnish quantity and unit rate for each type of amplifier considered by him.) (PA system components shall be of makes - Honeywell/Bosch(or equivalent))	Lot	1	395,457	395,457.00

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL,PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
b	Supply, Installation, Testing & Commissioning of 12 watt box type speaker enclosed in a steel enclosure suiting to interior finish (PA system components shall be of makes - Honeywell/Bosch/or equivalent.)	No.s	30	5,000	150,000.00
c	Supply, Installation, Testing & Commissioning of Announcement console complete with microphone and Zone selection (Common for all Zones) (PA system components shall be of makes - Honeywell/Bosch/or equivalent.)	No.s	1	58,167	58,167.00
d	Supply, Installation, Testing & Commissioning of Integrated music source consisting of CD player, tape deck etc for Voice Evacuation & Background Music (should be capable of playing MP3,VCD,CD). (PA system components shall be of makes - Honeywell/Bosch/or equivalent.)	No.s	1	36,346	36,346.00
e	Supplying, installing, testing and commissioning of 2C x 1.5 sq. mm,PVC insulated FRLS Shielded, Twisted Pair and Multi-stranded PVC sheathed Coppr Cable (confirming to IS 1554 Part-1) on wall / ceiling etc with Accessories confirming to IS standards and specifications. The quoted rate shall include cable identification tagging and Acrylic Fire stop Sealant (as per IS 12458:1988) in the opening for cables passing through fire compartment walls of RCC floors, masonry walls to provide up to 2 hours fire rating.	meter	800	220	176,000.00
					815,970.00
VII	CCTV System				
	Supplying, Installing, Testing & Commissioning of the CCTV System				
a	Supply, Installation, Testing & Commissioning of UL Listed IR Vandal proof bullet Camera (IP67) Verifocal Lens with necessary mountings to fix it on the site :- Supply, installation, testing and commissioning of 1/3-inch progressive scan CMOS sensor, 1280(H) x 960 (V) 1.3 MP resolution, built- in IR of 30 mtrs range, 2,8 to 12 mm lens, ONVIF compliant, with SD card slot for onboard storage,H.264 compression, Advanced Digital Wide Dynamic Range,3D DNR , Weather proof IP66 , PoE and 12 V DC redundant DC Power supply Camera shall be FCC, CE, UL and RoHS compliant (CCTV system components shall be of makes - Johnson Controls/Honeywell/or equivalent.)	No.s	12	21,042	252,504.00

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
b	Supply, Installation, Testing & Commissioning of UL Listed IR Vandal proof PTZ Camera (IP67) 1/3-type Exmor CMOS sensor, 1.3 Megapixels, Lens Focal Length 30x Zoom Field of View (FOV) 2.3° - 65°, Auto-focus Zoom Lens Focal length f = 3 - 120 mm, DNR (Dynamic Noise Reduction) technology for clear images with virtually no motion blur under ,IR range with upto 200m IR distance. low illumination, Frame Rate 1080P (1 - 25/30fps) 720P (1 - 25/30fps) Pan Range 360° continuous Tilt Range 0° to ±90° IR distance 100 m (Detection), POE + CCTV system components shall be of makes - Johnson Controls/Honeywell/or equivalent.)	No.s	3	131,750	395,250.00
c	Supply, Installation, Testing & Commissioning of Commercial grade server from IBM/Dell/HP/Lenovo for hosting video management application upto 60 cameras and having the minimum specification as :- processor : 6 core 2.13 GHz, 16 GB RAM, 17TB HDD, complete with RAID, power supply, Windows 2012+ OS, Anti virus ,SQL as required. input along with UPS (Makes- Liebert/APC/Microtek) with suitable capacity	No.s	1	820,000	820,000.00
d	Supply, Installation, Testing & Commissioning of 40" LED Monitor (Makes-Sony/Panasonic/Samsung/LG) for High resolution connection to client workstation	No.s	1	75,800	75,800.00
e	Supply, Installation, Testing & Commissioning of Enterprise level Video Management software with server failover redundancy function for 362 cameras and expandable upto 5000+ cameras.	No.s	1	752,500	752,500.00
f	Supply, installation, testing and commissioning of 10/100/1000 POE switch complete with necessary field rack.(Makes-AMP/Legrand/Equivalent)	No.s	7	56,500	395,500.00
g	Supply, installation, testing and commissioning of 10/100/1000 Managed switch complete with necessary field rack (to accommodate servers also) (Makes-AMP/Legrand/Or Equivalent)	No.s	1	151,500	151,500.00

**Sub Section : 6.3 - BILL OF QUANTITIES FOR ELECTRICAL, PA & CCTV WORKS**

Item No.	Item of Work	Unit	Estimated Quantity	Estimated Rate (Rs)	Amount (Rs)
h	Supply, installation, testing and commissioning armoured CAT 6 Cable in existing Conduit/raceway/cable tray with clamp/sadles/tie as per technical specification etc complete. For CCTV System & Lighting Control System. (Makes-AMP/Legrand/Or Equivalent)	meter	10000	78	780,000.00
i	Supply, installation, testing and commissioning armoured Fiber Optic Cable complete with necessary terminations, LIUs, Pigtails, enclosures,	meter	2000	350	700,000.00
					4,323,054.00
VIII	Hume Pipes & Cable Pull Boxes				
a	HDPE Pipe 50 mm dia - Providing & laying approved make Double walled corrugated pipes (DWC) of polyethylene(conforming to IS 14930 II)with necessary connecting accessories of same material at required depth for laying of cable. below ground / road surface for enclosing cable and back filling the same to make ground as per original.	meter	300	750	225,000.00
b	Supply & Inatallation of Weatherproof Cable Pull Box with cover - medium duty (IP67) concealed in slab 300mm(L)x300mm(B)x50mm(D) complete.	No.s	10	1,000	10,000.00
					235,000.00
IX	Operation, Supervision & Maintenance Charges during DLP of 5 years				
	Note- Contractor shall deploy an qualified professional engineer at site (after completion of project) for Operation, Supervision & Maintenance of Lighting System & other Electrical Installations as per Sabarmati Riverfront Development Corporation Limited's Engineer In-Charge/ Official's Instructions.				
	Additional Cost for Operation, Supervision & Maintenance of Lighting System & other Electrical Installations as per Sabarmati Riverfront Development Corporation Limited's Engineer In-Charge/ Official's Instructions-				
a	For 1st Year	Ls	1	300,000	300,000.00
b	For 2nd Year	Ls	1	330,000	330,000.00
c	For 3rd Year	Ls	1	363,000	363,000.00
d	For 4th Year	Ls	1	399,300	399,300.00
e	For 5th Year	Ls	1	439,230	439,230.00
					1,831,530.00
TOTAL (I TO VII) (RS.)					24,475,979